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Vascular Targeting Agent Approach to Targeted Therapy Published in The Pharmacogenomics Journal

Mapping Zip Codes in Human Vasculature

TUSTIN, Calif., Nov. 15 /PRNewswire-FirstCall/ -- Peregrine Pharmaceuticals (Nasdaq: PPHM) said today that researchers at the University of Texas Southwestern Medical Center at Dallas (UT Southwestern) have provided commentary in the most recent issue of The Pharmacogenomics Journal summarizing the cutting edge methods being used by researchers worldwide to identify specific markers on human vasculature.

Drs. Philip E. Thorpe and Sophia Ran, both researchers at UT Southwestern and two of the world's leading experts on vascular targeting, provided readers with a fascinating overview of the benefits and promise of selectively targeting vasculature throughout the body as a way to more efficiently deliver drugs to particular vascular beds, tissues and organs. The Vascular Targeting Agent (VTA) technology, which can be used to specifically target tumor blood vessels, was pioneered at UT Southwestern and has been exclusively licensed to Peregrine from the University of Texas System.

The commentary in the journal said, "One of the ultimate goals of medicine is the creation of drugs that act only where they are needed. It is now known that vascular endothelial cells (blood vessels) in different organs or disease states express specific markers, or 'zip codes,' to use (Judah) Folkman's analogy. Ligands directed against such vascular endothelial cell markers might be used to deliver toxic agents, diagnostic molecules, genes and other effector molecules to specific vascular beds in the body. The diversity of microvascular endothelium in different organs has long been recognized from morphological, pharmacological and medical studies. But, it was not until the explosion in monoclonal antibody and molecular cloning techniques that the full diversity of vascular endothelium in different locations began to become apparent."

Edward J. Legere, Peregrine's president & CEO, said, "Our Vascular Targeting Agent sponsored research at UT Southwestern is on the cutting edge of a whole new field of medicine. Although our research and development to date has been mainly focused in the field of cancer, there are promising opportunities for the VTA technology in other diseases which Peregrine may exploit in the future. We look forward to continuing to sponsor research at UT Southwestern in the exciting field of vascular targeting."

About Vascular Target Agents -- The Next Generation of Cancer Therapy

Virtually all detectable tumors rely on a vascular network to obtain oxygen and nutrients, and disruption of this network can have a devastating effect on a tumor. In pre-clinical animal studies, VTAs have shown to be potent anti-cancer agents that act by cutting off the supply of oxygen and nutrients to tumor cells by causing blood clots to form within the tumor's blood supply network. VTAs localize within the tumor vasculature by selectively binding to the flat endothelial cells that line tumor blood vessels. Once the VTA binds to its target, it initiates thrombosis (blood clotting) through a coagulation cascade, which leads to complete clotting of the tumor blood vessels within a matter of minutes. Because blockage of a single capillary results in the destruction of thousands of tumor cells, only a small quantity of VTAs localized in the tumor's vascular system may cause an avalanche of tumor cell death.

Vascular targeting agents offer several advantages as potentially powerful anti-cancer treatments. By targeting receptors unique to tumor cell vasculature, VTAs can kill tumors by cutting off oxygen and nutrients without causing damage to surrounding healthy tissue. Additionally, VTAs reduce the risk of potential side effects by operating at lower dosages than traditional cancer therapies because they do not need to penetrate the innermost layer of a tumor to take effect. Lastly, while drug resistance caused by the instability and mutability of cancer cells is a significant problem with conventional therapies that target tumor cells, cells targeted by VTAs do not mutate to become drug resistant.

About Peregrine Pharmaceuticals, Inc.

Peregrine Pharmaceuticals is a biopharmaceutical company focused on the development, commercialization and licensing of unique technologies for the treatment of cancer, primarily based on three collateral targeting technologies. Peregrine's Tumor Necrosis Therapy (TNT), Vasopermeation Enhancement Agents (VEA), and Vascular Targeting Agents (VTA) target cell structures and cell types that are common among solid tumor cancers, giving them broad applicability across various tumor types. The company is working closely with the FDA on the lead TNT anti-cancer drug, Cotara™, to obtain approval of a Phas

III clinical trial protocol for brain cancer. Cotara is also being studied in a Phase I trial for colorectal, pancreas, soft tissue sarcoma and biliary cancers. The company is focused on licensing collaborations for all of its technologies. The company also operates a growing cGMP contract manufacturing facility for monoclonal antibodies and recombinant proteins through its wholly owned subsidiary Avid Bioservices, Inc. (www.avidbio.com). Copies of Peregrine press releases, SEC filings, current price quotes and other valuable information for investors may be found on the website www.peregrineinc.com.

Safe Harbor Statement: This release may contain certain forward-looking statements that are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Actual events or results may differ from the company's expectations as a result of risk factors discussed in Peregrine's reports on file with the U.S. Securities and Exchange Commission, including, but not limited to, the company's report on Form 10-K for the year ended April 30, 2002 and on Form 10-Q for the quarter ended July 31, 2002.

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