Registration No. 333-156997
Rule 424(b)(4) Prospectus

PROSPECTUS SUPPLEMENT
(To Prospectus Dated February 13, 2009)

2,785,714 Shares of Common Stock
Warrants to Purchase up to 1,323,214 Shares of Common Stock

This prospectus supplement and the accompanying prospectus relate to the sale of 2,785,714 shares of our common stock and warrants to purchase up to 1,323,214 shares of our common stock. Each share of common stock will be sold at a price of $1.40 per share. Purchasers of our common stock will automatically receive a warrant to purchase 47.5 shares of common stock at an exercise price of $1.63 per share for every 100 shares that they purchase in this offering. Each warrant may be exercised at any time and from time to time on or after the six-month anniversary of the date of issuance (we refer to this anniversary as the "initial exercise date"), until the six-year anniversary of the initial exercise date. In this prospectus supplement, we refer to the shares and warrants collectively as the "securities." The shares of common stock and warrants will be issued separately.

Our common stock is listed on the NYSE Amex under the symbol "PIP." The last reported sale price of our common stock on the NYSE Amex on July 19, 2010, was $1.63 per share.

You should carefully read this prospectus supplement and the accompanying prospectus, together with the documents we incorporate by reference, before you invest in our securities.

Investing in our securities involves risks. See "Risk Factors" beginning on p. S-4 of this prospectus supplement and p. 3 of the base prospectus.

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

Roth Capital Partners, LLC, or Roth or the placement agent, is acting as sole placement agent in connection with this offering. We have agreed to pay Roth the placement-agency fees set forth in the table below, which assumes that we sell all of the securities we are offering. We have also agreed to reimburse the placement agent for certain of its expenses, as described under "Plan of Distribution" in this prospectus supplement. The placement agent is not required to purchase or sell any of our securities pursuant to this prospectus supplement, nor is it required to arrange for the sale of any specific number or dollar amount of securities, but will use best efforts to arrange for the sale of all of the securities offered pursuant to this prospectus supplement. We also have retained Noble Financial Group, Inc., or Noble, to act as our financial advisor in connection with this offering and will pay Noble a financial advisory fee of $20,475 in connection with its services. The fees payable to Roth as described below will be reduced by any financial advisory fee paid to Noble in connection with this offering.

	Per share	Total
Public offering price	$ 1.400	$ 3,900,000
Placement agent's fees (1)	$ 0.098	$ 273,000
Proceeds, before expenses, to us	$ 1.302	$ 3,627,000

(1) Before deduction of the financial advisory fee payable to Noble as described above.

We expect the total offering expenses, excluding placement-agency fees and the financial advisory fee, to be approximately $100,000.

We are applying to list the shares (but not the warrants) being sold in this offering on the NYSE Amex. There can be no assurances that the NYSE Amex will grant the application.

The aggregate market value of our outstanding common stock held by non-affiliates is approximately $29,536,559 based on a price of $1.69 per share, representing the last reported sale price of our common stock on the NYSE Amex on July 1, 2010. Excluding the securities offered hereby, we sold securities in the aggregate amount of $3,345,002 pursuant to General Instruction I.B.6. of Form S-3 during the prior 12 calendar month period.

Delivery of the securities being offered pursuant to this prospectus supplement is expected to be made on or about July 23, 2010.

Roth Capital Partners

The date of this Prospectus Supplement is July 20, 2010.

You should only rely on the information contained in, or incorporated by reference in, this prospectus supplement and the accompanying prospectus. We have not, and the placement agent has not, authorized anyone to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information contained in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein is accurate as of any date other than the dates of the specific information. Our business, financial condition, results of operations and prospectus may have changed since then.

ABOUT THIS PROSPECTUS SUPPLEMENT

We are providing this information to you about this offering of securities in two parts. The first part is this prospectus supplement, which provides the specific details regarding the offering of our securities and also adds to and updates information contained in or incorporated by reference into the accompanying prospectus. The second part is the base prospectus dated February 13, 2009, included in the registration statement on Form S-3, as amended (No. 333-156997). Generally, when we refer to this "prospectus," we are referring to both documents combined. Some of the information in the base prospectus may not apply to this offering. To the extent that there is any conflict between the information contained or referred to in this prospectus supplement, on the one hand, and the information contained or referred to in the accompanying prospectus or any document incorporated by reference, on the other hand, the information in this prospectus supplement shall control.

You should also read and consider the information in the documents to which we refer you in "Where You Can Find More Information" on page S-20 of this prospectus supplement. The information incorporated by reference is considered to be part of this prospectus supplement, and information that we file later with the SEC will automatically update and supersede this information.

If information in this prospectus supplement is inconsistent with the base prospectus, you should rely on this prospectus supplement. We have not authorized anyone to provide information different from that contained or incorporated in this prospectus supplement and the accompanying prospectus. We are offering to sell the securities only in jurisdictions where offers and sales are permitted. The information contained or incorporated in this prospectus supplement and the accompanying prospectus is accurate only as of the date of such information, regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or of any sale of our securities.

In this prospectus supplement, "we," "us," "our company" and "Company" refer to PharmAthene, Inc., together with its subsidiaries, unless the context otherwise requires. Whenever we refer to "you" or "yours", we mean the persons to whom offers are made under this prospectus supplement.

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PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information from this prospectus supplement and the accompanying prospectus. Because the following is only a summary, it does not contain all of the information that may be important to you. You should carefully read this prospectus supplement, the accompanying prospectus and the documents identified under the headings "Where You Can Find More Information" and "Incorporation by Reference" in this prospectus supplement before deciding whether to invest in our securities. You should pay special attention to the "Risk Factors" section beginning on page S-4 of this prospectus supplement to determine whether an investment in our securities is appropriate for you.

BUSINESS SUMMARY

We are a biodefense company engaged in the development and commercialization of medical countermeasures against biological and chemical weapons. Our current lead product candidates are:

- 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, and
- 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.

RECENT DEVELOPMENTS

At March 31, 2010, accounts receivables and other receivables (including unbilled receivables) totaled approximately $16.9 million primarily due to delays in billing for services related to the SparVax™ second generation anthrax vaccine program and the normal payment cycles of our U.S. Government customers. Although we have recently expedited the billing of our second generation anthrax vaccine program, a significant portion of these recently submitted invoices are still undergoing the review and approval process prior to being paid. In addition, the bid protest filed by a third party with the U.S. Government Accountability Office (GAO) in March 2010, challenging the decision by the U.S. Department of Health and Human Services (HHS) to enter into the modification to our research and development contract with BARDA for the development of SparVax™, and resulting "stop-work" order, caused delays in our work under that modification. The bid protest was ultimately denied, and the related stop work-order canceled in June 2010. Nevertheless, the protest, along with the accumulated billing and collection delays, have reduced revenues and our available cash and cash equivalents. The combination of these two developments has reduced our operating cash flows which has resulted in a need for additional financing to fund our working capital needs.

Further, BARDA has expressed concerns regarding our performance from April 1, 2009 (the date when the contract was transferred from NIAID to BARDA) through April 30, 2010 under our existing contract for the development of SparVax™. We have been working closely with the agency to resolve the issues and believe that we have made significant progress in that regard. If, however, we are unable to perform adequately under this contract, we may be at increased risk that BARDA will curtail our activities under, or terminate, that contract.

THE OFFERING

Common stock being offered by us	2,785,714 shares of our common stock.
Warrants being offered by us	Warrants to purchase up to 1,323,214 shares of our common stock, exercisable between the date that is six months after the date of issuance (the "initial exercise date") and the six year anniversary of the initial exercise date, at an exercise price of $1.63 per share. This prospectus also relates to the offering of the shares of common stock issuable upon the exercise of the warrants.
Common stock to be outstanding after the offering	31,206,817 shares (not including the 1,323,214 shares issuable upon exercise of all of the warrants to which this prospectus supplement relates).*

Use of proceeds	We intend to use the net proceeds from this offering for general corporate purposes, including for the satisfaction of existing obligations.
Risk factors	See “Risk Factors” beginning on page S-4 of this prospectus supplement and other information included or incorporated by reference in this prospectus supplement and the accompanying prospectus for a discussion of factors you should carefully consider before deciding to invest in shares of our common stock.
NYSE Amex Symbol	PIP

* The number of shares of common stock to be outstanding after the offering is based on the number of shares outstanding as of March 31, 2010 (including unvested restricted shares). As of that date, and prior to taking into account this offering, we had 28,421,103 shares of common stock outstanding, which includes unvested restricted stock but which does not include:

- 4,727,665 shares of common stock underlying options outstanding under our 2007 Long-Term Incentive Compensation Plan at a weighted average exercise price of $3.91 per share;
- 3,393,443 shares of common stock underlying warrants outstanding at a weighted average exercise price of $2.64 per share;
- 8,110,562 shares of common stock underlying our 10% convertible notes; and
- 225,000 shares of common stock underlying the unit purchase option issued to the underwriters in our initial public offering.

Our 2007 Long-Term Incentive Compensation Plan provides for an annual automatic increase as of the first day of each fiscal year beginning in 2009 and continuing until 2015 equal to the lesser of (i) 1,100,000 shares, (ii) 2.5% of the outstanding shares of our common stock as of the end of our immediately preceding fiscal year, and (iii) any lesser number of shares determined by our Board of Directors; provided, however, that the aggregate number of shares available for issuance pursuant to such increases shall not exceed a total of 5,700,000 shares.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement and the accompanying prospectus and the information incorporated by reference herein and therein contain 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,
- Our any inability to perform adequately under our contract for the development of SparVax™,
- unexpected funding delays and/or reductions or elimination of U.S. government funding for one or more of our development programs, or delays in collecting accounts receivable under our U.S. government contracts,
- the award of government contracts to our competitors or delays caused by third parties challenging government contract awards to us,
- 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 prospectus supplement 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.

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.

All forward-looking statements included herein are expressly qualified in their entirety by the cautionary statements contained or referred to elsewhere in this prospectus supplement or in the accompanying prospectus.

RISK FACTORS

Investment in our securities involves a high degree of risk. You should carefully consider the specific risks that are described below and in the sections entitled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our most recent annual report on Form 10-K, in any of our subsequent filings with the SEC pursuant to Section 13(a), 14 or 15(d) of the Securities Exchange Act of 1934, and in any prospectus that, in each case, has been filed with the SEC and incorporated herein by reference in its entirety, as well as other information in this prospectus and any other documents or reports incorporated by reference herein, before purchasing any of our securities. Additional risks and uncertainties not presently known to us or that we currently consider immaterial may also impair our business operations. Each of the risks described in these sections and documents could materially and adversely affect our business, financial condition, results of operations and prospects and could result in a loss of your 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 $164.3 million at March 31, 2010. 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;
- continuing to receive government funding and identifying new government funding opportunities;
- receiving regulatory approvals;
- carrying out our intellectual property strategy;
- establishing our competitive position;
- pursuing third-party collaborations;
- acquiring or in-licensing products; and
- manufacturing and marketing products.

