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Peregrine's Phosphatidylserine-Based Vascular Targeting Agent Technology Presented At The American Association For Cancer Research Meeting

TUSTIN, Calif., Oct. 17 /PRNewswire-FirstCall/ -- Peregrine Pharmaceuticals (Nasdaq: PPHM) today presented pre-clinical data for its naked anti-phosphatidylserine (anti-PS) Vascular Targeting Agent (VTA) antibody at the American Association for Cancer Research's (AACR) Special Conference in Cancer Research called "New Directions in Angiogenesis Research" in Chicago. The data was presented by Dr. Philip Thorpe, inventor of the anti-PS and Vascular Targeting Agent technologies and professor of pharmacology at The University of Texas Southwestern Medical Center at Dallas. Some of the world's leading angiogenesis experts attended the conference.

"We are very pleased with the pre-clinical data for our naked anti-PS antibody as a direct anti-cancer agent," said Dr. Thorpe. "The naked anti-PS antibody has encouraging efficacy and an excellent safety profile in pre- clinical studies. Our research shows that its anti-tumor effects may be mediated through adhesion of host effector cells (probably macrophages) to tumor vessels and subsequent infiltration into tumors. We anticipate that anti-PS will be used in combination with existing chemotherapy in a clinical setting. Pre-clinical studies in breast cancer models have shown that combined treatment with naked anti-PS and the cancer-chemotherapy drug, docetaxel, results in almost complete inhibition of tumor growth. Co-administration of anti-PS clearly improves the anti-tumor activity of docetaxel, one of the most important drugs currently available for treating breast cancer. We will continue to study the mechanisms of action of the anti-PS antibody and explore its use with various approved chemotherapy drugs. We look forward to making preparations to advance this lead anti-PS compound into human clinical studies in 2004."

About Phosphatidylserine (PS)

PS is an anionic phospholipid. The main function of phospholipids is the formation of cellular membranes. In normal cells, anionic phospholipids are on the inside of the cellular membrane. Exposure of anionic phospholipids on the cell surface occurs during apoptosis (normal cell death), necrosis, cell injury, cell activation and malignant transformation. Factors in the tumor microenvironment cause a breakdown of asymmetry and exposure of anionic phospholipids on the cell surface of the blood vessel and malignant cells.

Anionic phospholipids are attractive as tumor blood vessel targets for several reasons: they are abundant; they are on the surface of the endothelial cells that line tumor vessels that are accessible to VTAs in the blood; they are present on a significant percentage of endothelial cells in diverse solid tumors, and they appear to be absent from vascular endothelium in all normal tissues.

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

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) technologies target cell structures and cell types that are common among solid tumor cancers, giving them broad applicability across various tumor types. The company has received approval from the FDA to start a Cotara™ registration clinical trial for brain cancer. Cotara is also being studied in a Phase I trial for colorectal, pancreas, soft tissue sarcoma and biliary cancers at Stanford University. The company is focused on licensing collaborations for all of its technologies under development. The company's Oncolym® technology to treat non-Hodgkin's B-cell lymphoma in Phase I/II of development is available for licensing. The company operates a 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-Q for the quarter ended July 31, 2003 and on Form 10-K for the year ended April 30, 2003.

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