Protecting what's important...
at home and on the battlefield

PharmAthene

2009 Annual Report

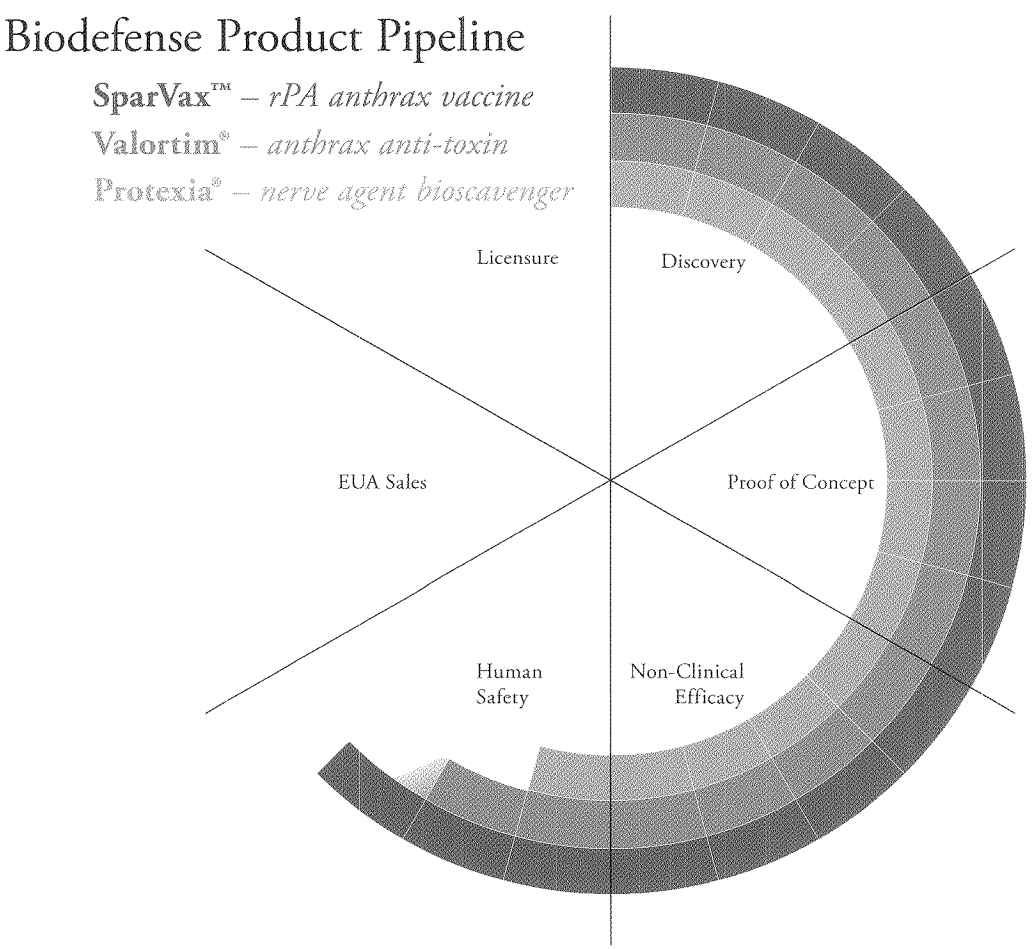
PharmAthene, Inc. (NYSE Amex: PIP) is a leading biodefense company specializing in the development and commercialization of urgently needed medical countermeasures for biological and chemical threats.

PharmAthene's mission is simple—to better protect the nation, its citizens and military through the development and stockpiling of next-generation medical countermeasures that utilize cutting-edge biotechnology to offer significant safety, efficacy and cost advantages over current therapies.

Our business strategy focuses on both acquiring and developing new, best-in-class compounds and technologies identified by the United States and other governments as urgent procurement priorities.

PharmAthene's biodefense product portfolio includes anthrax vaccines for prevention, an anthrax anti-toxin for treatment, as well as a novel chemical nerve agent bioscavenger. Since 2001, the Company has obtained non-dilutive US government funding commitments in excess of $600 million for development of its products. To learn more visit: *www.PharmAthene.com*

PharmAthene: Protecting what's important...at home and on the battlefield.



Dear PharmAthene Stockholders:

Earlier this year in his State of the Union address, President Obama acknowledged the need for an enhanced national focus on biodefense. We applaud the President's recognition of this important priority and support the recommendations for improved bioterrorism preparedness offered by the bipartisan Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism in their report to Congress.

Working in collaboration with industry, the government must be vigilant in its efforts to protect American lives by diversifying and increasing important vaccine and other biodefense countermeasure stockpiles. All of us can recall the supply shortages, long lines and high anxiety millions of Americans experienced surrounding the H1N1 flu vaccine. We cannot afford to be so ill-prepared in the face of a far more deadly bioterrorist attack on our nation. While much has been accomplished, the government has an unprecedented opportunity to strengthen its partnership with PharmAthene and the biodefense industry. By doing so, we can work to minimize the potential impact a biologic attack could have on our shores.

With that backdrop, despite some significant challenges, I am proud to report that in 2009, PharmAthene continued to make progress in our mission to become the global leader in the development and commercialization of best-in-class biodefense medical countermeasures. Our mission is simple—to better protect the nation, its citizens and military through the development and stockpiling of next-generation medical countermeasures that utilize cutting-edge biotechnology to offer significant advantages over current therapies.

We continue to work with our partners in government at the Biomedical Advanced Research and Development Authority (BARDA), the National Institutes of Health (NIH), and the United States Department of Defense (DoD), among others, as we jointly pursue our common goal of ensuring a safer future for our nation and its citizens. To achieve this goal we have assembled a biodefense portfolio that currently includes three product candidates: a next-generation anthrax vaccine, SparVax™; a novel anthrax anti-toxin, Valortim®; and a chemical nerve agent bioscavenger, Protexia®. Each of these product candidates offers important potential benefits, including improvements in safety, time to protective effect, and cost-effectiveness.

PharmAthene remains committed to ensuring the timely and successful procurement of these products for the nation's biodefense arsenal, and throughout 2009 made important advancements toward this goal.

SparVax™—A Novel Second Generation Recombinant Protective Antigen (rPA) Anthrax Vaccine

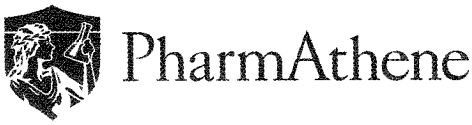
SparVax™ is a highly purified recombinant protective antigen vaccine developed for pre- and post-anthrax exposure.

Clinical studies have shown that protective immunity can be achieved faster with SparVax™ than the current anthrax vaccine, which was developed nearly half a century ago. In these studies, protective immunity in humans was achieved with 3 doses of SparVax™ over a period of 56 days, compared to 5 doses over 18 months for the current FDA licensed vaccine.

Further, modern biotechnology processes have reduced the manufacturing costs for recombinant vaccines, enabling production at a fraction of the cost of older vaccine technology. The current vaccine costs an average of $25 per dose, or $125 for a course of treatment. In contrast, we anticipate that when development on our vaccine is complete, SparVax™ costs should approximate $15 per dose, or $45 for a course of treatment, representing a significant cost savings for the government and American taxpayers.

Most importantly, the SparVax™ manufacturing process yields a product with enhanced purity over the currently licensed vaccine, which may lead to fewer adverse reactions in humans and is consistent with improvements in current commercial vaccine technologies.

It is precisely for these reasons that government agencies, including the Institute of Medicine, have called for the development and acquisition of next generation anthrax vaccines for the civilian national stockpile, and why we remain dedicated to bringing an improved anthrax vaccine to market.


PharmAthene

We worked closely with our government customer to ensure the timely funding of this important program through various mechanisms including opportunities under an outstanding Broad Agency Announcement (BAA), which could potentially provide additional funding, with the goal of enabling the Company to advance SparVax™ to a stage of procurement consideration by the US government.

2009 Highlights: Valortim® and Protexia®

In addition, notable achievements for Valortim® and Protexia® in 2009 include:

- Phase I data demonstrating Protexia® was safe and well-tolerated with no serious adverse events and, importantly, no evidence of an immune reaction to the drug. We are currently awaiting a decision by the Department of Defense (DoD) on whether to fund the next phase of development, of which we hope will come as soon as sometime in the third quarter of 2010.
- Release of new studies investigating the therapeutic efficacy of Protexia®. Data indicate a 100% survival rate in animals treated with Protexia® two hours after a dermal challenge with the nerve agent, VX, compared to 0% survival in animals receiving a saline control. This suggests Protexia® may represent a promising post-exposure therapy for nerve agent exposure.
- Presentations at several scientific meetings of new confirmatory animal model data suggest Valortim® may be effective as both a post-exposure prophylaxis and therapeutic for anthrax.
- Continued progress in our investigation related to the partial clinical hold for Valortim®, with the goal of resolving all issues and commencing a new clinical trial later this year or early next year.

Looking Ahead...

We remain excited about our Company's future. The next 12 to 18 months will be an important time for PharmAthene. 2010 begins with several opportunities, which have the potential to dramatically impact the valuation of the Company. During this period, PharmAthene is pursuing two new significant US government contracts for our biodefense programs as well as the next phase of funding under an existing contract—potentially representing more than $300 million in total funding commitments if awarded.

Specifically:

- A BAA contract award for SparVax™ with potential funding in excess of $100 million over a 5-year period
- A BAA contract award for Valortim® with potential funding of up to $80–$100 million over a 5-year period
- A decision under our existing contract with the DoD for Protexia® to move forward with the next phase of work, with potential funding of approximately $125 million over a 5-year period

A Better Defense...

All of us at PharmAthene share a strong commitment to working with our partners, developing improved countermeasures that enhance our nation's biosecurity, and protecting the well-being and safety of all Americans. We look forward to continuing our work with the government to stockpile the medicines necessary to successfully deter or quickly respond to a biologic or chemical attack and save American lives.

The dangers are real and PharmAthene's mission is critical.

On behalf of our employees, management team, and board of directors, I personally thank each of you for your continued support and faith in our mission.

Sincerely,

Eric I. Richman
President and Interim Chief Executive Officer

PharmAthene

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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2009

☐ **TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission File Number: 001-32587

PHARMATHENE, INC.

(Exact name of registrant as specified in its charter)

Delaware	**20-2726770**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
One Park Place, Suite 450, Annapolis, MD	**21401**
(Address of principal executive offices)	(Zip Code)

(410) 269-2600

(Registrant's telephone number, including area code)

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

Title of Each Class:	**Name of Each Exchange on Which Registered:**
Common Stock, par value $0.0001 per share	NYSE Amex

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

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

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

Indicate by check mark whether the registrant (1) has filed all reports required to be filed 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 requirements for the past 90 days. Yes ☒ 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 ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of 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. Yes ☐ No ☒

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. (Check one):

☐ Large Accelerated Filer ☐ Accelerated Filer ☐ Non-Accelerated Filer ☒ Smaller Reporting Company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of voting and non-voting common equity held by non-affiliates of the registrant was $34,560,632 based upon the closing price of the common equity on the NYSE Amex on the last business day of the registrant's most recently completed second fiscal quarter (June 30, 2009).

The number of shares of the registrant's Common Stock, par value $0.0001 per share, outstanding as of March 15, 2010 was 28,435,598.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement for its 2010 Annual Meeting of Stockholders or Annual Report on Form 10-K/A, to be filed on or before April 30, 2010, are incorporated by reference into Part III of this Report.

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Special Note Regarding Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). This information may involve known and unknown risks, uncertainties and other factors that are difficult to predict and may cause our actual results, performance or achievements to be materially different from future results, performance or achievements expressed or implied by any forward-looking statements. These risks, uncertainties and other factors include, but are not limited to, risk associated with the following:

- *the reliability of the results of the studies relating to human safety and possible adverse effects resulting from the administration of the Company's product candidates,*
- *unexpected funding delays and/or reductions or elimination of U.S. government funding for one or more of our development programs,*
- *the award of government contracts to our competitors,*
- *unforeseen safety issues,*
- *challenges related to the development, technology transfer, scale-up, and/or process validation of manufacturing processes for our product candidates,*
- *unexpected determinations that these product candidates prove not to be effective and/or capable of being marketed as products,*

as well as risks detailed under the caption "Risk Factors" in this Report on Form 10-K and in our other reports filed with the U.S. Securities and Exchange Commission (the "SEC") from time to time hereafter. Forward-looking statements describe management's current expectations regarding our future plans, strategies and objectives and are generally identifiable by use of the words "may," "will," "should," "expect," "anticipate," "estimate," "believe," "intend," "project," "potential" or "plan" or the negative of these words or other variations on these words or comparable terminology. Such statements include, but are not limited to:

- *statements about potential future government contract or grant awards,*
- *potential payments under government contracts or grants,*
- *potential regulatory approvals,*
- *future product advancements,*
- *anticipated financial or operational results, and*
- *expected benefits from our acquisition of the biodefense vaccines business ("Avecia Acquisition") from Avecia Biologics Limited and certain of its affiliates ("Avecia") in April 2008.*

Forward-looking statements are based on assumptions that may be incorrect, and we cannot assure you that the projections included in the forward-looking statements will come to pass.

We have based the forward-looking statements included in this Annual Report on Form 10-K on information available to us on the date of this Annual Report, and we assume no obligation to update any such forward-looking statements, other than as required by law. Although we undertake no obligation to revise or update any forward-looking statements, whether as a result of new information, future events or otherwise, you are advised to consult any additional disclosures that we may make directly to you or through reports that we, in the future, may file with the SEC, including Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K.

All forward-looking statements included herein are expressly qualified in their entirety by the cautionary statements contained or referred to elsewhere in this Annual Report. Unless otherwise indicated, the information in this annual report is as of December 31, 2009.

Item 1. Business.

Background of PharmAthene, Inc.

PharmAthene, Inc. was incorporated under the laws of the State of Delaware as Healthcare Acquisition Corp. ("HAQ") on April 25, 2005, a special purchase acquisition corporation formed solely to acquire a then unidentified business. HAQ became a public company on August 3, 2005. On August 3, 2007, HAQ acquired a Delaware corporation which at the time was known as "PharmAthene, Inc." (the "Merger"); effective upon the consummation of the Merger, HAQ changed its name from "Healthcare Acquisition Corp." to "PharmAthene, Inc." and former PharmAthene changed its name to "PharmAthene US Corporation." Through February 27, 2009, our operations were conducted by PharmAthene US Corporation. Effective February 27, 2009, PharmAthene US Corporation was merged with and into PharmAthene, Inc., with PharmAthene, Inc. being the surviving corporation.

In March 2008, PharmAthene Inc., through its wholly-owned subsidiary PharmAthene UK Limited, acquired substantially all the assets and liabilities related to the biodefense vaccines business (the "Avecia Acquisition") of Avecia Biologics Limited (along with its affiliates, "Avecia"). In February 2009, PharmAthene US Corporation was merged with and into PharmAthene, Inc., with PharmAthene, Inc. being the surviving corporation.

Our executive offices are located at One Park Place, Suite 450, Annapolis, Maryland 21401 and our telephone number is 410-269-2600. Our stock trades on the NYSE Amex (formerly the NYSE Alternext US or the American Stock Exchange) under the symbol "PIP."

Unless the context otherwise requires, all references in this report to the "Company", "PharmAthene", "we", "us" or "our" refers to the business of the combined company after the Merger and to the business of former PharmAthene prior to the Merger, and "HAQ" refers to the business of Healthcare Acquisition Corp. and its subsidiaries, as a combined entity, prior to the Merger. Unless the context otherwise requires, the information contained in this report gives effect to the consummation of the Merger of August 3, 2007 and the change of our name from "Healthcare Acquisition Corp." to "PharmAthene, Inc."

Overview

We are a biodefense company engaged in the development and commercialization of medical countermeasures against biological and chemical weapons. We currently have five product candidates in various stages of development:

- SparVax™, a second generation recombinant protective antigen ("rPA") anthrax vaccine,
- Valortim®, a fully human monoclonal antibody (an identical population of highly specific antibodies produced from a single clone) for the prevention and treatment of anthrax infection,
- Protexia®, a recombinant enzyme (butyrylcholinesterase), which mimics a natural bioscavenger for the prevention or treatment of nerve agent poisoning by organophosphate compounds, including nerve gases and pesticides,
- a third generation rPA anthrax vaccine, and

- RypVax™, a recombinant dual antigen vaccine for pneumonic and bubonic plague ("rYP").

Recent Developments

In January 2010, we submitted a proposal to the U.S. Department of Health and Human Services (HHS), operating through the Biomedical Advanced Research and Development Authority (BARDA), for work under our existing research and development contract with BARDA for the development of SparVax™ (HHSO100200900103C) to cover remaining transfer and validation of the bulk drug substance manufacturing process to final scale as well as work related to bulk drug substance chemistry manufacturing and controls (CMC), development of analytical methods, and generation of data to support target expiration dating and non-clinical data in two animal species, all within the original contract statement of work.

In February 2010, we entered into a contract modification to fund that work. During the base period of performance under the contract modification, i.e., through December 31, 2012, we could receive payments of up to approximately $61 million on a cost-reimbursement-plus-fixed-fee basis, assuming that all milestones are achieved. Under the contract modification, the government, at its sole discretion, may exercise three contract options during the base period of performance. Assuming that the government exercises all three options, we could receive up to an additional $17 million. In March 2010, a third party filed a bid protest with the U.S. Government Accountability Office (GAO), challenging the decision by HHS to enter into the contract modification. On March 19, 2010 HHS suspended performance under the modification pursuant to the automatic stay provisions of the Federal Acquisition Regulations (or FAR), pending a decision by the GAO on the protest. A ruling on the protest is expected no later than June 11, 2010.

On February 1, 2010, we furthermore submitted a white paper under BAA-BARDA-09-34 requesting additional funding to further support our development efforts on SparVax™ to cover development of an alternative formulation of the vaccine, stability testing, and pre- pivotal non-clinical animal and human clinical studies required to support a Biologics License Application (BLA) and potential use under an Emergency Use Authorization (EUA). If BARDA finds our white paper submission acceptable, it will request a formal proposal, which we believe could occur in the first half of 2010, with potential funding under the BAA possible by the end of 2010.

In February 2010, we received notice from the National Institutes of Allergy and Infectious Disease ("NIAID") raising concerns regarding performance under our existing contract with them related to our third-generation anthrax vaccine program, and directing us to explain how we plan to cure the deficiencies. In accordance with the timeline specified by NIAID, we responded in March 2010 proposing, among other things, a revised development program and timeline.

Developments during the year ended December 31, 2009

March 2009 Public Offering

On March 27, 2009, we closed on the public sale of an aggregate of 2,116,055 newly issued shares of our common stock at $2.60 per share and warrants to purchase an aggregate of 705,354 shares of our common stock at an exercise price of $3.00 per share, resulting in aggregate gross proceeds of $5,501,743. The warrants became exercisable on September 27, 2009 and will expire on September 27, 2014.

Avecia Settlement Agreement

In June 2009, PharmAthene and Avecia entered into a settlement agreement (i) to resolve certain issues related to the wind down and cancellation of work related to our rPA vaccine program being conducted at Avecia Biologics, Ltd. pursuant to a master services agreement ("MSA") between our two organizations, and (ii) to accelerate the payment of certain deferred consideration related to the acquisition of all of the assets of Avecia's biodefense vaccines business in April 2008 (the "Avecia Acquisition"). In accordance with the settlement agreement, we paid Avecia $7.0 million of the remaining deferred purchase price consideration under the Avecia Acquisition (and as a result our then existing letter of credit that had supported the deferred consideration and the related requirement to maintain restricted cash as collateral for the letter of credit was terminated) in June 2009 and we agreed to pay Avecia approximately $1.8 million related to past performance and raw materials under the MSA and approximately $3.0 million in cancellation fees.

In June 2009, the Company expensed as allowable costs under its government contract the $1.8 million payment for past contract performance and recognized related contract revenues. The Company also accrued the $3.0 million cancellation fee in June 2009.

Contemplated Exit Activities

In the second quarter 2009, our existing research and development contract for SparVax™ was transferred from NIAID to BARDA. In the third quarter 2009 BARDA and PharmAthene modified the existing statement of work to include, among other things, the completion of on-going stability studies and development of potency assays along with certain manufacturing scale-up and technology transfer activities to a U.S.-based manufacturer for the bulk drug substance for SparVax™. We then entered into a corresponding subcontract with our U.S.-based manufacturer.

As a result of the transfer of the contract and modification of the statement of work, we have been transitioning development and manufacturing activities as well as other general and administrative functions from the UK to the U.S. In connection with this transition, we anticipate relocating our UK operations, including terminating our UK workforce, by June 30, 2010. In the year ended December 31, 2009, we expensed approximately $2.1 million of costs associated with these exit activities.

July 2009 Private Placement

Our 8% senior unsecured convertible notes, which we originally issued in August 2007, accrued interest at an interest rate of 8% per annum and were to mature on August 3, 2009 (the "Old Notes"). The principal amount of the Old Notes and any accrued interest were convertible into shares of PharmAthene common stock at the option of the holder at any time based on a conversion rate of $10.00 per share. In July 2009, we cancelled a portion of the Old Notes, and issued new convertible notes and stock purchase warrants to holders of the cancelled notes as well as to certain new note investors in a private placement (the "July 2009 Private Placement"). Specifically, in connection with the July 2009 Private Placement, we:

- exchanged a portion of our Old Notes in the aggregate principal amount plus accrued interest totaling $8.8 million for new two-year 10% unsecured senior convertible notes, which are convertible into common shares at a conversion price of approximately $2.54 per share (the "New Convertible Notes") and cancelled the corresponding Old Notes;

- issued additional New Convertible Notes in the aggregate principal amount of $10.5 million to new note investors;

- issued to the recipients of the New Convertible Notes stock purchase warrants to purchase up to 2,572,775 shares of common stock at $2.50 per share, which warrants are exercisable from January 28, 2010 through January 28, 2015; and

- used the proceeds from the sale of the New Convertible Notes to repay $5.5 million of our Old Notes that were not exchanged for the New Convertible Notes and warrants and repaid all outstanding amounts and fees under an existing senior secured credit facility.

As of December 31, 2009, the total value of the New Convertible Notes, including accretion from additional interest expense (as described in Note 9 to our consolidated financial statements), was approximately $17.4 million.

2007 Credit Facility

In March 2007, we entered into a $10 million senior secured credit facility with Silicon Valley Bank and Oxford Finance Corporation. In July 2009, we repaid all outstanding amounts due under the credit facility along with certain prepayment fees. In connection with the credit facility, we issued to the lenders certain stock purchase warrants, which expire on March 30, 2017, to purchase an aggregate of 100,778 shares of the Company's common stock at $3.97 per share.

Cancellation of RFP BARDA 08-15 and Modification to Development Approach for rPA Anthrax Vaccines

In February 2008, the DHHS issued a formal Request for Proposal (RFP-BARDA-08-15) for an "Anthrax Recombinant Protective Antigen (rPA) Vaccine for the Strategic National Stockpile," which included a requisition for 25 million doses of an rPA anthrax vaccine. We submitted an initial response to this solicitation in July 2008 and subsequently submitted four proposal revisions. In December 2009, BARDA canceled the RFP because it did not believe vaccine developers submitting proposals could have product ready for FDA licensure within 8 years, and encouraged existing anthrax vaccine developers to submit product development plans under special instructions to a broad agency announcement (BAA) issued in March 2009 that supports the advanced research and development of medical countermeasures for chemical, biological, radiological and nuclear threats and was modified in December 2009 to address submissions related to rPA-based anthrax vaccines (BAA-BARDA-09-34).

As noted above under "Recent Developments", in February 2010 we entered into a modification of our existing contract with BARDA related to SparVax™ for up to approximately $78 million over three years (assuming exercise of all contract options) and submitted a white paper under BAA-BARDA-09-34 requesting additional funding to further support our development efforts on SparVax™. In March 2010, a third party filed a bid protest with the GAO challenging the decision by HHS to enter into the contract modification. On March 19, 2010 HHS suspended performance under the modification pursuant to the automatic stay provisions of the FAR, pending a decision by the GAO on the protest. A ruling on the protest is expected no later than June 11, 2010.

Developments Relating to Valortim®

In March 2009, BARDA issued BAA-BARDA-09-34, which included an advanced development solicitation for proposals covering anthrax anti-toxins. We submitted a proposal in response to this BAA in the second quarter 2009 for additional advanced development for Valortim®.

In August 2009 we began our second Phase I clinical trial of our Valortim® anthrax anti-toxin fully human monoclonal antibody. This trial involved the use of Valortim® in combination with the antibiotic, ciprofloxacin. During the course of the study, there were two adverse reactions in the four subjects dosed, one of which was characterized by the clinical investigators as a serious adverse event. While both adverse reactions resolved after cessation of the administration of Valortim® and appropriate medical treatment, and neither of the subjects appears to have experienced any further or lasting adverse consequences, we temporarily halted the trial, pending satisfactory resolution of an investigation into the possible causes of the adverse events, in accordance with the requirements of the clinical trial protocol and informed the U.S. Food and Drug Administration ("FDA"), the National Institute of Allergy and Infectious Diseases ("NIAID") and BARDA of these developments. The FDA placed the Valortim®/ciprofloxacin study on partial clinical hold pending the outcome of the investigation. This partial clinical hold does not pertain to other Valortim®-related development efforts under the existing investigational new drug ("IND") application, and adverse reactions like those seen in this trial have been observed before with the administration of other marketed monoclonal antibodies.

BARDA has also informed us that they will not make an award with respect to our submission for additional advanced development for Valortim® under BAA-BARDA-09-34 until satisfactory resolution of this issue and the clinical hold is lifted, at which point we expect they will promptly re-commence the negotiation process. The antibiotic interaction study is not on the critical development path for FDA licensure for the product. However, it is unclear at this time how long it will take us to complete our investigation, if and when we will be in a position to recommence negotiations with BARDA with respect to a potential award under the BAA, and what the effects of any delay in potential future funding of the program will be on the overall Valortim® development timeline.

Business Concept and Strategy

Our goal is to become the premier company worldwide specializing in the development and commercialization of prophylactic and therapeutic drugs for defense against bioterrorism and emerging infectious diseases. Our strategy to achieve this objective includes the following elements:

Maximize the value of our current product candidate portfolio as well as products that we may acquire in the future . Our products target areas that the U.S. government has identified as having critical biodefense needs and preclinical data supports the potential of these products to meet those needs. We intend to develop these products aggressively while fulfilling the requirements of the U.S. government's contracting processes. Development and contracting requirements of biodefense products are unique, and we continue to build capabilities to meet the requirements while developing our products.

Continue to build and leverage core capabilities in biodefense. We have developed and will continue to develop unique biodefense product development and contracting capabilities. Development of these capabilities has required a substantial investment, which we expect to leverage by acquiring additional biodefense product candidates through licensing and mergers and acquisitions. We believe that product opportunities will come primarily from companies focused on commercial markets that wish to see their products or technologies exploited in biodefense.

Biodefense Industry

Market Overview

The worldwide biodefense market can generally be divided into three segments: U.S. civilian, U.S. military, and non-U.S. markets. U.S. government funding represents the vast majority of the worldwide market. According to the University of Pittsburgh Medical Center - Center for Biosecurity, U.S. government biodefense military and civilian spending peaked in fiscal year 2005 at over $8 billion and has averaged around $5.4 billion in fiscal years 2007, 2008 and 2009. Funding in fiscal year 2010 is expected to increase only slightly because of the President's plan to freeze discretionary government spending for the next three fiscal years.

U.S. Civilian: The U.S. civilian market includes funds to protect the U.S. population from biowarfare agents and is largely funded by the Project BioShield Act of 2004. Project BioShield, the U.S. government's largest biodefense initiative, governs and funds with $5.6 billion the procurement of biodefense countermeasures for the Strategic National Stockpile ("SNS") for the period from July 2004 through 2013. Of the $5.6 billion, $3.4 billion was made available through fiscal year 2008, and the remaining $2.2 billion became available in fiscal year 2009. At the end of calendar year 2009, approximately $2 billion in procurement contracts had been awarded and approximately $1 billion had been transferred out of the Project BioShield Special Reserve funds ("SRF") for non-procurement related activities. Remaining funds in the SRF now approximate $2.5 billion. Funding available for advanced development of medical countermeasures is $305 million in fiscal year 2010. Based on the President's proposed budget for fiscal year 2011, which included $476 million for advanced development, we believe funding amounts may increase in 2011.

Military: The U.S. Department of Defense ("DoD") is responsible for the development and procurement of countermeasures for the military segment, which focuses on providing biowarfare protection for military personnel and civilians who are on active duty. The President's request for funding in the DoD fiscal year 2011 budget is approximately $1.5 billion, similar to amounts for 2010 and 2009. We anticipate that annual funding for these programs through 2013 will continue in a comparable range.

Non-U.S. Markets: Non-U.S. markets address protection against biowarfare agents for both civilians and military personnel in foreign countries. We anticipate that foreign countries will want to procure biodefense products as they are developed and validated by procurement by the U.S. government.

