[Pharmathene Letterhead]

February 26, 2010

Jim B. Rosenberg
Mary Mast
Tabatha Akins
Division of Corporation Finance
United States Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549

Re: PharmAthene, Inc.
Form 10-K for the Year Ended December 31, 2008
Form 10-Q for the Period Ended September 30, 2009
File No. 001-32587

Dear Mr. Rosenberg, Ms. Mast and Ms. Akins:

By letters dated December 22, 2009 and February 3, 2010, you provided comments on the Annual Report on Form 10-K for the Year Ended December 31, 2008 ("2008 10-K") and the Quarterly Report on Form 10-Q for the Period Ended September 30, 2009 ("Third Quarter 10-Q") of PharmAthene, Inc. (the "Company"). The Company responded to your comments of December 22, 2009 by letter dated January 22, 2010. This letter sets forth the Company's responses to your comments of February 3, 2010. For your convenience, we have reproduced below in italics each comment and have provided the Company's response immediately below the comment.

Form 10-K for the Year Ended December 31, 2008

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 47

Results of Operations, page 49

Acquired In-Process Research and Development, page 52

1. *As previously requested in part of our prior comment number one, please disclose the significant appraisal assumptions, such as:*

   a. *the period in which material net cash inflows from significant projects are expected to commence;*

   b. *material anticipated changes from historical pricing, margins and expense levels; and*

   c. *the risk adjusted discount rate applied to the project's cash flows.*

Response

In response to parts (a) and (c) of your comment, the Company proposes to include the following disclosure under "Acquired In-Process Research and Development" in its annual report on Form 10-K for the year ended December 31, 2009 (the "2009 10-K"):

> During the year end December 31, 2008, the Company completed the Avecia Acquisition. The primary asset acquired in the Avecia Acquisition was SparVax™, a second generation rPA anthrax vaccine. The value of the third generation anthrax vaccine acquired in the transaction was aggregated with that of the second generation vaccine because success in developing the third generation anthrax vaccine is contingent on the successful development of the second generation vaccine. At the acquisition date, the aggregate fair value of the second and third generation vaccines was estimated at $16.1 million. An income approach methodology was used to determine the fair value of the acquired in-process research and development asset. This approach assessed the expected cash flows, net of expected appropriate operating expenses, generated from the acquisition date in April 2008 through the end of 2021 (the expected life of the vaccine) using a risk adjusted discount rate of 51%, which the Company believes is commensurate with an early stage biodefense product development opportunity of this nature. In connection with the transaction, the Company in 2008 recorded a charge to expense for acquired in-process research and development of $16.1 million for these acquired research projects for which, at the acquisition date, technological feasibility had not been established and no alternative future use existed. No such charge was recorded in 2009.
>
> Both vaccines are in their early stages of development and significant remaining research and development is required to establish the technological feasibility of these vaccines. The cost and time required to complete the development of these vaccines and earn FDA marketing approval is highly uncertain and can vary significantly. During 2009, we provided the US Government with a series of development plans for SparVax™, in response to their request for proposal, which estimated that it would cost in excess of $300 million over approximately 5 years to complete the development of SparVax™. No such estimates of the advanced development costs and timeline for the third generation vaccine have been developed.
>
> As with all development efforts in the biodefense industry, the development of our second and third generation anthrax vaccines is subject to delays, as described in "*Risk Factors—Necessary Reliance on the Animal Rule in Conducting Trials is Time-Consuming and Expensive"* and "*—We have not commercialized any products or recognized any revenues from sales. All of our product candidates are still under development, and there can be no assurance of successful commercialization of any of our products*." Our development costs will increase substantially if we experience material delays in any clinical trials or if we need to conduct more or larger trials than planned.

In response to part (b) of your comment, the Company respectfully advises the Staff that, since SparVax™ and the Company's third generation anthrax vaccine both represented early stage product development opportunities at their time of acquisition, and therefore had not yet reached the stage of commercialization, no historical pricing and margin levels existed at the time of acquisition, nor do they presently exist. Furthermore, the Company does not have information on historical expense levels that the vaccines' previous owner, Avecia Biologics Limited, incurred in connection with the vaccines and is therefore unable to determine to what extent its own expense assumptions were different from historical levels.

Index to Consolidated Financial Statements, page F-1

Note 2 - Summary of Significant Accounting Policies, F-10

Revenue Recognition, page F-14

2. *Please refer to your response to our prior comment number two. It is still unclear what is meant by the statement "an estimate of the applicable fees." Please revise to clarify how the estimate of applicable fees is determined. Further, you state "fixed fees under cost-plus-fee contracts to be earned in proportion to the allowable costs." Please revise to clarify what specific drivers of the allowable costs are used to estimate the proportion of revenues earned.*

Response

In response to your comment, the Company proposes to include the following disclosure under "Revenue Recognition" in the 2009 10-K:

> The Company generates its revenue from two different types of contractual arrangements: cost-plus-fee contracts and cost reimbursable grants. Costs consist primarily of actual internal labor charges and external sub-contractor costs incurred plus an allocation of applied fringe benefits, overhead and general and administrative expenses as defined in the contract. Revenues on cost-plus-fee contracts are recognized in an amount equal to the costs incurred during the period plus an estimate of the applicable fee earned. The estimate of the applicable fee earned is determined by reference to the contract: If the contract defines the fee in terms of risk-based milestones and specifies the fees to be earned upon the completion of each milestone, the fee income is recognized when the related milestones are earned. Otherwise, the Company computes fee income earned in a given period by using a proportional performance method based on costs incurred during the period as compared to total estimated project costs and application of the resulting fraction to the total project fee specified in the contract.

If you have any questions, or if we may be of any assistance, please do not hesitate to contact the undersigned at (410) 269-2600 or Jeffrey Baumel or Roland Chase at our outside counsel, Sonnenschein Nath & Rosenthal LLP, at (973) 912-7100.

Very truly yours,

/s/ Charles A. Reinhart III
Charles A. Reinhart III
Senior Vice President and Chief Financial Officer

Cc: Jordan P. Karp, Esq., PharmAthene, Inc.