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.

At March 31, 2010, accounts receivables and other receivables (including unbilled receivables) totaled approximately $16.9 million primarily due to delays in billing for services related to the SparVax™ second generation anthrax vaccine program and the normal payment cycles of our U.S. Government customers. Although we have recently expedited the billing of our second generation anthrax vaccine program, a significant portion of these recently submitted invoices are still undergoing the review and approval process prior to being paid. In addition, the bid protest filed by a third party with the U.S. Government Accountability Office (GAO) in March 2010, challenging the decision by the U.S. Department of Health and Human Services (HHS) to enter into the modification to our research and development contract with BARDA for the development of SparVax™, and resulting “stop-work” order, caused delays in our work under that modification. The bid protest was ultimately denied, and the related stop work-order canceled in June 2010. Nevertheless, the protest, along with the accumulated billing and collection delays, have reduced revenues and our available cash and cash equivalents. The combination of these two developments has reduced our operating cash flows which has resulted in a need for additional financing to fund our working capital needs.

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 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

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 contract manufacturing organizations ("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 (now a subsidiary of Merck & Co., Inc.), to replace Avecia (now a subsidiary of Merck & Co., Inc.) 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 partial clinical hold, pending the results of our investigation of the potential causes for adverse reactions observed in two subjects dosed in the trial. As a consequence, BARDA advised us that until satisfactory resolution of this issue and the partial clinical hold is lifted it would not act on our request for additional advanced development funding for Valortim ® under BAA-BARDA-09-34. In April 2010 BARDA informed us of its belief that it is not practical at this point to resume negotiations under the current proposal and encouraged us to submit a new white paper for Valortim® under Board Agency Announcement, BARDA-CBRN-BAA-10-100-SOL-00012, if and when FDA agrees to permit us to reinitiate a Valortim® iv administration clinical trial program. 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 submit a new white paper and if in response BARDA will request a formal proposal and provide additional funding for this program, 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.

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 partial 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 partial 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. Our existing contract with the U.S. government for the development of RypVax ™ has been wound down, and 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

All 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. Future funding levels for two of our key government customers, BARDA and DoD, for the advanced development and procurement of medical countermeasures are uncertain, and may be subject to budget cuts as the U.S. Congress and the President look to reduce the nation's budget deficit.

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 resulted in early wind down of all activities under our existing RypVax™ contract. 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. 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 partial clinical hold, pending the results of our investigation of the potential causes for adverse reactions observed in two subjects dosed in the trial. As a consequence, BARDA advised us that until satisfactory resolution of this issue and the partial clinical hold is lifted it would not act on our request for additional advanced development funding for Valortim® under BAA-BARDA-09-34. In April 2010 BARDA informed us of its belief that it is not practical at this point to resume negotiations under the current proposal and encouraged us to submit a new white paper for Valortim® under Board Agency Announcement, BARDA-CBRN-BAA-10-100-SOL-00012, if and when FDA agrees to permit us to reinitiate a Valortim® iv administration clinical trial program. 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 submit a new white paper and if in response BARDA will request a formal proposal and provide additional funding for this program, 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.

For example, earlier this year, NIAID raised concerns regarding performance under our existing three year, $13.2 million contract with them related to our third-generation anthrax vaccine program, with project delays and contract management noted as key areas of concern. Through March 31, 2010 we had recognized approximately $1.6 million in revenue under this contract. In April 2010, NIAID notified us that the agency is considering terminating the contract, possibly for default. In June 2010, we entered into a modification to this contract with NIAID, which closed out the contract as part of a no-cost settlement between us and NIAID.

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™ .. In March 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. While the bid protest was ultimately denied, and the related HHS "stop work" order canceled in June 2010, the protest contributed to a reduction in revenues and cash and cash equivalents over the period that work could not be performed under the modification. In addition, we incurred unexpected general and administrative expenses to intervene in the protest.

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 aware of one granted U.S. patent directed to pegylated butyrylcholinesterase. Protexia® includes a pegylated butyrylcholinesterase. If a license is required under such patent, we believe that the patent owner is willing to grant such a license; however, we cannot provide any assurances that, if needed, such a license will be granted or that the terms thereof will be reasonable. We are also aware of pending applications directed to pegylated butyrylcholinesterase and if a patent is issued from such an application, we may be required to obtain a license thereunder or obtain alternative technology. We cannot provide any assurances that 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 a license under any patent directed to pegylated butyrylcholinesterase 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.

Our complaint against SIGA may not yield a favorable outcome.

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 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, and subsequently we filed an answering brief and SIGA filed its reply brief. A hearing on SIGA’s motion is scheduled for July 22, 2010. Once the court rules on the motion 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. We can make no assurances that SIGA’s motion will not be granted, or that, if open issues remain in the case, the trial will be successful. In either event, we will have spent significant resources on an unsuccessful lawsuit.

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. 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 the manufacturing process 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 This Offering and our Common Stock and Warrants

You will experience immediate dilution in the book value per share of the common stock you purchase

Because the price per share of our common stock being offered is substantially higher than the book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. After giving effect to the sale by us of 2,785,714 shares of common stock in this offering, and based on a public offering price of $1.40 per share in this offering and a pro forma net tangible book value per share of our common stock of $(0.16) as of March 31, 2010, if you purchase shares in this offering, you will suffer immediate and substantial dilution of $(1.56) per share in the net tangible book value of the common stock purchased. See "Dilution" beginning on page S-17 for a more detailed discussion of the dilution you will incur in connection with this offering.

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 have filed a 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 this offering, and our April 2010 and March 2009 public offerings), although we are presently subject to significant limitations on the amount of securities we can issue under that registration statement. For an explanation of the dilutive effect of the current offering on our common stock, see "Dilution" beginning on page S-17 of this prospectus supplement. 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 March 31, 2010, we had outstanding options to purchase approximately 5.0 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 (not including accrued interest), 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 March 31, 2010, the Company had issued and outstanding additional warrants to purchase up to an additional approximately 0.8 million shares of common stock. We issued additional warrants (which become exercisable October 13, 2010) to purchase up to 500,000 shares at $1.89 per share as part of our public offering in April 2010 and are issuing warrants to purchase up to 1,323,214 shares at $1.63 per share in this offering. 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. 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.

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.

There is no public market for the warrants to purchase common stock in this offering.

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

USE OF PROCEEDS

We expect to receive approximately $3.5 million in net proceeds from the sale of the securities in this offering, after deducting placement-agency fees and offering expenses payable by us, assuming that all 2,785,714 shares to which this prospectus supplement relates are sold. Pending the use of the net proceeds, we may invest the net proceeds in investment-grade, interest-bearing securities.

We intend to use the net proceeds from this offering for working capital purposes and to satisfy outstanding obligations. We may also use a portion of the net proceeds to acquire or invest in businesses, products and technologies that are complementary to our own, although we are not currently planning or negotiating any such transactions. We will have significant discretion in the use of any net proceeds. The amounts and timing of our actual expenditures for each purpose may vary significantly depending upon numerous factors, including the actual amount of proceeds we receive from this offering, the status of our research and product-development efforts, regulatory approvals, competition and economic or other conditions.

At March 31, 2010, our available cash and cash equivalents was approximately $0.7 million and our restricted cash was approximately $0.1 million. In addition, at March 31, 2010, although we had U.S. government accounts receivable and other receivables (including unbilled receivables) of approximately $16.9 million, we had accounts payable and accrued expenses of approximately $14.4 million.

DILUTION

The net tangible book value of our common stock on March 31, 2010 was approximately $(8,475,154), or approximately $(0.30) per share. Net tangible book value per share is equal to the amount of our total tangible assets, less total liabilities, divided by the aggregate number of shares of common stock outstanding. Dilution in net tangible book value per share represents the difference between the amount per share paid by purchasers of shares of common stock in this offering (assuming no value is attributed to the warrants) and the pro forma net tangible book value per share of our common stock immediately after this offering.

After giving effect to the sale of the shares of common stock in this offering at a sales price of $1.40 per share, as well as estimated offering expenses, but excluding any effects of potential exercises of the warrants issued in this offering, our net tangible book value at March 31, 2010 would have been approximately $(4,948,155) or approximately $(0.16) per share. This represents an immediate dilution of $(1.56) per share to new investors purchasing shares of common stock in this offering. The following table illustrates this dilution:

Public offering price		$ 1.40
Historical net tangible book value per share as of March 31, 2010	$ (0.30)	
Increase attributable to new investors	0.14	
Pro forma net tangible book value after the offering		(0.16)
Dilution to new investors		$ (1.56)

The foregoing table does not take into account further dilution to new investors that could occur upon the exercise of the warrants issued in this offering and upon the exercise of outstanding options or warrants having a per share exercise price less than the per share offering price to the public in this offering. As of March 31, 2010, there were 28,421,103 shares of common stock outstanding, which includes unvested restricted stock but which does not include:

- 4,727,665 shares of common stock underlying options outstanding under our 2007 Long-Term Incentive Compensation Plan at a weighted average exercise price of $3.91 per share;
- 3,393,443 shares of common stock underlying warrants outstanding at a weighted average exercise price of $2.64 per share;
- 8,110,562 shares of common stock underlying our 10% convertible notes; and
- 225,000 shares of common stock underlying the unit purchase option issued to the underwriters in our initial public offering.

Our 2007 Long-Term Incentive Compensation Plan provides for an annual automatic increase as of the first day of each fiscal year beginning in 2009 and continuing until 2015 equal to the lesser of (i) 1,100,000 shares, (ii) 2.5% of the outstanding shares of our common stock as of the end of our immediately preceding fiscal year, and (iii) any lesser number of shares determined by our Board of Directors; provided, however, that the aggregate number of shares available for issuance pursuant to such increases shall not exceed a total of 5,700,000 shares.

DESCRIPTION OF THE WARRANTS

The material terms and provisions of the warrants being offered pursuant to this prospectus supplement and the accompanying prospectus are summarized below. This summary is subject to, and qualified in its entirety by, the terms of the warrants as set forth in the form of warrant to be filed as an exhibit to our periodic report on Form 8-K, which we will file with the SEC in connection with this offering.

Each warrant to which this prospectus supplement relates represents the right to purchase one share of our common stock at an exercise price of $1.63 per share. Each warrant may be exercised at any time and from time to time on or after the six-month anniversary of the date of issuance (we refer to this anniversary as the "initial exercise date"), until the six-year anniversary of the initial exercise date.