Project BioShield

Project BioShield, established under the Project BioShield Act of 2004 and the U.S. government's largest biodefense initiative, is focused on acquiring products with low technology risk that will be available for purchase in the near term. The U.S. government has identified the following threats as priorities: anthrax, smallpox, botulinum toxin, radiation, and nerve agent exposure. To evaluate and select the best products for these threats, the DHHS typically issues Requests for Information ("RFI") followed by Requests for Proposals ("RFP"). RFPs detail product and procurement requirements including treatment types, numbers of doses and delivery timeframes. To qualify for Project BioShield funding, products must demonstrate product efficacy in an animal model and complete advanced development activities, and companies must show that they can provide sufficient manufacturing capability. As of December 31, 2009, 11 awards have been made under Project BioShield, including those for anthrax, radiation and botulinum toxin.

Anthrax

The three general modes of infection by *Bacillus anthracis* ("*B. anthracis*"), the bacterium which causes anthrax infection, are by inhalation, ingestion or skin contact with anthrax spores. Inhalation is the form of infection most likely to be lethal. Inhalation anthrax occurs when anthrax spores become airborne and enter a person's body through the lungs. Inhalation anthrax is usually fatal if left untreated, and has approximately a 50% mortality rate in patients treated aggressively with antibiotics and supportive care. Persons infected by *B. anthracis* that is ingested will suffer from gastrointestinal anthrax; those whose skin comes into contact with anthrax will suffer from cutaneous anthrax. Gastrointestinal anthrax has a 25% to 60% mortality rate if left untreated. Cutaneous anthrax generally causes skin infections within a week or two after exposure. Cutaneous anthrax is the least fatal. Without treatment, up to 20% of all skin infection cases are fatal. Treated cutaneous anthrax is rarely fatal.

The DoD estimates that up to ten countries may possess anthrax weapons and an undetermined number of individuals and terrorist groups could have access to anthrax. Anthrax is an effective bioterrorism agent because the spores are stable, can be milled to a fine powder and may be dispersed widely with readily available instruments and machinery. The World Health Organization estimates that 50 kilograms of *B. anthracis* spores released upwind of a city of 500,000 people could result in up to 95,000 fatalities, with an additional 125,000 persons being incapacitated.

In light of the limited effectiveness of the use of antibiotics and supportive care, we believe that this currently available treatment for inhalation anthrax is suboptimal. Following exposure, but prior to the onset of symptoms, antibiotics like ciprofloxacin, doxycycline or penicillin can be used as post-exposure prophylaxis with the goal of preventing progression of the disease with a recommended antibiotic course of treatment of 60 days, sometimes in combination with the administration of anthrax vaccine. We believe that both compliance and side effects are problematic for anyone asked to take antibiotics for such an extended period of time. Furthermore, antibiotic resistance, whether naturally occurring or genetically engineered, is a concern. Products like our two rPA-based anthrax vaccine candidates, which are designed to be effective in two or three doses, and our monoclonal human antibody treatment, Valortim®, with a prolonged half-life, might allow for a shorter duration of antibiotic dosing to achieve adequate post-exposure prophylaxis.

Chemical Weapons and Nerve Agents

Chemical weapons use the toxic properties of chemical substances to produce physiological effects on an enemy. Classic chemical weapons, such as chlorine and phosgene, were employed during World War I and consisted primarily of commercial chemicals used as choking and blood agents, to cause respiratory damage and asphyxiation. Nerve agents, one of the most lethal forms of chemical weapons, were developed in the 1930s in the years leading up to World War II.

Nerve agents function by binding to acetylcholinesterase, an enzyme that normally causes termination of the activity of the neurotransmitter acetylcholine. Nerve agents block the activity of acetylcholinesterase, allowing the activity of acetylcholine to continue unchecked. As a result, nerve impulses are continually transmitted, causing muscle contractions that do not stop. This effect is referred to as a "cholinergic crisis" and results in a loss of muscle control, respiratory failure, paralysis and convulsions. Nerve agent exposure that does not cause death after a short period can lead to permanent brain damage.

Nerve agents, which are liquids at room temperature, are generally lethal far more quickly and in far lower quantities than classic chemical weapons, and are effective both when inhaled and when absorbed through the skin. These agents can be delivered through explosive devices, spray tanks or most liquid or gas dispersion devices and machinery.

There currently is only one FDA approved pre-treatment for nerve agents, pyridostigmine bromide ("PB"). PB is only approved for the pre-treatment of exposure to the nerve agent soman. It confers no protection on its own but enhances the protection conferred by post-exposure treatment. The standard of care for post-exposure treatment involves repeated doses of a cocktail of drugs including atropine, reactivators including the oxime 2-PAM, and anti-convulsants. However, this type of treatment acts primarily on the symptoms of nerve agents, not their underlying cause. We believe available pre-and post-treatment options are inadequate and that there is a need for more efficacious countermeasures, especially as evidence mounts that modified, more toxic forms of organophospates nerve agents may be used in future attacks.

Plague

The Centers for Disease Control and Prevention classify *Yersinia pestis* ("*Y. pestis*") as a Category A bioterrorism agent, the highest threat category ranked by the CDC. Plague is a disease caused by the bacterium *Y. pestis* found endemically in rodents and flea populations in certain parts of the world. There are two primary forms of the disease, bubonic and pneumonic. If bubonic plague is not treated, the bacteria can spread through the bloodstream and infect the lungs, causing a secondary case of pneumonic plague. Pneumonic plague affects the lungs and can be transmitted from person to person when an individual breathes in *Y. pestis* particles in through the air.

Once pneumonic disease is established in a human host, the bacteria can be readily transmitted between individuals. The extended time between exposure to the bacteria and diagnosis increases the opportunity to transmit the bacteria over a vast area, making containment a challenge. Creating a bioweapon carrying *Y. pestis* is highly feasible as the bacterium occurs readily in nature and could easily be isolated and grown in quantity in a laboratory.

To prevent a high risk of death, particularly for pneumonic plague, antibiotics must be given within 24 hours of the first symptoms. However, given the rapid onset of the disease and the difficulty diagnosing pneumonic plague, it can rapidly prove fatal in untreated individuals or in a situation where treatment is delayed. Currently, no vaccine is commercially available.

PharmAthene's Product Candidates

SparVax™: Recombinant Protective Antigen (PA)-based Anthrax Vaccine

SparVax™ is a second generation, rPA anthrax vaccine designed to protect against inhalation anthrax, the most lethal form of *B. anthracis* infection in humans. The vaccine has been shown to induce anti-Protective Antigen ("PA") antibodies in healthy human volunteers and in animal models of inhalation anthrax. These antibodies are believed to function by targeting PA, a protein component necessary to initiate the toxic cascade and cell entry of toxins produced by the bacterium. SparVax™ has been shown to be protective in rabbit and non-human primate models when animals are vaccinated and then exposed to lethal inhalation doses of anthrax spores. One Phase I and two Phase II clinical trials have been completed in over 700 individuals. Data from these trials demonstrated that SparVax™ is well tolerated and immunogenic.

SparVax™ is being developed for two indications: post-exposure prophylaxis ("PEP") in conjunction with antibiotics and general use prophylaxis ("GUP"). In a PEP setting, the vaccine would be used following a suspected exposure to augment the natural immune response and provide protection once antibiotics are discontinued. In the GUP setting, the vaccine is administered in advance of any exposure and is intended to induce an immune response that will be protective should there be an exposure.

Pre-clinical Studies

Prior to an IND being filed with the FDA, SparVax™ underwent safety testing in rodents and non-human primates. Sparvax™ was well tolerated with no deaths and no behavioral or clinical signs observed in any species. All of the toxicology studies were compliant with Good Laboratory Practices ("GLP") and the data were used to support the IND and allow for the initiation of clinical trials of SparVax™.

Non-clinical Studies

SparVax™ is being developed utilizing the Animal Rule (21 CFR 609.1(a)(1-4)) which allows for efficacy testing in appropriate animal models in lieu of clinical efficacy trials. To date, our animal model development and efficacy studies in both rabbits and non-human primates for both GUP and PEP indications using SparVax™ have been sponsored by NIAID and conducted by a commercial research organization. Data from the studies conducted to date have shown that SparVax™ is immunogenic in both rabbits and non-human primates; protection has been demonstrated in vaccinated animals subjected to aerosol challenge with Ames strain spores.

Clinical Studies

The Phase I trial was a dose escalation study designed to evaluate a range of dose levels administered in two different schedules. There were no vaccine-related serious adverse events or changes in blood chemistries, vital signs or electrocardiograms ("ECGs") reported. The results demonstrated that the vaccine was safe, well-tolerated and immunogenic.

The Phase II program was designed to include larger subject numbers and a three-dose schedule at the two highest dose levels tested in Phase I. Two Phase II trials were conducted, both of which studied the effect of different dose levels and different dosing schedules.

In the Phase IIa trial, SparVax™ was well tolerated with no vaccine-related serious adverse events or changes in blood chemistries, vital signs or ECGs reported. Further, SparVax™ was immunogenic in this study.

The Phase IIb trial compared a longer dosing regimen at two different dose levels with a smaller control group who received the currently licensed anthrax vaccine, BioThrax®. Here, too, SparVax™ was well-tolerated with no vaccine-related serious adverse events or changes in blood chemistries, vital signs or ECGs reported. The immunogenicity data showed that a good level of response was achieved with both vaccines and with both doses of SparVax™. While both vaccines were immunogenic following the 3-dose series with response rates of approximately 90%, an increased proportion of individuals experienced injection site pain in the BioThrax® group as compared to the SparVax™ groups.

Future studies will seek to confirm the dose and schedule of SparVax™ that induces antibody levels in humans which are comparable to those shown to be protective in the animal models, demonstrate the acceptability of using SparVax™ in conjunction with antibiotics, and confirm the safety of SparVax™ in a sufficient number of human subjects (as agreed to with FDA).

Funding

To date, funding for the development of SparVax™ has occurred under two contracts from the NIH originally entered into in 2002 and 2003 which, not including the recent modification discussed below, provided for aggregate funding of up to approximately $117.7 million.

On February 29, 2008, the DHHS issued a formal Request for Proposal (RFP-BARDA-08-15) for an "Anthrax Recombinant Protective Antigen (rPA) Vaccine for the Strategic National Stockpile." We submitted an initial response to this solicitation in July 2008 and subsequently submitted four proposal revisions. In December 2009, BARDA canceled the RFP because it did not believe vaccine developers submitting proposals could have product ready for FDA licensure within 8 years, and encouraged existing anthrax vaccine developers to submit product development plans under special instructions to BAA-BARDA-09-34 that supports the advanced research and development of medical countermeasures for chemical, biological, radiological and nuclear threats.

In January 2010, we submitted a proposal to BARDA to increase the funding under our existing research and development contract with BARDA for the development of SparVax™ (HHSO100200900103C) to cover remaining transfer and validation of the bulk drug substance manufacturing process to final scale as well as work related to bulk drug substance chemistry manufacturing and controls (CMC), development of analytical methods, and generation of data to support target expiration dating and non-clinical data in two animal species, all within the original contract statement of work.

In February, 2010, we entered into a contract modification to fund that work. During the base period of performance under the contract modification, i.e., through December 31, 2012, we could receive payments of up to approximately $61 million on a cost-reimbursement-plus-fixed-fee basis, assuming that all milestones are achieved. Under the contract modification, the government, at its sole discretion, may exercise three contract options during the base period of performance. Assuming that the government exercises all three options, we could receive up to an additional $17 million. In March 2010, a third party filed a bid protest with the GAO, challenging the decision by HHS to enter into the contract modification. On March 19, 2010 HHS suspended performance under the modification pursuant to the automatic stay provisions of the FAR, pending a decision by the GAO on the protest. A ruling on the protest is expected no later than June 11, 2010.

On February 1, 2010, we furthermore submitted a white paper under BAA-BARDA-09-34 requesting additional funding to further support our development efforts on SparVax™ to cover development of an alternative formulation of the vaccine, stability testing, and pre-pivotal non-clinical animal and human clinical studies required to support a Biologics License Application (BLA) and potential use under an Emergency Use Authorization (EUA). If BARDA finds our white paper submission acceptable, it will request a formal proposal, which we believe could occur in the first half of 2010, with potential funding under the BAA possible by the end of 2010.

Valortim®: Anthrax Monoclonal Antibody

Valortim® is a fully human monoclonal antibody designed to protect against and treat human inhalational anthrax, as both post-exposure prophylaxis (i.e., before symptoms manifest) and post-exposure therapy (i.e., once symptoms are evident).

Valortim® functions by targeting PA, a protein component of the bacterium that attaches to and facilitates the entry of the destructive toxins Lethal Factor (LF) and Edema Factor (EF) into healthy cells in the infected person. Valortim® is designed to bind to PA and protect the cells from damage by the anthrax toxins. In non-clinical studies, Valortim® protected animals against infection when administered after exposure, facilitating recovery and survival in animals exposed to lethal inhalation doses of anthrax spores.

Anthrax spore challenge studies in animals have demonstrated protection by Valortim® both when given early following challenge (post-exposure prophylaxis) as well as when given at the point when animals demonstrate signs of infection after challenge (therapeutic intervention). Valortim® binds to a novel site of PA, permitting protection after toxins have already attached to the cell. In addition, other data suggest that Valortim® may augment the immune system's ability to kill anthrax bacilli. We believe potency and a potentially unique mechanism of action of Valortim® differentiate it from competing products. In the initial Phase I clinical trial in healthy human volunteers, Valortim® was well-tolerated with no drug-related serious adverse events reported. A second Phase I clinical trial of Valortim® and the antibiotic, ciprofloxacin, which commenced in August 2009, was placed on partial clinical hold pending the outcome of an investigation, after the occurrence of two adverse reactions in the four subjects dosed, one of which was characterized by clinical investigators as a serious adverse event, as further described below.

Medarex Collaboration and Development Timeline

We are developing Valortim® in collaboration with Medarex, Inc. (a biopharmaceutical company that specializes in developing fully human antibody-based therapeutic products and that was acquired by Bristol Myers Squibb in 2009) pursuant to a collaboration agreement entered into in November 2004. Under the terms of the collaboration agreement, we made an initial $2.0 million payment to Medarex to fund planned development activities in 2004, and we are responsible for funding all research and development and commercialization activities that exceed current and future government funding. The collaboration agreement provides that Medarex and PharmAthene will share operating profits according to a formula that establishes our share of the profits at between 20% and 60%, generally as follows: (i) upon execution of the collaboration agreement and the $2.0 million initial payment, our profit share was 20%; (ii) to maintain our 20% profit share we are required to contribute funding in an amount equivalent to the funding provided by the U.S. government to Medarex via grants awarded to fund Valortim® development work (approximately $7.2 million); (iii) our share of operating profits will increase to 50% if a contract for the procurement of Valortim® is entered into with the U.S. government and we have satisfied our obligation to fund the additional $7.2 million (which condition we believe we have satisfied); and (iv) our share of the operating profits can increase by 10% for every $5 million of funding we provide over and above the initial payment of $2.0 million and the amount that we provide as funding in excess of the $7.2 million in matching funds provided to Medarex. Our aggregate share of the operating profits is capped at 50% if the condition under clause (iii) is not satisfied and 60% if it is satisfied. Should the parties enter into a contract for the procurement of Valortim® with the U.S. government prior to our satisfying our obligation under clause (ii) above, we are required to make a milestone payment to Medarex in an amount up to $1.5 million in order to achieve a 50% profit share in the program. Prior to distribution of operating profits, each party is entitled to reimbursement of research and development expenses incurred that were not otherwise covered by government funding.

Additional animal model development and testing of Valortim® for therapeutic efficacy in African green monkeys is being carried out under a Collaborative Research and Development Agreement with the U.S. Army Medical Research Institute of Infectious Diseases. We had an end-of-Phase I meeting with the FDA in October 2007 during which the FDA agreed that the African green monkey model is acceptable as one of the two required species for licensure of Valortim® under the Animal Rule. In October 2008, we announced results from a pilot study, funded by NIH, designed to attempt to refine a rabbit model as a predictive therapeutic model for anthrax inhalation and which showed that Valortim® enhanced survival as compared to a control group in this animal model. We presented additional confirmatory data in both the African green monkey and New Zealand white rabbit models in 2009.

Valortim® has received Fast Track designation from the FDA, which generally indicates that the FDA will facilitate the development and expedite the regulatory review of the product depending on the FDA's resources. However, we can provide no assurance that the review will be successful. In addition, the FDA may withdraw its approval of a Fast-Track product on a number of grounds, including the sponsor's failure to conduct any required post-approval study with due diligence and failure to continue to meet criteria for designation. Valortim® has also been granted orphan drug status, a designation for drugs developed for diseases which affect less than 200,000 persons in the United States and provides for reduced fees to the FDA, market exclusivity for seven years, and other FDA-related privileges.

Clinical and Non-clinical Studies

Valortim® is being developed for two indications: (i) as a post-exposure prophylaxis; and (ii) as a post-exposure therapy.

Clinical Phase I Studies

PharmAthene and Medarex have completed dosing in a Phase I open-label, dose-escalation clinical trial to evaluate the safety, tolerability, immunogenicity, and pharmacokinetics (the study of absorption, metabolism and action of drugs) of a single dose of Valortim® administered intravenously or intramuscularly in healthy volunteers. No drug-related serious adverse effects were reported.

In August 2009 we began a second Phase I clinical trial of Valortim®. This trial involved the use of Valortim® in combination with the antibiotic ciprofloxacin. During the course of the study, there were two adverse reactions in the four subjects dosed, one of which was characterized by the clinical investigators as a serious adverse event. While both adverse reactions resolved after cessation of the administration of Valortim® and appropriate medical treatment, and neither of the subjects appears to have experienced any further or lasting adverse consequences, we temporarily halted the trial in accordance with the requirements of the clinical trial protocol and informed the FDA, NIAID and BARDA of these developments. The FDA has placed the Valortim®/ciprofloxacin study on partial clinical hold pending the outcome of an investigation. This clinical hold does not pertain to other Valortim® related development efforts under the existing IND, and adverse reactions like those seen in this trial have been observed before with the administration of other marketed monoclonal antibodies.

Non-clinical Studies: Post-exposure Prophylaxis Indication

We have conducted studies in two animal models to evaluate the use of Valortim® as a post-exposure prophylaxis, or, in other words, to protect exposed animals from developing the signs and from dying of inhalation anthrax. Treatment in both animal models was initiated within one hour following exposure to the anthrax spores. Eighty-five percent (85%) of rabbits treated intravenously with doses of Valortim® survived following inhalation exposure to anthrax spores. One hundred percent (100%) of cynomolgus monkeys treated intramuscularly with doses of Valortim® were protected from death following exposure to inhalation anthrax spores.

Non-clinical Studies: Post-exposure Therapeutic Indication

We have conducted studies in rabbits to evaluate the use of Valortim® as a therapeutic intervention for inhalation anthrax. This indication for Valortim® would be intended to treat patients who have already developed signs and/or symptoms of inhalation anthrax. In two studies, up to 100% of the animals survived that were treated with Valortim® intravenously at the time they tested positive for PA in the blood or had significant increases in body temperature.

We have also conducted two studies in African green monkeys treated with Valortim® at the time they test positive for PA in the blood. Up to 70% of animals treated intravenously with Valortim ® survived. In general, the mortality rate for control animals exposed to inhalation anthrax is close to 100%.

In addition to the animal efficacy and human safety studies to advance Valortim® toward licensure under the Animal Rule, work is also ongoing to further explore and define its mechanism of action.

Funding

In 2006 and 2008, we received DoD funding for the advancement of Valortim® in the aggregate amount of $4.2 million. On September 28, 2007, NIAID awarded to PharmAthene a $13.9 million contract for the advanced development of Valortim® as an anti-toxin therapeutic to treat inhalation anthrax infection. On April 29, 2009, NIAID increased the value of this contract to $15.9 million, which we expect will be funded incrementally through fiscal year 2011.

In addition, in March 2009, BARDA issued BAA-BARDA-09-34, which included an advanced development solicitation for proposals covering anthrax anti-toxins. We submitted a proposal in response to this BAA in the second quarter 2009 for additional advanced development for Valortim®. BARDA has subsequently informed us that they will not make an award with respect to our proposal until satisfactory resolution of the investigation into the adverse reactions during our August 2009 Phase I clinical trial and until the clinical hold is lifted, at which point we expect they will promptly re-commence the negotiation process. The clinical trial at issue is not on the critical development path for FDA licensure for the product. However, it is unclear at this time how long it will take us to complete our investigation, if and when we will be in a position to recommence negotiations with BARDA with respect to a potential award under the BAA, and what the effects of any delay in potential future funding of the program will be on the overall Valortim® development timeline.

Protexia®: Pegylated Recombinant Human Butyrylcholinesterase

Protexia®, our nerve agent countermeasure, is a pegylated recombinant transgenic form of human butyrylcholinesterase ("BChE"). BChE is a naturally occurring protein found in minute quantities in blood. In its native form, BChE functions as a natural bioscavenger, like a sponge, to absorb organophospate poisons (e.g., nerve agents) and eliminate them from the circulation before they cause neurological damage. Recombinant BChE is first purified as the unpegylated protein and then modified to arrive at its pegylated form, which confers desirable attributes such as enhanced half life for a longer period of protection and decreased potential for immunogenicity. Preclinical studies in animal models suggest that Protexia® may be effective prophylactically and therapeutically for chemical nerve agent poisoning.

We, in collaboration with the Institute for Chemical Defense (ICD), a U.S. military organization where the testing of compounds intended for use against traditional and non-traditional nerve agents is performed, have screened recombinant BChE ("rBChE") and pegylated rBChE ("PEG-rBChE") for activity against a number of both traditional and non-traditional nerve agents. Protexia® will also be assessed against traditional agents as part of the work under the DoD contract described below. The DoD has also indicated that additional testing of Protexia® against classified non-traditional agents may be performed; the results of this testing, however, will be treated as classified national security information and will not be available to us or to the public. In addition, newer, more potent, forms of rBChE will be screened as second-generation rBChE molecules (having higher affinity binding characteristics and enhanced catalytic activity) become available.

Proof of Concept Studies Using rBChE or PEG-rBChE

Pre-exposure Prophylaxis Indication

Pre-treatment with PEG-rBChE provided 100% survival against multiple lethal doses of the nerve agents VX and soman in pre-clinical animal models and the surviving animals displayed no nerve agent side effects.

Post-Exposure Therapeutic Indication

Based on the demonstration of protection when PEG-rBChE was administered before nerve agent exposure, a series of experiments were conducted to determine whether rBChE was effective as a therapy when administered after exposure to nerve agent. Ninety percent (90%) of the animals exposed to VX on the skin and then treated with rBChE survived as compared to no survivors among the group that was not treated.

Additional work for a post-exposure indication has been conducted under grant funding from the NIH. Two studies have been completed to date. Data suggest that rBChE is superior to the current standard of care; future work will further refine this comparison. Additional preclinical studies conducted in 2009 in guinea pigs suggest that Protexia ® has the potential to increase survival when administered therapeutically (i.e., following nerve agent exposure). Specifically, animals treated with Protexia ® two hours post exposure to multiple lethal doses of the nerve agent VX had lower blood concentrations of VX than control animals that were not administered Protexia ® . Additionally, all animals treated with Protexia ® survived while control animals died within 36 hours.

Development Timeline and Phase I Clinical study

The potential of rBChE and PEG-rBChE as medical countermeasures have been demonstrated by their ability to protect animals from multiple lethal doses of nerve agents and binding to a broad spectrum of agents, including sarin, soman, tabun and VX. Following proof-of-concept studies and award of the DoD contract, we have developed a scalable manufacturing process for the final product including selection of the PEG reagent. The final product is designated Protexia® to distinguish it from earlier versions of the recombinant protein.

We completed the manufacture of the first cGMP clinical lot of Protexia®. We filed an IND with the FDA in the third quarter of 2008 and began a Phase I clinical trial in humans in October 2008. The primary and secondary endpoints of the study were an evaluation of the safety, tolerability, pharmacokinetics and immunogenicity of (i) escalating single doses of Protexia® given intramuscularly in healthy human volunteers and (ii) a second dose of Protexia® administered to a subset cohort approximately 2.5 months after the first dose, respectively. The data from the completed Phase I trial, which we initially announced in December 2009, showed that Protexia® was safe and well-tolerated, with no serious adverse events reported and with no apparent drug-induced immunogenicity observed.

Funding

The DoD, the department charged with purchasing biodefense countermeasurers for military use, requested competitive bids in an RFP for a recombinant form of BChE drug for the prophylaxis treatment of chemical nerve agent poisoning, which we submitted in November 2005. In 2006, NIH awarded us a grant for up to $1.6 million to support work on Protexia®. In September 2006, we were awarded a multi-year contract by the DoD. Under the contract, we have recognized approximately $42.4 million of revenue for the advanced development of Protexia® through December 31, 2009. The U.S. government, at its sole discretion, has the right to elect to continue development assistance with further funding of up to an additional $65 million. We believe the remaining development costs required to obtain FDA licensure for Protexia® in advance of government procurement will exceed those used in our original proposal and provided for in the contract with the DoD. It is unclear at this point when the DoD will make a decision regarding funding for the next phase of the development work for Protexia®, although the government has recently indicated that it may make a decision before the end of the third quarter 2010.

Third Generation rPA-based Anthrax Vaccine

In addition to SparVax™, we are developing a third generation rPA-based anthrax vaccine in response to the U.S. government's desire to have a stable product that does not require refrigeration and which can induce protective immunity in fewer doses than the currently licensed vaccine, BioThrax® Anthrax Vaccine Adsorbed ("AVA"), and the existing second generation vaccine candidates. This vaccine candidate utilizes the rPA already being manufactured for the second generation product candidate (SparVax™), but it will be freeze-dried and will contain an additional immune stimulant not present in SparVax™, which we believe will allow for enhanced immunogenicity.

Pre-clinical Studies

The data generated to date have focused on proof-of-concept studies in animal models to evaluate the immunogenicity of the candidate vaccine. These studies have shown that the vaccine induces a rapid and enhanced immune response that is protective against infection with *Bacillus anthracis* in these animal models.

There have been no pre-clinical toxicology studies completed to date. We plan to initiate acute single dose toxicology studies in rodents in late 2011.

Clinical Studies

This vaccine candidate is in the early research and development stage. We do not anticipate filing an IND with the FDA before 2013, and we will not commence any human clinical trials before an IND has been filed and accepted by the FDA.

Manufacturing

Work in 2009 under the existing NIH funding (described below) focused on developing the manufacturing process that combines the lyophilized (i.e., freeze-dried) rPA-based anthrax vaccine with an immunostimulant for use in animal testing and human clinical trials. In 2010, the work will focus on refining the formulation to re-constitute the lyophilized product, scaling up the process for manufacturing, and establishing formal stability testing for the product.

Funding

Two NIH grants made in 2005 and 2007 in the aggregate amount of $6.9 million have funded research activities to support the initial development of this vaccine candidate. On September 25, 2008, we were awarded a contract by NIAID for up to approximately $13.2 million for additional development work over a three-year base period. Assuming all development milestones are met and all contract options are exercised by NIAID at its sole discretion, we could receive up to approximately $83.9 million over a nine year period (including the base period and the $13.2 million disclosed above) under this contract, which includes a cost reimbursement component and a fixed fee component payable upon achievement of certain milestone events. In February 2010, we received notice from the NIAID raising concerns regarding performance under our existing contract with them related to our third-generation anthrax vaccine program, and directing us to explain how we plan to cure the deficiencies. In accordance with the timeline specified by NIAID, we responded in March 2010 proposing, among other things, a revised development program and timeline.

RypVax™: Recombinant F1 (rF1) and V (rV) antigen-based Plague Vaccine

RypVax™ is a recombinant plague vaccine comprising separate recombinant F1 (rF1) and V (rV) antigens produced in *Escherichia coli* . RypVax™ has successfully completed three Phase I human clinical trials. The vaccine has been demonstrated to be immunogenic, safe and well-tolerated. In preclinical animal models of vaccination with RypVax™, the vaccine has induced antibodies which provide protection against a lethal aerosol challenge of bubonic and pneumonic plague. As described below, the government contract under which we are currently receiving funding for this product is in its wind-down phase and it is unlikely that additional funding from the U.S. government will be provided for this product after expiration of the current contract.

Non-clinical Studies

Three acute dose toxicity studies have been conducted in the CD strain of rat, and one study in the ICR-CD-1 mouse strain. All data generated in these studies to date demonstrated the safety of the vaccine for use in human clinical trials. Non-clinical efficacy studies completed in aerosol challenge models of *Y. pestis* in mice and cynomologus macaques have shown the vaccine to be immunogenic and protective.

Clinical Studies

Three Phase I clinical trials have been conducted to evaluate the safety, tolerability, and immunogenicity of RypVax™. RypVax™ has been shown to be safe, well-tolerated, and immunogenic in all trials conducted to date.

