



News Release

PharmAthene Presents New Data for Lyophilized rPA Anthrax Vaccine Showing Enhanced Immunogenicity

New Formulation Could Offer Improvements in Cost-Effectiveness and Convenience for the U.S. Government's Stockpile of Biodefense Countermeasures

ANNAPOLIS, Md., July 15, 2010 /PRNewswire via COMTEX/ -- PharmAthene, Inc. (NYSE Amex: PIP), a biodefense company developing medical countermeasures against biological and chemical threats, today announced results from a New Zealand White Rabbit study showing that its lyophilized recombinant Protective Antigen (rPA) anthrax vaccine was more immunogenic than a liquid formulation of rPA vaccine and produced a robust response with only 2 doses.

The data were presented in a poster presentation entitled "*Enhanced Immunogenicity in the New Zealand White Rabbit Model from a Lyophilized Anthrax Vaccine that is Reconstituted at Point-of-Use*" at the 2010 International Conference on Emerging Infectious Diseases by Dr. Elizabeth Leffel, Director of Non-Clinical Sciences at PharmAthene.

Dr. Valerie Riddle, Senior Vice President and Medical Director for PharmAthene, commented, "Recently, the bipartisan Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism reiterated concerns that the United States is failing to address the threat posed to our citizens and military from a possible biological attack. As we learned following the supply shortages last year of H1N1 vaccine, it is critically important that our government ensure we have adequate quantities of safe and effective medical countermeasures to deter or respond to a bioterror attack. PharmAthene is committed to innovating and developing next generation anthrax vaccines and anti-toxins that offer improvements over earlier technologies, and we look forward to continued successful collaboration with our partners at the National Institutes of Health (NIH) and at the Office of the Biomedical Advanced Research and Development Authority (BARDA) of the U.S. Department of Health and Human Services, to advance these important medical countermeasures to protect Americans at home and on the battlefield."

Lyophilized rPA Findings Reported

The study, which was funded by the National Institute of Allergy and Infectious Diseases, part of the National Institutes of Health, was designed to assess if PharmAthene's lyophilized rPA vaccine reconstituted at point-of-use produced a more robust immune response than liquid rPA vaccine and whether the immune response from the lyophilized rPA changed over time following reconstitution.

In the study, one group of New Zealand White rabbits (NZW) received liquid rPA (1.0 microgram dose) stored at 2-8 degrees Celsius via intramuscular injection on days 1 and 29. The remaining four groups of NZW rabbits received lyophilized rPA (1.0 microgram dose) stored at 2-8 degrees Celsius, reconstituted and administered via intramuscular injection on days 1 and 29. Blood samples were collected pre-dose and on days 15, 29 and 43 for measurement by toxin neutralization assay (TNA) and enzyme linked immunosorbent assay (ELISA) for the presence of IgG anti-PA antibodies.

Results demonstrated that lyophilized rPA vaccine, reconstituted at less than 2 hours prior to use, was more immunogenic than the liquid rPA vaccine when measured by both TNA and ELISA ($p < 0.05$). The study investigators concluded that lyophilized rPA reconstituted at point-of-use was more immunogenic than liquid rPA and produced a robust immune response after only 2 doses.

"We're very encouraged by this preliminary study," continued Dr. Riddle. "The initial non-clinical animal data

suggest that a lyophilized rPA vaccine formulation may be able to provide protection against anthrax infection with fewer doses than a liquid vaccine formulation. We will be conducting additional studies to confirm these preliminary results. In addition, a lyophilized formulation could yield important practical advantages in the field."

Previously, the Company announced that its lyophilized rPA vaccine candidate was structurally stable and potent at various temperatures up to and including 70 degrees Celsius. One of the goals of PharmAthene's rPA program is to develop a stable cold-chain-free vaccine, which could be stored and distributed at room temperature -- an important advantage for deployment in the civilian Strategic National Stockpile.

The Institute of Medicine has declared an urgent need to develop and stockpile next generation anthrax vaccines employing modern vaccine technology, which offer the potential for improved safety, convenience, cost-effectiveness, and more rapid immunity. PharmAthene is committed to working with its partners in the United States government to address this need.

Funding for the lyophilized rPA vaccine program was provided under a Challenge grant (UC1 AI067223) from the National Institute of Allergy and Infectious Diseases, part of the National Institutes of Health.

About Anthrax

According to the Centers for Disease Control and Prevention, anthrax is an acute infectious disease caused by the spore-forming bacterium *Bacillus anthracis*. Anthrax most commonly occurs in hooved mammals and can also infect humans. Symptoms of disease vary depending on how the disease is contracted, but usually occur within seven days after exposure. The serious forms of human anthrax are inhalation anthrax, cutaneous anthrax, and gastrointestinal anthrax. Initial symptoms of inhalation anthrax infection may resemble a common cold. After several days, the symptoms may progress to severe breathing problems and shock. Inhalation anthrax is often fatal, even if treated by antibiotics. Currently, antibiotics are the only drugs available for therapeutic or prophylactic use for inhalation anthrax, and post-exposure prophylaxis is the only FDA-approved indication for such products. However, antibiotic therapy, while useful, is believed to be associated with a number of limitations, including: (1) lack of activity against the toxins produced by the *B. anthracis* bacteria, (2) need for long-term dosing to achieve full protection, complicated by side effects and non-compliance, (3) lack of efficacy when administered late in the anthrax disease cycle, and (4) lack of effectiveness against multi-drug resistant or genetically engineered strains of anthrax.

About PharmAthene, Inc.

PharmAthene was formed to meet the critical needs of the United States and its allies by developing and commercializing medical countermeasures against biological and chemical weapons. PharmAthene's lead product development programs include:

- SparVax(TM) -- a second generation recombinant protective antigen (rPA) anthrax vaccine
- Third generation rPA anthrax vaccine
- Valortim^(R)-- a fully human monoclonal antibody for the prevention and treatment of anthrax infection
- Protexia^(R) -- a novel bioscavenger for the prevention and treatment of morbidity and mortality associated with exposure to chemical nerve agents

For more information about PharmAthene, please visit <http://www.pharmathene.com/>.

Statement on Cautionary Factors

Except for the historical information presented herein, matters discussed may constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that are subject to certain risks and uncertainties that could cause actual results to differ materially from any future results, performance or achievements expressed or implied by such statements. Statements that are not historical facts, including statements preceded by, followed by, or that include the words "potential"; "believe";

"anticipate"; "intend"; "plan"; "expect"; "estimate"; "could"; "may"; "should"; or similar statements are forward-looking statements. PharmAthene disclaims, however, any intent or obligation to update these forward-looking statements. Risks and uncertainties include risks 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, 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 Form 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"). In particular, significant additional non-clinical animal studies, human clinical trials, and manufacturing development work remain to be completed for our lyophilized rPA anthrax vaccine candidate. At this point there can be no assurance that this product candidate will be shown to be safe and effective and approved by regulatory authorities for use in humans. Copies of PharmAthene's public disclosure filings are available from its investor relations department and our website under the investor relations tab at <http://www.pharmathene.com/>.

SOURCE: PharmAthene, Inc.