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Bavituximab's Mechanism of Action Highlighted at Immunomodulatory Therapeutic Antibodies for Cancer Conference

Presentation Reviews Bavituximab's and Docetaxel's Compatible Immune-Stimulating Properties Further Supporting Initiation of Phase III Trial in Second-Line NSCLC by Year-End; Proof-of-Concept Studies Combining Bavituximab With Other Immunotherapy Agents Underway

TUSTIN, CA -- (Marketwired) -- 08/14/13 -- Peregrine Pharmaceuticals, Inc. (NASDAQ: PPHM) today announced the presentation of preclinical data and ongoing drug development activities highlighting the immune-stimulatory mechanism of action of phosphatidylserine (PS)-targeting antibodies, such as the company's lead drug candidate bavituximab. Data from this presentation showed that PS-targeting antibodies block a primary upstream immune checkpoint, thus inhibiting PS from engaging its natural receptors on immune cells, resulting in multiple downstream immunostimulatory effects. Bavituximab is the company's lead PS-targeting investigational product and is currently being evaluated in several solid tumor indications with the initiation of a Phase III trial in second-line non-small cell lung cancer (NSCLC) anticipated by calendar year-end. This presentation was made today at Cambridge Healthtech Institute's Immunotherapies Congress in Boston, Massachusetts.

The presentation titled: "Engagement of Phosphatidylserine (PS) by PS-targeting Antibodies Blocks an Upstream Immunosuppressive Checkpoint in the Tumor Microenvironment; Inducing Multiple Downstream Anti-tumor Response Mechanisms" detailed the role of exposed PS as an important upstream immune checkpoint. Administration of PS-targeting antibodies was shown to mediate pro-inflammatory cellular and cytokine responses that convert immunosuppressive cells known as myeloid derived suppressor cells (MDSCs) into tumor fighting (M1) macrophages. PS-targeting antibodies also facilitated the maturation of dendritic cells capable of presenting tumor antigens to T-cells to facilitate tumor-specific cytotoxicity. These multiple anti-tumor effects were further shown to occur without the side-effects associated with systemic immune activation. This was presented by Jeff T. Hutchins, Ph.D. vice president, preclinical research of Peregrine Pharmaceuticals.

"We are pleased to be presenting this compelling data to investigators of the oncology and immunology community as these results clearly demonstrate the immune-stimulatory effects of bavituximab," said Dr. Hutchins. "These data have shown the breadth of bavituximab's potential benefits as an immunotherapy and have led to the implementation of a supplemental clinical development strategy that explores the synergies between bavituximab and other immunotherapeutic drugs. The first part of this plan began in June with the initiation of several proof-of-concept preclinical studies constructed to read out in the next couple of months in order to assist us in designing a clinical trial examining a combination of bavituximab with an approved immunotherapy. In addition, we are leveraging data from our ongoing investigator-sponsored clinical trials to garner additional insight to support our development activities. We believe that this immune-stimulatory data shows that bavituximab has the potential to be combined with multiple downstream immunotherapies, such as Anti-PD-1, Anti-PDL-1, Anti-CTLA-4, IL-2, or PAP-GMCSF, to provide increased therapeutic benefit."

In addition, Dr. Hutchins reviewed the supporting rationale for the combination use of bavituximab and the chemotherapeutic agent docetaxel. Citing the synergistic immunotherapeutic mechanisms of each of bavituximab and docetaxel, the presentation summarized the promising data generated to date that further validate this combination therapy and provide additional scientific rationale that supports advancing this program into Phase III.

"These data clarify our understanding of bavituximab, put recent clinical results into greater perspective and allow us to supplement our current drug development strategy in order to enhance bavituximab's therapeutic potential," said Joseph Shan, vice president, clinical and regulatory affairs of Peregrine. "As a result of the recent insights into bavituximab's mechanism of action, we are actively engaged with key opinion leaders in the field of immunology to assist us as we advance this concurrent immune-stimulatory-focused clinical program."

Slides from Dr. Hutchins' presentation today are available at http://ir.peregrineinc.com/events.cfm.

About Bavituximab: A Targeted Immunotherapy

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, causing the tumor to evade immune detection.

Bavituximab targets PS and activates the maturation of dendritic cells and cancer-fighting (M1) macrophages leading to the development of cytotoxic T-cells that fight solid tumors through blocking this immunosuppressive PS signal. Bavituximab is the company's lead PS-targeting investigational product and is currently being evaluated in several solid tumor indications, including non-small cell lung cancer, breast cancer, liver cancer and rectal cancer.

About Peregrine Pharmaceuticals

Peregrine Pharmaceuticals, Inc. is a biopharmaceutical company with a portfolio of innovative monoclonal antibodies in clinical trials focused on the treatment and diagnosis of cancer. The company is pursuing multiple clinical programs in cancer with its lead immunotherapy 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 third-party customers. Additional information about Peregrine can be found at www.peregrineinc.com.

Safe Harbor Statement: Statements in this press release which are not purely historical, including statements regarding Peregrine Pharmaceuticals' intentions, hopes, beliefs, expectations, representations, projections, plans or predictions of the future are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. The forward-looking statements involve risks and uncertainties including, but not limited to, the risk that the company may not be able to initiate the Phase III trial within its anticipated timeline, the risk that the results from the Phase III trial may not support a future Biologics License Application (BLA) submission, the risk that the company may not have or raise adequate financial resources to complete the Phase III trial, and the risk that the company may not be able to initiate a combination trial with bavituximab and an approved immunotherapy by calendar year-end. It is important to note that the company's actual results could differ materially from those in any such forward-looking statements. Factors that could cause actual results to differ materially include, but are not limited to, uncertainties associated with completing preclinical and clinical trials for our technologies; the early stage of product development; the significant costs to develop our products as all of our products are currently in development, preclinical studies or clinical trials; obtaining additional financing to support our operations and the development of our products; obtaining regulatory approval for our technologies; anticipated timing of regulatory filings and the potential success in gaining regulatory approval and complying with governmental regulations applicable to our business. Our business could be affected by a number of other factors, including the risk factors listed from time to time in our reports filed with the Securities and Exchange Commission including, but not limited to, our annual report on Form 10-K for the fiscal year ended April 30, 2013. The company cautions investors not to place undue reliance on the forward-looking statements contained in this press release. Peregrine Pharmaceuticals, Inc. disclaims any obligation, and does not undertake to update or revise any forward-looking statements in this press release.

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