Funding

In 2004, Avecia was awarded a multi-year contract from NIAID to support the advanced development of the plague vaccine candidate for military use. PharmAthene acquired this contract as part of the Avecia Acquisition. We and the U.S. government have agreed to a reduction to the scope of work under this contract; as a result, all activities under the contract are winding down, with wind-down expected to be completed in the first half of 2010. We do not anticipate that the U.S. government will provide additional funding in the future for or procure RypVax™.

U.S. Government Regulatory Pathway

General

Regulation by governmental authorities in the United States and other countries will have a significant impact on our research, product development, manufacturing and marketing of any biopharmaceutical products. The nature and the extent to which regulations apply to us will vary depending on the nature of any such products. Our potential biopharmaceutical products will require regulatory approval by governmental agencies prior to commercialization. The products we are developing are subject to federal regulation in the United States, principally by the FDA under the Public Health Service Act and Federal Food, Drug, and Cosmetic Act ("FFDCA") and by state and local governments, as well as regulatory and other authorities in foreign governments that include rigorous preclinical and clinical testing and other approval procedures. Such regulations govern or influence, among other things, the research, development, testing, manufacture, safety and efficacy requirements, labeling, storage, recordkeeping, licensing, advertising, promotion, distribution and export of products, manufacturing and the manufacturing process. In many foreign countries, such regulations also govern the prices charged for products under their respective national social security systems and availability to consumers.

The Public Health Service Act classifies our current drug candidates which are produced using biological systems, as biological drug products, or biologics ("Biologics"). All drugs intended for human use, including Biologics, are subject to rigorous regulation by the FDA in the United States and similar regulatory bodies in other countries. The steps ordinarily required by the FDA before a biological drug product may be marketed in the United States are similar to steps required in most other countries and include, but are not limited to:

- completion of preclinical laboratory tests, preclinical animal testing and formulation studies;
- submission to the FDA of an IND, which must be in effect before clinical trials may commence;
- performance of adequate and well-controlled clinical trials to establish the safety, purity and potency (including efficacy) of the Biologic and to characterize how it behaves in the human body;
- completion of comparability studies, if necessary;
- submission to the FDA of a BLA that includes preclinical data, clinical trial data and manufacturing information;
- FDA review of the BLA;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facilities; and
- FDA approval of the BLA, including approval of all product labeling.

Preclinical testing includes laboratory evaluations to characterize the product's composition, impurities, stability, and mechanism of its biologic effect, as well as animal studies to assess the potential safety, purity and potency of each product. Preclinical safety tests must be conducted by laboratories that comply with FDA regulations regarding Good Laboratory Practices ("GLP") and the U.S. Department of Agriculture's Animal Welfare Act. Violations of these laws and regulations can, in some cases, lead to invalidation of the tests, requiring such tests to be repeated. The results of the preclinical tests, together with manufacturing information and analytical data, are submitted to the FDA as part of an IND and are reviewed by the FDA before the commencement of human clinical trials. Unless the FDA objects to an IND by placing the study on clinical hold, the IND will go into effect 30 days following its receipt by the FDA. The FDA may authorize trials only on specified terms and may suspend clinical trials at any time on various grounds, including a finding that patients are being exposed to unacceptable health risks. If the FDA places a study on clinical hold, the sponsor must resolve all of the FDA's concerns before the study may proceed. The IND application process may become extremely costly and substantially delay development of products. Similar restrictive requirements also apply in other countries. Additionally, positive results of preclinical tests will not necessarily indicate positive results in clinical trials.

Clinical trials involve the administration of the investigational product to humans under the supervision of qualified principal investigators. Our clinical trials must be conducted in accordance with Good Clinical Practice ("GCP") under protocols submitted to the FDA as part of an IND. In addition, each clinical trial is approved and conducted under the auspices of an institutional review board ("IRB") and with the patients' informed consent. The IRB considers, among other things, ethical factors, the safety of human subjects, and the possibility of liability of the institutions conducting the trial. The IRB at each institution at which a clinical trial is being performed may suspend a clinical trial at any time for a variety of reasons, including a belief that the test subjects are being exposed to an unacceptable health risk. Since our products are being developed using funding from the U.S. government, additional review by either the NIH's IRB or the DoD's IRB-equivalent will also be required. These reviews take place following approval by the independent IRB. As the sponsor, we can also suspend or terminate a clinical trial at any time.

Clinical trials are typically conducted in three sequential phases, Phases I, II, and III, involving an increasing number of human subjects. Phase I trials are safety studies performed in a small number of subjects. Phase II studies, which may involve hundreds of subjects, take an in-depth look at the effectiveness of the drug and may include analysis of dose ranges and dose regimens. Finally, Phase III trials typically involve thousands of individuals and provide the documentation of effectiveness and important additional safety data required for licensing.

In 2002, however, the FDA amended its requirements applicable to BLAs to permit the approval of certain Biologics that are intended to reduce or prevent serious or life-threatening conditions based on evidence of safety from trial in healthy subjects and effectiveness from appropriate animal studies when human efficacy studies are not ethical or feasible. These regulations, also known as the "Animal Rule", and published in the Code of Federal Regulations (21 CFR 601 Subpart H) authorize the FDA to rely on evidence from animal studies to provide substantial proof of a product's effectiveness under circumstances where there is a reasonably well-understood mechanism for the toxicity of the agent. Under these requirements, Biologics used to reduce or prevent the toxicity of chemical, biological, radiological or nuclear substances may be approved for use in humans based on evidence of effectiveness derived from appropriate animal studies and any additional supporting data. Products evaluated for effectiveness under this rule are evaluated for safety under preexisting requirements for establishing the safety of new drug and biological products, including Phase I through Phase II clinical trials. Under certain circumstances a single animal species may be acceptable if that animal model is sufficiently well-characterized for predicting a response in humans. The animal study endpoint must be clearly related to the desired benefit in humans and the information obtained from animal studies must allow for selection of an effective dose in humans. We intend to rely on the Animal Rule in seeking marketing approval for our product candidates because we cannot ethically expose humans to anthrax, nerve agents or plague. Other countries do not, at this time, have established criteria for review and approval of these types of products outside their normal review process, i.e. there is no "Animal Rule" equivalent in countries other than the United States.

Success in early-stage animal studies and clinical trials does not necessarily assure success in later-stage clinical trials. Data obtained from animal studies and clinical activities are not always conclusive and may be subject to alternative interpretations that could delay, limit or even prevent regulatory approval.

All data obtained from the preclinical studies and clinical trials, in addition to detailed information on the manufacture and composition of the product, would be submitted in a BLA to the FDA for review and approval for the manufacture, marketing and commercial shipments of any of our products. FDA approval of the BLA is required before commercial marketing or non-investigational interstate shipment may begin in the United States. However, Project Bioshield gave authority to the FDA to grant Emergency Use Authorization ("EUA") for use of unlicensed/unapproved products should there be an emergency declared by the appropriate authority within the DHHS. This legislation will also allow unlicensed products to be procured for the SNS so that they are available at the time an emergency is declared. Our products will be eligible both for consideration for procurement into the SNS and for use in the event of an emergency, although there is no guarantee that our products will meet the criteria set forth by DHHS or the FDA for procurement and EUA, respectively.

With regard to a BLA, the FDA may deny or delay approval of an application that does not meet applicable regulatory criteria, e.g. if the FDA determines that the preclinical or clinical data or the manufacturing information does not adequately establish the safety, purity and potency (including efficacy) of the Biologic. The FDA has substantial discretion in the approval process and may disagree with an applicant's interpretation of the data submitted in its BLA. The FDA can request additional information, seek clarification regarding information already provided in the submission or ask that clinical trials be conducted, all of which can delay approval. The FDA also may, at any time, require the submission of product samples and testing protocols for lot-by-lot confirmatory review or testing, known as lot release, by the FDA prior to commercial distribution. This means a specific lot of Biologic cannot be released for commercial distribution until the FDA has authorized such release. Similar types of regulatory processes will be encountered as efforts are made to market any Biologic internationally. We will be required to assure product performance and manufacturing processes from one country to another.

Once it approves a BLA, the FDA may revoke or suspend the product approval if compliance with post-market regulatory standards is not maintained or if problems occur after the product reaches the marketplace. In addition, the FDA may require post-marketing studies to monitor the effect of approved products, and may limit further marketing of the product based on the results of these post-market studies. The Animal Rule is clear that post-marketing studies are required should the products be used in humans; the nature of these studies will be discussed with FDA as part of the BLA process. The FDA has broad post-market regulatory and enforcement powers, including the ability to levy civil and criminal penalties, suspend or delay issuance of approvals, seize or recall products and revoke approvals.

Facilities used to manufacture Biologics are subject to periodic inspection by the FDA and other authorities, where applicable, and must comply with the FDA's current Good Manufacturing Practices ("cGMP") regulations, the FDA's general biological product standards, and the product establishment standards set forth in the approved BLA. Failure to comply with the statutory and regulatory requirements subjects the manufacturer to possible legal or regulatory action, such as suspension of manufacturing, seizure of product or recall of a product. Adverse experiences with the product must be reported to the FDA and could result in the imposition of market restriction through labeling changes or in product removal. Product approvals may be revoked if compliance with regulatory requirements is not maintained or if problems concerning safety or effectiveness of the product occur following approval. With respect to post-market product advertising and promotion, the FDA imposes a number of complex regulations on entities that advertise and promote Biologics, including, among others, standards and regulations for direct-to-consumer advertising, off-label promotion, industry-sponsored scientific and educational activities and promotional activities involving the Internet. The FDA has very broad enforcement authority under the FFDCA, and failure to abide by these regulations can result in administrative and judicial enforcement actions, including the issuance of a Warning Letter directing correction of deviations from FDA standards, a requirement that future advertising and promotional materials be pre-cleared by the FDA, and state and federal civil and criminal investigations and prosecutions. Foreign regulatory bodies also strictly enforce these and other regulatory requirements.

Orphan Drug Act

The Orphan Drug Act is intended to provide incentives to pharmaceutical companies to develop and market drugs and Biologics for rare diseases or conditions affecting fewer than 200,000 persons in the United States at the time of application for orphan drug designation. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. Clinical testing requirements for orphan drugs are the same as those for products that have not received orphan drug designation but pharmaceutical companies may receive grants or tax credits for research, as well as protocol assistance. Further, if a drug or Biologic that receives orphan drug designation and is the first product to receive FDA marketing approval for the orphan designated indication, the product receives a seven-year period of marketing exclusivity during which the FDA cannot approve any application by another party to market the same drug for treatment of an identical indication. There are exceptions to this exclusivity, however. For example, the FDA is allowed to approve a second product with the same active ingredient for the same indication if the sponsor of the approved orphan product consents, grants a license to the second applicant or is unable to assure an adequate supply of the drug, or if the second product has been shown to be clinically superior to the approved orphan drug. Further, orphan drug exclusivity does not block approval of a drug that, although proposed for the same indication, is considered by the FDA (applying a regulatory standard) to be a different drug than the previously approved orphan drug. In addition, the holder of orphan drug status must notify the FDA of any decision to discontinue active pursuit of drug approval or, if such approval or license is in effect, notify the FDA at least one year prior to any discontinuance of product production. If the holder of an orphan designation cannot assure the availability of sufficient quantities of the product to meet the needs of affected patients, the FDA may withdraw orphan drug status.

Fraud and Abuse

We are subject to various federal and state laws pertaining to health care fraud and abuse, including anti-kickback laws, false claims laws and physician self-referral laws. Violations of these laws are punishable by criminal, civil and/or administrative sanctions, including, in some instances, imprisonment and exclusion from participation in federal and state health care programs, including Medicare, Medicaid and veterans' health programs. Because of the far-reaching nature of these laws, we cannot assure you that the occurrence of one or more violations of these laws would not result in a material adverse effect on our business, financial condition and results of operations.

Anti-Kickback Laws

Our operations are subject to federal and state anti-kickback laws. Certain provisions of the Social Security Act prohibit entities such as us from knowingly and willingly offering, paying, soliciting or receiving any form of remuneration (including any kickbacks, bribes or rebates) in return for the referral of items or services for which payment may be made under a federal health care program, or in return for the recommendation, arrangement, purchase, lease or order of items or services for which payment may be made under a federal health care program. Violation of the federal anti-kickback law is a felony, punishable by criminal fines and imprisonment for up to five years or both. In addition, the DHHS may impose civil penalties and exclude violators from participation in federal health care programs such as Medicare and Medicaid. Many states have adopted similar prohibitions against payments intended to induce referrals of products or services paid by Medicaid or other third party payors.

Other Regulations

In addition to the substantial regulations enforced by the FDA, we are also subject to various federal, state and local laws, regulations and recommendations relating to safe working conditions, laboratory and manufacturing practices, the experimental use of animals, and the use and disposal of hazardous or potentially hazardous substances, including radioactive compounds and infectious disease agents, used in connection with our various activities. We cannot accurately predict the extent of government regulation that might result from any future legislation or administrative action.

Process and Analytical Development, and Manufacturing

While we have no drug substance or drug product development, analytical or manufacturing facilities of our own and limited manufacturing capabilities for the supply of transgenic milk (as described below), we believe that acceptable alternatives are available through third-party contract manufacturing organizations ("CMOs") and contract research organizations ("CROs"). CMOs have experience in developing biological manufacturing processes and operating under cGMPs established by the Code of Federal Regulations and the Food, Drug and Cosmetic Act (Biologics) regulated by the FDA, and we rely on them for clinical and future commercial production of our product candidates. CROs provide cGLP/cGMP-compliant services for product analytical tests.

For SparVax™ and our third-generation anthrax vaccine, to date the rPA has been produced in *Escherichia coli* at the Avecia bacterial fermentation facilities. At Avecia, the bulk drug substance manufacturing process had been performed at final commercial scale using standard purification unit operations yielding high purity rPA. We are in the process of moving rPA bulk drug substance manufacturing from Avecia to a new CMO, Diosynth RTP, Inc. ("Diosynth"). Formulation and filling of the final drug product, adjuvanted rPA, is performed at Baxter Pharmaceutical Solutions LLC, located in the United States. The final dosage presentation is in unit dose syringes.

For Protexia®, the starting material used to produce the purified rBChE comes from the milk of transgenic goats raised on a farm we own and operate. We are producing rBChE at commercially feasible quantities. For commercial manufacturing, the bulk rBChE starting material is produced on our farm and the final purification of the bulk drug substance will be performed at a CMO. Final formulation processes and product presentation are still being developed.

For Valortim®, the cell culture process was developed by Medarex, and results in a commercially feasible and high purity product that is manufactured by a CMO. We have successfully manufactured bulk drug substance at large scale following technology transfer to a CMO. The final drug product has been formulated and filled, tested and released for labeling.

For RypVax™, the recombinant F1 (rF1) and V (rV) antigens have been independently produced in *Escherichia coli* in the Avecia facilities where they were being produced at large scale in anticipation of future manufacturing. The bulk drug substance components are purified by precipitation, chromatographic and filtration processes yielding the high purity recombinant antigens. The purified antigens are combined, formulated/adjuvanted and filled as a liquid divalent recombinant plague vaccine.

Certain raw materials used in producing our product candidates are available from only one source or a limited number of sources. We attempt to mitigate the risk associated with such sole source raw materials by actively managing our inventories. We have not experienced any shortages in supplies of such raw materials. Unavailability of certain materials or the loss of current sources of production could cause an interruption in production on a temporary basis pending establishment of new sources or, in some cases, implementation of alternative processes.

Intellectual Property

Our success depends in part on our ability to obtain patents, to protect trade secrets, and to operate without infringing upon the proprietary rights of others. We seek to protect our proprietary position by, among other methods, filing U.S. and foreign patent applications related to the proprietary technology, inventions and improvements that are important to our business. We currently hold two issued U.S. patents relating to Protexia® and four corresponding foreign patents. These patents are directed to direct gene transfer into the ruminant mammary gland and the method for development of transgenic goats. The issued patents have expiration dates in 2015. In accordance with ongoing research and development efforts, we have six pending U.S. patent applications and 14 corresponding foreign applications covering relevant and newly-developed portions of our transgenic technology.

The following table identifies each of our issued and non-abandoned patents and published pending applications:

Patent/Patent Application	Patent Number/ Application Number	Country of Issue/Filing	Issue Date/File Date	Expiration Date
Direct Gene Transfer Into the Ruminant Mammary Gland	5,780,009	U.S.	Issued July 14, 1998	July 15, 2015
Method for Development of Transgenic Goats	5,907,080	U.S.	Issued May 25, 1999	December 1, 2015
Method for Development of Transgenic Goats	0871357	Netherlands Great Britain France Germany	May 2, 2003	November 27, 2016
Production of Butyrylcholinesterase in Transgenic Mammals	10/326,892	U.S.	Filed December 20, 2002	December 21, 2022
Production of Butyrylcholinesterase in Transgenic Mammals	051024531	Hong Kong	March 22, 2005	December 19, 2022
Production of Butyrylcholinesterase in Transgenic Mammals	1458860	Europe	December 19, 2002	December 19, 2022
Long Half-Life Recombinant Butyrylcholinesterase	US07/017279	WO	Filed August 2, 2007	August 3, 2027
	12/309909	U.S.	February 2, 2009	August 3, 2027
	2009-523781	Japan	February 4, 2009	August 3, 2027
	07811030.1	Europe	August 27, 2007	August 3, 2027
	2659809	Canada	February 3, 2009	August 3, 2027
	2007281998	Australia	February 10, 2009	August 3, 2027
	196,871	Israel	February 4, 2009	August 3, 2027
Production of HSA-linked Butyrylcholinesterases	11/401,390	U.S.	Filed April 10, 2006	December 21, 2022
Method for Assaying Antigens	GB07/001353	WO	April 12, 2007	April 13, 2027
	12/226101	U.S.	October 7, 2008	April 13, 2027
	2009-504819	Japan	October 10, 2008	April 13, 2027
	2010914	Europe	November 10, 2008	April 13, 2027
	2,648,850	Canada	October 9, 2008	April 13, 2027
	2007242647	Australia	October 24, 2008	April 13, 2027
	194459	Israel	October 2, 2008	April 13, 2027
Vaccine Composition	GB2009/050050	WO	January 22, 2009	January 22, 2029
Anthrax Vaccine Formulation and Uses Thereof	GB2009/051293	WO	October 2, 2009	October 2, 2029
Stable vaccine compositions and methods of use	12/321564	U.S.	January 22, 2009	January 23, 2029
	GB2009/050051	WO	January 22, 2009	January 23, 2029
Recombinant Butyrlcholinesterase & Truncates thereof	61/284,444	U.S.	December 21, 2009	December 21, 2029

In addition, we are a party to various exclusive and non-exclusive licenses, which provide access to intellectual property and know-how useful for our products. For the Protexia® program, we are party to licenses with Exeter Life Sciences for intellectual property related to creating animal clones, GTC Biotherapeutics, Inc. for intellectual property related to the purification of proteins from milk and know-how related to the development of protein drugs in the milk of transgenic animals, Nektar Therapeutics AL, Corporation for intellectual property and know-how related to the pegylation of proteins, Yissum Research Development Company for intellectual property related to the production of proteins in the milk of transgenic animals.

Furthermore, in connection with the Avecia Acquisition, we acquired license agreements with The Defence Science and Technology Laboratory of the United Kingdom Ministry of Defence ("DSTL") originally executed May and December 2006, and amended in February 2009. These agreements allow for the licensing of certain patents and technology useful in our rPA and plague vaccine programs. Upon commercialization of a product covered by a license, the license agreements require that we make royalty payments equal to a specified percentage of future sales of products for both government procurement and commercial markets. No royalty payments on these licenses have been incurred. Some of our licenses, which generally extend for the life of any applicable patent, require us to pay royalties on sales of products that may be derived from or produced using the licensed technology. We derive rights to the patents, patent applications and know-how relating to Valortim® through our collaboration arrangement with Medarex, which owns such rights. For additional information on our license agreements, please refer to Note 10--Commitments and Contingencies--License Agreements in the Notes to our Consolidated Financial Statements.

The expiration dates for the licenses described above are as follows:

License	Expiration Date
Exeter Life Sciences	When sale of licensed product in a specific country or jurisdiction is no longer covered by a valid patent claim
GTC Biotherapeutics, Inc.	December 31, 2026
Nektar Therapeutics AL	On a country-by-country basis upon the expiration of all royalty obligations in the applicable country
Yissum Research Development Company	When the last registered patent expires
DSTL Anthrax	No expiration specified
DSTL Plague	No expiration specified
Medarex	Two years after the earlier of the date that (a) the collaboration product is no longer exploited under the agreement or (b) Unilateral Product (as defined in our collaboration agreement with Medarex) is no longer exploited under a unilateral development and commercialization agreement.

We rely upon certain proprietary trade secrets, know-how and continuing technological advances to develop a competitive position. In efforts to maintain confidentiality and ownership of trade secrets, proprietary information and developments, all of our employees are required to execute agreements regarding confidentiality and assigning to us all rights to any inventions and processes they develop while they are employed by us.

We intend to use license agreements to access external products and technologies, as well as to convey our own intellectual property to others. We will be able to protect our proprietary rights from unauthorized use by third parties only to the extent that our proprietary rights are covered by valid and enforceable patents or are effectively maintained as trade secrets.

Research and Development Costs

During the years ended December 31, 2009 and 2008, we incurred $30.2 million and $31.8 million, respectively, of development expenses related to our research and development programs.

Competition

The pharmaceutical industry is characterized by rapidly evolving technology and intense competition. A large number of companies of all sizes engage in activities similar to our activities and many of our competitors have substantially greater financial and other resources available to them.

Anthrax Product Competition

With respect to the development of a PA-based vaccine, we are aware of two other companies developing competing vaccines that are in the clinical stage of development: Emergent BioSolutions, Inc., which is the sole supplier to the U.S. government of the only currently FDA-licensed anthrax vaccine - BioThrax® Anthrax Vaccine Adsorbed, and Panacea Biotec Ltd.

Monoclonal antibodies ("MAbs") directed against PA are being developed for post-exposure prophylaxis and as symptomatic therapy for anthrax infection. There are a limited number of companies we are aware of with anti-anthrax MAbs and/or polyclonal antibodies in development, including: Cangene Corporation, Human Genome Sciences, Inc., Elusys Therapeutics, Inc., Emergent BioSolutions, Inc., and IQ Corporation BV.

There are a number of orally available small molecule and other drugs approved and/or under development for the treatment of anthrax. These include broad spectrum antibiotics as well as anthrax specific products. Bayer AG produces ciprofloxacin, or Cipro ®, which has been approved for the post-exposure prophylaxis of inhalation anthrax. In late 2004, generic versions of Cipro ® were also approved by the FDA. In addition, levofloxacin, an antibiotic marketed in the United States by Ortho-McNeil Pharmaceuticals, and the generic antibiotic, doxycycline, are both approved for post-exposure prophylaxis of inhalation anthrax.

We also believe that third generation anthrax vaccines, consisting of improved formulations of the anthrax Protective Antigen are being developed by Bavarian Nordic, Emergent BioSolutions, Inc., LigoCyte Pharmaceuticals, Inc., and Intercell AG.

Nerve Agent Product Competition

We are aware of antidotes to nerve agents being developed by pharmaceutical companies, including Countervaile Corporation, Meridian Medical Technologies, a subsidiary of King Pharmaceuticals Inc., and Dynport Vaccine Company, LLC, in collaboration with Baxter Healthcare Corporation.

Plague Product Competition

Dynport Vaccines Corporation has a recombinant F1/V fusion vaccine candidate under development being funded by the DoD.

Employees

As of December 31, 2009, we employed 147 persons on a full-time basis and 3 on a part-time basis, including 110 individuals engaged in research and development activities and 40 individuals engaged in general and administrative functions such as human resources, finance, accounting, legal and investor relations. Our staff includes 23 employees with Ph.D. or M.D. degrees. None of our employees are party to any collective bargaining agreement, and we believe that our relationship with our employees is good.

Information concerning our directors and executive officers can be found in Part III, Item 10 under the caption "Directors, Executive Officers and Corporate Governance."

Item 1A. Risk Factors

Investing in our securities involves risks. In addition to the other information in this annual report on Form 10-K, stockholders and potential investors should carefully consider the risks described below relating to investment in our common stock. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently consider immaterial may also impair our business operations. If any of the following risks actually occur, our business, financial condition and/or results of operations could be materially adversely affected, the trading price of our common stock could decline and a stockholder could lose all or part of his or her investment.

Risks Related to Our Financial Condition

We have a history of losses and negative cash flow, anticipate future losses and negative cash flow, and cannot provide assurances that we will achieve profitability.

We have incurred significant losses since we commenced operations. For the years ended December 31, 2009, 2008 and 2007 we incurred net losses of approximately $32.3 million, $36.4 million and $17.7 million respectively and had an accumulated deficit of approximately $156.3 million at December 31, 2009. Our losses to date have resulted principally from research and development costs related to the development of our product candidates, general and administrative costs related to operations, and costs related to the Avecia Acquisition.

Our likelihood for achieving profitability will depend on numerous factors, including success in:

- developing our existing products and developing and testing new product candidates;
- receiving regulatory approvals;
- carrying out our intellectual property strategy;
- establishing our competitive position;
- pursuing third-party collaborations;
- acquiring or in-licensing products;
- manufacturing and marketing products; and
- continuing to receive government funding and identifying new government funding opportunities.

Many of these factors will depend on circumstances beyond our control. We cannot guarantee that we will achieve sufficient revenues for profitability. Even if we do achieve profitability, we cannot guarantee that we can sustain or increase profitability on a quarterly or annual basis in the future. If revenues grow more slowly than we anticipate, or if operating expenses exceed our expectations or cannot be adjusted accordingly, then our business, results of operations, financial condition and cash flows will be materially and adversely affected. Because our strategy includes potential acquisitions of other businesses, acquisition expenses and any cash used to make these acquisitions will reduce our available cash. While we believe that our existing cash resources, along with cash receipts from contract receivables (some of which were unbilled at December 31, 2009) generated under our contracts will be sufficient to enable us to fund our existing research and development programs and support our currently anticipated general and administrative activities through the end of 2010, there can be no assurance that unexpected financial obligations or other activities that increase our use of cash will not result in our depleting our cash resources quicker than presently anticipated. For example, to the extent that we are unable to collect our receivables on a timely basis, we may be required to seek short term financing solutions, including either short term indebtedness or through the sale of equity.

Furthermore, under the terms of the sale and purchase agreement, as amended (the "Avecia Purchase Agreement") we entered into in connection with the Avecia Acquisition, we are required to pay Avecia $5 million within 90 days of entering into a multi-year funded development contract that was to be issued by BARDA under solicitation number RFP-BARDA-08-15 (or any substitution or replacement thereof) for the further development of SparVax™. RFP-BARDA-08-15 was cancelled by BARDA in December 2009. Accordingly, our obligation to pay Avecia the $5 million payment would mature only upon our receipt of a substitution or replacement thereof. We have received funds from BARDA and other U.S. government agencies under various development agreements between us and BARDA. Any development contract deemed to be a substitute or replacement of RFP-BARDA-08-15 could trigger our obligation to make the $5 million payment under the Avecia Purchase Agreement.

The continuing turmoil affecting the banking system and financial markets and the possibility that financial institutions may consolidate or cease operations has resulted in a tightening in the credit markets, a low level of liquidity in many financial markets and extreme volatility in fixed income, credit, currency and equity markets. As a result, there can be no assurances that we will be successful in obtaining sufficient financing on commercially reasonable terms or at all. Our requirements for additional capital may be substantial and will be dependent on many factors, including the success of our research and development efforts, our ability to commercialize and market products, our ability to successfully pursue our licensing and collaboration strategy, the receipt of continued government funding, competing technological and marketing developments, costs associated with the protection of our intellectual property and any future change in our business strategy.

To the extent that we raise additional capital through the sale of securities, the issuance of those securities or shares underlying such securities would result in dilution that could be substantial to our stockholders. In addition, if we incur additional debt financing, a substantial portion of our operating cash flow may be dedicated to the payment of principal and interest on such indebtedness, thus limiting funds available for our business activities.

If adequate funds are not available, we may be required to curtail significantly our development and commercialization activities. This would have a material adverse effect on our business, financial condition and/or results of operations.

Risks Related to Product Development and Commercialization

We have not commercialized any products or recognized any revenues from sales. All of our product candidates are still under development, and there can be no assurance of successful commercialization of any of our products.

We have not commercialized any products or recognized any revenues from product sales. In general, our research and development programs are at early stages. There can be no assurances that one or more of our future product candidates will not fail to meet safety standards in human testing, even if those product candidates are found to be effective in animal studies. To develop and commercialize biodefense treatment and prophylactic product candidates, we must provide the FDA and foreign regulatory authorities with human clinical and non-clinical animal data that demonstrate adequate safety and effectiveness. To generate these data, we will have to subject our product candidates to significant additional research and development efforts, including extensive non-clinical studies and clinical testing. We cannot be sure that our approach to drug discovery will be effective or will result in the development of any drug. Even if our product candidates are successful when tested in animals, such success would not be a guarantee of the safety or effectiveness of such product candidates in humans.

