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Avalon Pharmaceuticals Initiates AVN944 Phase I Clinical Trial in Cancer Patients

GERMANTOWN, MD, January 9, 2005 -- Avalon Pharmaceuticals, Inc. (Nasdaq and ArcaEx®: AVRX), a biopharmaceutical company focused on the discovery and development of small molecule therapeutics, today announced the initiation of a Phase I clinical trial of AVN944 in patients with advanced hematological malignancies. The first patient was treated last week at the University of Arkansas for Medical Sciences. The trial is also expected to enroll patients at The University of Texas MD Anderson Cancer Center, Stanford University, and The Ohio State University Comprehensive Cancer Center - Arthur G. James Cancer Hospital and Richard J. Solove Research Institute.

"The dosing of cancer patients in this first U.S. trial of AVN944 represents another milestone for Avalon Pharmaceuticals," said Kenneth C. Carter, Ph.D. President and Chief Executive Officer of Avalon. "We believe that AVN944 has the potential to offer oncologists and cancer patients improved options in several types of cancers where other therapies fail."

The Phase I clinical trial is designed as an open-label, repeat dose-escalation study for the evaluation of the safety and tolerability of AVN944 in adult patients with advanced hematological malignancies including those with leukemia, lymphoma or myeloma. The study is designed to determine the optimal dose with which to advance Phase II efficacy trials. In the current study, as many as 36 patients could receive AVN944 at or near this optimal dose. Current plans are to conduct this trial at five leading cancer centers in the United States. Information on the trial, including other site locations when they initiate treatment, will be available at the National Institutes of Health clinical trial database at www.ClinicalTrials.gov (a service of the U.S. National Institutes of Health developed by the National Library of Medicine).

AVN944 is an oral, small molecule inhibitor of the enzyme inosine monophosphate dehydrogenase (IMPDH), an enzyme that is essential for the de novo synthesis of the nucleotide guanosine triphosphate (GTP). AVN944 appears to inhibit cell proliferation by denying dividing

cells of the GTP necessary for synthesis of DNA and RNA. IMPDH is highly upregulated in hematologic cancers and many other types of cancer cells are also sensitive to IMPDH inhibition.

AVN944 was in-licensed by Avalon from Vertex Pharmaceuticals Incorporated in February of 2005. Vertex conducted a Phase I trial in the U.K. in normal human volunteers where AVN944 was shown to be orally bioavailable and well-tolerated.

About Avalon Pharmaceuticals, Inc.

Avalon Pharmaceuticals is a biopharmaceutical company focused on the discovery and development of small molecule therapeutics. Avalon seeks to discover and develop novel therapeutics through the use of a comprehensive, innovative and proprietary suite of technologies based upon large-scale gene expression analysis which it calls AvalonRx[®]. Avalon Pharmaceuticals was established in 1999 and is headquartered in Germantown, Maryland.

This announcement contains, in addition to historical information, certain forward-looking statements that involve risks and uncertainties, in particular, related to the development of AVN944. Such statements reflect the current views of Avalon management and are based on certain assumptions. Actual results could differ materially from those currently anticipated as a result of a number of factors, risks and uncertainties. There can be no assurance that such development efforts will succeed, that AVN944 will receive required regulatory clearance or, even if such regulatory clearance is received, that any subsequent products will ultimately achieve commercial success.

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