There is no established public trading market for the warrants, and we do not expect a market to develop. We do not intend to apply to list the warrants on any securities exchange. Without an active market, the liquidity of the warrants will be limited. In addition, in the event our common stock price does not exceed the per share exercise price of the warrants during the period when the warrants are exercisable, the warrants will not have any value.

Subject to the restrictions in the following sentence, a warrant may be transferred by a holder upon surrender of the warrant to us, properly endorsed by the holder executing an assignment in the form attached to the warrant agreement. A warrant may be transferred only in accordance with the securities laws and only if, to the extent a registration statement covering the underlying shares is not effective at the time of exercise, the warrant holder complies with the conditions of transfer stated in the warrant.

The warrants are subject to customary pro rata anti-dilution provisions for stock splits or recapitalizations. The exercise price and the number of shares of common stock are subject to adjustment in the event of stock splits, stock dividends on our common stock, stock combinations or similar events affecting our common stock. In addition, in the event we consummate any merger, consolidation, sale or other reorganization event in which our common stock is converted into or exchanged for securities, cash or other property or we consummate a sale of substantially all of our assets, then following that event, the holders of outstanding warrants may be entitled to receive upon exercise of the warrants securities which the holders would have received if they had exercised their warrants prior to such reorganization event or the repurchase of the warrant by us for cash.

Each warrant may be modified or amended or the provisions thereof waived with our written consent and the written consent of the holder.

Upon receipt of payment and the form of exercise properly completed and duly executed, we will, as soon as practicable, issue the shares purchasable upon exercise of the warrant. The warrants may be exercised by means of cashless exercise in the event the registration statement of which this prospectus forms a part is no longer effective.

Before the exercise of their warrants, holders of warrants will not have any of the rights of stockholders, and will not be entitled to, among other things, vote or receive dividend payments or similar distributions on the shares purchasable upon exercise.

Warrant certificates may be exchangeable for new warrant certificates of different denominations as indicated in the applicable warrant.

PLAN OF DISTRIBUTION

Roth Capital Partners, LLC is acting as sole placement in the offering of our shares of common stock. Subject to the terms and conditions stated in the placement-agency agreement dated the date of this prospectus supplement, the placement agent is using its best efforts to introduce us to investors who will purchase the shares we are offering pursuant to this prospectus supplement. The placement agent does not have any obligation to buy any of the shares from us or to arrange the purchase or sale of any specific number or dollar amount of the shares.

We may enter into securities purchase agreements with investors for the purchase of shares in this offering. The terms of this offering will be subject to market conditions and negotiations among us, the placement agent and prospective investors.

Confirmations and definitive prospectuses will be distributed to all investors who agree to purchase shares and will inform investors of the closing date as to such shares. We currently anticipate that the closing of the sale of the shares will take place on or about July 23, 2010. Investors will also be informed of the date on which they must transmit the purchase price into the designated company account.

The placement agent is entitled to receive an aggregate fee of 7.0% of the gross proceeds raised in this offering, less a financial advisory fee of $20,475 payable by us to Noble Financial Group, Inc., or Noble, (as described below). The aggregate amount of placement fees payable to the placement agent is estimated to be $273,000, before deduction for the financial advisory fee payable to Noble. We will also reimburse Roth Capital Partners, LLC for certain reasonable expenses incurred by it in connection with this offering in an amount not to exceed (x) $15,000 for all expenses other than attorneys fees and expenses and (y) $30,000 for the placement agent’s attorneys fees and expenses. In no event will the total compensation payable to the placement agent and any other member of the Financial Industry Regulatory Authority, Inc. (“FINRA”) or independent broker-dealer (including Noble) in connection with the sale of the securities offered hereby (including any expense reimbursement) exceed 8% of the gross proceeds received by the Company from the sale of the securities offered hereby. The following table shows the per share and total fees and expenses we will pay to the placement agent in connection with the sale of the securities offered pursuant to this prospectus supplement, the accompanying prospectus and any free writing prospectus, assuming the purchase of all of the securities offered hereby, and before deducting the financial advisory fee payable to Noble:

	Paid by us
Per share	$ 0.098
Total	$ 273,000

We have also engaged Noble to serve as our non-exclusive financial advisor in connection with the offering of the securities contemplated hereby and will pay Noble a financial advisory fee of approximately $20,475, assuming all of the securities offered hereby are sold, payable on the closing date of the transaction to which this prospectus supplement relates.

The placement agent has informed us that it will not engage in over-allotment, stabilization or syndicate- covering transactions in connection with this offering.

Other than the electronic formats of this prospectus supplement and the accompanying prospectus made available by the placement agent, the information contained on, or accessible through, either placement agent's website or any other website maintained by them is not part of the prospectus supplement, the accompanying prospectus or the registration statement of which this prospectus supplement and the accompanying prospectus form a part, has not been approved or endorsed by us and should not be relied upon by investors.

We have agreed to indemnify the placement agent and certain of its affiliates against certain liabilities, including liabilities under the Securities Act and the Exchange Act, or to contribute to payments that the placement agent may be required to make because of any of those liabilities.

We have agreed to limit future sales of our common stock and other securities convertible into or exercisable or exchangeable for common stock (except for indebtedness which is convertible into or exchangeable for common stock) at prices below the offering price for a period of forty-five (45) days after the offering as set forth in the securities purchase agreement. We have also agreed to provide investors in this offering with certain rights to participate in additional offerings for a period of one year.

The foregoing includes a brief summary of the material provisions of the placement agency and securities purchase agreements and does not purport to be a complete statement of their terms and conditions. The placement agency agreement and form of securities purchase agreement will be included as exhibits to our Current Report on Form 8-K that will be filed with the SEC in connection with the completion of this offering. See "Where You Can Find More Information" in this prospectus supplement.

The placement agent may, from time to time, engage in transactions with, and perform services for, us in the ordinary course of its business for which it may receive customary fees.

The transfer agent for our common stock is Continental Stock Transfer & Trust Company, New York, New York.

Our common stock is traded on the NYSE Amex under the symbol "PIP."

LEGAL MATTERS

The validity of the shares of common stock being offered pursuant to this prospectus supplement will be passed upon for us by Sonnenschein Nath & Rosenthal LLP of New York, New York.

Lowenstein Sandler PC, Roseland, New Jersey, is acting as counsel for the placement agent in connection with various matters related to the securities offered hereby.

WHERE YOU CAN FIND MORE INFORMATION

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the shares we are offering under this prospectus supplement. This prospectus supplement does not contain all of the information set forth in the registration statement, as amended, and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus supplement, we refer you to the registration statement, as amended, and the exhibits and schedules filed as a part of the registration statement. You may read and copy the registration statement, as amended, as well as our reports, proxy statements and other information, at the SEC's Public Reference Room at Room 100 F Street N.W., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the Public Reference Room. The SEC maintains an Internet site at http://www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. Most of our SEC filings are also accessed through our website at www.pharmathene.com.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" in this prospectus supplement the information in other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus supplement and information in documents that we file later with the SEC will automatically update and supersede information contained in documents filed earlier with the SEC or contained in this prospectus supplement or a subsequent prospectus supplement. We incorporate by reference in this prospectus supplement the documents listed below and any future filings that we may make with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act prior to the termination of the offering under this prospectus. We are not, however, incorporating by reference any documents or portions thereof, whether specifically listed below or filed by us in the future, that are not deemed "filed" with the SEC, including information "furnished" pursuant to Items 2.02 or 7.01 of Form 8-K.

We incorporate by reference the following documents we have filed, or may file, with the SEC:

- our Annual Report on Form 10-K for the year ended December 31, 2009 (File No. 001-32587);
- our Quarterly Report on Form 10-Q for the period ended March 31, 2010 (File No. 001-32587);
- our Current Reports on Form 8-K filed with the SEC on February 26, 2010, March 30, 2010, April 8, 2010, April 13, 2010, May 6, 2010, May 21, 2010, May 24, 2010, June 29, 2010, July 2, 2010 and July 20, 2010;
- our Definitive Proxy Statement filed with the SEC on May 24, 2010, including any amendments or supplements filed for the purpose of updating same; and
- the description of the Company's securities set forth in the Definitive Proxy Statement filed with the SEC on July 16, 2007, on page 159 under the caption "Description of Securities."

We make available free of charge through our website at www.pharmathene.com our press releases and all of the documents that we are required to file electronically with the SEC, including all amendments thereto, as soon as reasonably practical after they are electronically filed with, or furnished to, the SEC. Our website also contains our Code of Ethics. The information on our website is neither part of nor incorporated by reference into this prospectus.

You may also read and copy any materials we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers, like PharmAthene, that file electronically with the SEC at http://www.sec.gov.

In addition, we will provide, without charge to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request of such person, a copy of any or all of the documents incorporated by reference in this prospectus other than exhibits, unless such exhibits specifically are incorporated by reference into such documents or this prospectus. Requests for such documents should be addressed in writing or by telephone to: PharmAthene, Inc., One Park Place, Suite 450, Annapolis, MD 21401, (410) 269-2600.

PROSPECTUS

$50,000,000

Common Stock
Preferred Stock
Warrants

From time to time, we may offer and sell common stock, preferred stock or warrants or any combination of securities described in this prospectus, either individually or in units, in one or more offerings. The aggregate public offering price of the securities offered by this prospectus will not exceed $50 million.

This prospectus provides you with a general description of the securities that we may offer. Each time we offer securities, we will provide a supplement to this prospectus that will contain more specific information about the terms of that offering, including the prices at which those securities will be sold. We may also add, update or change in the prospectus supplement any of the information contained in this prospectus.

Our common stock is listed on the NYSE Alternext US under the symbol "PIP." On February 11, 2009, the last reported sale price per share of our common stock on that exchange was $2.41. Some of our warrants are listed on the NYSE Alternext US under the symbol "PIP.WS." On February 11, 2009, the last reported sale price of these warrants on that exchange was $0.09.

Investing in our securities involves certain risks. You should carefully read both this prospectus and the applicable prospectus supplement, as well as any documents incorporated by reference in this prospectus and/or the applicable prospectus supplement, before you make your investment decision. See "Risk Factors" beginning on page 3 and in other documents that are incorporated by reference in this prospectus.

This prospectus may not be used to sell any of our securities unless accompanied by a prospectus supplement.

The securities offered by this prospectus may be sold directly by us to investors, through agents designated from time to time or to or through one or more underwriters or dealers or in other manners as set forth under the heading "Plan of Distribution." In addition, each time we offer securities, the supplement to this prospectus applicable to such offering will provide the specific terms of the plan of distribution for such offering and the net proceeds that we expect to receive from such offering.