Research and development efforts in the biodefense industry are time-consuming and subject to delays. Even if we initially receive positive early-stage pre-clinical or clinical results, such results may not be indicative of results that could be anticipated in the later stages of drug development. Delays in obtaining results in our non-clinical studies and clinical testing can occur for a variety of reasons, such as slower than anticipated enrollment by volunteers in the trials, adverse events related to the products, failure to comply with Good Clinical Practices, unforeseen safety issues, unsatisfactory results in trials, perceived defects in the design of clinical trials, changes in regulatory policy as well as for reasons detailed in " *Risk Factors—Necessary Reliance on the Animal Rule in Conducting Trials is Time-Consuming and Expensive* ."

Any delay or adverse clinical event arising during any of our clinical trials could force us to conduct additional clinical trials in order to obtain approval from the FDA and other regulatory bodies. Our development costs will increase substantially if we experience material delays in any clinical trials or if we need to conduct more or larger trials than planned.

If delays are significant, or if any of our products do not prove to be safe, pure, and potent (including efficacy) or do not receive required regulatory approvals, we may have to abandon the product altogether and will be unable to recognize revenues from the sale of that product. In addition, our collaborative partners may not be able to conduct clinical testing or obtain necessary approvals from the FDA or other regulatory authorities for any product candidates jointly developed by us and our partners. If we fail to obtain required governmental approvals, we and our collaborative partners will experience delays in, or be precluded from, marketing products developed through them or, as applicable, their research.

Necessary Reliance on the Animal Rule in Conducting Trials is Time-Consuming and Expensive.

As described in "*Business—U.S. Government Regulatory Pathway—General*", to obtain FDA approval for our biological warfare defense products under current FDA regulations, we are required to utilize animal model studies for efficacy and provide animal and human safety data under the "Animal Rule." For many of the biological and chemical threats, animal models are not yet available, and as such we are developing, or will have to develop, appropriate animal models, which is a time-consuming and expensive research effort. Further, we may not be able to sufficiently demonstrate the animal correlation to the satisfaction of the FDA, as these corollaries are difficult to establish and are often unclear. The FDA may decide that our data are insufficient for approval and require additional preclinical, clinical or other studies, refuse to approve our products, or place restrictions on our ability to commercialize those products. Further, other countries do not, at this time, have established criteria for review and approval of these types of products outside their normal review process; i.e., there is no "Animal Rule" equivalent, and consequently there can be no assurance that we will be able to make a submission for marketing approval in foreign countries based on such animal data.

Additionally, few facilities in the U.S. and internationally have the capability to test animals with anthrax, plague, nerve agents, or other lethal biotoxins or chemical agents or otherwise assist us in qualifying the requisite animal models. We have to compete with other biodefense companies for access to this limited pool of highly specialized resources. We therefore may not be able to secure contracts to conduct the testing in a predictable timeframe or at all.

Even if we succeed in commercializing our product candidates, they may not become profitable and manufacturing problems or side effects discovered at later stages can further increase costs of commercialization.

We cannot assure you that any drugs resulting from our research and development efforts will become commercially available. Even if we succeed in developing and commercializing our product candidates, we may never generate sufficient or sustainable revenues to enable us to be profitable. Even if effective, a product that reaches market may be subject to additional clinical trials, changes to or re-approvals of our manufacturing facilities or a change in labeling if we or others identify side effects or manufacturing problems after a product is on the market. This could harm sales of the affected products and could increase the cost and expenses of commercializing and marketing them. It could also lead to the suspension or revocation of regulatory approval for the products.

We and our CMOs will also be required to comply with the applicable FDA current Good Manufacturing Practice ("cGMP") regulations. These regulations include requirements relating to quality control and quality assurance as well as the corresponding maintenance of records and documentation. Manufacturing facilities are subject to inspection by the FDA. These facilities must be approved to supply licensed products to the commercial marketplace. We and our contract manufacturers may not be able to comply with the applicable cGMP requirements and other FDA regulatory requirements. Should we or our contract manufacturers fail to comply, we could be subject to fines or other sanctions or could be precluded from marketing our products. In particular, we have engaged a new contract manufacturer, Diosynth, to replace Avecia to manufacture bulk drug substance for SparVax™ and are engaged in a technology transfer process to this new contract manufacturer. Diosynth has not manufactured this bulk drug substance before. There can be no assurance that we will be successful in our technology transfer efforts or that this new contract manufacturer will be able to manufacture sufficient amounts of cGMP quality bulk drug substance necessary for us to meet our obligations to the U.S. government.

We may also fail to fully realize the potential of Valortim® and of our co-development arrangement with Medarex (which was acquired by Bristol Myers Squibb in 2009), our partner in the development of Valortim ® , which would have an adverse effect upon our business. We have completed only one Phase I clinical trial for Valortim ® with our development partner, Medarex, at this point. As discussed in "-- *Risks Related to Our Dependence on U.S. Government Contracts--Most of our immediately foreseeable future revenues are contingent upon grants and contracts from the U.S. government and we may not achieve sufficient revenues from these agreements to attain profitability* ", in the fourth quarter of 2009, the FDA placed our Phase I clinical trial of Valortim ® and ciprofloxacin on clinical hold, pending the results of our investigation of the potential causes for adverse reactions observed in two subjects dosed in the trial. BARDA has advised us that until satisfactory resolution of this issue and the clinical hold is lifted it will not act on our request for additional advanced development funding for Valortim ® under BAA-BARDA-09-34. It is unclear at this time how long it will take us to complete our investigation, if and when we will be in a position to recommence negotiations with BARDA with respect to a potential award under the BAA, and what the effects of any delay in potential future funding of the program will be on the overall Valortim® development timeline.

Before we may begin selling any doses of Valortim®, we will need to conduct more comprehensive safety trials in a significantly larger group of human subjects. We will be required to expend a significant amount to finalize manufacturing capability through a contract manufacturer to provide material to conduct the pivotal safety and efficacy trials. If our contract manufacturer is unable to produce sufficient quantities at a reasonable cost, or has any other obstacles to production, then we will be unable to commence these required clinical trials and studies. Even after we expend sufficient funds to complete the development of Valortim ® and if and when we enter into an agreement to supply Valortim ® to the U.S. government, we will be required to share any and all profits from the sale of products with our partner in accordance with a pre-determined formula.

If we cannot maintain successful licensing arrangements and collaborations, enter into new licensing arrangements and collaborations, or effectively accomplish strategic acquisitions, our ability to develop and commercialize a diverse product portfolio could be limited and our ability to compete may be harmed.

A key component of our business strategy is the in-licensing of compounds and products developed by other pharmaceutical and biotechnology companies or academic research laboratories.

For example, we have an agreement with Medarex to develop Valortim®, a fully human monoclonal antibody product designed to protect against and treat inhalation anthrax. Under the agreement with Medarex, we will be entitled to a variable percentage of profits derived from sales of Valortim ® , if any, depending, in part, on the amount of our investment. In addition, we have entered into licensing and research and development agreements with a number of other parties and collaborators. There can be no assurances that the research and development conducted pursuant to these agreements will result in revenue generating product candidates. If our suppliers, vendors, licensors, or other collaboration partners experience financial difficulties as a result of the weak economy, or if they are acquired as part of the current wave of consolidations in the pharmaceutical industry (such as, for example, with the acquisitions of Medarex by Bristol Myers Squibb and Diosynth's parent company by Merck & Co., Inc. in 2009 and of Avecia's CMO subsidiary (Avecia Biologics) by Merck & Co., Inc. in 2010), their priorities or our working relationship with them might change. As a result, they might shift resources away from the research, development and/or manufacturing efforts intended to benefit our products, which could lead to significant delays in our development programs and potential future sales. Finally, our current licensing, research and development, and supply agreements may expire and may not be renewable or could be terminated if we do not meet our obligations. For example, our license agreement from DSTL for certain technology related to RypVax ™ requires that we diligently pursue development of this product candidate to maintain exclusive rights to the technology. Upon termination of our existing contract with the U.S. government for the development of RypVax ™ , which is on an accelerated wind-down schedule, we may decide not to continue with development efforts at a level necessary to meet this requirement, since we do not anticipate that the U.S. government will provide additional funding in the future for or procure RypVax™.

If we are not able to identify new licensing opportunities or enter into other licensing arrangements on acceptable terms, we may be unable to develop a diverse portfolio of products. For our future collaboration efforts to be successful, we must first identify partners whose capabilities complement and integrate well with ours. We face, and will continue to face, significant competition in seeking appropriate collaborators. Collaboration arrangements are complex and time consuming to negotiate, document and implement. We may not be successful in our efforts to establish and implement collaborations or other similar arrangements. The terms of any collaboration or other arrangements that we establish may not be favorable to us. Furthermore, technologies to which we gain access may prove ineffective or unsafe or our partners may prove difficult to work with or less skilled than we originally expected. In addition, any past collaborative successes are no indication of potential future success.

We may also pursue strategic acquisitions to further our development and commercialization efforts. To achieve the anticipated benefits of an acquisition, we must integrate the acquired company's business, technology and employees in an efficient and effective manner. The successful combination of companies in a rapidly changing biodefense industry may be more difficult to accomplish than in other industries. The combination of two companies requires, among other things, integration of the companies' respective technologies and research and development efforts. We cannot assure you that any integration will be accomplished smoothly or successfully. The difficulties of integration are increased by the need to coordinate geographically separated organizations and address possible differences in corporate cultures and management philosophies. The integration of certain operations will require the dedication of management resources that may temporarily distract attention from the day-to-day operations of the combined companies. The business of the combined companies may also be disrupted by employee retention uncertainty and lack of focus during integration. The inability of management to integrate successfully the operations of the two companies, in particular, to integrate and retain key scientific personnel, or the inability to integrate successfully two technology platforms, could have a material adverse effect on our business, results of operations and financial condition.

We may become subject to product liability claims, which could reduce demand for our product candidates or result in damages that exceed our insurance coverage.

We face an inherent risk of exposure to product liability suits in connection with our product candidates being tested in human clinical trials or sold commercially. We may become subject to a product liability suit if any product we develop causes injury, or if treated individuals subsequently become infected or suffer adverse effects from our products. Regardless of merit or eventual outcome, product liability claims may result in decreased demand for a product, injury to our reputation, withdrawal of clinical trial volunteers, and loss of revenues.

In addition, if a product liability claim is brought against us, the cost of defending the claim could be significant and any adverse determination may result in liabilities in excess of our insurance coverage. Although our anthrax countermeasures are covered under the general immunity provisions of the U.S. Public Readiness and Emergency Preparedness Act (the "Public Readiness Act"), there can be no assurance that the U.S. Secretary of Health and Human Services will make other declarations in the future that cover any of our other product candidates or that the U.S. Congress will not act in the future to reduce coverage under the Public Readiness Act or to repeal it altogether. For further discussion of that act, see " *Risk Factors - Legislation limiting or restricting liability for medical products used to fight bioterrorism is new, and we cannot be certain that any such protection will apply to our products or if applied what the scope of any such coverage will be* " below. Additionally, we are considering applying for indemnification under the U.S. Support Anti-terrorism by Fostering Effective Technologies (SAFETY) Act of 2002 which preempts and modifies tort laws so as to limit the claims and damages potentially faced by companies who provide certain "qualified" anti-terrorism products. However, we cannot be certain that we will be able to obtain or maintain coverage under the SAFETY Act or adequate insurance coverage on acceptable terms, if at all.

Risks Related to Our Dependence on U.S. Government Contracts

Most of our immediately foreseeable future revenues are contingent upon grants and contracts from the U.S. government and we may not achieve sufficient revenues from these agreements to attain profitability.

For the foreseeable future, we believe our main customer will be national governments, primarily the U.S. government. Substantially all of our revenues to date have been derived from grants and U.S. government contracts. There can be no assurances that existing government contracts will be renewed or that we can enter into new contracts or receive new grants to supply the U.S. or other governments with our products. The process of obtaining government contracts is lengthy and uncertain. In addition, the U.S. government is in the process of reviewing the public health emergency countermeasure enterprise. It is anticipated that the review will include recommendations for how the U.S government structures and oversees the research, development, procurement, stockpiling and dispensing of countermeasures as well as how the enterprise is funded. The implications of the review are not known at this time, however, it could impact existing and anticipated contract opportunities.

If the U.S. government makes significant contract awards to our competitors for the supply to the U.S. emergency stockpile, our business will be harmed and it is unlikely that we will ultimately be able to supply that particular treatment or product to foreign governments or other third parties. Further, changes in government budgets and agendas, cost overruns in our programs, or advances by our competitors, may result in a decreased and de-prioritized emphasis on, or termination of, government contracts that support the development and/or procurement of the biodefense products we are developing. More generally, due to the current economic downturn, the accompanying fall in tax revenues and the U.S. government's efforts to stabilize the economy, the U.S. government may be forced or choose to reduce or delay spending in the biodefense field or eliminate funding of certain programs altogether, which could decrease the likelihood of future government contract awards or that the government would procure products from us.

For example, while RFP-BARDA-08-15 for an rPA vaccine for the SNS initially indicated that the government would make an award by September 26, 2008, the award was delayed multiple times and ultimately canceled in December 2009. Furthermore, the U.S. government has selected a plague vaccine product candidate from a competitor for advanced development funding, and we do not anticipate that the U.S. government will provide additional funding in the future for or procure RypVax™. Given the limited future prospects for RypVax™ at this time, we and the U.S. government agreed to a reduction to the scope of work that will result in early wind down of all activities under our existing RypVax™ contract, likely before the end of the first half of 2010. Previously, the contract was expected to expire in the second half of 2011. In addition, we believe the remaining development costs required to obtain FDA licensure for Protexia® in advance of government procurement exceed those used in our original proposal and provided for in the contract with the DoD, and it is unclear whether under the terms of our 2006 contract with the DoD the DoD will elect to continue to fund development of Protexia ® (as well as the timing of any decision by the DoD in that regard, although the government has recently indicated that it may make a decision before the end of the third quarter 2010). Further, even if the DoD does so elect to continue funding and we meet all development milestones, the DoD may nevertheless choose not to procure any doses of Protexia ® .

In the fourth quarter of 2009, the FDA placed our phase I clinical trial of Valortim® and ciprofloxacin on clinical hold, pending the results of our investigation of the potential causes for adverse reactions observed in two subjects dosed in the trial. BARDA has advised us that until satisfactory resolution of this issue and the clinical hold is lifted it will not act on our request for additional advanced development funding for Valortim® under BAA-BARDA-09-34. It is unclear at this time how long it will take us to complete our investigation, if and when we will be in a position to recommence negotiations with BARDA with respect to a potential award under the BAA, and what the effects of any delay in potential future funding of the program will be on the overall Valortim® development timeline.

U.S. government agencies have special contracting requirements that give them the ability to unilaterally control our contracts.

U.S. government contracts typically contain unfavorable termination provisions and are subject to audit and modification by the government at its sole discretion, which will subject us to additional risks. These risks include the ability of the U.S. government unilaterally to:

- suspend or prevent us for a set period of time from receiving new contracts or extending existing contracts based on violations or suspected violations of laws or regulations;
- terminate our contracts, including if funds become unavailable or are not provided to the applicable governmental agency;
- reduce the scope and value of our contracts;
- audit and object to our contract-related costs and fees, including allocated indirect costs;
- control and potentially prohibit the export of our products;
- change certain terms and conditions in our contracts; and
- cancel outstanding RFP solicitations (as was the case with RFP-BARDA-08-15) or BAAs.

The U.S. government will be able to terminate any of its contracts with us either for its convenience or if we default by failing to perform in accordance with the contract schedule and terms. Termination-for-convenience provisions generally enable us to recover only our costs incurred or committed, settlement expenses, and profit on the work completed prior to termination. Termination-for-default provisions do not permit these recoveries and would make us liable for excess costs incurred by the U.S. government in procuring undelivered items from another source.

In February 2010, we received notice from the NIAID raising concerns regarding performance under our existing contract with them related to our third-generation anthrax vaccine program, and directing us to explain how we plan to cure the deficiencies. In accordance with the timeline specified by NIAID, we responded in March 2010 proposing, among other things, a revised development program and timeline. There can be no assurance that the parties will come to agreement on a path forward or that the government will not terminate the agreement.

Due to the current economic downturn, the accompanying fall in tax revenues, and the U.S. government's efforts to stabilize the economy, the U.S. government may be forced or choose to reduce or delay spending in the biodefense field or eliminate funding of certain programs altogether, which could decrease the likelihood of future government contract awards, the likelihood that the government will exercise its right to extend any of its existing contracts with us and/or the likelihood that the government would procure products from us.

The U.S. government's determination to award any contracts may be challenged by an interested party, such as another bidder, at the GAO or in federal court. If such a challenge is successful, a contract may be terminated.

The laws and regulations governing the procurement of goods and services by the U.S. government provide procedures by which other bidders and other interested parties may challenge the award of a government contract. If we are awarded a government contract, such challenges or protests could be filed even if there are not any valid legal grounds on which to base the protest. If any such protests are filed, the government agency may decide to suspend our performance under the contract while such protests are being considered by the GAO or the applicable federal court, thus potentially delaying delivery of goods and services and payment. In addition, we could be forced to expend considerable funds to defend any potential award. If a protest is successful, the government may be ordered to terminate our contract and reselect bids. The government could even be directed to award a potential contract to one of the other bidders. For example, in March 2010 a third-party filed a bid protest with the GAO challenging the February 2010 decision of the HHS to modify its existing research and development contract with us for the development of SparVax TM . On March 19, 2010 HHS suspended performance under the modification pursuant to the automatic stay provisions of the FAR, pending a decision by the GAO on the protest. A ruling on the protest is expected no later than June 11, 2010. We have intervened in the protest and will likely have to expend considerable effort and funds to defend the contract modification. Further, there can be no assurances that the GAO will not sustain the protest, which could then result in termination and re-bidding of the modification and have a material adverse effect on our financial condition and operations.

Our business is subject to audit by the U.S. government and a negative audit could adversely affect our business.

U.S. government agencies such as the Defense Contract Audit Agency, or the DCAA, routinely audit and investigate government contractors. These agencies review a contractor's performance under its contracts, cost structure and compliance with applicable laws, regulations and standards.

The DCAA also reviews the adequacy of, and a contractor's compliance with, its internal control systems and policies, including the contractor's purchasing, property, estimating, compensation and management information systems. Any costs found to be improperly allocated to a specific contract will not be reimbursed, while such costs already reimbursed must be refunded. If an audit uncovers improper or illegal activities, we may be subject to civil and criminal penalties and administrative sanctions, including:

- termination of contracts;
- forfeiture of profits;
- suspension of payments;
- fines; and

- suspension or prohibition from conducting business with the U.S. government.

In addition, we could suffer serious reputational harm if allegations of impropriety were made against us.

Laws and regulations affecting government contracts make it more costly and difficult for us to successfully conduct our business.

We must comply with numerous laws and regulations relating to the formation, administration and performance of government contracts, which can make it more difficult for us to retain our rights under these contracts. These laws and regulations affect how we conduct business with government agencies. Among the most significant government contracting regulations that affect our business are:

- the Federal Acquisition Regulations, or FAR, and agency-specific regulations supplemental to the Federal Acquisition Regulations, which comprehensively regulate the procurement, formation, administration and performance of government contracts;

- the business ethics and public integrity obligations, which govern conflicts of interest and the hiring of former government employees, restrict the granting of gratuities and funding of lobbying activities and incorporate other requirements such as the Anti-Kickback Act and Foreign Corrupt Practices Act;

- export and import control laws and regulations; and

- laws, regulations and executive orders restricting the use and dissemination of information classified for national security purposes and the exportation of certain products and technical data.

Foreign governments typically also have laws and regulations governing contracts with their respective agencies. These foreign laws and regulations affect how we and our customers conduct business and, in some instances, impose added costs on our business. Any changes in applicable laws and regulations could restrict our ability to maintain our existing contracts and obtain new contracts, which could limit our ability to conduct our business and materially adversely affect our revenues and results of operations.

Risks Related to Dependence on or Competition From Third Parties

Because we depend on clinical research centers and other contractors for clinical and non-clinical testing, including testing under the Animal Rule, and for certain research and development activities, the results of our clinical trial, non-clinical animal efficacy studies, and research and development activities are largely beyond our control .

The nature of clinical trials and our business strategy of outsourcing substantially all of our research and development and manufacturing work require that we rely on clinical research centers and other contractors to assist us with research and development, clinical and non-clinical testing (including animal efficacy studies under the Animal Rule), patient enrollment and other activities. As a result, our success depends largely on the success of these third parties in performing their responsibilities. Although we prequalify our contractors and believe that they are fully capable of performing their contractual obligations, we cannot directly control the adequacy and timeliness of the resources and expertise that they apply to these activities. Furthermore, we have to compete with other biodefense companies for access to this limited pool of highly specialized resources. If our contractors do not perform their obligations in an adequate and timely manner or we are unable to enter into contracts with them because of prior commitments to our competitors, the pace of clinical or non-clinical development, regulatory approval and commercialization of our product candidates could be significantly delayed and our prospects could be adversely affected.

We depend on third parties to manufacture, package and distribute compounds for our product candidates and key components for our product candidates. The failure of these third parties to perform successfully could harm our business.

We do not have any of our own manufacturing facilities. We have therefore utilized, and intend to continue utilizing, third parties to manufacture, package and distribute our product candidates and key components of our product candidates. Any material disruption in manufacturing could cause a delay in our development programs and potential future sales. Furthermore, certain compounds, media, or other raw materials used to manufacture our drug candidates are available from any one or a limited number of sources. Any delays or difficulties in obtaining key components for our product candidates or in manufacturing, packaging or distributing our product candidates could delay clinical trials and further development of these potential products. Additionally, the third parties we rely on for manufacturing and packaging are subject to regulatory review, and any regulatory compliance problems with these third parties could significantly delay or disrupt our commercialization activities.

We were notified by the contract manufacturer who supplies the pegylation reagent for our Protexia® product candidate that it intends to cease its contract manufacturing operations to focus exclusively on developing its own proprietary product candidates. We are now in the process of searching for an alternative supplier. As part of this process, we will need to negotiate and execute a license to certain intellectual property from our current supplier related to the pegylation process and to engage in a technology transfer process to a new supplier. If we are not successful in these endeavors, our Protexia ® development program will be adversely affected.

Finally, third-party manufacturers, suppliers and distributors, like most companies, have been adversely affected by the credit crisis and weakening of the global economy and as such may be more susceptible to being acquired as part of the current wave of consolidations in the pharmaceutical industry. It has, for example, become challenging for companies to secure debt capital to fund their operations as financial institutions have significantly curtailed their lending activities. If our third-party suppliers continue to experience financial difficulties as a result of weak demand for their products or for other reasons and are unable to obtain the capital necessary to continue their present level of operations or are acquired by others, they may have to reduce their activities and/or their priorities or our working relationship with them might change. A material deterioration in their ability or willingness to meet their obligations to us could cause a delay in our development programs and potential future sales and jeopardize our ability to meet our obligations under our contracts with the government or other third parties.

We face, and likely will continue to face, competition from companies with greater financial, personnel and research and development resources. Our commercial opportunities will be reduced or eliminated if our competitors are more successful in the development and marketing of their products.

The biopharmaceutical industry is characterized by rapid and significant technological change. Our success will depend on our ability to develop and apply our technologies in the design and development of our product candidates and to establish and maintain a market for our product candidates. There are many organizations, both public and private, including major pharmaceutical and chemical companies, specialized biotechnology firms, universities and other research institutions engaged in developing pharmaceutical and biotechnology products. Many of these organizations have substantially greater financial, technical, intellectual property, research and development, and human resources than we have. Competitors may develop products or other technologies that are more effective than any that we are developing or may obtain FDA approval for products more rapidly. As noted above in "- *Most of our immediately foreseeable future revenues are contingent upon grants and contracts from the U.S. government and we may not achieve sufficient revenues from these agreements to attain profitability,"* the U.S. government has selected a plague vaccine product candidate from a competitor for advanced development funding.

If we commence commercial sales of products, we still must compete in the manufacturing and marketing of such products, areas in which we have limited experience. Many of these organizations also have manufacturing facilities and established marketing capabilities that would enable such companies to market competing products through existing channels of distribution. Our commercial opportunities will be reduced or eliminated if our competitors develop and market products that:

- are more effective;
- have fewer or less severe adverse side effects;
- are more adaptable to various modes of dosing;
- obtain orphan drug exclusivity that blocks the approval of our application for seven years;
- are easier to administer; or
- are less expensive than the products or product candidates that we are, or in the future will be, developing.

While the regulatory climate for generic versions of biological products approved under a Biologics License Application (or a BLA) in the United States remains uncertain, and currently there is no formalized mechanism by which the FDA can approve a generic version of an approved biological product, Federal legislation has been introduced to establish a legal pathway for the approval of generic versions of approved biological products. If enacted, the legislation will impact the revenue projections for our products.

Even if we are successful in developing effective products, and obtain FDA and other regulatory approvals necessary for commercializing them, our products may not compete effectively with other successful products. Our competitors may succeed in developing and marketing products either that are more effective than those that we may develop, alone or with our collaborators, making our products obsolete, or that are marketed before any products that we develop are marketed.

Risks Related to Political and Social Factors

Political or social factors may delay or impair our ability to market our products and our business may be materially adversely affected.

Products developed to treat diseases caused by, or to combat the threat of, bioterrorism will be subject to changing political and social environments. The political and social responses to bioterrorism have been unpredictable. Political or social pressures may delay or cause resistance to bringing our products to market or limit pricing of our products, which would harm our business.

Risks Related to Intellectual Property

Our commercial success will be affected significantly by our ability (i) to obtain and maintain protection for our proprietary technology and that of our licensors and collaborators and (ii) not to infringe on patents and proprietary rights of third parties.

The patent position of biotechnology firms generally is highly uncertain and involves complex legal and factual questions, and, therefore, validity and enforceability cannot be predicted with certainty. To date, no consistent policy has emerged regarding the breadth of claims allowed in biotechnology patents. We currently hold two U.S. patents, have five pending U.S. patent applications, and have a limited number of foreign patents and pending international and foreign patents applications. In addition, we have rights under numerous other patents and patent applications pursuant to exclusive and non-exclusive license arrangements with licensors and collaborators. However, there can be no assurance that patent applications owned or licensed by us will result in patents being issued or that the patents, whether existing or issued in the future, will afford protection against competitors with similar technology. Any conflicts resulting from third-party patent applications and patents could significantly reduce the coverage of the patents owned, optioned by or licensed to us or our collaborators and limit our ability or that of our collaborators to obtain meaningful patent protection.

Further, our commercial success will depend significantly on our ability to operate without infringing the patents and proprietary rights of third parties. We are aware of one U.S. patent covering recombinant production of an antibody and a license may be required under such patent with respect to Valortim ® , which is a monoclonal antibody and uses recombinant reproduction of antibodies. Although the patent owner has granted licenses under such patent, we cannot provide any assurances that we will be able to obtain such a license or that the terms thereof will be reasonable. If we do not obtain such a license and if a legal action based on such patent was to be brought against us or our distributors, licensees or collaborators, we cannot provide any assurances that we or our distributors, licensees or collaborators would prevail or that we have sufficient funds or resources to defend such claims.

We are also aware of pending applications directed to pegylated butyrylcholinesterase. Protexia® incorporates butyrylcholinesterase. If patents are issued to third parties that cover Protexia ® or other products, we may be required to obtain a license under such patents or obtain alternative technology. We cannot provide any assurances that such licenses will be available or that the terms thereof will be reasonable or that we will be able to develop alternative technologies. If we do not obtain such a license and if a legal action based on such patent was to be brought against us or our distributors, licensees or collaborators, we cannot provide any assurances that we or our distributors, licensees or collaborators would prevail or that we have sufficient funds or resources to defend such claims.

The costs associated with establishing the validity of patents, of defending against patent infringement claims of others and of asserting infringement claims against others is expensive and time consuming, even if the ultimate outcome is favorable. An outcome of any patent prosecution or litigation that is unfavorable to us or one of our licensors or collaborators may have a material adverse effect on us. The expense of a protracted infringement suit, even if ultimately favorable, would also have a material adverse effect on us.

We furthermore rely upon trade secrets protection for our confidential and proprietary information. We have taken measures to protect our proprietary information; however, these measures may not provide adequate protection to us. We have sought to protect our proprietary information by entering into confidentiality agreements with employees, collaborators and consultants. Nevertheless, employees, collaborators or consultants may still disclose our proprietary information, and we may not be able to meaningfully protect our trade secrets. In addition, others may independently develop substantially equivalent proprietary information or techniques or otherwise gain access to our trade secrets.

Risks Related to Regulatory Approvals and Legislation

Our use of hazardous materials and chemicals requires us to comply with regulatory requirements which may result in significant costs and expose us to potential liabilities.

Our research and development involves the controlled use of hazardous materials and chemicals. We are subject to federal, state, local and foreign laws governing the use, manufacture, storage, handling and disposal of such materials. We will not be able to eliminate the risk of accidental contamination or injury from these materials. In the event of such an accident, we could be forced to pay significant damages or fines, and these damages could exceed our resources and any applicable insurance coverage. In addition, we may be required to incur significant costs to comply with regulatory requirements in the future.

