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Vion Pharmaceuticals Enters into Agreement with HOVON to Conduct a Phase III Clinical Trial of Cloretazine® in combination with Frontline AML and MDS Therapy

NEW HAVEN, CT, August 19, 2008 - VION PHARMACEUTICALS, INC. (PINK SHEETS: VION) announced today that it had entered into an agreement with the Dutch-Belgian Cooperative Trial Group for Hematology Oncology (the "HOVON") to conduct a clinical trial of laromustine (Cloretazine® (VNP40101M)) with standard remission-induction therapy in patients aged 18-65 with previously untreated acute myelogenous leukemia (AML) and high-risk myelodysplasia (MDS).

Alan Kessman, Chief Executive Officer, commented, "We are pleased to be working with HOVON, one of the most prestigious clinical groups in hematology oncology. We continue to believe that Cloretazine® will have broad utility in the treatment of hematological malignancies as both a single agent and in combination with other therapies. This trial will provide important data with regard to Cloretazine®'s utility in the treatment of AML when given in combination with standard remission-induction therapy for this devastating disease. "

Dr. Bob Löwenberg, Chief Investigator of HOVON, said, "HOVON is focusing on the clinical development of new therapeutic options for patients with leukemia. Laromustine is a promising agent for that effort."

The trial has been designed as a Phase III study in two parts. Part A will determine the feasibility (based on safety and preliminary effectiveness) of laromustine administration at three possible dose levels in combination with cytarabine and idarubicin. Part A will also evaluate the pharmacokinetics and the clinical efficacy of the laromustine combination.

Part B is then designed to evaluate the clinical efficacy of the laromustine combination versus two cycles of cytarabine and idarubicin without laromustine with regard to clinical outcome ("event free survival"), the complete remission rate, disease free survival (DFS), risk of relapse and overall survival (OS), as well as the tolerance and toxicity, and pharmacokinetics of the combination.

The trial is expected to start this fall and will be conducted at various sites in the Netherlands, Belgium, Switzerland and Norway.

About Vion

Vion Pharmaceuticals, Inc. is committed to extending the lives and improving the quality of life of cancer patients worldwide by developing and commercializing innovative cancer therapeutics. Vion has two agents in clinical trials. Laromustine (Cloretazine® (VNP40101M)), a unique alkylating agent, is being evaluated in a Phase II pivotal trial as a single agent in elderly patients with previously untreated *de novo* poor-risk acute myelogenous leukemia. Clinical trials of Cloretazine® (VNP40101M) with cytarabine in elderly patients with acute myelogenous leukemia, with temozolomide in brain tumors, and with stem cell transplantation in advanced hematologic malignancies, are also being conducted. Triapine®, a potent inhibitor of a key step in DNA synthesis, is being evaluated in clinical trials sponsored by the National Cancer Institute. For additional information on Vion and its product development programs, visit the Company's Internet web site at www.vionpharm.com.

About HOVON

HOVON is a Dutch-Belgian cooperative clinical trial group in hematology oncology with a strong clinical development program in leukemia, malignant lymphomas and multiple myeloma. The HOVON group works with several other countries in Europe and has a long-standing track record with trials in acute leukemia. A distinct part of its clinical trials concerns the analysis of biological variables of the disease in relation to treatment outcome.

This news release contains forward-looking statements. Such statements are subject to certain risk factors which may cause Vion's plans to differ or results to vary from those expected, including Vion's potential inability to file a New Drug Application or obtain regulatory approval for its products, particularly Cloretazine® (VNP40101M), delayed or unfavorable results of drug trials, the possibility that favorable results of earlier preclinical studies, clinical trials or interim clinical trial data are not predictive of safety and efficacy results in later or final clinical trials, the need for additional research and testing, the inability to manufacture product, the potential inability to secure external sources of funding to continue operations, the inability to access capital and funding on favorable terms, continued operating losses and the inability to continue operations as a result, the delisting of the Company's common stock from the Nasdaq Capital Market and a variety of other risks set forth from time to time in Vion's filings with the Securities and Exchange Commission, including but not limited to the risks attendant to the forward-looking statements included under Item 1A, "Risk Factors" in Vion's Form 10-K for the year ended December 31, 2007 and Form 10-Q for the quarter ended June 30, 2008. In particular, there can be no assurance as to the results of any of the Vion's clinical trials, that any of these trials will continue to full accrual, or that any of these trials will not be discontinued, modified, delayed or ceased altogether. Except in special circumstances in which a duty to update arises under law when prior disclosure becomes materially misleading in light of subsequent events, Vion does not intend to update any of these forward-looking statements to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

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