The aggregate market value of our outstanding common stock held by non-affiliates is $29,126,276 based on 26,312,322 shares of outstanding common stock, of which 12,289,568 are held by non-affiliates, and a per share price of $2.37 based on the closing sale price of our common stock on January 26, 2009. We have not offered any securities pursuant to General Instruction I.B.6. of Form S-3 during the prior 12 calendar month period that ends on and includes the date of this prospectus.

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

The date of this prospectus is February 13, 2009.

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ABOUT THIS PROSPECTUS

You should rely only on the information contained or incorporated by reference in this prospectus and any applicable prospectus supplements. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information in this prospectus is accurate as of the date appearing on the front cover of this prospectus only and that information contained in any prospectus supplement or document incorporated by reference in this prospectus is only accurate as of the date of such prospectus supplement or document. Our business, financial condition, results of operations and prospects may have subsequently changed.

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, to register an indeterminable number of shares of common stock, preferred stock and warrants as may from time to time be offered for sale, either individually or in units, at indeterminate prices (up to an aggregate maximum offering price for all such securities of $50 million), using a "shelf" registration process. By using a shelf registration statement, we may offer and sell from time to time in one or more offerings the securities described in this prospectus.

This prospectus provides you with some of the general terms that may apply to an offering of our securities. Each time we sell securities under this shelf registration we will provide a prospectus supplement that will contain specific information about the terms of that specific offering, including the number and price per security (or exercise price) of the securities to be offered and sold in that offering and the specific manner in which such securities may be offered. The prospectus supplement may also add to, update or change any of the information contained in this prospectus. If there is an inconsistency between the information in this prospectus and a prospectus supplement, you should rely on the information in the prospectus supplement.

You should carefully read both this prospectus and the applicable prospectus supplement, as well as any documents incorporated by reference in this prospectus (as described under the heading "Incorporation by Reference") and/or the applicable prospectus supplement, before you make your investment decision. The information incorporated by reference includes important business and financial information about us that is not included nor delivered with this document. This information is available without charge on the SEC's website at *www.sec.gov* or upon written or oral request to PharmAthene, Inc., One Park Place, Suite 450, Annapolis, MD 21401, (410) 269-2600.

Unless specifically noted otherwise, as used throughout this prospectus, "the Company", "PharmAthene", "we", "us" or "our" refers to the business of the combined company after the merger with Former PharmAthene and to the business of Former PharmAthene prior to the Merger, and "HAQ" refers to the business of Healthcare Acquisition Corp. prior to the Merger. The phrase "this prospectus" refers to this prospectus and any applicable prospectus supplement, unless the context otherwise requires. Whenever we refer to "you" or "yours", we mean the persons to whom offers are made under this prospectus.

SUMMARY

PharmAthene is a biodefense company engaged in the development and commercialization of medical countermeasures against biological and chemical weapons. In addition to our own efforts, we collaborate with pharmaceutical companies to support clinical development of product candidates. 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®, which mimics a natural bioscavenger for the treatment or prevention of nerve agent poisoning by organophosphate compounds, including nerve gases and pesticides,

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

- a third generation rPA anthrax vaccine.

For the next several years, we believe our main customer will be national governments, primarily the U.S. Government. Currently, the U.S. Government may, at its discretion, purchase critical biodefense products for the U.S. Strategic National Stockpile prior to FDA approval based on Emergency Use Authorization enabled under the Project Bioshield legislation. On an ongoing basis, we monitor notices for requests for proposal, grants and other potential sources of government funding that could potentially support the development and commercialization of our product candidates. Nevertheless, changes in government budgets, priorities and agendas as well as political pressures could result in a reduction in overall government financial support for the biodefense sector in general and/or specifically the product candidates we are developing. Our existing contracts with the government typically contain provisions that permit the government unilaterally to cancel or reduce the scope of these contracts. (For further information, see "Risk Factors—Risks Related to Our Business—U.S. government agencies have special contracting requirements which give them the ability to unilaterally control our contracts.") As a result, further development of our product candidates and ultimate product sales to the government could be delayed or stopped altogether.

Our executive offices are located at One Park Place, Suite 450, Annapolis, Maryland 21401 and our telephone number is (410) 269-2600.

RISK FACTORS

Investing in our securities involves risks. In addition to the other information in this prospectus and any prospectus supplement, you should carefully consider the following risks before making an investment decision. 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 and financial results could be harmed. In that case, the trading price of our common stock could decline. You should also refer to the information set forth in our other filings with the SEC, including our most recent annual report on Form 10-K or quarterly report on Form 10-Q, as the case may be, and in any applicable prospectus supplement.

Risks Related to Our Business

If we do not receive the award by the U.S. Department of Health and Human Services for an rPA anthrax vaccine, our operations may decline and we may be placed at a competitive disadvantage.

On February 29, 2008, the U.S. Department of Health and Human Services (DHHS) issued a formal Request for Proposal (RFPBARDA-0801 5) for an "Anthrax Recombinant Protective Antigen (rPA) Vaccine for the Strategic National Stockpile", which includes a requisition for 25 million doses of an rPA anthrax vaccine. We submitted a response to this solicitation on July 31, 2008. While the original solicitation indicated that an award would be made by December 31, 2008, DHHS subsequently delayed the award date because, among other things, of a protest filed by a bidder that had been eliminated from further consideration under the solicitation. The U.S. General Accounting Office subsequently denied that protest, and based on correspondence we have received from DHHS, we believe that an award may be made in the first quarter of 2009. Nevertheless, there can be no assurance that DHHS will not again extend the time line for issuing an award.

We are currently aware of at least one bidder for the award with substantially greater financial and other resources, manufacturing capabilities and commercialization capabilities than we have. If we fail to receive the award for the rPA anthrax vaccine, we could be forced to abandon or severely curtail our efforts with respect to our lead product candidate, SparVax™, which, in turn, could lead to a decline in our operations and place us at a competitive disadvantage. We have been engaged in discussions with DHHS with respect to our ability to satisfy the requirements of the RFP. DHHS has requested additional information that if not determined by them to be satisfactory could result in our elimination from consideration for a procurement.

It is expected that PharmAthene will incur net losses and negative cash flow for the foreseeable future, and we cannot guarantee that we will achieve profitability; therefore, our business, results of operations and financial condition may be materially adversely affected.

We have incurred significant losses since we commenced operations. For the fiscal year ended December 31, 2007, the Company incurred an operating loss of approximately $16.5 million and had an accumulated deficit of approximately $87.4 million at December 31, 2007. For the nine months ended September 30, 2008, the Company incurred an operating loss of approximately $30.5 million and had an accumulated deficit of approximately $118.6 million at September 30, 2008. The Company's losses to date have resulted principally from research and development costs related to the development of its product candidates, general and administrative costs related to its operations, and costs related to the Avecia Acquisition.

As a result of our continuing losses and the Avecia Acquisition, we may need to seek additional financing. Our available cash and cash equivalents at September 30, 2008 was approximately $10.1 million. However, at September 30, 2008, we had outstanding debt to noteholders of approximately $12.9 million, approximately $6.0 million outstanding under our credit facility and, in connection with the Avecia Acquisition, we have agreed to pay $7 million upon the earlier of the consummation of a financing transaction in which we receive gross proceeds of not less than $15 million or eighteen months after the closing of the acquisition. Accordingly, to the extent that our losses continue at the current level, if we do not access sufficient additional funding through contracts and grants with the U.S. or foreign governments and we do not defer or renegotiate repayment of the outstanding Notes, we will need to engage in one or more additional financing transactions by no later than August 3, 2009, the current maturity date of the Notes. The current 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.

We expect that PharmAthene will incur substantial losses for the foreseeable future as a result of increases in its research and development costs, including costs associated with conducting preclinical testing, clinical trials and regulatory compliance activities.

The Company's likelihood for achieving profitability will depend on numerous factors, including success in:

- developing and testing new product candidates;
- carrying out the Company's intellectual property strategy;
- establishing the Company's competitive position;
- pursuing third-party collaborations;
- acquiring or in-licensing products;
- receiving regulatory approvals;
- 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 slower 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 might include acquisitions of other businesses, acquisition expenses and any cash used to make these acquisitions will reduce our available cash.

In consideration for the Avecia Acquisition, we agreed to pay Avecia the following:

- $10 million at the time of the consummation of the acquisition; plus
- an additional $7 million payable upon the earlier to occur of (a) the completion of a financing transaction in which PharmAthene receives gross proceeds of not less than $15 million and (b) eighteen months after the consummation of the Avecia Acquisition, which payment is secured by a letter of credit; plus

- additional contingent amounts payable upon the occurrence of certain events as follows:

- $3 million upon the entry by PharmAthene into a multi-year funded contract or series of contracts with the US Department of Defense (or other agency or representative or sub-contractor of the US government) or the Defence Science Technology Laboratory, an agency of the UK Ministry of Defence (or any other agency or representative or sub-contractor of the US or UK government) for the further development of Avecia's pneumonic and bubonic plague ("rYP") vaccine, RypVax™, with a total committed aggregate value in excess of $30 million; and

- $10 million upon the entry by PharmAthene into a multi-year funded contract with the US Department of Defense (or other agency or representative or sub-contractor of the US Government) for the further development of the RypVax™ rYP vaccine, as a result of (a) a Resources Allocation Decision of the Resource Allocation Review Board and the Resource Allocation Advisory Committee of the US Department of Defense or (b) some other similar substantial funding in excess of $150 million (including the value of any option elements within such contract); and

- $5 million upon the entry by PharmAthene into a multi-year funded development contract to be issued by the Biological Advanced Research and Development Authority (part of the US Department of Health and Human Services) under solicitation number RFP-BARDA-08-1 5 for the further development of Avecia's anthrax (rPA) vaccine, SparVax™; and

- $5 million upon the entry by PharmAthene into a contract or contracts for the supply of rPA vaccine, SparVax™, into the Strategic National Stockpile; and

- 2.5% of net sales (as defined under the Purchase Agreement) of rPA vaccine, SparVax™, made by PharmAthene to the US Government within the period of ten years from the consummation of the Avecia Acquisition after the first 25 million doses; and

- 1% of net sales (as defined under the Purchase Agreement) of third generation anthrax vaccine made by PharmAthene to the US Government within the period of ten years from the consummation of the Avecia Acquisition.

PharmAthene is a party to a $10 million secured credit facility bearing interest at an annual rate of 11.5% evidenced by the Loan Agreement with the Lenders which required consent of the Lenders to the Avecia Acquisition. Consequently, PharmAthene obtained the consent of its Lenders to the acquisition and entered into the Loan Modification Agreement, in connection with which PharmAthene maintains, at a segregated account at the Lenders unrestricted and unencumbered cash or cash equivalents in the amount of at least one and one-quarter times the principal amount of its obligations outstanding to the Lenders.