Legislation limiting or restricting liability for medical products used to fight bioterrorism is new, and we cannot be certain that any such protection will apply to our products or if applied what the scope of any such coverage will be.

The U.S. Public Readiness Act was signed into law in December 2005 and creates general immunity for manufacturers of countermeasures, including security countermeasures (as defined in Section 319F-2(c)(1)(B) of that act), when the U.S. Secretary of Health and Human Services issues a declaration for their manufacture, administration or use. The declaration is meant to provide general immunity from all claims under state or federal law for loss arising out of the administration or use of a covered countermeasure. Manufacturers are excluded from this protection in cases of willful misconduct. Although our anthrax countermeasures have been covered under the general immunity provisions of the Public Readiness Act since October 1, 2008, there can be no assurance that the Secretary of Health and Human Services will make other declarations in the future that would cover any of our other product candidates or that the U.S. Congress will not act in the future to reduce coverage under the Public Readiness Act or to repeal it altogether.

Upon a declaration by the Secretary of Health and Human Services, a compensation fund would be created to provide "timely, uniform, and adequate compensation to eligible individuals for covered injuries directly caused by the administration or use of a covered countermeasure." The "covered injuries" to which the program applies are defined as serious physical injuries or death. Individuals are permitted to bring a willful misconduct action against a manufacturer only after they have exhausted their remedies under the compensation program. A willful misconduct action could be brought against us if an individual(s) has exhausted their remedies under the compensation program which thereby could expose us to liability. Furthermore, there is no assurance that the Secretary of Health and Human Services will issue under this act a declaration to establish a compensation fund. We may also become subject to standard product liability suits and other third party claims if products we develop which fall outside of the Public Readiness Act cause injury or if treated individuals subsequently become infected or otherwise suffer adverse effects from such products.

We are required to comply with certain export control laws, which may limit our ability to sell our products to non-U.S. persons and may subject us to regulatory requirements that may delay or limit our ability to develop and commercialize our products.

Our product candidates are subject to the Export Administration Regulations ("EAR") administered by the U.S. Department of Commerce and are, in certain instances (such as regarding aspects of our Protexia® product candidate) subject to the International Traffic in Arms Regulations ("ITAR") administered by the U.S. Department of State. EAR restricts the export of dual-use products and technical data to certain countries, while ITAR restricts the export of defense products, technical data and defense services. The U.S. government agencies responsible for administering EAR and ITAR have significant discretion in the interpretation and enforcement of these regulations. Failure to comply with these regulations can result in criminal and civil penalties and may harm our ability to enter into contracts with the U.S. government. It is also possible that these regulations could adversely affect our ability to sell our products to non-U.S. customers.

Risks Related to Personnel

We depend on our key technical and management personnel, and the loss of these personnel could impair the development of our products.

We rely, and will continue to rely, on our key management and scientific staff, all of whom are employed at-will. The loss of key personnel or the failure to recruit necessary additional qualified personnel could have a material adverse effect on our business and results of operations. There is intense competition from other companies, research and academic institutions and other organizations for qualified personnel. We may not be able to continue to attract and retain the qualified personnel necessary for the development of our business. If we do not succeed in retaining and recruiting necessary personnel or developing this expertise, our business could suffer significantly.

In particular, as noted above in "*Even if we succeed in commercializing our product candidates, they may not become profitable and manufacturing problems or side effects discovered at later stages can further increase costs of commercialization* ," we are transferring the manufacturing process for the bulk rPA drug substance from Avecia in the United Kingdom to Diosynth, a U.S.-based contract manufacturer. In connection with that transfer, we also anticipate moving our U.K.-based operations to the United States by June 30, 2010. There can be no assurance that we will be able to recruit and hire the necessary staff in the U.S. to complete the transfer of activities in a timely and cost effective manner.

Biotechnology companies often become subject to claims that they or their employees wrongfully used or disclosed alleged trade secrets of the employees' former employers. Such litigation could result in substantial costs and be a distraction to our management.

As is commonplace in the biotechnology industry, we employ individuals who were previously employed at other biotechnology or pharmaceutical companies, including at competitors or potential competitors. Although no claims against us are currently pending, we may be subject to claims that we or our employees have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial costs and distract management.

Risks Related to our Common Stock

Shares that we may issue in the future in connection with certain capital-raising transactions and shares available for future issuance upon conversion and exercise of convertible notes, warrants and options could dilute our shareholders and depress the market price of our common stock.

We will likely seek to raise additional capital and may do so at any time through various financing alternatives, including potentially selling shares of common or preferred stock, notes and/or warrants convertible into, or exercisable for, shares of common or preferred stock. We could again rely upon the shelf registration statement on Form S-3, which was declared effective on February 12, 2009, in connection with a sale from time to time of common stock, preferred stock or warrants or any combination of those securities, either individually or in units, in one or more offerings for up to $50,000,000 (inclusive of the gross proceeds from our March 2009 public offering of $5.5 million and the $2.1 million we would receive if all of the warrants issued in that offering were exercised). Raising capital in this manner or any other manner may depress the market price of our stock, and any such financing(s) will dilute our existing shareholders.

In addition, as of December 31, 2009, we had outstanding options to purchase approximately 4.9 million shares of common stock. Additional shares are reserved for issuance under our 2007 Long-Term Incentive Compensation Plan. Our stock options are generally exercisable for ten years, with a significant portion exercisable either immediately or beginning one year after the date of the grant. Furthermore, the senior unsecured convertible notes in the aggregate principal amount of $19.3 million issued in July 2009 are convertible at approximately $2.54 per share into approximately 7.6 million shares of our common stock, and the accompanying warrants became exercisable on January 28, 2010 for up to approximately 2.6 million shares of common stock at $2.50 per share. Finally, as of December 31, 2009, the Company had issued and outstanding additional warrants to purchase up to an additional approximately 0.8 million shares of common stock. The issuance or even the expected issuance of a large number of shares of our common stock upon conversion or exercise of the securities described above could depress the market price of our stock and the issuance of such shares will dilute the stock ownership of our existing shareholders.

If we are unable to continue to satisfy the listing requirements of NYSE Amex, our securities could be delisted from trading which could limit investors' ability to make transactions in our securities and subject us to additional trading restrictions.

Our common stock and certain warrants are listed on the NYSE Amex (formerly the NYSE Alternext US or American Stock Exchange), a national securities exchange, which imposes continued listing requirements with respect to listed shares. If we fail to satisfy one or more of the requirements, such as the policy that issuers that have had losses in their five most recent fiscal years have stockholders' equity of at least $6,000,000, that issuers have more than 300 public shareholders, or that the aggregate market value of shares publicly held be more than $1,000,000, the NYSE Amex may decide to delist our common stock. If the NYSE Amex delists our securities from trading on its exchange and we are not able to list our securities on another exchange or to have them quoted on Nasdaq, our securities could be quoted on the OTC Bulletin Board or on the "pink sheets". As a result, we could face significant adverse consequences including:

- a limited availability of market quotations for our securities;
- a determination that our common stock is a "penny stock" which will require brokers trading in our common stock to adhere to more stringent rules and possibly result in a reduced level of trading activity in the secondary trading market for our securities;
- a limited amount of news and analyst coverage for us; and
- a decreased ability to issue additional securities or obtain additional financing in the future.

We can give no assurances that we will ever pay dividends.

We have not paid any dividends on our common stock in 2009, 2008 or 2007 and do not intend to declare any dividends in the foreseeable future. While subject to periodic review, our current policy is to retain all earnings, if any, primarily to finance our future growth. We make no assurances that we will ever pay dividends, cash or otherwise. Whether we pay any dividends in the future will depend on our financial condition, results of operations, and other factors that we will consider.

Item 1.B. Unresolved Staff Comments.

Not applicable.

Item 2. Properties.

Our principal executive offices are located at One Park Place, Suite 450, Annapolis, MD 21401 and are comprised of approximately 21,900 square feet. The lease expires in 2017. We sublease from Avecia approximately 12,700 square feet of office space in Haverton Hills, England which expires in October 2010. We have also leased approximately 700 square feet of office space in Cary, North Carolina on a month-to-month basis.

We own a farm in Canada consisting of 180 acres of land where we raise transgenic goats.

Management believes that these facilities are suitable and adequate to meet our anticipated needs.

Item 3. Legal Proceedings.

Except as noted below, we are not a defendant in any legal proceedings.

In December 2006, we filed a complaint against Siga Technologies, Inc. ("SIGA") in the Delaware Chancery Court. The complaint alleges, among other things, that we have the right to license exclusively development and marketing rights for SIGA's drug candidate, SIGA-246, pursuant to a merger agreement between the parties (the "Merger Agreement") that was terminated in October 2006. The complaint also alleges that SIGA failed to negotiate in good faith the terms of such a license pursuant to the terminated merger agreement.

We are seeking alternatively a judgment requiring SIGA to enter into an exclusive license agreement with us for SIGA-246 in accordance with the terms of the term sheet attached to the merger agreement or monetary damages. In January 2008, the Delaware Chancery Court issued a ruling denying a motion by SIGA to dismiss the complaint. SIGA has filed a counterclaim against us alleging that we breached our duty to engage in good-faith negotiations by, among other things, presenting SIGA with a bad-faith initial proposal for a license agreement that did not contain all necessary terms, demanding SIGA prepare a complete draft of a partnership agreement and then unreasonably rejecting that agreement, and unreasonably refusing to consider economic terms that differed from those set forth in the license agreement term sheet attached to the Merger Agreement. SIGA is seeking recovery of its reliance damages from this alleged breach.

Discovery in the case closed in February 2010. In March 2010, SIGA filed a motion for summary judgment. All reply briefs and any cross motions for summary judgment are due by early May 2010. While the specific timing for any hearing on the motions is within the court's discretion, we anticipate that the court will schedule a hearing in June or July 2010. Thereafter, once the court rules on the motions for summary judgment, and assuming open issues remain in the case, the parties can ask the court to set a trial date for any time 45 days following the ruling on summary judgment. An actual trial date will be subject to the court's discretion and its schedule and docket at that time.

Item 4. Reserved.

Item 5. Market for Registrant's Common Equity and Related Stockholder Matters.

Market

Our common stock trades on the NYSE Amex (formerly the NYSE Alternext US or American Stock Exchange) under the symbol PIP. The following table sets forth the range of high and low trading prices of our common stock on the NYSE Amex for the past two years during the fiscal periods shown.

Fiscal Year 2009	High	Low
4th Quarter Ended December 31	$ 4.24	$ 1.21
3rd Quarter Ended September 30	$ 4.14	$ 2.15
2nd Quarter Ended June 30	$ 3.00	$ 2.00
1st Quarter Ended March 31	$ 3.25	$ 1.48

Fiscal Year 2008	High	Low
4th Quarter Ended December 31	$ 2.46	$ 0.05
3rd Quarter Ended September 30	$ 2.70	$ 1.74
2nd Quarter Ended June 30	$ 3.17	$ 2.27
1st Quarter Ended March 31	$ 3.99	$ 2.37

Holders

As of March 10, 2010, in accordance with our transfer agent records, we had 91 record holders of our common stock.

Dividends

We have not paid any dividends on our common stock in 2009 and 2008 and do not intend to declare any dividends in the foreseeable future. While subject to periodic review, the current policy of our Board of Directors is to retain all earnings, if any, primarily to finance our future growth. We make no assurances that we will ever pay dividends, cash or otherwise. Whether we pay any dividends in the future will depend on our financial condition, results of operations, and other factors that the Board of Directors will consider.

Item 6. Selected Financial Data.

Not applicable.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion should be read in conjunction with (i) our consolidated financial statements, which present our results of operations for the years ended December 31, 2009 and 2008 as well as our financial positions at December 31, 2009 and 2008, contained elsewhere in this Annual Report on Form 10-K and (ii) our Annual Report on Form 10-K for the year ended December 31, 2008 filed on March 31, 2009, including the consolidated financial statements contained therein, and the Form 8-K/A filed on June 19, 2008 presenting the historical financial statements for the vaccines business acquired from Avecia. Some of the information contained in this discussion and analysis or set forth elsewhere in this Annual Report on Form 10-K, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. You should review the "Special Note Regarding Forward Looking Statements" and "Risk Factors" sections of this Annual Report for a discussion of important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a biodefense company engaged in the development and commercialization of medical countermeasures against biological and chemical weapons. We currently have five product candidates in various stages of development:

- SparVax™, a second generation recombinant protective antigen ("rPA") anthrax vaccine,
- Valortim®, a fully human monoclonal antibody (an identical population of highly specific antibodies produced from a single clone) for the prevention and treatment of anthrax infection,
- Protexia®, a recombinant enzyme (butyrylcholinesterase), which mimics a natural bioscavenger for the prevention or treatment of nerve agent poisoning by organophosphate compounds, including nerve gases and pesticides,
- a third generation rPA anthrax vaccine, and
- RypVax™, a recombinant dual antigen vaccine for pneumonic and bubonic plague ("rYP").

Critical Accounting Policies

Estimates

The preparation of financial statements in conformity with generally accepted accounting principles in the U.S. requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, 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. We base our estimates and assumptions on historical experience and various other factors that are believed to be reasonable under the circumstances. Actual results could differ from our estimates and assumptions. We believe the following are our critical accounting policies, i.e., they affect our more significant estimates and assumptions and require the use of difficult, subjective and complex judgment in their application.

Revenue Recognition

We generate our revenue from two different types of contractual arrangements: cost-plus-fee contracts and cost reimbursable grants. Costs consist primarily of actual internal labor charges and external sub-contractor costs incurred plus an allocation of applied fringe benefits, overhead and general and administrative expenses as defined in the contract.

Revenues on cost-plus-fee contracts are recognized in an amount equal to the costs incurred during the period plus an estimate of the applicable fee earned. The estimate of the applicable fee earned is determined by reference to the contract: if the contract defines the fee in terms of risk-based milestones and specifies the fees to be earned upon the completion of each milestone, then the fee is recognized when the related milestones are earned. Otherwise, we compute fee income earned in a given period by using a proportional performance method based on costs incurred during the period as compared to total estimated project costs and application of the resulting fraction to the total project fee specified in the contract.

We analyze each cost reimbursable grant to determine whether we should report such reimbursements as revenue or as an offset to our expenses incurred. In 2009 and 2008, we recorded approximately $2.4 million and $2.2 million, respectively, of costs reimbursed by the government as an offset to research and development expenses.

Our revenue-generating contracts may include multiple elements, including one or more of up-front license fees, research payments, and milestone payments. In these situations, we allocate the total contract price to the multiple elements based on their relative fair values and recognize revenue for each element according to its characteristics. As revenue is recognized in accordance with the terms of the contracts, related amounts are recorded as unbilled receivables, the primary component of "Other receivables (including unbilled receivables)" in our consolidated balance sheets. As specific contract invoices are generated and sent to our customers, invoiced amounts are transferred out of unbilled receivables and into billed accounts receivable. Invoicing frequency and payment terms for cost-plus-fee contracts with our customers are defined within each contract, but are typically monthly invoicing with 30-60 day payment cycles. During 2009, our development agreement for SparVax™, our second generation rPA anthrax vaccine, was (i) transferred from NIH to BARDA, (ii) novated from our UK subsidiary to the U.S. parent corporation, PharmAthene, Inc., and (iii) revised with regard to the scope and timing of work under that agreement. During the period that this agreement was being implemented, we agreed with our customer to delay invoicing under that contract, which resulted in a significant increase in unbilled receivables. We believe that these unbilled receivables represent valid, chargeable program expenses and we expect to invoice and collect them in 2010.

Research and Development Expenses

Research and development costs are expensed as incurred; advance payments are deferred and expensed as performance occurs. Research and development costs include salaries, facilities expense, overhead expenses, material and supplies, pre-clinical expense, clinical trials and related clinical manufacturing expenses, stock-based compensation expense, contract services and other outside services.

Share-Based Payments

We expense all share-based awards to employees, including grants of employee stock options, based on their estimated fair value at date of grant. Costs of all share-based payments are recognized over the requisite service period that an employee must provide to earn the award (i.e. usually the vesting period) and charged to the functional operating expense associated with that employee.

Intangible Assets

Because of the nature of pharmaceutical research, and particularly because of the difficulties associated with efficacy studies in humans related to the bioterrorist products with which we work and the government's related funding provisions, factors that affect the estimate of the life of an asset are often more uncertain than with respect to other non-bioterrorist pharmaceutical research. On an annual basis, we assess recoverability of intangible assets from future operations, using undiscounted future cash flows derived from the intangible assets. Any impairment would be recognized in operating results to the extent the carrying value exceeds the fair value, which is determined based on the net present value of estimated future cash flows; in certain situations, where the carrying value is dependent upon the outcome of a single study and that study is unsuccessful, that impairment may be significant in amount and immediate in timing.

Results of Operations

Revenue

We recognized revenue of $27.5 million and $32.9 million during the years ended December 31, 2009 and 2008, respectively.

Our revenue consisted primarily of contract funding from the U.S. government for the development of Protexia®, SparVax™ and Valortim ® . Our revenue in the year ended December 31, 2009 changed from the comparable period of 2008 due to the following:

- Under the September 2006 contract with the DoD for the advanced development of Protexia®, we recognized $6.9 million and $19.5 million of revenue for the years ended December 31, 2009 and 2008, respectively. The significant decline in revenue in 2009 is primarily attributable to the shift of our Protexia ® program from broad pre-clinical development efforts, including manufacturing, to a focus on clinical evaluation as well as the completion, during the third quarter of 2009, of all work and related funding under the initial phase of the contract with the DoD. It is unclear at this point when the DoD will make a decision regarding funding for the next phase of the development work for Protexia® (although the government has recently indicated that it may make a decision before the end of the third quarter 2010). Until a funding decision is made, we do not expect to recognize significant additional revenues under this contract.

- Under our contract for the development of SparVax™, acquired as part of the Avecia Acquisition in April 2008, we recognized approximately $11.5 million and $9.2 million of revenue for the years ended December 31, 2009 and 2008, respectively. Revenue for 2008 only includes revenue recognized from and after April 2, 2008, the closing date of the Avecia Acquisition. The increase in revenue in 2009 as compared to 2008 was primarily attributable to (i) the inclusion of a full year's worth of activity in 2009 as compared to only nine months in 2008 (the period after the Avecia Acquisition in April 2008), and (ii) increased costs (and corresponding revenues) incurred in connection with our June 2009 settlement agreement with Avecia, including $1.8 million related to past performance and raw materials under our agreement with them, offset in part by a decline in development activities in early 2009 as we stopped our development work at Avecia, revised our development plan, and commenced our efforts to transfer technology from Avecia to Diosynth, a US-based bulk drug substance manufacturer.

- Under the September 2007 contract for the advanced development of Valortim®, we recognized $6.2 million and $1.4 million of revenue for the years ended December 31, 2009 and 2008, respectively. The increase in revenue is primarily attributable to the reimbursement of higher costs related to non-clinical studies as well other development work in 2009 as we prepared for and commenced human clinical trials. The second Phase I clinical trial related to Valortim ® , commenced in August 2009, was placed on partial clinical hold pending the outcome of an investigation, after the occurrence of two adverse reactions in the four subjects dosed, one of which was characterized by clinical investigators as a serious adverse event. It is unclear at this time how long it will take us to complete our investigation, if and when we will be in a position to recommence negotiations with BARDA with respect to a potential award under BAA-BARDA-09-34 for additional advanced development of Valortim®, and what the effect of any delay in potential future funding of the program will be on the overall Valortim® development timeline.

- Under our September 2008 contract award for the additional development work on our third generation rPA anthrax vaccine, we recognized approximately $1.3 million and $0.1 million of revenue for the years ended December 31, 2009 and 2008, respectively. We began work under this contract in the fourth quarter 2008. In February 2010, we received notice from the NIAID raising concerns regarding performance under our existing contract with them related to our third-generation anthrax vaccine program, and directing us to explain how we plan to cure the deficiencies. In accordance with the timeline specified by NIAID, we responded in March 2010 proposing, among other things, a revised development program and timeline.

- Under our contract for the advanced development of our plague vaccine, RypVax™, acquired as part of the Avecia Acquisition in April 2008, we recognized approximately $1.7 million and $2.7 million of revenue for the years ended December 31, 2009 and 2008, respectively. We and the U.S. government have agreed to a reduction to the scope of work under this contract; as a result, all activities under the contract are winding down, with wind-down expected to be completed in the first half of 2010. We do not anticipate that the U.S. government will provide additional funding in the future for or procure RypVax™.

Research and Development Expenses

Our research and development expenses were $30.2 million and $31.8 million for the years ended December 31, 2009 and 2008, respectively. These expenses resulted from research and development activities related to our Valortim ® and Protexia ® programs as well as from activities related to the SparVax™, RypVax™ and third generation anthrax vaccine programs. We incurred both direct expenses, which included salaries and other costs of personnel, raw materials and supplies, and an allocation of indirect expenses. We also incurred third-party costs, such as contract research, consulting and clinical development costs for individual projects. Research and development expenses for the years ended December 31, 2009 and 2008 were net of cost reimbursements under certain of our government grants of $2.4 million and $2.2 million, respectively.

Research and development expenses for the years ended December 31, 2009 and 2008 were attributable to research programs as follows:

	Year ended	
($ in millions)	December 31, 2009	December 31, 2008
Anthrax therapeutic and vaccines	$ 21.4	$ 14.9
Chemical nerve agent protectants	7.0	11.8
Recombinant dual antigen plague vaccine	1.6	4.1
Internal research and development	0.2	1.0
Total research and development expenses	$ 30.2	$ 31.8

For the year ended December 31, 2009, research and development expenses decreased $1.6 million from the prior year, primarily due to a reduction in pre-clinical development costs for our chemical nerve agent protectants program as we progressed in our clinical evaluation phase, and a reduction in development costs for our plague vaccine program, partially offset by increased pre-clinical development associated with our anthrax-related therapeutics and vaccines programs.

The decrease in development expenses related to the clinical nerve agent protectants program resulted from reduced process development and manufacturing activities as the program moved from the development stage to the Phase I clinical trial. Expenses in connection with the anthrax therapeutics and vaccines programs increased primarily as a result of increased pre-clinical development activity in 2009 as we prepared for and started Phase I human clinical trials, along with increased costs incurred in connection with our June 2009 settlement agreement with Avecia. As we note above, we and the U.S. government have agreed to a reduction to the scope of work related to the development our plague vaccine, and expect the costs (and related revenue) under that contract to decline over the wind down period. Until such time as the DoD decides, if ever, to continue to fund work under our chemical nerve agent protectants program, costs incurred in this program in future periods will not be covered, either in whole or in part, by corresponding revenues under our contract with the DoD. If the DoD does consent to further work under this program, we anticipate that costs under our chemical nerve agent protectants program will increase in future periods as that program progresses through human clinical trials.

General and Administrative Expenses

General and administrative functions include executive management, finance and administration, government affairs and regulations, corporate development, human resources, legal, and compliance. For each function, we may incur expenses such as salaries, supplies and third-party consulting and other external costs and non-cash expenditures such as expense related to stock option and restricted share awards. An allocation of indirect costs such as facilities, utilities and other administrative overhead is also included in general and administrative expenses.

Expenses associated with general and administrative functions were $22.4 million and $19.4 million for the years ended December 31, 2009 and 2008, respectively.

General and administrative expenses increased $3.0 million for the year ended December 31, 2009, as compared to the prior year, primarily due to the costs associated with the transitioning of our development and manufacturing activities for our SparVax™ and third generation anthrax vaccine programs as well as other general and administrative functions from the UK to the U.S., and with preparing and submitting various bids and proposals, along with increased stock-based compensation costs during the year.

Acquired In-process Research and Development

During the year ended December 31, 2008, we completed the Avecia Acquisition. The primary asset acquired in the Avecia Acquisition was SparVax™, a second generation rPA anthrax vaccine. The value of the third generation anthrax vaccine acquired in the transaction was aggregated with that of the second generation vaccine because success in developing the third generation anthrax vaccine is contingent on the successful development of the second generation vaccine. At the acquisition date, the aggregate fair value of the second and third generation vaccines was estimated at $16.1 million. An income approach methodology was used to determine the fair value of the acquired in-process research and development asset. This approach assessed the expected cash flows, net of expected appropriate operating expenses, generated from the acquisition date in April 2008 through the end of 2021 (the expected life of the vaccine) using a risk adjusted discount rate of 51%, which we believe is commensurate with an early stage biodefense product development opportunity of this nature. In connection with the transaction, in 2008 we recorded a charge to expense for acquired in-process research and development of $16.1 million for these acquired research projects for which, at the acquisition date, technological feasibility had not been established and no alternative future use existed. No such charge was recorded in 2009.

Both vaccines are in their early stages of development and significant remaining research and development is required to establish the technological feasibility of these vaccines. The cost and time required to complete the development of these vaccines and earn FDA marketing approval is highly uncertain and can vary significantly. During 2009, we provided the U.S. government with a series of development plans for SparVax™, in response to their request for proposal, which estimated that it would cost in excess of $300 million over approximately five years to complete the development of SparVax™. No such estimates of the advanced development costs and timeline for the third generation vaccine have been developed.

As with all development efforts in the biodefense industry, the development of our second and third generation anthrax vaccines is subject to delays, as described in " *Risk Factors—Necessary Reliance on the Animal Rule in Conducting Trials is Time-Consuming and Expensive"* and " *—We have not commercialized any products or recognized any revenues from sales. All of our product candidates are still under development, and there can be no assurance of successful commercialization of any of our products.*" Our development costs will increase substantially if we experience material delays in any clinical trials or if we need to conduct more or larger trials than planned.

Depreciation and Intangible Amortization

Depreciation and amortization expenses were $0.9 million and $0.8 million for the years ended December 31, 2009 and 2008, respectively. These expenses relate primarily to the depreciation and amortization of farm building improvements, leasehold improvements and laboratory equipment, and patents acquired as part of a 2005 business combination.

Other Income and Expenses

Other income and expenses primarily consists of income on our investments, interest expense on our debt and other financial obligations, changes in market value of our derivative financial instruments, loss on early extinguishment of debt, and foreign currency transaction gains or losses.

For the years ended December 31, 2009 and 2008, we recognized interest income on our investments of $0.3 million and $1.2 million, respectively. The decrease in interest income during the periods is primarily attributable to the reduced average balances of our investments and cash balances as we continue to use cash to support our operations, along with lower prevailing interest rates.

We incurred interest expense of $2.8 million and $2.6 million for the years ended December 31, 2009 and 2008, respectively. Interest expense relates primarily to interest on our outstanding convertible notes (including the amortization of the debt discount arising from the (i) allocation of fair value to the stock purchase warrants issued in connection with the convertible debt and (ii) beneficial conversion feature) and our senior secured credit facility, which facility we repaid in full in July 2009.

The change in the fair value of our derivative instruments was $1.0 million for the year ended December 31, 2009 compared to $0.1 million for the year ended December 31, 2008. The increase from 2008 relates to the underlying change in the estimated fair value of various stock purchase warrants issued in 2009 and 2008 and the embedded conversion option in the 8% convertible senior notes that were exchanged or matured in 2009. The fair value of these derivative instruments is estimated using the Black-Scholes option pricing model. In connection with the July 2009 Private Placement, we exchanged a portion of our Old Notes in the aggregate principal amount plus accrued interest of $8.8 million, for New Convertible Notes, cancelled the corresponding Old Notes, issued additional New Convertible Notes in the aggregate principal amount of $10.5 million to new note investors, and issued to the recipients of the New Convertible Notes certain stock purchase warrants. In connection with the exchange, we recognized a loss on the early extinguishment of the Old Notes of approximately $4.7 million.

Liquidity and Capital Resources

Overview

Our primary cash requirements through the end of 2010 are to fund our operations (including our research and development programs) and support our general and administrative activities. Our future capital requirements will depend on many factors, including, but not limited to, the progress of our research and development programs; the progress of pre-clinical and clinical testing; the time and cost involved in obtaining regulatory approval; the cost of filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights; changes in our existing research relationships, competing technological and marketing developments; our ability to establish collaborative arrangements and to enter into licensing agreements and contractual arrangements with others; and any future change in our business strategy. These cash requirements could change materially as a result of shifts in our business and strategy.

Since our inception, we have not generated positive cash flows from operations. To bridge the gap between payments made to us under our government contracts and grants and our operating and capital needs, we have had to rely on a variety of financing sources, including the issuance of equity securities and convertible notes, proceeds from loans and other borrowings, and the trust funds obtained in the Merger. For the foreseeable future, we will continue to need these types of financing vehicles and potentially others to help fund our future operating and capital requirements. We believe that the funds obtained from the July 2009 Private Placement, existing cash resources, along with cash receipts from contract receivables (a substantial portion of which was unbilled at December 31, 2009) generated under our contracts will be sufficient to enable us to fund our existing research and development programs and support our currently anticipated general and administrative activities through the end of 2010. We have based this projection on our current and anticipated operations, which do not take into account any potential future government contracts that may be awarded to the Company, merger and acquisition or corporate partnering activities, or unexpected financial obligations. However, to the extent that we are unable to collect our receivables on a timely basis, we may be required to seek short term financing solutions, including either short term indebtedness or through the sale of equity.

