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Avalon Pharmaceuticals Announces the Activation of IND for AVN944 for the Treatment of Cancer

Germantown, MD, September 30, 2005 - Avalon Pharmaceuticals, Inc. (Nasdaq and ArcaEx®: AVRX) today announced the activation of the Investigational New Drug (IND) submission for AVN944 by the U.S. Food and Drug Administration (FDA). The allowance permits Avalon to initiate a Phase I clinical trial in patients with advanced hematological malignancies.

“The activation of our IND for AVN944 is an important milestone for Avalon Pharmaceuticals,” said Kenneth C. Carter, Ph.D. President and Chief Executive Officer of Avalon. “We look forward to initiating clinical trials in the next months at several leading cancer treatment centers in the U.S.”

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, but 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 Pharmaceuticals, Inc. 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

Avalon Pharmaceuticals is a biopharmaceutical company focused on the discovery and development of small molecule therapeutics for the treatment of cancer. 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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