As a result of the Avecia Acquisition and the Loan Modification Agreement, we have less available cash to use for operations, working capital or additional acquisitions, and may be required to raise additional capital or debt financing for same. Our inability to raise additional capital or to obtain adequate financing, if necessary, would result in the need to reduce the pace of implementing our business objectives and could be materially harmful to our business, which would force us to curtail or cease our business operations. As a consequence, our stock price could fall.

PharmAthene is in various stages of product development and there can be no assurance of successful commercialization.

PharmAthene has not commercialized any products or recognized any revenues from product sales. In general, our research and development programs are at early stages. To obtain FDA approval for our biological warfare defense products under current FDA regulations, the Company will be required to perform two animal model studies for efficacy and provide animal and human safety data. The Company's other products will be subject to the relevant approval guidelines under FDA requirements, which include a number of phases of testing in humans. Even if PharmAthene initially receives positive early stage pre-clinical or clinical results, such results may not be indicative of similar results that could be anticipated in the later stages of drug development.

Our drug candidates will require significant additional research and development efforts, including extensive pre-clinical and clinical testing and regulatory approval, prior to commercial sale. We cannot be sure that our approach to drug discovery will be effective or will result in the development of any drug. In addition, applicable laws, regulations, and policies may change, and our products may be subject to new legislation or regulations that may delay or suspend research and development. PharmAthene cannot assure you that any drugs resulting from our research and development efforts will be commercially available. Even if we succeed in developing and commercializing our product candidates, the Company may never generate sufficient or sustainable revenues to enable us to be profitable. Furthermore, even if our product candidates are successful when tested in animals, such success would not be a guarantee of the effectiveness and safety of such product candidates in humans. There can be no assurances that one or more of the Company's future product candidates would not fail to meet safety standards in human testing, even if those product candidates were found to be effective in animal studies. There can be no assurances that any such product candidates will prove to be effective in humans.

Most of PharmAthene's immediately foreseeable future revenues are contingent upon grants and contracts from the US Government and collaborative and license agreements and the Company may not achieve sufficient revenues from these agreements to attain profitability.

Until and unless PharmAthene successfully markets a product, our ability to generate revenues will largely depend on our ability to enter into additional collaborative agreements, strategic alliances, research grants, contracts and license agreements with third parties, including, without limitation, the US Government and branches and agencies thereof, and maintain the agreements we currently have in place. Substantially all of the revenues of the Company to date have been derived from grants and government contracts, primarily with the US Government. There can be no assurances that existing government contracts will be renewed or that we can enter into new contracts or receive new grants. For example, our existing contracts for the advanced development of plague vaccine, RypVax™, expires in the first half of 2009, and future government funding for this development program remains uncertain at this time. Furthermore, under the terms of our 2006 contract with the DoD regarding Protexia®, the DoD may elect not to continue development assistance of this nerve agent countermeasure after initial funding of $41 million has been received, or, if it does so elect to continue funding and we meet all development milestones, it may nevertheless choose not to procure any doses of Protexia® under the procurement portion of the contract.

The Company has an agreement with Medarex, Inc., to develop Valortim®, a fully human monoclonal antibody product designed to protect against and treat inhalation anthrax. Under the agreement with Medarex, the Company will be entitled to a variable percentage of profits derived from sales of Valortim®, if any, depending, in part, on the amount of its investment. In addition, the Company has 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 product candidates capable of generating revenues for the Company.

PharmAthene may need additional capital in the future. If additional capital is not available or not available on commercially reasonable terms, the Company may be forced to delay or curtail the development of our product candidates.

PharmAthene's requirements for additional capital may be substantial and will depend on many other factors, including:

- continued funding by the DoD and other branches and agencies of the US Government;
- payments received under present or future collaborative partner agreements;
- continued progress of research and development of the Company's products;
- the Company's ability to license compounds or products from others;
- costs associated with protecting the Company's intellectual property rights;
- development of marketing and sales capabilities; and
- market acceptance of the Company's products.

To the extent PharmAthene's capital resources are insufficient to meet future capital requirements, it will have to raise additional funds to continue the development of our product candidates. To the extent that our losses continue at the current level, if we do not access sufficient additional funding through contracts and grants with the US or foreign governments and we do not defer or renegotiate repayment of the outstanding Notes, we will need to engage in one or more additional financing transactions by no later than August 3, 2009, the current maturity date of the Notes. The current 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. To the extent the Company raises additional capital through the sale of securities, the issuance of those securities could result in dilution which may be substantial to the Company's stockholders. In addition, if the Company incurs 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 the Company's business activities. If adequate funds are not available, the Company may be required to curtail significantly our development and commercialization activities.

Drug development is an expensive and uncertain process, and delay or failure can occur at any stage of PharmAthene's development process, increasing our development costs and/or adversely affecting the commercial prospects of our product candidates.

To develop and commercialize biodefense treatment and drug candidates, the Company must provide the FDA and foreign regulatory authorities with clinical and non-clinical data that demonstrate adequate safety and effectiveness. This involves engaging in clinical trials, which is a lengthy and expensive process, the outcome of which is uncertain. Because humans are not normally exposed to anthrax, nerve agents, plague, smallpox or other lethal biotoxins or chemical agents and it would be unethical to expose humans to such, effectiveness of the Company's biodefense product candidates cannot be demonstrated in humans, but instead, under the FDA's "Animal Rule" (see Code of Federal Regulations (21 CFR 601 Subpart H)), can be demonstrated, in part, by utilizing animal models. This effect has to be demonstrated in more than one animal species expected to be predictive of a response in humans, but an effect in 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 allows selection of an effective dose in humans.

For many of the biological and chemical threats, the animal models are not available, and as such the Company will have to develop appropriate animal models, a time-consuming research effort. Further, we may not be able to sufficiently demonstrate the animal correlation to the satisfaction of the FDA, as these correlates are difficult to establish and are often unclear. 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. Finally, 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, 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.

Delays in obtaining results can occur for a variety of reasons such as slower than anticipated enrollment by volunteers in the trials, adverse events related to the products and unsatisfactory results of any trial. Any delay or adverse clinical event arising during any of our clinical trials could force the Company to abandon a product altogether or to conduct additional clinical trials in order to obtain approval from the FDA and other regulatory bodies. 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.

Additionally, few facilities in the US 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 as well. As such, PharmAthene may not be able to secure contracts to conduct the testing in a predictable timeframe or at all. Further, if delays are significant, or if any of the Company's products do not prove to be safe, pure, and potent (including efficacy) or do not receive required regulatory approvals, the Company will be unable to recognize revenues from the sale of products, and the commercial prospects for our product candidates will be adversely affected.

Even if the Company completes the development of our nerve agent, plague and anthrax products, if the Company fails to obtain contracts to supply products to the US or foreign governments or the US or foreign governments do not purchase sufficient quantities of our products, PharmAthene may be unable to generate sufficient revenues to continue operations.

For the next several years, we believe our main customer will be national governments, primarily the U.S. Government. The US Government has undertaken commitments to help secure improved countermeasures against bioterrorism including the stockpiling of treatments and vaccines for anthrax, plague and nerve agents through the SNS and other military stockpiling efforts. However, the process of obtaining government contracts is lengthy and uncertain and the Company will have to compete with other companies for each contract. There can be no assurances that the Company will be awarded any contracts to supply the US or other governments with our products as such awards may be made, in whole or in part, to the Company's competitors. If the US Government makes significant future contract awards for the supply of our emergency stockpile to PharmAthene's competitors, the Company's business will be harmed, and it is unlikely that the Company 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 may result in a decreased and de-prioritized emphasis on procuring the biodefense products PharmAthene is developing. In addition, government contracts typically contain provisions that permit cancellation in the event that funds become unavailable to the governmental agency. If the US or foreign governments make significant future contract awards to the Company's competitors to the exclusion of the Company or otherwise fail to purchase the Company's products, it is unlikely that the Company will ultimately be able to commercialize that particular treatment or product or that it will be able to generate sufficient revenues to continue operations.

Due to the current economic downturn and the US Government's efforts to stabilize the economy, the US 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 or that the government would procure products from us.

US Government agencies have special contracting requirements which give them the ability to unilaterally control our contracts.

PharmAthene anticipates that our primary sales will be to the US Government. US Government contracts typically contain unfavorable termination provisions and are subject to audit and modification by the government at its sole discretion, which will subject the Company to additional risks. These risks include the ability of the US Government to unilaterally:

- suspend or prevent the Company 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 PharmAthene's contracts;
- reduce the scope and value of PharmAthene's contracts;
- audit and object to the Company's contract-related costs and fees, including allocated indirect costs;
- control and potentially prohibit the export of the Company's products; and
- change certain terms and conditions in the Company's contracts.

The US Government will be able to terminate any of its contracts with the Company either for its convenience or if the Company defaults by failing to perform in accordance with the contract schedule and terms. Termination for convenience provisions would generally enable the Company to recover only the Company's 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 the Company liable for excess costs incurred by the US Government in procuring undelivered items from another source.

Due to the current economic downturn and the US Government's efforts to stabilize the economy, the US Government may be forced or choose to reduce or delay spending in the biodefense field, which could decrease the likelihood that the government will exercise its right to extend any of its existing contracts with us or to procure products from us.

PharmAthene may fail to fully realize the potential of Valortim® and of our co-development arrangement with our partner in the development of Valortim® which would have an adverse affect upon our business.

PharmAthene and our development partner have completed the first Phase I clinical trial for Valortim® without any reported adverse reactions. However, before we may begin selling any doses of Valortim®, we will need to conduct a more comprehensive Phase I trial in a significantly larger group of human subjects. The Company will be required to expend a significant amount to scale up manufacturing capability through a contract manufacturer in order to conduct the more extensive clinical trials. If the Company's contract manufacturer is unable to produce sufficient quantities at a reasonable cost, or has any other obstacles to production, such as violative manufacturing, then the Company will be unable to commence the clinical trials necessary to begin marketing Valortim®.

Even after the Company expends sufficient funds to complete the development of Valortim® and when and if it enters into an agreement to supply Valortim® to the US Government, it will be required to share any and all profits from the sale of products with our partner in accordance with a pre-determined formula.

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 trials, non-clinical animal efficacy studies, and such 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 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 FDA's "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 pre-qualify 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 drug 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 the failure of these third parties to perform successfully or our inability to find suitable manufacturing sites could harm our business.

We have utilized, and intend to continue utilizing, third parties to manufacture, package and distribute our product candidates. We do not have any manufacturing facilities. Any material disruption in manufacturing could cause a delay in our development programs and potentially future sales. Furthermore, certain compounds, media, or other raw materials used to manufacture our drug candidates are available from 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 (for instance, their inability to meet strict manufacturing specifications) could significantly delay or disrupt our commercialization activities. Similarly, if such third parties have capacity limitations, we may not be able to manufacture and commercialize our products at the rate we would otherwise deem desirable.