The turmoil affecting the banking system and financial markets and the possibility that financial institutions may consolidate or cease operations has resulted in a tightening in the credit markets, a low level of liquidity in many financial markets, and extreme volatility in fixed income, credit, currency and equity markets. As a result, there can be no assurance that future funding will be available to us on reasonably acceptable terms, or at all. In addition, due to the U.S. government's substantial efforts to stabilize the economy, the U.S. government may be forced or choose to reduce or delay spending in the biodefense field, which could decrease the likelihood of future government contract awards, the likelihood that the government will exercise its right to extend any of its existing contracts with us and/or the likelihood that the government would procure products from us. Finally, the note and warrant purchase agreement entered into in connection with the July 2009 Private Placement prevents us from incurring senior indebtedness (other than trade payables) in excess of $10 million without the prior written approval of no less than a majority of the aggregate principal amount of the debt then outstanding.

We have incurred cumulative net losses and expect to incur additional losses in conducting further research and development activities. We do not have commercial products and, given the substantial costs relating to the development of pharmaceutical products, have relatively limited existing capital resources. Our plans with regard to these matters include continued development of our products as well as seeking additional funds to support our research and development efforts. Although we continue to pursue these plans, there is no assurance that we will be successful in obtaining sufficient future financing on commercially reasonable terms or at all or that we will be able to secure additional funding through government contracts and grants. Our consolidated financial statements have been prepared on a basis which assumes that we will continue as a going concern and which contemplates the realization of assets and the satisfaction of liabilities and commitments in the normal course of business and do not include any adjustments that might result if the carrying amount of recorded assets and liabilities are not realized.

Sources and Uses of Cash

Cash, cash equivalents and short-term available-for-sale investments were $5.8 million and $22.9 million at December 31, 2009 and 2008, respectively. The $17.1 million decrease in 2009 was primarily attributable to net cash used in our operations (of approximately $28.1 million), capital expenditures (of approximately $1.0 million), and payment of deferred consideration related to the Avecia Acquisition (of $7 million), offset by net cash provided by financing activities of approximately $18.8 million. In addition, billings under some of our contracts were delayed in 2009, resulting in a significant net increase in our total unbilled receivables in 2009 of $3.1 million (as described above under "Critical Accounting Policies – Revenue Recognition"). As of December 31, 2009 and 2008, total accounts receivables and other receivables (including unbilled receivables) were $17.4 million and $10.3 million, respectively.

In March 2009, we closed on the public sale of 2,116,055 newly issued shares of our common stock at $2.60 per share and warrants to purchase 705,354 shares of our common stock at an exercise price of $3.00 per share, resulting in net proceeds of approximately $5.0 million. The warrants became exercisable on September 27, 2009 and will expire on September 27, 2014.

Upon the closing of the Avecia Acquisition, in addition to certain initial consideration paid at that time, we also provided a letter of credit in the amount of $7.0 million as security for deferred consideration in that same amount. Pursuant to the settlement agreement with Avecia entered into as of June 17, 2009, we paid the $7.0 million deferred consideration to Avecia during the second quarter 2009 (in connection with which the letter of credit securing such amount was terminated and the required cash restrictions eliminated).

In the July 2009 Private Placement, we issued approximately $19.3 million of New Convertible Notes, convertible immediately into common shares at a conversion price of approximately $2.54 per share, and warrants to purchase 2,572,775 shares of common stock at $2.50 per share. The warrants became exercisable on January 28, 2010 and will expire on January 28, 2015. As part of this transaction we exchanged a portion of our Old Notes in the aggregate principal amount plus accrued interest of $8.8 million for New Convertible Notes, cancelled the corresponding Old Notes, issued additional New Convertible Notes in the aggregate principal amount of $10.5 million to new note investors, and issued to the recipients of the New Convertible Notes the stock purchase warrants described above. In connection with the exchange, we recognized a loss on the early extinguishment of the Old Notes of approximately $4.7 million. We used the proceeds from the sale of the New Convertible Notes to repay $5.5 million of our Old Notes that were not exchanged for the New Convertible Notes and warrants and repaid all outstanding amounts and fees under our existing senior secured credit facility.

Potential Future Amounts Payable under the Purchase Agreement with Avecia

In connection with the Avecia Acquisition, certain amounts may become payable to Avecia assuming certain milestones are achieved, including the following:

(i) $5 million within 90 days of entry by us into a multi-year funded development contract to be issued by BARDA (part of DHHS) under solicitation number RFP-BARDA-08-15 (or any substitution or replacement thereof) for the further development of SparVax™; and

(ii) $5 million within 90 days of entry by us into a contract or contracts for the supply of SparVax™ into the SNS; and

(iii) 2.5% of PharmAthene net sales of SparVax™ to the U.S. government within the period of ten years from the closing of the Avecia Acquisition after the first 25 million doses; and

(iv) 1% of PharmAthene net sales of third generation anthrax vaccine to the U.S. government within the period of ten years from the closing of the Avecia Acquisition.

In addition to the potential milestone payments described above, for a period of ten years following our first purchase of bulk drug substance for the anthrax and plague vaccines ("Drug Substance") from a supplier other than Avecia, we may be obligated to pay Avecia up to 7.5% of the amounts that would have been payable to Avecia had Avecia produced the Drug Substance.

RFP-BARDA-08-15 was cancelled by BARDA in December 2009. Accordingly, our obligation to pay Avecia under clause (i) above would mature only upon our receipt of a substitution or replacement thereof. We have received funds from BARDA and other U.S. government agencies under various development agreements between us and BARDA. Any development contract deemed to be a substitute or replacement of RFP-BARDA-08-15 could trigger our obligation to make the $5 million payment under (i) above.

Operating Activities

Net cash used in operating activities was $28.1 million and $13.2 million for the years ended December 31, 2009 and 2008, respectively. Net cash used in operations during the year ended December 31, 2009 reflects our net loss of $32.3 million, adjusted for certain non-cash items, including loss on extinguishment of debt (of $4.7 million), share-based compensation (of $3.4 million), non-cash interest expense (of $1.5 million), an increase in billed accounts receivable (of $4.9 million), an increase in unbilled accounts receivable (of $3.1 million) and a net decrease in accrued expenses and accounts payable (of $1.3 million). During 2009, our development agreement for SparVax™, our second generation rPA anthrax vaccine, was (i) transferred from NIH to BARDA, (ii) novated from our UK subsidiary to the U.S. parent corporation, PharmAthene, Inc., and (iii) revised with regard to the scope and timing of work under that agreement. During the period that the changes to our second generation rPA anthrax vaccine contract were being implemented, we agreed with the U.S. Government to delay invoicing under that contract, which resulted in a significant increase in unbilled receivables. We believe that these unbilled receivables represent valid, chargeable program expenses and we expect to invoice and collect them during 2010.

Net cash used in operations during the year ended December 30, 2008 reflects our net loss of $36.4 million, adjusted for certain non-cash items, including acquired in-process research and development related to the Avecia Acquisition (of $16.1 million), share-based compensation (of $3.0 million), non-cash interest expense (of $1.8 million), an increase in accounts receivable (of $2.2 million), and an increase in accrued expenses and accounts payable (of $4.1 million).

Investing Activities

Net cash used in investing activities was $8.0 million for the year ended December 31, 2009, compared to $10.1 million for the year ended December 31, 2008. Investing activities for 2009 related primarily to the payment in June of $7.0 million of deferred purchase consideration to Avecia, and approximately $1.0 million of capital expenditures.

In 2008 and in connection with the Avecia Acquisition, we paid $10.0 million to Avecia and funded a $7.0 million letter of credit. In order to fund the transaction and the restricted cash obligations pursuant to the loan modification agreement under our senior secured credit facility, approximately a net $9.0 million of available-for-sale securities were sold. Additionally, during 2008, we incurred approximately $1.6 million related to transactions costs incurred as a result of the Avecia Acquisition.

Financing Activities

Net cash provided by financing activities was $18.8 million for the year ended December 31, 2009 as compared to $2.4 million for the year ended December 31, 2008. In March 2009, we raised net proceeds of approximately $5.0 million as a result of the public sale of shares of our common stock and warrants. We raised $10.5 million in the July 2009 Private Placement, and used $9.5 million of those proceeds to repay our existing convertible notes (including accrued interest) and all amounts outstanding under our credit facility. We exchanged and cancelled $8.8 million of our then-outstanding 8% convertible notes for our newly issued 10% convertible notes and stock purchase warrants. Additionally, pursuant to the payment to Avecia of the deferred purchase consideration and the repayment of all amounts due under our credit facility, we eliminated all of our restricted cash obligations (approximately $13.3 million).

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements.

Contractual Obligations

The following are contractual commitments at December 31, 2009 associated with leases, research and development arrangements, collaborative development obligations and long term debt:

Contractual Obligations(1)	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 years
Operating facility leases	$ 6,078,400	$ 958,200	$ 1,498,100	$ 2,383,700	$ 1,238,400
Research and development agreements	18,008,500	16,023,500	1,985,000	-	-
Notes payable, including interest	23,208,600	-	23,208,600	-	-
Total contractual obligations	$ 47,295,500	$ 16,981,700	$ 26,691,700	$ 2,383,700	$ 1,238,400

(1) This table does not include any royalty payments of future sales of products subject to license agreements the Company has entered into in relation to its in-licensed technology, as the timing and likelihood of such payments are not known.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

Our exposure to market risk is currently confined to our cash and cash equivalents and short-term investments. We believe that any interest rate change related to our investment securities held as of December 31, 2009 is not material to our consolidated financial statements. We currently do not hedge interest rate exposure or foreign currency exchange exposure, and the movement of foreign currency exchange rates could have an adverse or positive impact on our results of operations. We have not used derivative financial instruments for speculation or trading purposes. Because of the short-term maturities of our cash and cash equivalents, we do not believe that an increase in market rates would have a significant impact on the realized value of our investments. Our debt is at rates fixed by the lenders.

Item 8. Financial Statements and Supplementary Data.

Our financial statements and supplementary data required to be filed pursuant to this Item 8 appear in a separate section of this report beginning on page F-1.

Item 9. Changes In and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of our disclosure controls and procedures, as such term is defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), as of the end of the period covered by this report. Based on this evaluation, our principal executive officer and our principal financial officer concluded that our disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed by us in reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosures.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes those policies and procedures that:

(i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;

(ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of our management and directors; and

(iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2009. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control-Integrated Framework*. Based on this assessment, management determined that we maintained effective internal control over financial reporting as of December 31, 2009.

This Annual Report on Form 10-K does not include an attestation report of our independent registered public accounting firm, Ernst & Young LLP, 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 us to provide only management's report in this Annual Report on Form 10-K.

Changes in Internal Control Over Financial Reporting

Management has identified several changes in our internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) that occurred during 2009 that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting, including (i) changes to our senior financial leadership, including the hiring of a new Chief Financial Officer and the addition of an experienced controller, (ii) the utilization of experienced external financial consultants to provide additional support to our internal accounting and financial reporting functions; and (iii) our implementation of a new financial accounting system.

Inherent Limitations on Internal Control

In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Item 9B. Other Information.

None.

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this Item 10 will be incorporated by reference from our definitive proxy statement or will be filed as an amendment to our Annual Report on Form 10-K within 120 days of our fiscal year end.

Item 11. Executive Compensation.

The information required by this Item 11 will be incorporated by reference from our definitive proxy statement or will be filed as an amendment to our Annual Report on Form 10-K within 120 days of our fiscal year end.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this Item 12 will be incorporated by reference from our definitive proxy statement or will be filed as an amendment to our Annual Report on Form 10-K within 120 days of our fiscal year end.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this Item 13 will be incorporated by reference from our definitive proxy statement or will be filed as an amendment to our Annual Report on Form 10-K within 120 days of our fiscal year end.

Item 14. Principal Accountant Fees and Services.

The information required by this Item 14 will be incorporated by reference from our definitive proxy statement or will be filed as an amendment to our Annual Report on Form 10-K within 120 days of our fiscal year end.

Item 15. Exhibits and Financial Statement Schedules.

Financial Statements

Reference is made to the Index to the Consolidated Financial Statements beginning on page F-1 of this report.

Financial Statement Schedules

Required information is included in the footnotes to the financial statements.

Exhibit Index

Exhibit No.	Description
2.1	Agreement and Plan of Merger, dated January 19, 2007, by and among Healthcare Acquisition Corp., PAI Acquisition Corp., and PharmAthene, Inc. (6)
2.2	Sale and Purchase Agreement, dated March 20, 2008, by and among the Registrant and Avecia Investments Limited, Avecia Biologics Limited and Avecia Biologics, Inc. (10)
2.3	Amendment Agreement, dated April 2, 2008, by and among, PharmAthene, Inc., PharmAthene UK Limited and PharmAthene US Corporation and Avecia Investments Limited, Avecia Biologics Limited and Avecia Biologics, Inc. (12)
3.1	Amended and Restated Certificate of Incorporation of the Company, as amended. (25)
3.2	By-laws, as amended. (13)

4.1	Specimen Unit Certificate. (1)
4.2	Specimen Common Stock Certificate. (9)
4.3	Amendment to Unit Purchase Option by and between the Registrant and Maxim Partners, LLC dated January 28, 2007. (7)
4.4	Form of Warrant in connection with Securities Purchase Agreement dated as of March 23, 2009. (21)
4.4	Form of 10% Unsecured Senior Convertible Note. (22)
4.10	Form of Warrant in connection with Note and Warrant Purchase Agreement, as amended as of July 28, 2009. (22)
10.1.1	Letter Agreement among the Registrant, Maxim Group LLC and John Pappajohn dated May 6, 2005. (2)
10.1.2	Letter Agreement among the Registrant, Maxim Group LLC and Derace L. Schaffer, M.D. dated May 6, 2005. (2)
10.1.3	Letter Agreement among the Registrant, Maxim Group LLC and Matthew P. Kinley dated May 6, 2005. (2)
10.1.4	Restated Letter Agreement among the Registrant, Maxim Group LLC and Edward B. Berger dated June 8, 2005. (3)
10.1.5	Letter Agreement among the Registrant, Maxim Group LLC and Wayne A. Schellhammer dated June 8, 2005. (3)
10.2	Form of Investment Management Trust Agreement between Continental Stock Transfer & Trust Company and the Registrant. (3)
10.2.1	Amendment No. 1 to Investment Management Trust Agreement between Continental Stock Transfer & Trust Company and the Registrant. (5)
10.4	Form of Registration Rights Agreement among the Registrant and the Initial Stockholders. (1)
10.6.1	Promissory Note, dated April 28, 2005, issued to John Pappajohn, in the amount of $70,000. (1)
10.6.2	Promissory Note, dated April 28, 2005, issued to Derace L. Schaffer, M.D., in the amount of $70,000. (1)
10.6.3	Promissory Note, dated April 28, 2005, issued to Matthew P. Kinley, in the amount of $35,000. (1)
10.6.4	Promissory Note, dated July 26, 2005, issued to John Pappajohn, in the amount of $30,000. (4)

10.6.5	Promissory Note, dated July 26, 2005, issued to Derace L. Schaffer, M.D., in the amount of $30,000. (4)
10.6.6	Promissory Note, dated July 26, 2005, issued to Matthew P. Kinley, in the amount of $15,000. (4)
10.7	Form of Unit Option Purchase Agreement between the Registrant and Maxim Group LLC. (3)
10.9	Form of Registration Rights Agreement by and among Healthcare Acquisition Corp. and the former stockholders and note holders of PharmAthene, Inc. (6)
10.11	Advisory Agreement by and among Maxim Group LLC and the Registrant, dated January 8, 2007. (7)
10.12	Amended and Restated 2007 Long-Term Incentive Compensation Plan. (15)
10.13	Employment Agreement, dated August 3, 2007, between the Registrant and David P. Wright. (8) ++
10.13.1	Form of 1st Amendment, dated January 21, 2009, to Employment Agreement by and between the Company and David P. Wright. (21) ++
10.19.1	Loan and Security Agreement, dated March 30, 2007, by and among the Registrant, Silicon Valley Bank, Oxford Finance Corporation, and other lenders listed on Schedule 1.1 thereof. (9)
10.19.2	Consent and First Loan Modification Agreement, dated March 20, 2008, by and among the Registrant, Silicon Valley Bank and Oxford Finance Corporation (10).
10.19.3	Consent, Assumption and Second Loan Modification Agreement, dated as of March 31, 2009, by and among Silicon Valley Bank, Oxford Finance Corporation and PharmAthene, Inc. (21)
10.20	U.S. Army Space & Missile Defense Command—"Development and Licensure of Bioscavanger Increment II (Recombinant Drug Candidate)" Award/Contract No. W9113M-06-C-0189, dated September 22, 2006, by and between the Company and the U.S. Army Space & Missile Defense Command. (9)+
10.21	Cooperative Research and Development Agreement, dated September 12, 2006, by and between the Company and the U.S. Army Medical Research Institute of Infectious Diseases. (9)+
10.22	Center for Scientific Review, National Institute of Health, Research Project Cooperative Agreement, Notice of Grant Award No. 1 U01 NS058207-01, dated September 30, 2006, awarded to the Company. (9)+
10.23	Collaboration Agreement, dated November 29, 2004, by and between the Company and Medarex, Inc. (9)+
10.24	Research and License Agreement, dated August 8, 2006, by and between the Company and Nektar Therapeutics AL, Corporation. (9)+

10.25	License Agreement, dated March 12, 2007, by and between the Company and GTC Biotherapeutics, Inc. (9)+
10.26.1	Office Lease, dated September 14, 2006, by and between the Company and Park Place Trust, as amended by First Amendment to Office Lease, dated January 22, 2007. (9)
10.26.2	Second Amendment to Office Lease, by and between the Company and Park Place Trust, dated September 16, 2008. (28)
10.27	Biopharmaceutical Development and Manufacturing Services Agreement, dated June 15, 2007, by and between the Company and Laureate Pharma, Inc. (9)+
10.28	Services Agreement, dated March 2, 2007, by and between the Company and GTC Biotherapeutics, Inc. (9)+
10.29	Transitional Services Agreement, dated April 2, 2008, between Avecia Biologics Limited and PharmAthene UK. (16)
10.30	Form of PharmAthene Inc. Executive Employment Agreement. (17) ++
10.30.1	Employment Agreement, dated April 18, 2008, by and between Eric Richman and PharmAthene, Inc.*
10.30.2	Employment Agreement, dated April 18, 2008, by and between Wayne Morges and PharmAthene, Inc.*
10.31	Form of PharmAthene Inc. Confidentiality and Non-Solicitation Agreement. (17)
10.32	Master Services Agreement, dated April 2, 2008, between PharmAthene UK Limited and Avecia Biologics Limited. (17) +
10.33	Master Service Agreement, dated December 15, 2004, between Avecia Limited and the Secretary of State for Defence, acting through the Defence Science and Technology Laboratory (DSTL). (18)+
10.34	Master Service Agreement, dated August 18, 2005, between Avecia Limited and DSTL. (18) +
10.35	Manufacturing Licence Agreement, dated June 20, 2006, between Avecia Limited and DSTL. (18) +
10.36	Manufacturing and Marketing Licence Agreement, dated December 4, 2006, between Avecia Limited and DSTL. (18) +
10.36.1	Amended and Restated Manufacturing and Marketing Licence Agreement between the Secretary of State for Defence as represented by the Defence Science and Technology Laboratory (Dstl) and PharmAthene UK Ltd. in respect of Recombinant [***] Vaccine, dated February 11, 2009. (21) +
10.37	Letter Agreement, dated March 20, 2008, between Avecia Biologics Limited and DSTL. (18)+
10.37.1	Amended and Restated Licence Agreement between the Secretary of State for Defence as represented by the Defence Science and Technology Laboratory (Dstl) and PharmAthene UK Ltd. in respect of Recombinant [***] Vaccine, dated February 5, 2009. (21) +
10.38	Contract Award by the National Institute of Allergy and Infectious Diseases (NIAID), dated September 25, 2008. (19)+
10.39	Securities Purchase Agreement, dated September 30, 2008, between PharmAthene, Inc. and Kelisia Holdings Ltd. (19)

10.40	Letter Agreement, dated September 30, 2008, between PharmAthene, Inc. and Panacea Biotec, Ltd. (19)
10.41	Investor Rights Agreement, dated October 10, 2008, between PharmAthene Inc. and Kelisia Holdings Ltd. (19)
10.43	Deed of Confidentiality between PharmAthene UK Limited, and its employees. (19)
10.44	Contract with the National Institutes of Health for the Production and Testing of Anthrax Recombinant Protective Antigen (rPA) Vaccine (#N01-AI-30052) ("NIH Prime Contract-Anthrax"), dated September 29, 2003. (27) +
10.45	Amendments 1 through 13 to the NIH Prime Contract-Anthrax. (27) **, +
10.45.1	Modification (Amendment) 16 to the Contract with the National Institutes of Health for the Production and Testing of Anthrax Recombinant Protective Antigen (rPA) Vaccine (#N01-AI-30052). (26) +
10.46	Contract with the National Institutes of Health for the Development, Testing and Evaluation of Candidate Vaccines Against Plague (#HSSN266200400034C) ("NIH Prime Contract-Plague"), dated September 30, 2004. (27) +
10.47	Amendments 1 through 10 to the NIH Prime Contract-Plague. (27) **, +
10.48	Form of Indemnification Agreement (20)
10.49	Form of Securities Purchase Agreement dated as of March 23, 2009 between the Company and the Purchasers party thereto. (23)
10.51	Form of Note and Warrant Purchase Agreement, dated as of July 24, 2009, by and among PharmAthene, Inc. and the investors signatories thereto, as amended by Amendment No. 1 to Note and Warrant Purchase Agreement, dated as of July 26, 2009 and Amendment No. 2 to Note and Warrant Purchase Agreement, dated as of July 28, 2009. (22)
10.52	Form of Registration Rights Agreement, dated as of July 28, 2009 by and among PharmAthene, Inc. and the investors signatories thereto. (22)
10.53	Technology Transfer and Development Services Subcontract, dated as of September 17, 2009, by and between Diosynth RTP Inc. and PharmAthene, Inc. (26) +
10.54	Variation and Settlement Agreement, dated as of June 17, 2009, by and among PharmAthene, Inc., PharmAthene UK Limited and Avecia Biologics Limited and affiliates. (24) +
14	Code of Ethics. (3)
21	Subsidiaries. *
23	Consent of Ernst & Young LLP Independent Registered Public Accounting Firm *
31.1	Certification of Principal Executive Officer Pursuant to SEC Rule 13a-14(a)/15d-14(a).*

31.2	Certification of Principal Financial Officer Pursuant to SEC Rule 13a-14(a)/15d-14(a).*
32.1	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350.*
32.2	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350.*
(1)	Incorporated by reference to the Registration Statement on Form S-1 of the Registrant filed on May 6, 2005.
(2)	Incorporated by reference to the Registration Statement on Form S-1/A of the Registrant filed on June 10, 2005.
(3)	Incorporated by reference to the Registration Statement on Form S-1/A of the Registrant filed on July 12, 2005.
(4)	Incorporated by reference to the Registration Statement on Form S-1/A of the Registrant filed on July 27, 2005.
(5)	Incorporated by reference to the Quarterly Report on Form 10-Q filed by the Registrant on November 14, 2005.
(6)	Incorporated by reference to the Current Report on Form 8-K filed by the Registrant on January 22, 2007.
(7)	Incorporated by reference to the Current Report on Form 8-K filed by the Registrant on January 25, 2007.
(8)	Incorporated by reference to the Current Report on Form 8-K filed by the Registrant on August 9, 2007.
(9)	Incorporated by reference to the Current Report on Form 8-K filed by the Registrant on September 24, 2007.
(10)	Incorporated by reference to the Current Report on Form 8-K filed by the Registrant on March 26, 2008.
(11)	Reserved.
(12)	Incorporated by reference to the Current Report on Form 8-K filed by the Registrant on April 8, 2008.
(13)	Incorporated by reference to the Current Report on Form 8-K filed by the Registrant on May 2, 2008.
(14)	Reserved.

(15) Incorporated by reference to Appendix B to the Proxy Statement on Schedule 14A filed by the Registrant on May 15, 2008.

(16) Incorporated by reference to the Current Report on Form 8-K/A filed by the Registrant on June 18, 2008.

(17) Incorporated by reference to the corresponding exhibit to the Quarterly Report on Form 10-Q filed by the Registrant on August 14, 2008.

(18) Incorporated by reference to the corresponding exhibit to the Amendment to the Quarterly Report on Form 10-Q/A filed by the Registrant on August 19, 2008.

(19) Incorporated by reference to the corresponding exhibit to the Quarterly Report on Form 10-Q filed by the Registrant on November 14, 2008.

(20) Incorporated by reference to the Current Report on Form 8-K filed by the Registrant on January 27, 2009.

(21) Incorporated by reference to the corresponding exhibit to the Quarterly Report on Form 10-Q filed by the Registrant on May 15, 2009.

(22) Incorporated by reference to Amendment No. 1 to the Company's current report on Form 8-K filed on August 3, 2009.

(23) Incorporated by reference to Exhibits 10.1 and 10.2, respectively, to the Current Report on Form 8-K filed by the Registrant on March 27, 2009 (File No. 001-32587).

(24) Incorporated by reference to the corresponding exhibit to the Company's quarterly report on Form 10-Q filed on August 13, 2009.

(25) Incorporated by reference to the Company's current report on Form 8-K filed on November 4, 2009.

(26) Incorporated by reference to the corresponding exhibit to the Company's current report on Form 10-Q filed on November 13, 2009.

(27) Incorporated by reference to the corresponding exhibit to the Company's annual report on Form 10-K for the year ended December 31, 2008.

(28) Incorporated by reference to Exhibit 10.44 to the Quarterly Report on Form 10-Q filed by the Registrant on November 14, 2008.

* Filed herewith.

** Amendments No. 2 and 5 to the NIH Prime Contract-Anthrax have been superseded in full by subsequent amendments filed herewith and are therefore omitted. Amendment No. 12 to the NIH Prime Contract-Anthrax and Amendment No. 8 to the NIH Prime Contract-Plague were never executed and are therefore omitted.

+ Certain confidential portions of this exhibit have been omitted and filed separately with the Securities and Exchange Commission pursuant to a request for confidential treatment under Rule 24b-2 of the Securities Exchange Act of 1934.

++ Management Compensation Arrangement.

Financial Statements and Schedules of Subsidiaries and Affiliates

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized, in the city of Annapolis, State of Maryland, on the 26th day of March, 2010.

PHARMATHENE, INC.

By: /s/ David P. Wright
David P. Wright
Chief Executive Officer

POWER OF ATTORNEY

BY THESE PRESENTS, each person whose signature appears below constitutes and appoints David P. Wright, Charles A. Reinhart III, and Jordan P. Karp his true and lawful attorney-in-fact and agents, with full power of substitution and resubstitution for him and in his name, place and stead, in any and all capacities to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that said attorney-in-fact or his substitute, each acting alone, may lawfully do or cause to be done by virtue thereof.

In accordance with the Exchange Act, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ David P. Wright David P. Wright	Chief Executive Officer and Director (Principal Executive Officer)	March 26, 2010
/s/ Charles A. Reinhart III Charles A. Reinhart III	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 26, 2010
/s/ John Pappajohn John Pappajohn	Chairman of the Board	March 26, 2010
/s/ John Gill John Gill	Director	March 26, 2010
/s/ James H. Cavanaugh James H. Cavanaugh	Director	March 26, 2010

/s/ Steven St. Peter Steven St. Peter	Director	March 26, 2010
/s/ Derace Schaffer, MD Derace Schaffer, MD	Director	March 26, 2010
/s/ Joel McCleary Joel McCleary	Director	March 26, 2010
/s/ Jeffrey W. Runge, MD Jeffrey W. Runge, MD	Director	March 26, 2010

PHARMATHENE, INC.

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Shareholders of PharmAthene, Inc.

We have audited the accompanying consolidated balance sheets of PharmAthene, Inc as of December 31, 2009 and 2008, and the related consolidated statements of operations, stockholders' equity, and cash flows for the years then ended. 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. We were not engaged to perform an audit of the Company's 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 also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of PharmAthene, Inc. at December 31, 2009 and 2008, and the consolidated results of its operations and its cash flows for the years then ended, in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP

McLean, Virginia

March 26, 2010

PHARMATHENE, INC.

