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Keynote Presentation at Leading European Antibody Conference Highlights Immune Reactivation Mechanisms of Bavituximab

Research Supports Exposed Phosphatidylserine (PS) as Highly Immunosuppressive and Shows PS-Targeting Antibodies' Reactivation of Immune System With Potent Anti-Tumor Effects

TUSTIN, CA and BARCELONA, SPAIN -- (MARKET WIRE) -- 05/26/11 -- Peregrine Pharmaceuticals, Inc. (NASDAQ: PPHM), a clinical-stage biopharmaceutical company developing first-in-class monoclonal antibodies for the treatment of cancer and viral infections, today announced a keynote presentation at the 10th Annual Informa Life Sciences Recombinant Antibodies Conference in Barcelona, Spain. Dr. Philip Thorpe, inventor of Peregrine's first-in-class phosphatidylserine (PS)-targeting antibody technology, will present data on the immune reactivation mechanisms of bavituximab, which is currently in numerous clinical trials for various cancer indications and hepatitis C.

"Our research shows that exposed PS in the tumor environment plays a fundamental immunosuppressive role that prevents the immune system from recognizing cancer cells as 'foreign,' resulting in cancer patients not being able to reject their tumors," said Philip E. Thorpe, Ph.D., professor of pharmacology in the Harold C. Simmons Comprehensive Cancer Center at UT Southwestern Medical Center, scientific adviser to Peregrine and inventor of the company's PS-targeting antibody technology. "We show that highly immunosuppressive cells called myeloid-derived suppressor cells, or MDSCs, accumulate in tumors and fail to mature into functional immune cells. What is especially exciting is that administration of PS-targeting antibodies like bavituximab breaks the grip of the tumor on the immune system. In treated animals, we see the disappearance of MDSCs and the appearance of functional immune cells, especially macrophages. The entire tumor environment shifts from being immunosuppressive to being immune responsive. These results have important implications for cancer therapy."

Data presented today show that PS-targeting antibodies overcome the immunosuppression in tumors that prevents immune responses to tumor cells. Antibody treatment of tumor-bearing mice caused the differentiation of highly immunosuppressive myeloid-derived suppressor cells (MDSCs) into functional immune cells, notably M1 macrophages and dendritic cells. This was accompanied by a decrease in the immunosuppressive cytokines and markers IL-10, CD206, and CD301 by more than 60%, and an increase in the proinflammatory cytokines TNF-alpha, IL-12, and IL-6 by more than 500% compared to mice treated with the control antibody. The reactivated M1 macrophages were shown to home in on PS-expressing tumor blood vessels and destroy them, resulting in marked inhibition of tumor growth. PS-targeting antibody treatment also enhanced the ability of dendritic cells to generate cytotoxic T-cells against cancer cells, resulting in a four-fold increase of tumor-specific T-cells. These results support PS as a fundamental immunosuppressive molecule exploited by tumors, and bavituximab as an agent capable of overcoming PS-mediated immune suppression.

Title: Targeting tumor vasculature and reactivating tumor immunity with bavituximab: Preclinical and clinical studies

Author: Philip E. Thorpe, Ph.D., professor of pharmacology at UT Southwestern Medical Center, scientific adviser to Peregrine and inventor of the company's PS-targeting antibody technology

The abstract can be accessed through the conference website http://www.informaglobalevents.com/event/antibodies1 and slides from this keynote address can be found on Peregrine's website at www.peregrineinc.com under "Features."

About Bavituximab
Bavituximab is a first-in-class phosphatidylserine (PS)-targeting monoclonal antibody that represents a new approach to treating cancer. PS is a highly immunosuppressive molecule usually located inside the membrane of healthy cells, but "flips" and becomes exposed on the outside of cells that line tumor blood vessels, creating a specific target for anti-cancer treatments. PS-targeting antibodies target and bind to PS and block this immunosuppressive signal, thereby enabling the immune system to recognize and fight the tumor.

About Peregrine Pharmaceuticals
Peregrine Pharmaceuticals, Inc. is a biopharmaceutical company with a portfolio of innovative monoclonal antibodies in clinical trials for the treatment of cancer and serious viral infections. The company is pursuing multiple clinical programs in cancer and hepatitis C virus infection with its lead product candidate bavituximab and novel brain cancer agent Cotara®. Peregrine also has in-house cGMP manufacturing capabilities through its wholly-owned subsidiary Avid Bioservices, Inc. (www.avidbio.com), which provides development and biomanufacturing services for both Peregrine and outside customers. Additional information

about Peregrine can be found at www.peregrineinc.com.

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