If PharmAthene cannot enter into new licensing arrangements, our ability to develop a diverse product portfolio could be limited and our ability to compete would be harmed.

A key component of the Company's business strategy is in-licensing compounds and products developed by other pharmaceutical and biotechnology companies or academic research laboratories. Competition for promising compounds or products can be intense. If the Company is not able to identify new licensing opportunities or enter into other licensing arrangements on acceptable terms, it may be unable to develop a diverse portfolio of products.

Our plan to use collaborations to leverage our capabilities and to grow in part through the strategic acquisition of other companies and technologies may not be successful if we are unable to integrate our partners' capabilities or the acquired companies with our operations or if our partners' capabilities do not meet our expectations.

As part of our strategy, we intend to continue to evaluate strategic partnership opportunities and consider acquiring complementary technologies and businesses. In order for our future collaboration efforts to be successful, we must first identify partners whose capabilities complement and integrate well with ours. Technologies to which we gain access may prove ineffective or unsafe. Our current agreements that grant us access to such technology may expire and may not be renewable or could be terminated if we or our partners do not meet our obligations. These agreements are subject to differing interpretations, and we and our partners may not agree on the appropriate interpretation of specific requirements. 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.

In order 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 this 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 which 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.

PharmAthene faces, 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. The Company's 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 also are many companies, 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 companies 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 are being developed by the Company or may obtain FDA approval for products more rapidly.

If the Company commences 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 companies also have manufacturing facilities and established marketing capabilities that would enable such companies to market competing products through existing channels of distribution. The Company's commercial opportunities will be reduced or eliminated if our competitors develop and market products for any of the harmful effects that it targets 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 the Company will be developing.

Further, the regulatory climate for generic versions of biological products approved under a Biological License Application (BLA) in the U.S. remains uncertain. 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 the Company is successful in developing effective products, and obtains 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 PharmAthene may develop, alone or with our collaborators, making our products obsolete, or that are marketed before any products that the Company develops are marketed.

Companies that are developing products that would compete with the Company's products include: Avant Immunotherapeutics, Inc., which has vaccine programs for agents of biological warfare, including plague and anthrax; Human Genome Sciences, Inc., Elusys Therapeutics, Inc. and Avanir Pharmaceuticals, Inc., all of which are developing monoclonal antibodies as anthrax treatments. Other competitors of the Company include: Emergent Biosolutions Inc., BioSante Pharmaceuticals, Inc., Dynport Vaccine Company, LLC and Ligocyte Pharmaceuticals, Inc.

Political or social factors may delay or impair PharmAthene's 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 the Company's products to market or limit pricing of our products, which would harm the Company's business.

The US Government's determination to award any contracts to the Company may be challenged by an interested party, such as another bidder, at the General Accounting Office 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 US Government provide procedures by which other bidders and other interested parties may challenge the award of a government contract. In the event that the Company is awarded a government contract, such 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 the Company's performance under the contract while such protests are being considered by the General Accounting Office or the applicable federal court, thus potentially delaying delivery of goods and services and payment. In addition, the Company could be forced to expend considerable funds to defend any potential award. If a protest is successful, the government may be ordered to terminate the Company's contract at our convenience and reselect bids. The government could even be directed to award a potential contract to one of the other bidders.

Legal and Regulatory Risks of Development Stage Biotechnology Companies

PharmAthene's commercial success will be affected significantly by our ability to obtain protection for our proprietary technology and that of our licensors and collaborators and not infringe the patents and proprietary rights of third parties.

The patent position of biotechnology firms generally is highly uncertain and involves complex legal and factual questions. To date, no consistent policy has emerged regarding the breadth of claims allowed in biotechnology patents. PharmAthene currently holds two US patents, has three pending US patent applications, and has a limited number of international patents pending. 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 the Company will result in patents being issued or that the patents, 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 the Company or our collaborators and limit the ability of the Company or that of our collaborators to obtain meaningful patent protection.

Further, the commercial success of PharmAthene will depend significantly on our ability to operate without infringing the patents and proprietary rights of third parties. The Company is aware of one US patent covering recombinant production of an antibody. Although PharmAthene believes that Valortim®, which is a monoclonal antibody and uses recombinant reproduction of antibodies, does not infringe any valid claim of such patent, the Company cannot provide any assurances that if a legal action based on such patent was to be brought against the Company or our distributors, licensees or collaborators, that the Company or our distributors, licensees or collaborators would prevail or that PharmAthene has sufficient funds or resources to defend such claims. The Company is 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, PharmAthene, our licensors or collaborators may be legally prohibited from researching, developing or commercializing such products or be required to obtain licenses to these patents or to develop or obtain alternative technology. The Company, our licensors and/or our collaborators may be legally prohibited from using patented technology, may not be able to obtain any license to the patents and technologies of third parties on acceptable terms, if at all, or may not be able to obtain or develop alternative technologies.

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 outcome is favorable. An outcome of any patent prosecution or litigation that is unfavorable to PharmAthene or one of our licensors or collaborators may have a material adverse effect on the Company. The expense of a protracted infringement suit, even if ultimately favorable, would also have a material adverse effect on the Company.

Any inability to protect PharmAthene's intellectual property could harm our competitive position and adversely affect our business.

PharmAthene's success will depend, in part, on our ability to obtain patents and maintain adequate protection of other intellectual property for our technologies and products in the US and other countries. If the Company does not adequately protect our intellectual property, competitors may be able to use our technologies and erode or negate our competitive advantages. Further, the laws of some foreign countries will not protect the Company's proprietary rights to the same extent as the laws of the U.S., and the Company may encounter significant problems in protecting our proprietary rights in these foreign countries.

The patent positions of pharmaceutical and biotechnology companies, including the Company's patent positions, involve complex legal and factual questions and, therefore, validity and enforceability cannot be predicted with certainty. Patents may be challenged, deemed unenforceable, invalidated or circumvented. PharmAthene will be able to protect our proprietary rights from unauthorized use by third parties only to the extent that it covers our proprietary technologies with valid and enforceable patents or that it effectively maintains such proprietary technologies as trade secrets. The Company will apply for patents covering our technologies and product candidates as it deems appropriate. PharmAthene may fail to apply for patents on important technologies or products in a timely fashion, or at all, and in any event, the applications the Company files may be challenged and may not result in issued patents. Any future patents the Company obtains may not be sufficiently broad to prevent others from practicing our technologies or from developing competing products. Furthermore, others may independently develop similar or alternative technologies or design around the Company's patented technologies. In addition, if challenged, the Company's patents may be declared invalid. Even if valid, the Company's patents may fail to provide it with any competitive advantages.

PharmAthene relies upon trade secrets protection for our confidential and proprietary information. The Company has taken measures to protect our proprietary information; however, these measures may not provide adequate protection to the Company. The Company has sought to protect their proprietary information by entering into confidentiality agreements with employees, collaborators and consultants. Nevertheless, employees, collaborators or consultants may still disclose the companies' proprietary information, and the Company 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 the Company's trade secrets.

PharmAthene's use of hazardous materials and chemicals require it to comply with regulatory requirements which may result in significant costs and expose PharmAthene to potential liabilities.

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

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

PharmAthene faces an inherent risk of exposure to product liability suits in connection with our product candidates being tested in human clinical trials or sold commercially. The Company may become subject to a product liability suit if any product it develops causes injury, or if treated individuals subsequently become infected or otherwise 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 the Company's reputation, withdrawal of clinical trial volunteers and loss of revenues.

If a product liability claim is brought against the Company, the cost of defending the claim could be significant and any adverse determination may result in liabilities in excess of our insurance coverage. Additionally, the Company will be applying for indemnification under the Support Anti-terrorism by Fostering Effective Technologies 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, the Company cannot be certain that it will be able to obtain or maintain adequate insurance coverage on acceptable terms, if at all.

Legislation limiting or restricting liability for medical products used to fight bioterrorism is new, and PharmAthene cannot be certain that any such protection will apply to all of our products and, therefore, PharmAthene could become subject to product liability suits and other third party claims if such protections do not apply.

The Public Readiness and Emergency Preparedness Act ("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 31 9F-2(c) (1)(B) of that act), when the Secretary of Defense 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.

Upon a declaration by the Secretary of Health and Human Services, a compensation fund is 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." There is no assurance, however, that the Secretary of Health and Human Services will issue such a declaration. 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 one or more individuals have exhausted their remedies under the compensation program, which thereby could expose us to liability. PharmAthene may also become subject to standard product liability suits and other third party claims if its products fall outside of the scope of the Public Readiness Act cause injury or if treated individuals subsequently become infected or otherwise suffer adverse effects from such products.

PharmAthene may be subject to claims that it or our 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, the Company employs individuals who were previously employed at other biotechnology or pharmaceutical companies, including their competitors or potential competitors. Although no claims against the Company are currently pending, the Company may be subject to claims that these employees or it 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 the Company is successful in defending against these claims, litigation could result in substantial costs and be a distraction to management.

If we experience delays in obtaining regulatory approvals, or are unable to obtain or maintain regulatory approvals, PharmAthene may be unable to commercialize any products.

The Company will need to conduct a substantial amount of additional preclinical and clinical research and development before any US or foreign regulatory authority will approve any of our products. In addition, the Company's product candidates will be subject to extensive and rigorous government regulation. Results of the Company's research and development activities may indicate that our potential products are unsafe or ineffective. In this case, regulatory authorities will not approve them. Even if approved, the Company's products may not be commercially successful. If the Company fails to develop and commercialize our products, it may be forced to curtail or cease operations.

In addition, the commencement and rate of completion of clinical trials for the Company's products may be delayed by many factors, including:

- lack of efficacy during the clinical trials in animals;

- unsatisfactory results of any clinical trial;
- failure to comply with Good Clinical Practices;
- unforeseen safety issues;
- slower than expected rate of patient recruitment; or
- government or regulatory delays.

Delays in obtaining regulatory approvals may:

- adversely affect the commercialization of any products that the Company or our collaborative partners develop;
- impose costly procedures on the Company or our collaborative partners;
- diminish any competitive advantages that the Company or our collaborative partners may attain; and
- adversely affect the Company's receipt of revenues or royalties.

The results from preclinical testing and early clinical trials are often not predictive of results obtained in later clinical trials. Although a new product may show promising results in initial clinical trials, it may subsequently prove unfeasible or impossible to generate sufficient safety and efficacy data to obtain necessary regulatory approvals. Data obtained from preclinical and clinical studies are susceptible to varying interpretations, which may delay, limit or prevent regulatory approval. In addition, the Company may encounter regulatory delays or rejections as a result of many factors, including results that do not support our claims, perceived defects in the design of clinical trials and changes in regulatory policy during the period of product development. The Company's business, financial condition, prospects and results of operations may be materially adversely affected by any delays in, or termination of, our clinical trials or a determination by the FDA that the results of the Company's trials are inadequate to justify regulatory approval.