CONSOLIDATED BALANCE SHEETS

	December 31, 2009	December 31, 2008
ASSETS		
Current assets:		
Cash and cash equivalents	$ 2,673,567	$ 19,752,404
Restricted cash	-	12,000,000
Short-term investments	3,137,071	3,190,912
Accounts receivable	8,866,346	3,800,840
Other receivables (including unbilled receivables)	8,566,425	6,480,749
Prepaid expenses and other current assets	973,214	917,125
Total current assets	24,216,623	46,142,030
Long-term restricted cash	-	1,250,000
Property and equipment, net	6,262,388	5,313,219
Patents, net	928,577	925,489
Other long-term assets and deferred costs	308,973	257,623
Goodwill	2,348,453	2,502,909
Total assets	$ 34,065,014	$ 56,391,270
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 1,934,119	$ 3,870,871
Accrued expenses and other current liabilities	11,532,101	14,624,757
Convertible notes	-	13,377,505
Current portion of long-term debt	-	4,000,000
Total current liabilities	13,466,220	35,873,133
Other long-term liabilities	452,618	626,581
Derivative instruments	835,299	-
Convertible notes and other debt, net of discount of $2,705,440 in 2009	17,426,513	928,117
Total liabilities	32,180,650	37,427,831
Stockholders' equity:		
Common stock, $0.0001 par value; 100,000,000 shares authorized; 28,130,284 and 25,890,143 shares issued and outstanding at December 31, 2009 and 2008	2,813	2,589
Additional paid-in-capital	157,004,037	142,392,163
Accumulated other comprehensive income	1,188,156	386,351
Accumulated deficit	(156,310,642)	(123,817,664)
Total stockholders' equity	1,884,364	18,963,439
Total liabilities and stockholders' equity	$ 34,065,014	$ 56,391,270

See the accompanying notes to the consolidated financial statements.

PHARMATHENE, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

	Year ended December 31,	
	2009	**2008**
Contract revenue	$ 27,549,978	$ 32,821,526
Other revenue	-	89,802
	27,549,978	32,911,328
Operating expenses:		
Research and development	30,219,758	31,812,431
General and administrative	22,432,585	19,397,532
Acquired in-process research and development	-	16,131,002
Depreciation and amortization	872,304	813,891
Total operating expenses	53,524,647	68,154,856
Loss from operations	(25,974,669)	(35,243,528)
Other income (expenses):		
Interest income	269,133	1,225,471
Loss on early extinguishment of debt	(4,690,049)	-
Interest expense	(2,837,302)	(2,573,406)
Other income (expense)	(90,655)	58,106
Change in market value of derivative instruments	1,043,782	118,244
Total other income (expenses)	(6,305,091)	(1,171,585)
Net loss	$ (32,279,760)	$ (36,415,113)
Basic and diluted net loss per share	$ (1.17)	$ (1.59)
Weighted average shares used in calculation of basic and diluted net loss per share	27,575,332	22,944,066

See the accompanying notes to the consolidated financial statements.

PHARMATHENE, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Common Stock					
	Shares	Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Stockholders' Equity
Balance as of 12/31/2007	22,087,121	$ 2,209	$ 126,490,647	$ 1,481,779	$ (87,402,551)	$ 40,572,084
Net Loss	-	-	-	-	(36,415,113)	(36,415,113)
Net unrealized gains on short term investments	-	-	-	82,567	-	82,567
Foreign currency translation adjustments	-	-	-	(1,177,995)	-	(1,177,995)
Comprehensive income (loss)	-	-	-	(1,095,428)	-	(37,510,541)
Vesting of restricted shares	69,688	7	(7)	-	-	-
Issuance of common stock, net issuance costs	3,733,334	373	12,660,069	-	-	12,660,442
Merger costs	-	-	200,308	-	-	200,308
Share-based compensation	-	-	3,041,146	-	-	3,041,146
Balance as of 12/31/2008	25,890,143	$ 2,589	$ 142,392,163	$ 386,351	$ (123,817,664)	$ 18,963,439
Cumulative impact of adoption of new accounting guidance	-	-	(423,391)	-	(213,218)	(636,609)
Adjusted balance as of 12/31/2008	25,890,143	$ 2,589	$ 141,968,772	$ 386,351	$ (124,030,882)	$ 18,326,830
Net Loss	-	-	-	-	(32,279,760)	(32,279,760)
Net unrealized (losses) on short term investments	-	-	-	(10,199)	-	(10,199)
Foreign currency translation adjustments	-	-	-	812,004	-	812,004
Comprehensive income (loss)	-	-	-	801,805	-	(31,477,955)
Vesting of restricted shares	114,336	11	(11)	-	-	-
Issuance of common stock, net issuance costs	2,116,055	212	4,924,058	-	-	4,924,270
Sale of stock purchase warrants	-	-	(1,236,067)	-	-	(1,236,067)
Share-based compensation	-	-	3,444,275	-	-	3,444,275
Issuance of common stock pursuant to share-based awards	9,750	1	27,447	-	-	27,448
Equity component of convertible debt			7,875,563	-	-	7,875,563
Balance as of 12/31/2009	28,130,284	$ 2,813	$ 157,004,037	$ 1,188,156	$ (156,310,642)	$ 1,884,364

See the accompanying notes to the consolidated financial statements.

PHARMATHENE, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year ended December 31,	
	2009	**2008**
Operating activities		
Net loss	$ (32,279,760)	$ (36,415,113)
Adjustments to reconcile net loss to net cash used in operating activities:		
Acquired in-process research and development	-	16,131,002
Change in market value of derivative instruments	(1,043,782)	(118,244)
Loss on extinguishment of debt	4,690,049	-
Depreciation and amortization	872,304	813,891
Measurement period changes in purchase accounting estimates	154,456	-
Shared-based compensation	3,444,275	3,041,146
Non cash interest expense	1,480,284	1,755,408
Changes in operating assets and liabilities:		
Accounts receivable	(4,897,917)	(2,195,580)
Prepaid expenses and other current assets	(1,915,837)	(287,564)
Accounts payable	(1,939,185)	(60,704)
Accrued expenses and other liabilities	3,289,463	4,137,184
Net cash used in operating activities	(28,145,650)	(13,198,574)
Investing activities		
Purchases of property and equipment	(1,029,428)	(509,315)
Payment for business combination, net of cash acquired	(7,000,000)	(11,556,117)
Purchase of letter of credit	-	(7,000,000)
Purchases of short term investments	(8,406,697)	(17,169,388)
Proceeds from sales and maturities of short term investments	8,450,339	26,132,421
Net cash used in investing activities	(7,985,786)	(10,102,399)
Financing activities		
Proceeds from issuance of long-term debt	10,528,196	-
Principal payments on debt	(9,538,016)	(4,000,000)
Change in restricted cash requirements	13,250,000	(6,250,000)
Net proceeds from issuance of common stock and warrants	4,951,718	12,660,442
Financing costs	(402,430)	-
Net cash provided by financing activities	18,789,468	2,410,442
Effects of exchange rates on cash	263,131	60,292
Decreases in cash and cash equivalents	(17,078,837)	(20,830,239)
Cash and cash equivalents, at beginning of year	19,752,404	40,582,643
Cash and cash equivalents, at end of year	$ 2,673,567	$ 19,752,404
Supplemental disclosure of cash flow information		
Cash paid for interest	$ 1,357,018	$ 800,481

See the accompanying notes to the consolidated financial statements.

Note 1 - Organization and Business

PharmAthene, Inc. ("PharmAthene" or the "Company") was incorporated under the laws of the State of Delaware as Healthcare Acquisition Corp. ("HAQ") on April 25, 2005, a special purchase acquisition corporation formed solely to acquire a then unidentified business. HAQ became a public company on August 3, 2005. On August 3, 2007, HAQ acquired a Delaware corporation which at the time was known as "PharmAthene, Inc." (the "Merger"); effective upon the consummation of the Merger, HAQ changed its name from "Healthcare Acquisition Corp." to "PharmAthene, Inc." and former PharmAthene changed its name to "PharmAthene US Corporation." Through February 27, 2009, our operations were conducted by PharmAthene US Corporation. Effective February 27, 2009, PharmAthene US Corporation was merged with and into PharmAthene, Inc., with PharmAthene, Inc. being the surviving corporation.

In March 2008, PharmAthene Inc., through its wholly-owned subsidiary PharmAthene UK Limited, acquired substantially all the assets and liabilities related to the biodefense vaccines business (the "Avecia Acquisition") of Avecia Biologics Limited (along with its affiliates, "Avecia").

We are a biopharmaceutical company focused on developing biodefense countermeasure applications. We are subject to those risks associated with any biopharmaceutical company that has substantial expenditures for research and development. There can be no assurance that our research and development projects will be successful, that products developed will obtain necessary regulatory approval, or that any approved product will be commercially viable. In addition, we operate in an environment of rapid technological change and are largely dependent on the services and expertise of our employees, consultants and other third parties.

Historically, we have performed under government contracts and grants and raised funds from investors (including additional debt and equity issued in 2009) to sustain our operations. Based on the operating cash requirements and capital expenditures expected for 2010, we will not require additional funding to continue our current level of operations to the end of 2010. Our sources of funds include existing government grants and contracts. We may also elect to raise additional capital through debt and or equity to strengthen our financial position.

Note 2 - Summary of Significant Accounting Policies

Basis of Presentation

Our consolidated financial statements include the accounts of PharmAthene, Inc. and its wholly-owned subsidiaries, PharmAthene U.S. Corporation, PharmAthene Canada, Inc., and PharmAthene UK Limited, collectively referred to herein as "PharmAthene", "we", "us", "our" or the "Company". All significant intercompany transactions and balances have been eliminated in consolidation. Our consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States. We currently operate in one business segment. Unbilled accounts receivable in the prior year have been reclassified out of accounts receivable line item on the consolidated balance sheet into other receivables to conform with current year presentation.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, 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. Actual results could differ from those estimates.

Foreign Currency Translation

The functional currency of our wholly owned foreign subsidiaries located in Canada and the United Kingdom is their local currency. Assets and liabilities of our foreign subsidiaries are translated into United States dollars based on exchange rates at the end of the reporting period. Income and expense items are translated at the weighted average exchange rates prevailing during the reporting period. Translation adjustments are accumulated in a separate component of stockholders' equity. Transaction gains or losses are included in the determination of net loss.

Comprehensive Loss

Comprehensive loss includes the total of our net loss and all other changes in equity other than transactions with owners, including (i) changes in equity for cumulative translation adjustments resulting from the consolidation of foreign subsidiaries as the financial statements of the subsidiaries located outside of the United States are accounted for using the local currency as the functional currency, and (ii) unrealized gains and losses on short term available-for-sale investments.

	Foreign Currency Translation	Unrealized Gains (Losses) on Investments	Accumulated Other Comprehensive Income
Balance as of December 31, 2007	$ 1,581,029	$ (99,250)	$ 1,481,779
2008 other comprehensive income (loss)	(1,177,995)	82,567	(1,095,428)
Balance as of December 31, 2008	403,034	(16,683)	386,351
2009 other comprehensive income	812,004	(10,199)	801,805
Balance as of December 31, 2009	$ 1,215,038	$ (26,882)	$ 1,188,156

Cash and Cash Equivalents

Cash and cash equivalents, are stated at cost which approximates market value. We consider all highly liquid investments with original maturities of three months or less to be cash equivalents. Interest income earned on cash and cash equivalents and short-term investments was $0.3 million and $1.2 million in 2009 and 2008, respectively.

Restricted Cash and Letter of Credit

Prior to the repayment in full of all outstanding amounts and its termination in July 2009, we were required to maintain restricted cash pursuant to a bank credit facility. Prior to payment in June 2009 of the remaining deferred consideration existing from the Avecia Acquisition, we had agreed to provide a letter of credit as security for the deferred consideration. As of December 31, 2009 we no longer have either the restricted cash or letter of credit requirements.

Significant Customers and Accounts Receivable

Our primary customers are the U.S. Department of Defense (the "DoD"), the National Institute of Allergy and Infectious Diseases ("NIAID"), the Biomedical Advanced Research and Development Authority ("BARDA"), and the National Institute of Health ("NIH").

As of December 31, 2009 and 2008, the Company's trade receivable balances were comprised solely of receivables from these customers. Unbilled accounts receivable totaling $8.1 million and $5.0 million as of December 31, 2009 and 2008, respectively, relate to the contracts with these same customers.

Property and Equipment

Property and equipment consist of land, building and leasehold improvements, laboratory, computer, farm and office equipment and furniture and are recorded at cost. Leasehold improvements are amortized over the economic life of the asset or the lease term, whichever is shorter. Property and equipment are depreciated using the straight-line method over the estimated useful lives of the respective assets as follows:

Asset Category	Estimated Useful Life (in Years)
Building and leasehold improvements	4 - 20
Laboratory equipment	7
Furniture, farm and office equipment	5 - 7
Computer equipment	3

Impairment of Long-Lived Assets

Long-lived assets consist primarily of patents and property and equipment. We review long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to future undiscounted net cash flows expected to be generated by the asset. Recoverability measurement and estimating of undiscounted cash flows is done at the lowest possible level for which we can identify assets. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of assets exceeds the fair value of the assets.

Concentration of Credit Risk

Financial instruments that potentially subject us to concentrations of credit risk are primarily cash and cash equivalents, investments and billed and unbilled accounts receivable. We maintain our cash and cash equivalents and investment balances in the form of money market accounts, corporate and government debt securities and overnight deposits with financial institutions that we believe are creditworthy.

Fair Value of Financial Instruments

Our financial instruments primarily include cash and cash equivalents, accounts receivable, short-term investments and other current assets, accounts payable, accrued and other liabilities, convertible notes and long-term debt. Due to the short-term nature of the cash and cash equivalents, accounts receivable, short-term investments and other current assets, accounts payable and accrued and other liabilities (including derivative instruments), the carrying amounts of these assets and liabilities approximate their fair value. The carrying values of our convertible notes and other long term debt approximate their fair values, based on our current incremental borrowing rates.

Short-term investments consist of investment grade government agency and corporate debt securities due within one year. All investments are classified as available-for-sale and are recorded at market value. Unrealized gains and losses are reflected in other comprehensive income (loss). The estimated fair value of the available-for-sale securities is determined based on quoted market prices or rates. The estimated fair value of our available-for-sale securities is determined based on quoted market prices or rates for similar instruments. We review our investment portfolio on a regular basis and seek guidance from our professional portfolio manager related to U.S. and global market conditions. We assess the risk of impairment related to securities held in our investment portfolio on a regular basis and identified no permanent or "other-than-temporary" impairment during the year ended December 31, 2009 and 2008.

Intangible Assets

Patents are carried at cost less accumulated amortization which is calculated on a straight line basis over the estimated useful lives of the patents, currently estimated to be 11 years. Goodwill represents the excess of purchase price over the fair value of net identifiable assets associated with the Avecia Acquisition. We review the carrying value of our intangible assets for impairment annually during the fourth quarter of every year, or more frequently if impairment indicators exist. Evaluating for impairment requires judgment, including the estimation of future cash flows, future growth rates and profitability and the expected life over which cash flows will occur. Changes in the Company's business strategy or adverse changes in market conditions could impact impairment analyses and require the recognition of an impairment charge equal to the excess of the carrying value of the intangible asset over its estimated fair value. For the year ended December 31, 2009, we determined that there was no impairment of our intangible assets.

Revenue Recognition

We generate our revenue from two different types of contractual arrangements: cost-plus-fee contracts and cost reimbursable grants. Costs consist primarily of actual internal labor charges and external sub-contractor costs incurred plus an allocation of applied fringe benefits, overhead and general and administrative expenses as defined in the contract.

Revenues on cost-plus-fee contracts are recognized in an amount equal to the costs incurred during the period plus an estimate of the applicable fee earned. The estimate of the applicable fee earned is determined by reference to the contract: if the contract defines the fee in terms of risk-based milestones and specifies the fees to be earned upon the completion of each milestone, then the fee is recognized when the related milestones are earned. Otherwise, we compute fee income earned in a given period by using a proportional performance method based on costs incurred during the period as compared to total estimated project costs and application of the resulting fraction to the total project fee specified in the contract.

We analyze each cost reimbursable grant to determine whether we should report payments under such grant as revenue or as an offset to our expenses incurred. In 2009 and 2008, we recorded approximately $2.4 million and $2.2 million, respectively, of costs reimbursed by the government as an offset to research and development expenses.

As revenue is recognized in accordance with the terms of the contracts, related amounts are recorded as unbilled receivables, the primary component of "Other receivables (including unbilled receivables)" in our consolidated balance sheets. As specific contract invoices are generated and sent to our customers (i.e., the relevant government entity), invoiced amounts are transferred out of unbilled receivables and into billed accounts receivable. Invoicing frequency and payment terms for cost-plus-fee contracts with our customers are defined within each contract, but are typically monthly invoicing with 30-60 day payment cycles. During 2009, our development agreement for SparVax™, our second generation rPA anthrax vaccine, was (i) transferred from NIH to BARDA, (ii) novated from our UK subsidiary to the U.S. parent corporation, PharmAthene, Inc., and (iii) revised with regard to the scope and timing of work under that agreement. During the period that these changes were being implemented, we agreed with our customer to delay invoicing under that contract, which resulted in a significant increase in unbilled receivables.

Collaborative Arrangements

Even though most of our products are being developed in conjunction with support by the U.S. Government, we are an active participant in that development, with exposure to significant risks and rewards of commercialization relating to the development of these pipeline products. In collaborations where we are deemed to be the principal participant of the collaboration, we recognize costs and revenues generated from third parties using the gross basis of accounting; otherwise, we use the net basis of accounting.

Research and Development

Research and development costs are expensed as incurred; advance payments are deferred and expensed as performance occurs. Research and development costs include salaries, facilities expense, overhead expenses, material and supplies, pre-clinical expense, clinical trials and related clinical manufacturing expenses, stock-based compensation expense, contract services and other outside services.

Share-Based Compensation

We expense the estimated fair value of share-based awards granted to employees under our stock compensation plans. The fair value of restricted stock grants is determined based on the quoted market price of our common stock. Share-based compensation cost for stock options is determined at the grant date using an option pricing model. We have estimated the fair value of each award using the Black-Scholes option pricing model. The Black-Scholes model considers, among other factors, the expected life of the award and the expected volatility of the Company's stock price. The value of the award that is ultimately expected to vest is recognized as expense on a straight line basis over the employee's requisite service period.

The fair value of restricted stock grants are determined based on the closing price of our common stock on the NYSE Amex on the award date and is ratably recognized as expense over the requisite service period. Employee share-based compensation expense recognized in 2009 and 2008 was calculated based on awards ultimately expected to vest and has been reduced for estimated forfeitures at a rate of approximately 17% for both stock options and restricted shares, based on historical forfeitures. Share-based compensation expense for 2009 and 2008, respectively, was:

	Year ended December 31,	
	2009	2008
Research and development	$ 773,109	$ 587,957
General and administrative	2,671,166	2,453,189
Total share-based compensation expense	$ 3,444,275	$ 3,041,146

During 2009, we granted 1,592,850 options to employees and non-employee directors, and made restricted stock grants of 258,633. At December 31, 2009, we had total unrecognized stock based compensation expense related to unvested awards of approximately $5.7 million that we expect to recognize as expense over the next three years.

Income Taxes

We account for income taxes using the asset and liability method. Under this method, deferred tax assets and liabilities are recorded for the estimated future tax consequences attributable to differences between the financial statement carrying amounts of assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect of a tax rate change on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date. We record valuation allowances to reduce net deferred tax assets to the amount considered more likely than not to be realized. Changes in estimates of future taxable income can materially change the amount of such valuation allowances. As of December 31, 2009, we had recognized a valuation allowance to the full extent of our net deferred tax assets since the likelihood of realization of the benefit does not meet the more likely than not threshold.

We file a U.S. federal income tax return as well as returns for various state and foreign jurisdictions. Our income taxes have not been examined by any tax jurisdiction since our inception. Uncertain tax positions taken on our tax returns are accounted for as liabilities for unrecognized tax benefits. We recognize interest and penalties, if any, related to unrecognized tax benefits in other income (expense) in the consolidated statement of operations.

Basic and Diluted Net Loss Per Share

Income (loss) per share: Basic income (loss) per share is computed by dividing consolidated net income (loss) by the weighted average number of common shares outstanding during the year, excluding unvested restricted stock.

For periods of net income when the effects are not anti-dilutive, diluted earnings per share is computed by dividing our net income by the weighted average number of shares outstanding and the impact of all dilutive potential common shares, consisting primarily of stock options, unvested restricted stock and the common shares underlying our convertible notes and stock purchase warrants. The dilutive impact of our dilutive potential common shares resulting from stock options and stock purchase warrants is determined by applying the treasury stock method. The dilutive impact of our dilutive potential common shares resulting from our convertible notes is determined by applying the "if converted" method.

For the periods of net loss, diluted loss per share is calculated similarly to basic loss per share because the impact of all dilutive potential common shares is anti-dilutive due to the net losses. A total of 16.5 million and 19.0 million potential dilutive shares have been excluded in the calculation of diluted net loss per share in 2009 and 2008, respectively, because their inclusion would be anti-dilutive.

Recent Accounting Pronouncements

In August 2009, the Financial Accounting Standards Board issued Accounting Standards Update 2009-05, "Fair Value Measurements and Disclosures (Topic 820) Measuring Liabilities at Fair Value ("ASU 2009-05"). ASU 2009-05 clarifies that in circumstances in which a quoted market price in an active market for the identical liability is not available, a reporting entity is required to measure fair value using one of several acceptable valuation techniques. ASU 2009-05 also clarifies (i) that when estimating the fair value of a liability, a reporting entity is not required to include a separate input or adjustments to other inputs relating the existence of a restriction that prevents the transfer of the liability, and (ii) that both a "quoted price in an active market for the identical liability at the measurement date" and the "quoted price for the identical liability when traded as an asset in a active market when no adjustments to the quoted price of the asset are required" are Level 1 fair value measurements. We adopted ASU 2009-05 in the fourth quarter of 2009; the adoption did not have a material impact on our consolidated financial statements.

In October 2009, the Financial Accounting Standards Board issued Accounting Standards Update 2009-13, "Revenue Recognition (Topic 605) Multiple-Deliverable Revenue Arrangements, a consensus of the FASB Emerging Issues Task Force ("ASU 2009-13"). ASU 2009-13 amends existing accounting guidance for separating consideration in multiple-deliverable arrangements. ASU 2009-13 establishes a selling price hierarchy for determining the selling price of a deliverable. The selling price used for each deliverable will be based on vendor-specific objective evidence if available, third-party evidence if vendor-specific evidence is not available, or estimated selling price if neither vendor-specific evidence nor third-party evidence is available. ASU 2009-13 eliminates residual method of allocation and requires that arrangement consideration be allocated at the inception of the arrangement to all deliverables using the "relative selling price method." The relative selling price method allocates any discount in the arrangement proportionately to each deliverable on the basis of each deliverable's selling price. ASU 2009-13 requires that a vendor determine its best estimate of selling price in a manner that is consistent with that used to determine the price to sell the deliverable on a stand-alone basis. ASU 2009-13 is effective prospectively for revenue arrangements entered into or materially modified in fiscal years beginning on or after June 15, 2010, with earlier adoption permitted. We have not yet determined the impact of the adoption of ASU 2009-13 on our consolidated financial statements.

In January 2010, the FASB issued accounting standards update (ASU) No. 2010-06, Fair Value Measurements and Disclosures (Topic 820)—Improving Disclosures about Fair Value Measurements (ASU No. 2010-06). ASU No. 2010-06 requires: (1) fair value disclosures of assets and liabilities by class; (2) disclosures about significant transfers in and out of Levels 1 and 2 on the fair value hierarchy, in addition to Level 3; (3) purchases, sales, issuances and settlements be disclosed on gross basis on the reconciliation of beginning and ending balances of Level 3 assets and liabilities; and (4) disclosures about valuation methods and inputs used to measure the fair value of Level 2 assets and liabilities. ASU No. 2010-06 becomes effective for the first financial reporting period beginning after December 15, 2009, except for disclosures about purchases, sales, issuances and settlements of Level 3 assets and liabilities which will be effective for fiscal years beginning after December 15, 2010. We are currently assessing what impact, if any, ASU No. 2010-06 will have on our fair value disclosures; however, we do not expect the adoption of the guidance provided in this codification update to have any material impact on our consolidated financial statements.

Note 3 - Avecia Acquisition

In April 2008, we completed the Avecia Acquisition, acquiring substantially all of the assets and assuming the liabilities exclusively associated with Avecia's biodefense vaccines business, including certain products, patents, trademarks, domain names and other intellectual property, license agreements, contracts, goodwill and other intangibles. The transaction was valued at approximately $18.6 million, consisting of the initial consideration of $10.0 million in cash, deferred consideration of approximately $7.0 million, secured by a letter of credit, and transaction costs of approximately $1.6 million. They are also entitled to certain potential milestone consideration totaling $23.0 million (of which an aggregate of $13.0 million are milestones related to RypVax™ and thus are highly unlikely ever to be paid out) and royalties of 1%-2.5% of net sales depending on product sales within the period of ten years from the consummation of the Avecia Acquisition.

The assets acquired were accounted for as purchase business combination. All of the tangible and intangible assets acquired and liabilities assumed of Avecia Vaccines were recorded at their estimated fair market values on the acquisition date. The purchase price was allocated as follows:

(in thousands)		
Current assets	$	5,340
Current liabilities	$	(5,418)
Goodwill	$	2,503
In-process research and development	$	16,131
Total purchase consideration	$	18,556

The primary asset acquired in the Avecia Acquisition was SparVax™, a second generation rPA anthrax vaccine. The value of the third generation anthrax vaccine acquired in the transaction was aggregated with that of the second generation vaccine because success in developing the third generation anthrax vaccine is contingent on the successful development of the second generation vaccine. At the acquisition date, the aggregate fair value of the second and third generation vaccines was estimated at $16.1 million. An income approach methodology was used to determine the fair value of the acquired in-process research and development asset. This approach assessed the expected cash flows, net of expected appropriate operating expenses, generated from the acquisition date in April 2008 through the end of 2021 (the expected life of the vaccine) using a risk adjusted discount rate of 51%, which the Company believes is commensurate with an early stage biodefense product development opportunity of this nature. In connection with the transaction, the Company in 2008 recorded a charge to expense for acquired in-process research and development of $16.1 million for these acquired research projects for which, at the acquisition date, technological feasibility had not been established and no alternative future use existed. No such charge was recorded in 2009.

Both vaccines are in their early stages of development and significant remaining research and development is required to establish the technological feasibility of these vaccines. The cost and time required to complete the development of these vaccines and earn FDA marketing approval is highly uncertain and can vary significantly. During 2009, the Company provided the U.S. Government with a series of development plans for SparVax™, in response to their request for proposal, which estimated that it would cost in excess of $300 million over approximately five years to complete the development of SparVax™. No such estimates of the advanced development costs and timeline for the third generation vaccine have been developed.

As with all development efforts in the biodefense industry, the development of the Company's second and third generation anthrax vaccines is subject to delays. The Company's development costs will increase substantially if it experiences material delays in any clinical trials or if it needs to conduct more or larger trials than planned.

The results of operations of Avecia are included in our statement of operations starting on the acquisition date in April 2008. The unaudited financial information in the table below summarizes the combined results of operations of PharmAthene and Avecia Vaccines on a pro forma basis (as if the companies had been combined as of January 1, 2008). The pro forma financial information is presented for informational purposes only and is not indicative of the results of operations that would have been achieved if the business combination had taken place at January 1, 2008. The pro forma financial information for the year ended December 31, 2008 includes adjustments to interest expense, interest income and related tax effects.

(in thousands, except share data)		
Total revenue	$	32,911
Net loss attributable to common shareholders	$	(36,415)
Basic and dilutednet loss per share	$	(1.59)

In June 2009, PharmAthene and Avecia entered into a settlement agreement (i) to resolve certain issues related to the wind down and cancellation of work related to the Company's rPA vaccine program being conducted at Avecia pursuant to a master services agreement ("MSA") between the two organizations, and (ii) to accelerate the payment of certain deferred consideration related to the Avecia Acquisition. Under the settlement agreement:

- we paid Avecia $7.0 million of the remaining deferred purchase price consideration under the Avecia Acquisition, and as a result the existing letter of credit that had supported the deferred consideration (and the related requirement to maintain restricted cash as collateral for the letter of credit) was terminated in June 2009;

- we agreed to pay Avecia approximately $1.8 million related to past performance and raw materials under the MSA subject to certain remaining performance obligations by Avecia related to, among other things, the technology transfer effort to a new U.S.-based bulk drug substance manufacturer; and

- we agreed to pay Avecia approximately $3.0 million in cancellation fees.

In June 2009, we expensed as allowable costs under our government contract the $1.8 million payment for past contract performance and recognized related contract revenues. We also expensed the $3.0 million cancellation fee in June 2009.

In the second quarter 2009, our existing research and development contract for SparVax™ was transferred from NIAID to BARDA. In the third quarter 2009 BARDA and PharmAthene modified the existing statement of work to include, among other things, the completion of on-going stability studies and development of potency assays along with certain manufacturing scale-up and technology transfer activities to a U.S.-based manufacturer for the bulk drug substance for SparVax™. We then entered into a corresponding subcontract with our U.S.-based manufacturer. As a result of the transfer of the contract and modification of the statement of work, we have been transitioning development and manufacturing activities as well as other general and administrative functions from the UK to the U.S. In connection with this transition, we anticipate relocating our UK operations, including terminating our UK workforce, by June 30, 2010. In 2009, we expensed approximately $2.1 million of costs associated with these exit activities. Of this amount approximately $1.8 and $0.3 is presented as research and development expenses and general and administrative expenses, respectively. As of December 31, 2009, $1.1 remains in accrued expenses.

In connection with the Avecia Acquisition, we acquired license agreements with The Defence Science and Technology Laboratory of the United Kingdom Ministry of Defence ("DSTL") for the rights to certain technologies. These agreements allow for the licensing of specified patents and technology necessary to perform development of the rPA and rYP programs as required under our contracts with NIAID and BARDA. Upon commercialization, the license agreements require us to make royalty payments equal to a specified percentage of future sales of products for both government procurement and commercial markets. No payments on these licenses have been incurred. In February 2009, both of these licenses were amended and restated to broaden the scope of exclusivity and address other general business issues.

Note 4 - Fair Value Measurements

We define fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants at the measurement date. We report assets and liabilities that are measured at fair value using a three-level fair value hierarchy that prioritizes the inputs used to measure fair value. This hierarchy maximizes the use of observable inputs and minimizes the use of unobservable inputs. The three levels of inputs used to measure fair value are as follows:

- Level 1 — Quoted prices in active markets for identical assets or liabilities.
- Level 2 — Observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in markets that are not active; or other inputs that are observable or can be corroborated by observable market data.
- Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. This includes certain pricing models, discounted cash flow methodologies and similar techniques that use significant unobservable inputs.

An asset's or liability's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. At each reporting period, we perform a detailed analysis of our assets and liabilities that are measured at fair value. All assets and liabilities for which the fair value measurement is based on significant unobservable inputs or instruments which trade infrequently and therefore have little or no price transparency are classified as Level 3.

We have segregated our financial assets and liabilities that are measured at fair value into the most appropriate level within the fair value hierarchy based on the inputs used to determine the fair value at the measurement date in the table below. We have no non-financial assets and liabilities that are measured at fair value.

	As of December 31, 2009			
	Level 1	Level 2	Level 3	Balance
Assets				
Available-for-sale securities	$ 3,137,071	$ -	$ -	$ 3,137,071
Liabilities				
Derivatives	$ -	$ -	$ 835,299	$ 835,299

	As of December 31, 2008			
	Level 1	Level 2	Level 3	Balance
Assets				
Available-for-sale securities	$ 3,190,912	$ -	$ -	$ 3,190,912
Liabilities				
Derivatives	$ -	$ -	$ 6,405	$ 6,405

The following table sets forth a summary of changes in the fair value of our Level 3 liabilities for the years ended December 31, 2009 and 2008:

Description	Balance as of December 31, 2008	Cumulative Effect of Adoption of New Accounting	New Liabilities	Unrealized Gains	Balance as of December 31, 2009
Embedded conversion option	$ 6,405	$ -	$ -	$ (6,405)	$ -
Stock purchase warrants	$ -	$ 636,609	$ 1,236,067	$ (1,037,377)	$ 835,299

Description	Balance as of December 31, 2007	New Liabilities	Unrealized Gains	Balance as of December 31, 2008
Embedded conversion option	$ 124,650	$ -	$ (118,245)	$ 6,405

The gains on the derivative instruments are classified in other expenses as the change in derivative instruments in our consolidated statements of operations. The fair value of our stock purchase warrants and conversion option is determined based on the Black-Scholes option pricing model. Use of the Black-Scholes option-pricing model requires the use of unobservable inputs such as the expected term, anticipated volatility and expected dividends.

Note 5 - Short-Term Investments – Available for Sale Securities

The amortized cost, gross unrealized gains, gross unrealized losses and fair value of available-for-sale investments by security classification, all of which are short term, at December 31, 2009 and 2008 were as follows:

December 31, 2009	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Estimated Fair Value
Corporate debt securities	$ 3,130,588	$ 6,491	$ (8)	$ 3,137,071
Total Securities	$ 3,130,588	$ 6,491	$ (8)	$ 3,137,071
December 31, 2008				
Corporate debt securities	$ 3,183,461	$ 7,451	$ -	$ 3,190,912
Total Securities	$ 3,183,461	$ 7,451	$ -	$ 3,190,912

During the years ended December 31, 2009 and 2008, we realized net gains of approximately $3,300 and net losses of $8,700, respectively, on sales of available-for-sale securities. The gains and losses on available-for-sale securities are based on the specific identification method.

Note 6 - Property and Equipment

Property and equipment consisted of the following:

	December 31,	
	2009	2008
Land	$ 524,109	$ 449,787
Building and leasehold improvements	5,940,009	4,841,800
Furniture, farm and office equipment	446,897	222,892
Laboratory equipments	713,533	643,332
Computer and other equipment	1,224,927	841,185
	8,849,475	6,998,996
Less accumulated depreciation	(2,587,087)	(1,685,777)
Property and equipment, net	$ 6,262,388	$ 5,313,219

Depreciation expense for the years ended December 31, 2009 and 2008 was $0.8 million and $0.6 million, respectively.

Note 7 - Patents

In conjunction with our purchase of the assets of Nexia Biotechnologies Ltd. in March 2005 (the "Nexia Acquisition"), we recorded an intangible asset for acquired patents of $1.4 million with an estimated useful life of 11 years. Accumulated amortization at December 31, 2009 and 2008 related to these patents was $0.8 million and $0.5 million, respectively. For the years ended December 31, 2009 and 2008, we recognized amortization expense related to the patents of $0.1 million and $0.2 million, respectively. Anticipated future amortization expense will approximate $0.2 million per year until the patents are fully amortized in 2016.

Note 8 - Accrued Expenses and Other Liabilities

Accrued expenses and other liabilities consisted of the following:

	December 31,	
	2009	2008
Accrued development expenses	$ 6,582,470	$ 4,140,072
Accrued professional services	1,849,045	1,149,622
Accrued employee expenses	1,330,471	936,282
Deferred consideration - Avecia acquisition	-	7,000,000
Other	1,770,115	1,398,781
Accrued expenses and other liabilities	$ 11,532,101	$ 14,624,757

Note 9 - Debt

Convertible Notes

Our 8% senior unsecured convertible notes accrued interest at a rate of 8% per annum and were to mature on August 3, 2009 (the "Old Notes"). The principal amount of the Old Notes and any accrued interest were convertible into shares of PharmAthene common stock at the option of the holder at any time based upon a conversion rate of $10.00 per share. In July 2009, we cancelled a portion of the Old Notes, and issued new convertible notes and stock purchase warrants to certain holders of the Old Notes as well as to certain new note investors in a private placement (the "July 2009 Private Placement"). Specifically, in connection with the July 2009 Private Placement, we:

- exchanged a portion of the Old Notes in the aggregate principal amount plus accrued interest totaling $8.8 million for new two-year 10% unsecured senior convertible notes, convertible into common shares at a conversion price of approximately $2.54 per share (the "New Convertible Notes") and cancelled the corresponding Old Notes;

- issued additional New Convertible Notes in the aggregate principal amount of $10.5 million to new note investors;

- issued to the recipients of the New Convertible Notes stock purchase warrants to purchase up to 2,572,775 shares of common stock at $2.50 per share, which warrants are exercisable from January 28, 2010 through January 28, 2015; and

- used the proceeds from the sale of the New Convertible Notes to repay $5.5 million of the Old Notes that were not exchanged for the New Convertible Notes and warrants and repaid all outstanding amounts and fees under the Company's then-existing credit facility.

The New Convertible Notes accrue interest at 10% per annum and mature on July 28, 2011. The note holders may convert their principal and related accrued interest into shares of the Company's common stock at a conversion price of $2.54 per share. The conversion price is subject to adjustment for specified dilutive events, as defined in the note. Starting on July 28, 2010, the Company has the right to redeem all or a portion of the New Convertible Notes. Upon a change in control or default, as defined in the note, the note holders may require the Company to redeem their notes. These two provisions of the note are considered embedded derivatives that require bifurcation from the debt host contract. At the date of issuance and as of December 31, 2009, we have determined the probability of change in control or default to be remote; accordingly the resulting value of these derivatives is not significant. We evaluate these estimates and assumptions each reporting period and make revisions should facts and circumstances warrant a change.

The New Convertible Notes and related stock purchase warrants issued in exchange for the Old Notes were accounted for as an early extinguishment of debt, resulting in a loss on extinguishment of the Old Notes of approximately $4.7 million. This portion of the New Convertible Notes and the related stock purchase warrants were recorded at their fair values, resulting in an increase to additional paid-in capital for the premium associated with the New Convertible Notes and the value attributed to the warrants.

The New Convertible Notes and related stock purchase warrants issued to new note investors were recorded at their relative fair values. As a result of this relative fair value allocation, the total value allocated to the New Convertible Notes issued to new note investors was $7.3 million. In combination with the $8.8 million of New Convertible Notes issued to the Old Note holders, the total initial value ascribed to the New Convertible Notes was approximately $16.1 million. This initial value of $16.1 million will be accreted up to the total aggregate principal face amount of $19.3 million over the life of the notes by the recognition of additional interest expense. Financing costs incurred in connection with the July 2009 Private Placement were allocated to the various components of consideration (liabilities and equity) based on the respective component's relative fair value. The financing costs allocated to the liability component are amortized to interest expense over the term of the New Convertible Notes.

Credit Facility

In March 2007, we entered into a $10 million credit facility with Silicon Valley Bank and Oxford Finance Corporation (together, the "Lenders"). In July 2009, we repaid all outstanding amounts due under the credit facility along with certain prepayment fees. In connection with establishing the credit facility, in 2007 we issued to the Lenders certain stock purchase warrants, which expire on March 30, 2017, to purchase an aggregate of 100,778 shares of the Company's common stock at $3.97 per share.

Note 10 - Commitments and Contingencies

Leases

We lease our offices in the United States under a 10 year operating lease, which commenced on May 1, 2007. Additionally, with the Avecia Acquisition, we assumed an operating lease for office space in the United Kingdom which expires in October, 2010. Remaining annual minimum payments are as follows:

2010	$ 958,200
2011	750,400
2012	747,700
2013	773,400
2014	793,300
2015 and thereafter	2,055,400

For the years ended December 31, 2009 and 2008, total rent expense under operating lease agreements approximated $1.0 million and $0.8 million, respectively.

License Agreements

In 2006 we licensed certain patent rights from a research company. The license agreement required a $50,000 up-front payment, provides for a sublicense fee of 20% and provides for milestone payments of $25,000 upon the granting of a U.S. patent, $200,000 upon the initiation of certain studies or trials, and $250,000 upon Biologic License Application approval. Upon commercialization, the license agreement requires royalty payments equal to a specified percentage of future sales of products for both government procurement and commercial market sales subject to the license through the expiration of the licensed patents. No sublicense fee or milestone payments were incurred in 2009 or 2008.

In 2006 we entered into a research and licensing agreement allowing for the licensing of certain patent rights from a research company. The agreement includes research expense reimbursement payments and certain development milestone payments. Upon commercialization, the license agreement requires royalty payments equal to a specified percentage of future sales of products for both government procurement and commercial market sales subject to the license through the expiration of the licensed patents. No research expense reimbursement payments or milestone payments were incurred in 2009 or 2008.

In connection with the Nexia Acquisition, we acquired a license agreement for the rights to certain technologies. This agreement included an option to license product processing technology necessary to perform development of Protexia® as required under our government contract with the DoD. We executed a new licensing agreement with a development company in 2007 which results in a license to all technology provided under the original agreement including the necessary purification technology previously included in an option and access to additional information and technology deemed to be essential for development of Protexia® and performance under the DoD contract. Under the new agreement, we are required to pay initial license fees totaling $700,000 and royalty payments based on net sales, with $100,000 due in the first year.

In connection with the Avecia Acquisition, we acquired license agreements with The Defence Science and Technology Laboratory of the United Kingdom Ministry of Defence ("DSTL") for the rights to certain technologies. These agreements allow for the licensing of certain patents and technology necessary to perform development of the rPA and plague vaccine programs as required under the Company's government contracts with the NIAID. Upon commercialization, the license agreements require that PharmAthene make royalty payments equal to a specified percentage of future sales of products for both government procurement and commercial markets. No royalty payments on these licenses have been incurred.

SIGA Litigation

In December 2006, we filed a complaint against Siga Technologies, Inc. ("SIGA") in the Delaware Chancery Court. The complaint alleges, among other things, that we have the right to license exclusively development and marketing rights for SIGA's drug candidate, SIGA-246, pursuant to a merger agreement between the parties (the "Merger Agreement") that was terminated in October 2006. The complaint also alleges that SIGA failed to negotiate in good faith the terms of such a license pursuant to the terminated merger agreement.

We are seeking alternatively a judgment requiring SIGA to enter into an exclusive license agreement with the Company for SIGA-246 in accordance with the terms of the term sheet attached to the merger agreement or monetary damages. In January 2008, the Delaware Chancery Court issued a ruling denying a motion by SIGA to dismiss the complaint. SIGA has filed a counterclaim against the Company alleging that we breached our duty to engage in good-faith negotiations by, among other things, presenting SIGA with a bad-faith initial proposal for a license agreement that did not contain all necessary terms, demanding SIGA prepare a complete draft of a partnership agreement and then unreasonably rejecting that agreement, and unreasonably refusing to consider economic terms that differed from those set forth in the license agreement term sheet attached to the Merger Agreement. SIGA is seeking recovery of its reliance damages from this alleged breach.

Discovery in the case closed in February 2010. In March 2010 SIGA filed a motion for summary judgment. All reply briefs and any cross motions for summary judgment are due by early May 2010. While the specific timing for any hearing on the motions is within the court's discretion, we anticipate that the court will schedule a hearing in June or July 2010. Thereafter, once the court rules on the motions for summary judgment, and assuming open issues remain in the case, the parties can ask the court to set a trial date for any time 45 days following the ruling on summary judgment. An actual trial date will be subject to the court's discretion and its schedule and docket at that time.

An accrual for a loss contingency has not been made because the contingency is not probable.

Government Contracting

Payments to the Company on cost-plus-fee contracts are provisional and are subject to adjustment upon audit by the Defense Contract Audit Agency. In our opinion, adjustments that may result from audits are not expected to have a material effect on the Company's financial position, results of operations, or cash flows.

Registration Rights Agreements

We entered into a Registration Rights Agreement with the investors who participated in the July 2009 Private Placement. We subsequently filed a registration statement on Form S-3 with the Securities and Exchange Commission to register a portion of the shares underlying the New Convertible Notes and related warrants, which registration statement was declared effective in the fourth quarter 2009. We are obligated to maintain the registration statement effective until the date when all shares underlying the New Convertible Notes and related warrants (and any other securities issued or issuable with respect to in exchange for such shares) have been sold.

We have separate registration rights agreements with investors that we executed in connection with the initial public offering, the Merger and a subsequent equity financing, under which we have obligations to keep the corresponding registration statements effective until the registrable securities (as defined in each such agreement) have been sold, and under which we may have separate obligations to file registration statements in the future on either a demand or "piggy-back" basis or both.

Under the terms of the New Convertible Notes, if the registration statement is not declared effective as specified in such notes ("Effectiveness Failure"), or after the effective date of the registration statement, after the 2nd consecutive business day (other than during an allowable blackout period) on which sales of all of the securities required to be included on the registration statement cannot be made pursuant to the registration statement (a "Maintenance Failure"), we will be required to pay to each selling stockholder a one-time payment of 1.0% of the aggregate principal amount of the New Convertible Notes relating to the affected shares on: (i) the day of an Effectiveness Failure and (ii) the initial day of a Maintenance Failure. Our total maximum obligation under this provision would be approximately $193,000.

Following an Effectiveness Failure or Maintenance Failure, we will also be required to make to each selling stockholder monthly payments of 1.0% of the aggregate principal amount of the New Convertible Notes relating to the affected shares on each of the following dates: (i) on every 30th day after the initial day of an Effectiveness Failure and (ii) on every 30th day after the initial day of a Maintenance Failure, in each case prorated for shorter periods and until the failure is cured. Our total maximum obligation under this provision would approximate $193,000 for each month until the failure is cured. The payments above assume that we otherwise comply with the terms of the New Convertible Notes.

Note 11 - Related Party Transactions

Several directors and officers of the Company invested in the New Convertible Notes and warrants as part of the July 2009 Private Placement.

Note 12 - Medarex Collaboration

In 2004, the Company and Medarex, Inc. ("Medarex") entered into a collaboration agreement under which the companies are working to develop and commercialize MDX-1303 (known as Valortim®), a fully human monoclonal antibody targeting the *Bacillus anthracis* protective antigen. MDX-1303 was developed by Medarex using its UltiMAb Human Antibody Development System®, and this antibody is currently in clinical development by PharmAthene for use against human anthrax infection.

Under the terms of the agreement, Medarex and PharmAthene have agreed jointly to continue to investigate the potential for Valortim® to be used as a therapeutic for individuals with active disease as well as for prophylactic treatment of individuals exposed to anthrax. For the years ended December 31, 2009 and 2008, we recognized research and development expenses of approximately $0.1 million and $0.4 million related to the development activities for Valortim®. PharmAthene is fully responsible for funding all future research and development activities that are not supported by government funds. The companies will share future profits, if any, according to a pre-agreed allocation percentage.

Note 13 - Stockholders' Equity

Common Stock

In March 2009, we completed a public sale of 2,116,055 shares of common stock at $2.60 per share and warrants to purchase 705,354 shares of our common stock at an exercise price of $3.00 per share, generating gross proceeds of $5.5 million. The warrants expire on September 27, 2014.

Long-Term Incentive Plan

Prior to 2007, share-based awards were granted pursuant to our 2002 Long-Term Incentive Plan (the "2002 Plan"). In connection with the Merger, we assumed all outstanding awards that had been initially granted under the 2002 Plan. No further grants are being made under the 2002 Plan. On August 3, 2007, the Company's stockholders approved the 2007 Long Term Incentive Plan (the "2007 Plan") which provides for the granting of incentive and non-qualified stock options, stock appreciation rights, performance units, restricted common awards and performance bonuses (collectively "awards") to Company officers and employees. Additionally, the 2007 Plan authorizes the granting of non-qualified stock options and restricted stock awards to Company directors and to independent consultants.

At that time, we reserved 3,500,000 shares of common stock in connection with awards to be granted under the 2007 Plan, including those awards that had originally been made under the 2002 Plan. In 2008, the Company's shareholders approved amendments to the 2007 Plan, increasing from 3,500,000 shares to 4,600,000 shares the maximum number of shares authorized for issuance under the plan and adding an evergreen provision pursuant to which the number of shares authorized for issuance under the plan will increase automatically in each year, beginning in 2009 and continuing through 2015, according to certain limits set forth in the 2007 Plan. The Board of Directors in conjunction with management determines who receives awards, the vesting conditions, which are generally four years, and the exercise price. Options may have a maximum term of ten years.

The following tables summarize the activity of the 2007 Plan for options:

	Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term
Options			
Outstanding January 1, 2009	3,962,623	$ 4.23	
Granted	1,592,850	$ 2.58	
Exercised	(9,750)	$ 2.72	
Forfeited	(632,357)	$ 2.85	
Outstanding, December 31, 2009	4,913,366	$ 3.88	8.1 years
Exercisable, December 31, 2009	2,253,547	$ 4.30	7.6 years
Vested and expected to vest, December 31, 2009	4,473,487	$ 3.91	

The aggregate intrinsic value is calculated as the difference between (i) the closing price of the common stock at December 31, 2009 and (ii) the exercise price of the underlying awards, multiplied by the number of options that had an exercise price less than the closing price on the last trading day. The aggregate intrinsic value of options outstanding and exercisable was approximately $14,000 as of December 31, 2009.

Valuation assumptions used to determine fair value of share-based compensation

The fair value for the 2009 and 2008 awards were estimated at the date of grant using the Black-Scholes option-pricing model using the following assumptions:

	December 31,	
	2009	2008
Weighted-average volatility	86%	66%
Risk-free rate	1.8%-3.6%	2.2-3.9%
Expected annual dividend yield	-	-
Expected weighted-average life, in years	6.0	7.0

The valuation assumptions were determined as follows:

- Weighted average volatility: We determine expected volatility by using our historical volatility weighted 50% and the average historical volatility from comparable public companies with an expected term consistent with ours weighted 50%.

- Risk-free interest rate: The yield on zero-coupon U.S. Treasury securities for a period that is commensurate with the expected term of the award.

- Expected annual dividend yield: The estimate for annual dividends is zero because we have not historically paid a dividend and do not intend to do so in the foreseeable future.

- Expected life: The expected term of the awards represents the period of time that the awards are expected to be outstanding. We use historical data and expectations for the future to estimate employee exercise and post-vest termination behavior and therefore do not stratify employees into multiple groups.

The following tables summarize the activity of the 2007 plan for restricted shares:

	Shares	Weighted-Average Grant Date Fair Value	Weighted-Average Remaining Term
Restricted Shares			
Outstanding January 1, 2009	163,121	$ 5.05	
Granted	258,633	$ 2.46	
Vested	(114,336)	$ 3.71	
Forfeited or expired	(2,102)	$ 5.17	
Outstanding, December 31, 2009	305,316	$ 3.36	8.6 years
Vested and expected to vest, December 31, 2009	254,821	$ 3.36	8.6 years

Unit Purchase Option

In connection with our initial public offering in 2005, the underwriters paid $100 for an option to purchase up to a total of 225,000 units. The units issuable upon exercise of this option are identical to those offered in the initial public offering (i.e. each unit consists of one share of common stock and one warrant) except that the associated warrants have a higher exercise price (see below). The unit purchase option became exercisable at $10.00 per unit on August 3, 2007, and expires on July 27, 2010 (except that the warrant included in such option expired unexercised on July 27, 2009). The exercise price and number of units issuable upon the exercise of the option may be adjusted in certain circumstances including in the event of a stock dividend, or recapitalization, reorganization, merger or consolidation. We are not obligated to pay cash or other consideration to the holders of the unit purchase option or "net-cash settle" the obligation under the unit purchase option.

Warrants

In connection with our initial public offering in 2005, we sold warrants to acquire approximately 9.4 million shares of common stock at an exercise price of $6.00 per share; the warrants expired unexercised on July 27, 2009. We also issued to the representative of the underwriters an option to purchase up to a total of 225,000 units (as discussed above). Underlying the units are 225,000 shares of common stock and warrants to acquire 225,000 shares of common stock at an exercise price of $7.50 per share. All warrants expired unexercised on July 27, 2009.

Pursuant to the terms of our credit facility at the time (all outstanding amounts under which were repaid in full in July 2009), we issued to the Lenders 100,778 common stock warrants with an exercise price of $3.97 per share. The warrants expire in 2017, and are classified in equity.

In connection with a stock purchase by Kelisia Holdings Ltd. in 2008, we issued a warrant to purchase up to 2,745,098 additional shares of the Company's common stock at an exercise price of $5.10 per share. This warrant expired unexercised on October 10, 2009.

Prior to our adoption on January 1, 2009 of new accounting guidance related to the determination of derivative liabilities, we classified stock purchase warrants as equity in our consolidated balance sheets. As a result of the adoption of the new accounting guidance, we considered the warrant issued to Kelisia Holdings Ltd. to be a derivative liability and reclassified the warrant to reflect it as a liability in the consolidated balance sheets. The impact of adopting this new guidance resulted in an increase to our retained deficit and a decrease to additional paid in capital at January 1, 2009 of approximately $0.2 million and $0.4 million, respectively, along with an increase in reported liabilities of approximately $0.6 million.

In connection with the March 27, 2009 public offering of approximately 2.1 million shares, we issued warrants to purchase an aggregate of 705,354 shares of our common stock at an exercise price of $3.00 per share. The warrants became exercisable on September 27, 2009 and will expire on September 27, 2014. We consider these warrants to be a derivative liability and as such reflect the liability at fair value in the consolidated balance sheets. The fair value of this derivative liability will be re-measured at the end of every reporting period and the change in fair value will be reported in the consolidated statement of operations as other income (expense).

In connection with the July 2009 Private Placement, we issued warrants to purchase an aggregate of 2,572,775 shares of the Company's common stock at an exercise price of $2.50 per share. The warrants will expire on January 28, 2015, and are classified in equity.

Note 14 - Income Taxes

The actual income tax provision (benefit) differs from the expected income tax provision (benefit) computed at the federal statutory rate as follows:

	December 31,	
	2009	**2008**
Statutory federal tax benefit	$ (10,975,118)	$ (12,375,599)
State income tax, net of federal benefit	$ (1,166,452)	(812,065)
Other permanent differences	1,041,007	(349,219)
Foreign rate differential	571,788	1,616,669
Jurisdictional difference in book income		4,105,939
Increase in valuation allowance	10,528,775	7,814,275
Income tax expense	$ -	$ -

Our net deferred tax assets consisted of the following:

	December 31,	
	2009	2008
Deferred tax assets:		
Net operating loss carryforwards	$ 33,865,625	$ 26,045,695
Fixed assets/intangibles	7,834,521	7,131,555
Research and development credits/loss carryforwards	2,207,081	1,022,090
Accrued expenses and other	3,732,459	1,858,109
Total deferred tax assets	47,639,686	36,057,449
Deferred tax liabilities:		
Convertible notes	689,734	-
Bridge note revaluation	-	(166,766)
Total deferred tax liabilities	689,734	(166,766)
Net deferred tax assets	48,329,420	35,890,683
Less: valuation allowance	(48,329,420)	(35,890,683)
Net deferred tax assets	$ -	$ -

In assessing the realizability of deferred tax assets, we consider whether it is more likely than not that some or all of the deferred tax asset will not be realized. The ultimate realization of the deferred tax asset is dependent upon the generation of future taxable income during the periods in which the net operating loss carryforwards are available. We consider projected future taxable income, the scheduled reversal of deferred tax liabilities and available tax planning strategies that can be implemented by us in making this assessment on a jurisdiction-by-jurisdiction basis. Based upon the level of historical taxable income and projections for future taxable income over the periods in which the net operating loss carryforwards are available to reduce income taxes payable, we have established a full valuation allowance against the net deferred tax asset in 2009, consistent with 2008.

The U.S. federal net operating loss carryforwards of approximately $67.9 million will begin to expire in various years beginning in 2021. Under Section 382 of the U.S. Internal Revenue Code, the Company's net operating loss carryforwards may be limited due to underlying ownership of its common stock. The Canadian federal net operating loss carryforwards of approximately $10.9 million will begin to expire in 2014. Certain Canadian federal net operating losses may have an unlimited life. The UK net operating loss carryforwards of approximately $4.3 million has an unlimited life.

We have analyzed tax positions in all jurisdictions where the Company is required to file an income tax return and have concluded that we do not have any material unrecognized tax benefits. As such, we believe that any of its uncertain tax positions would not result in adjustments to our effective income tax rate.

Note 15 - Subsequent Events

On February 22, 2010, our existing research and development contract with BARDA for the development of SparVax™ (HHSO100200900103C) was modified to provide for additional advanced development funding for SparVax™. During the base period of performance under the contract modification, i.e., through December 31, 2012, we could receive payments of up to approximately $61 million on a cost-reimbursement-plus-fixed-fee basis, assuming that all milestones are achieved. Under the contract modification, the government, at its sole discretion, may exercise three contract options during the base period of performance. Assuming that the government exercises all three options, we could receive up to an additional $17 million. On February 1, 2010, we furthermore submitted a white paper under BAA-BARDA-09-34 requesting additional funding to further support our development efforts on SparVax™. In March 2010, a third party filed a bid protest with the U.S. Government Accountability Office (GAO), challenging the decision by U.S. Department of Health and Human Services (HHS) to enter into the contract modification. On March 19, 2010 HHS suspended performance under the modification pursuant to the automatic stay provisions of the Federal Acquisition Regulations (or FAR), pending a decision by the GAO on the protest. A ruling on the protest is expected no later than June 11, 2010.

Corporate Information

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This Annual Report contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). This information may involve known and unknown risks, uncertainties and other factors that are difficult to predict and may cause our actual results, performance or achievements to be materially different from future results, performance or achievements expressed or implied by any forward-looking statements. These risks, uncertainties and other factors include, but are not limited to, risks detailed under the caption "Risk Factors" in our Annual Report on Form 10-K and in our other reports filed with the U.S. Securities and Exchange Commission (the "SEC") from time to time hereafter. Forward-looking statements describe management's current expectations regarding our future plans, strategies and objectives and are generally identifiable by use of the words "may," "will," "should," "expect," "anticipate," "estimate," "believe," "intend," "project," "potential" or "plan," the negative of these words, other variations on these words, or comparable terminology.

Forward-looking statements are based on assumptions that may be incorrect, and we cannot assure you that the projections included in the forward-looking statements will come to pass. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this document. Except to the extent required by applicable laws and regulations, we undertake no obligation to update these forward-looking statements to reflect events or circumstances after the date of this document or to reflect the occurrence of unanticipated events. Although we undertake no obligation to revise or update any forward-looking statements, whether as a result of new information, future events or otherwise, you are advised to consult any additional disclosures that we may make directly to you or through reports that we, in the future, may file with the SEC, including Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K.

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