Any required approvals, once obtained, may be suspended or revoked. Further, if the Company fails to comply with applicable FDA and other regulatory requirements at any stage during the regulatory process, it may encounter difficulties including:

- delays in clinical trials or commercialization;
- product recalls or seizures;
- suspension of production and/or distribution;
- revocation of previously approved marketing applications; and
- injunctions, civil penalties and criminal prosecutions.

PharmAthene' s 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. If we fail to obtain required governmental approvals, we or our collaborative partners will experience delays in, or be precluded from, marketing products developed through it or, as applicable, their research.

PharmAthene and our contract manufacturers 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 before the Company will be able to use them in commercial manufacturing of our products. The Company and our contract manufacturers may not be able to comply with the applicable cGMP requirements and other FDA regulatory requirements. If the Company and our contract manufacturers fail to comply, we could be subject to fines or other sanctions, or be precluded from marketing our products.

PharmAthene may be required to perform additional clinical trials or change the labeling of our products if we or others identify side effects after our products are on the market. Such events could harm sales of the affected products.

- If the Company or others identify side effects after any of our products are on the market, or if manufacturing problems occur:
- regulatory approval may be revoked;
- reformulation of the affected products, additional clinical trials, or changes in labeling of the Company's products may be required;
- changes to or re-approvals of the Company's manufacturing facilities may be required;
- sales of the affected products may drop significantly;
- the Company's reputation in the marketplace may suffer; and
- lawsuits, including class action suits, may be brought against the Company.

Any of the above occurrences could harm or prevent sales of the affected products or could increase the costs and expenses of commercializing and marketing these products.

Risks Related to PharmAthene's 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 seek to raise additional capital and may do so at any time through various financing alternatives, including the sale of shares of common or preferred stock, or notes or warrants convertible into or exercisable for shares of common or preferred stock. Raising capital in this manner may depress the market price of our stock and any such financing will dilute the stock ownership of our existing shareholders.

In addition, as of September 30, 2008, we had outstanding options to purchase approximately 3.6 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. As of September 30, 2008, we had outstanding debt to noteholders of approximately $12.9 million in the form of convertible notes, which are convertible at $10 per share. As of September 30, 2008, we had outstanding warrants exercisable for 9,726,000 shares of common stock. Most of these warrants are exercisable at $6.00 per share and expire in July 2009. 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.

NYSE Alternext US may delist the Company's securities from trading which could limit investors' ability to make transactions in our securities and subject us to additional trading restrictions.

The Company's common stock and certain warrants are listed on the NYSE Alternext US (formerly the American Stock Exchange, or AMEX), 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, NYSE Alternext US may decide to delist our common stock. If the NYSE Alternext US delists the Company's 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, the Company's securities could be quoted on the OTC Bulletin Board, or "pink sheets". As a result, we could face significant adverse consequences including:

- a limited availability of market quotations for our securities;

- a determination that the Company's common stock is a "penny stock" which will require brokers trading in the Company's common stock to adhere to more stringent rules and possibly resulting in a reduced level of trading activity in the secondary trading market for the Company's securities;

- a limited amount of news and analyst coverage for the Company; and

- a decreased ability to issue additional securities or obtain additional financing in the future.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and other documents we file with the SEC contain 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. This information may involve known and unknown risks, uncertainties and other factors (including but not limited to those identified below and in the section "Risk Factors" herein) 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. 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"). 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. Our actual results could differ materially from those expressed or implied by the forward-looking statements as a result of various factors, including, but not limited to risk associated with 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 the Company's development programs, including without limitation our bid related to SparVax™ under the DHHS Request for Proposals for an Anthrax Recombinant Protective Antigen (rPA) Vaccine for the Strategic National Stockpile, the award of government contracts to our competitors, unforeseen safety issues, challenges related to the development, 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 from time to time in PharmAthene's Forms 10-K and 10-Q under the caption "Risk Factors" and in its other reports filed with the U.S. Securities and Exchange Commission (the "SEC").

We have based the forward-looking statements included in this prospectus on information available to us on the date of this prospectus, and we assume no obligation to update any such forward-looking statements. 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.

USE OF PROCEEDS

We will retain broad discretion over the use of net proceeds from the sale of our securities offered hereby. Except as may be otherwise described in a prospectus supplement, we currently anticipate using the net proceeds, if any, for the satisfaction of existing obligations and for general working capital. We may engage in discussions with respect to the possible acquisition of pharmaceutical products and businesses that are complementary to our own. As of the date of this prospectus, we have no specific plans or commitments with respect to any acquisition. We cannot assure you that we will complete any acquisitions or that, if completed, any acquisition will be successful.

Pending the application of such proceeds, we may invest the proceeds in short-term, interest bearing, investment-grade marketable securities or money market obligations.

DESCRIPTION OF COMMON STOCK

The Company is currently authorized to issue 100,000,000 shares of common stock, par value $.0001 per share. As of January 26, 2009, there were 26,312,322 shares of common stock outstanding. The Company's stockholders are entitled to one vote for each share held of record on all matters to be voted on by stockholders except as otherwise provided by law or in any preferred stock designation. The Company's stockholders have no conversion, preemptive or other subscription rights and there are no sinking fund or redemption provisions applicable to the common stock.

There is no cumulative voting with respect to the election of directors, with the result that the holders of a plurality of the shares voting at the election of directors can elect all of the directors then up for election. The holders of common stock are entitled to receive dividends when, as and if declared by our Board of Directors out of funds legally available therefor. In the event of liquidation, dissolution or winding up of the Company, the holders of common stock are entitled to share in all assets remaining which are available for distribution to them after payment of liabilities and after provision has been made for each class of stock, if any, having preference over the common stock.

The Company's Amended and Restated Certificate of Incorporation provides that the Board of Directors number no more than eight members, three of whom are appointed by the holders of our 8% Convertible Notes.

Transfer Agent

The transfer agent and registrar for the common stock is Continental Stock Transfer & Trust Company, New York, New York.

DESCRIPTION OF PREFERRED STOCK

The Company is currently authorized to issue 1,000,000 shares of preferred stock, par value $0.0001 per share. As of the date of this prospectus, we had no shares of preferred stock outstanding.

Under our amended and restated certificate of incorporation, as amended, our board of directors is expressly granted authority to issue shares of preferred stock, in one or more series, and to fix for each series such voting powers, full or limited, and such designations, preferences and relative, participating, optional or other special rights and such qualifications, limitations or restrictions as it may determine in the resolution or resolutions providing for the issue of such series (to which we also refer as a "preferred stock designation") and as may be permitted by the Delaware General Corporation Law. The number of authorized shares of preferred stock may be increased or decreased (but not below the number of shares of preferred stock then outstanding) by the affirmative vote of the holders of a majority of the voting power of all of the then outstanding shares of our capital stock entitled to vote generally in the election of directors, voting together as a single class, without a separate vote of the holders of the preferred stock, or any series of preferred stock, unless a vote of any such holders is required pursuant to any preferred stock designation.

This section describes the general terms of our preferred stock to which any prospectus supplement may relate. A prospectus supplement will describe the terms relating to any preferred stock to be offered by us in greater detail, and may provide information that is different from this prospectus. If the information in the prospectus supplement with respect to the particular preferred stock being offered differs from this prospectus, you should rely on the information in the prospectus supplement. A copy of our certificate of incorporation, as amended, has been incorporated by reference from our filings with the SEC as an exhibit to the registration statement. A certificate of designations will specify the terms of the preferred stock being offered, and will be filed or incorporated by reference from a report that we file with the SEC.

The rights and terms relating to any new series of preferred stock could adversely affect the voting power or other rights of the holders of the common stock or could be utilized, under certain circumstances, as a method of discouraging, delaying or preventing a change in control of the Company.

The following description of our preferred stock, together with any description of our preferred stock in a prospectus supplement summarizes the material terms and provisions of the preferred stock that we may sell under this prospectus. We urge you to read the applicable prospectus supplement(s) related to the particular series of preferred stock that we sell under this prospectus and to the actual terms and provisions contained in our certificate of incorporation (certificate of designations) and bylaws, each as amended from time to time.

Terms

Our board of directors will fix the rights, preferences, privileges, qualifications and restrictions of the preferred stock of each series that we sell under this prospectus and applicable prospectus supplements in the certificate of designations relating to that series. We will incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designations that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. This description of the preferred stock in the certificate of designations and any applicable prospectus supplement may include:

- the number of shares of preferred stock to be issued and the offering price of the preferred stock;
- the title and stated value of the preferred stock;
- dividend rights, including dividend rates, periods, or payment dates, or methods of calculation of dividends applicable to the preferred stock;
- whether dividends will be cumulative or non-cumulative, and if cumulative the date from which distributions on the preferred stock shall accumulate;
- right to convert the preferred stock into a different type of security;
- voting rights, if any, attributable to the preferred stock;
- rights and preferences upon our liquidation or winding up of our affairs;
- terms of redemption;
- preemption rights, if any;
- the procedures for any auction and remarketing, if any, for the preferred stock;

- the provisions for a sinking fund, if any, for the preferred stock;
- any listing of the preferred stock on any securities exchange;
- the terms and conditions, if applicable, upon which the preferred stock will be convertible into our common stock, including the conversion price (or manner of calculation thereof);
- a discussion of federal income tax considerations applicable to the preferred stock, if material;
- the relative ranking and preferences of the preferred stock as to dividend or other distribution rights and rights if we liquidate, dissolve or wind up our affairs;
- any limitations on issuance of any series of preferred stock ranking senior to or on a parity with the series of preferred stock being offered as to distribution rights and rights upon the liquidation, dissolution or winding up or our affairs; and
- any other specific terms, preferences, rights, limitations or restrictions of the preferred stock.

Rank

As set forth in the applicable supplement to this prospectus, shares of our preferred stock may rank, with respect to payment of distributions and rights upon our liquidation, dissolution or winding up, and allocation of our earnings and losses:

- senior to all classes or series of our common stock, and to all of our equity securities ranking junior to the preferred stock;
- equally with all equity securities issued by us, the terms of which specifically provide that these equity securities rank on a parity, or equally, with the preferred stock; or
- junior to all equity securities issued by us, the terms of which specifically provide that these equity securities rank senior to the preferred stock.

Distributions

Subject to any preferential rights of any outstanding stock or series of stock, our preferred shareholders may be entitled to receive distributions, when and as authorized by our board of directors, out of legally available funds, and share pro rata based on the number of shares of preferred stock, common stock and other equity securities outstanding.

Voting Rights

As indicated in the applicable supplement to this prospectus, and as otherwise required under Delaware law, holders of our preferred stock may or may not have voting rights.

Liquidation Preference

As indicated in the applicable supplement to this prospectus, upon the voluntary or involuntary liquidation, dissolution or winding up of our affairs, then, before any distribution or payment shall be made to the holders of any common stock or any other class or series of stock ranking junior to the preferred stock in our distribution of assets upon any liquidation, dissolution or winding up, the holders of each series of our preferred stock may be entitled to receive, after payment or provision for payment of our debts and other liabilities, out of our assets legally available for distribution to shareholders, liquidating distributions in the amount of the liquidation preference per share (set forth in the applicable supplement to this prospectus), plus an amount, if applicable, equal to all distributions accrued and unpaid thereon (which shall not include any accumulation in respect of unpaid distributions for prior distribution periods if the preferred stock does not have a cumulative distribution). After payment of the full amount of the liquidating distributions to which they may be entitled, the holders of preferred stock may have no right or claim to any of our remaining assets. In the event that, upon our voluntary or involuntary liquidation, dissolution or winding up, the legally available assets are insufficient to pay the amount of the liquidating distributions on all of our outstanding preferred stock and the corresponding amounts payable on all of our stock of other classes or series of equity security ranking on a parity with the preferred stock in the distribution of assets upon liquidation, dissolution or winding up, then the holders of our preferred stock and all other such classes or series of equity securities may share ratably in the distribution of assets in proportion to the full liquidating distributions to which they would otherwise be respectively entitled.

If the liquidating distributions are made in full to all holders of preferred stock, our remaining assets may be distributed among the holders of any other classes or series of equity security ranking junior to the preferred stock upon our liquidation, dissolution, or winding up, according to their respective rights and preferences and in each case according to their respective number of shares of stock.

Conversion Rights

The terms and conditions, if any, upon which shares of any series of preferred stock are convertible into, such as common stock, debt securities, warrants or units consisting of one or more of such securities will be set forth in the applicable supplement to this prospectus. These terms will include the amount and type of security into which the shares of preferred stock are convertible, the conversion price (or manner of calculation thereof), the conversion period, provisions as to whether conversion will be at the option of the holders of the preferred stock or us, the events, if any, requiring an adjustment of the conversion price and provisions, if any, affecting conversion in the event of the redemption of that preferred stock.

Redemption

If so provided in the applicable supplement to this prospectus, our preferred stock will be subject to mandatory redemption or redemption at our option, in whole or in part, in each case upon the terms, at the times and at the redemption prices set forth in such supplement to this prospectus.

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplements, summarizes the material terms and provisions of the warrants that we may offer under this prospectus. While the terms we have summarized below will apply generally to any warrants that we may offer under this prospectus, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. The terms of any warrants offered under a prospectus supplement may differ from the terms described below.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from another report that we file with the SEC, the form of warrant agreement, which may include a form of warrant certificate, that describes the terms of the particular series of warrants we are offering before the issuance of the related series of warrants. The following summary of material provisions of the warrants and the warrant agreements are subject to all the provisions of the warrant agreement and warrant certificate applicable to a particular series of warrants. We urge you to read the applicable prospectus supplements related to the particular series of warrants that we sell under this prospectus, as well as the complete warrant agreements and warrant certificates that contain the terms of the warrants.

General

We will describe in the applicable prospectus supplement the terms relating to warrants being offered including:

- the offering price and aggregate number of warrants offered;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;
- if applicable, the date on and after which the warrants and the related securities will be separately transferable;
- in the case of warrants to purchase common stock or preferred stock, the number of shares of common stock or preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;
- the terms of any rights to redeem or call the warrants;
- any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;
- the dates on which the right to exercise the warrants will commence and expire;
- the manner in which the warrant agreements and warrants may be modified;
- federal income tax consequences of holding or exercising the warrants, if material;
- the terms of the securities issuable upon exercise of the warrants; and
- any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

Before exercising their warrants, holders of warrants will likely not have any of the rights of holders of the securities purchasable upon such exercise, including, in the case of warrants to purchase common stock or preferred stock, the right to receive dividends, if any, or payments upon our liquidation, dissolution or winding up of our affairs or to exercise voting rights, if any.

Exercise of Warrants

Each warrant will entitle the holder to purchase the securities that we specify in the applicable prospectus supplement at the exercise price that we describe in the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to the specified time on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Holders of the warrants may exercise the warrants by delivering the warrant certificate representing the warrants to be exercised together with specified information, and paying the required amount to the warrant agent in immediately available funds, as provided in the applicable prospectus supplement. We intend to set forth in any warrant agreement and in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to the warrant agent.

Upon receipt of the required payment and any warrant certificate or other form required for exercise properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will issue and deliver the securities purchasable upon such exercise. If fewer than all of the warrants represented by the warrant or warrant certificate are exercised, then we will issue a new warrant or warrant certificate for the remaining amount of warrants. If we so indicate in the applicable prospectus supplement, holders of the warrants may surrender securities as all or part of the exercise price for warrants.

PLAN OF DISTRIBUTION

We may sell the securities covered by this prospectus from time to time. Registration of our securities covered by this prospectus does not mean, however, that those securities will necessarily be offered or sold.

We may sell the securities through one or more underwriters or dealers in a public offering and sale by them, through agents and/or directly to one or more investors. We may sell the securities from time to time in one or more transactions at a fixed price or prices, which may be changed from time to time, at market prices prevailing at the times of sale, at prices related to such prevailing market prices, or at negotiated prices. For each offering of securities hereunder, we will describe the method of distribution of such securities in a prospectus supplement. The prospectus supplements will describe the terms of the offerings of the securities, including:

- The name or names of any underwriters, if any;
- The purchase price of our securities and the proceeds we will receive from the sale;
- Any overallotment options under which underwriters may purchase additional securities from us;
- Any agency fees or underwriting discounts and other items constituting agents' or underwriters' compensation;
- Any public offering price;
- Any discounts or concessions allowed or reallowed or paid to dealers; and
- Any securities exchange or market on which our common stock or other securities may be listed.

Only underwriters named in the prospectus supplement are underwriters of the securities offered by that prospectus supplement.

If underwriters are used in the sale, they will acquire the securities for their own account and may resell the securities from time to time in one or more transactions at a fixed public offering price. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. We may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters may be obligated to purchase all the securities offered by the prospectus supplement. Any public offering price and any discounts or concessions allowed or reallowed or paid to dealers may change from time to time. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement, naming the underwriter, the nature of any such relationship. We may sell securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of securities and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, any such agent will act on a best-efforts basis for the period of its appointment.

We may authorize agents or underwriters to solicit offers by certain types of institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

We may provide underwriters and agents with indemnification against civil liabilities related to this offering, including liabilities under the Securities Act of 1933, as amended, or Securities Act, or contribution with respect to payments that the underwriters or agents may make with respect to such liabilities.

Any preferred stock we offer will represent a new issue of securities with no established trading market. Any underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. We cannot guarantee the liquidity of the trading markets for these securities.

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Securities Exchange Act of 1934, as amended, or Exchange Act. Overallotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchase of the securities in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer is purchased in a covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of these activities at any time.

We make no representation or prediction as to the direction or magnitude of any effect that any of the foregoing activities may have on the price of our common stock or, if applicable, the price for any of our other securities. For a description of these activities, see the information under the heading "Underwriting" or "Plan of Distribution" in the applicable prospectus supplement.

Underwriters, broker-dealers or agents who may become involved in the sale of our securities may engage in transactions with and perform other services for us in the ordinary course of their business for which they receive compensation.

LEGAL MATTERS

Sonnenschein Nath & Rosenthal, LLP, New York, New York, will pass upon the validity of the securities offered pursuant to this prospectus and counsel named in the applicable prospectus supplement will pass upon the validity of such securities for any underwriters, dealers or agents.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2007 as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational reporting requirements of the Exchange Act and file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any materials we file with the SEC at the SEC's Public Reference Room located at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the Public Reference Room. You may also access filed documents at the SEC's website at *www.sec.gov*.

INCORPORATION BY REFERENCE

We are incorporating by reference important business and financial information about us that we file with the SEC. Any information that we incorporate by reference is considered part of this prospectus. Information that we file with the SEC at a later date pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, and prior to the termination of the offering, shall be deemed to be incorporated by reference in the registration statement and to be part thereof from the date of filing of such information and automatically adds to, updates or supersedes the information listed below.

We incorporate by reference the following documents we have filed, or may file, with the SEC:

- our Annual Report on Form 1 0-K/A for the year ended December 31, 2007 (File No. 001-32587);
- our Annual Report on Form 10-K for the year ended December 31, 2007 (File No. 001-32587);
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2008, June 30, 2008 and September 30, 2008 and on Form 10-Q/A for the quarter ended June 30, 2008 (File No. 001-32587);
- our Current Reports on Form 8-K and/or 8-K/A filed with the SEC on March 14, 2008, March 26, 2008, April 8, 2008, May 2, 2008, June 18, 2008, June 19, 2008, July 16, 2008, October 1, 2008, October 6, 2008 and January 27, 2009;
- our Definitive Proxy Statement filed with the SEC on May 15, 2008, including any amendments or supplements filed for the purpose of updating same;
- all documents filed by us with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus and before the termination of this offering; and
- the description of our common stock contained in our registration statement on Form 8-A filed with the SEC on July 27, 2005, including any amendments or reports filed for the purpose of updating such description, including the description of the Company's securities set forth in the Definitive Proxy Statement filed with the SEC on July 16, 2007, on page 159 under the caption "Description of Securities."

To the extent that any information contained in any Current Report on Form 8-K, or any exhibit thereto, is furnished to, rather than filed with, the SEC, such information or exhibit is specifically not incorporated by reference in this prospectus.

We make available free of charge through our website at*www.pharmathene.com* our press releases and all of the documents that we are required to file electronically with the SEC, including all amendments thereto, as soon as reasonably practical after they are electronically filed with, or furnished to, the SEC. Our website also contains our Code of Ethics. The information on our website is not part of nor incorporated by reference into this prospectus. You may also read and copy any materials we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers, like PharmAthene, that file electronically with the SEC at *http://www.sec.gov* ..

In addition, we will provide, without charge to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request of such person, a copy of any or all of the documents incorporated by reference in this prospectus other than exhibits, unless such exhibits specifically are incorporated by reference into such documents or this prospectus. Requests for such documents should be addressed in writing or by telephone to: PharmAthene, Inc., One Park Place, Suite 450, Annapolis, MD 21401, (410) 269-2600.

2,785,714 Shares of Common Stock
Warrants to Purchase up to 1,323,214 Shares of Common Stock

PROSPECTUS SUPPLEMENT

July 20, 2010

Roth Capital Partners