Sunesis Pharmaceuticals Presents Nonclinical Data on SNS-595 at the Annual Meeting of the American Association for Cancer Research

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Nonclinical Studies Demonstrate that SNS-595 Acts through a Dual Mechanism and May Evade Common Drug Resistance Mechanisms
Research Supports Current Clinical Development of SNS-595 in AML and Ovarian Cancer and Potential in Additional Indications

SOUTH SAN FRANCISCO, Calif., April 14, 2008 /PRNewswire-FirstCall via COMTEX News Network/ -- Sunesis Pharmaceuticals, Inc. (Nasdaq: SNSS) today presented nonclinical data on SNS-595's unique mechanism of action and its anticancer activity at the Annual Meeting of the American Association for Cancer Research (AACR) in San Diego, CA. A Phase 2 single agent clinical trial of SNS-595 in ovarian cancer and a Phase 1b clinical trial of SNS-595 in combination with cytarabine in relapsed/refractory acute myeloid leukemia (AML) are both ongoing.

"Data presented today provide important new insights into SNS-595's mechanism as a site-selective DNA intercalator and topoisomerase poison with selectivity for proliferating cells. Through its unique chemical structure and molecular mechanism, SNS-595 avoids common drug resistance pathways and may have advantages over other topoisomerase poisons," said Daniel C. Adelman, M.D., Senior Vice President, Development and Chief Medical Officer. "Taken together, these data support our ongoing clinical trials of SNS-595 in platinum-resistant ovarian cancer and acute myeloid leukemia, and provide compelling evidence for future studies of SNS-595 in indications such as breast cancer where topoisomerase II poisons are active."

Sunesis researchers conducted in vitro and cell-based studies elucidating SNS-595's mechanism of action. SNS-595 selectively intercalates DNA and poisons topoisomerase II, resulting in replication-dependent DNA damage, irreversible G2 arrest and rapid apoptosis. SNS-595's targeted DNA-topoisomerase II interactions may contribute to the broad therapeutic window observed in patients treated with SNS-595.

In a translational research study designed to evaluate SNS-595's activity in primary patient samples of breast and ovarian cancers and acute myeloid leukemia against other agents, SNS-595 demonstrated potent activity and compared favorably with doxorubicin, etoposide and platinum therapy at clinically relevant concentrations. SNS-595 is not a P-glycoprotein substrate and its activity is independent of the p53 family. This finding is noteworthy, as high or increased expression of P-glycoprotein is a common form of drug resistance. In addition, the activity of many cancer agents requires functional p53 family members, and p53 mutations or deletions are also a frequent cause of drug resistance. Based on these findings, evidence from prior nonclinical studies in drug-resistant tumor models and the objective clinical responses observed to date among patients who have failed prior anthracycline-based therapies, SNS-595 may be active in settings where other topoisomerase poisons are no longer effective. These findings support the ongoing clinical trials in AML and ovarian cancer, and indicate that SNS-595 may also be well-suited to the treatment of breast cancer.

In a third set of studies reported today, Sunesis researchers profiled the potential relationship between SNS-595 activity and DNA repair pathways. Since SNS-595 causes double-strand breaks, the integrity of DNA repair pathways could impact cell sensitivity to SNS-595. Identification of the role of various DNA repair pathways may contribute to the identification of biomarkers for patient stratification. Researchers found that the DNA damage induced by SNS-595 is repaired by homologous recombination repair (HRR), and that cells deficient in HRR have greater sensitivity to SNS-595. Breast and ovarian cancers with BRCA mutations have compromised HRR and may be particularly sensitive to SNS-595.

Data from these nonclinical studies of SNS-595 were presented today at the AACR Annual Meeting in three posters:

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-- SNS-595 is a potent anti-tumor agent that has a dual mechanism of
   action: DNA intercalation and site-selective topoisomerase II poisoning
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[Abstract #1860]
-- Ex vivo activity of SNS-595 against biopsies of acute myeloid leukemia, triple negative breast and ovarian cancers supports ongoing and potential clinical [Abstract #2830]
-- Sensitivity to SNS-595 is related to activation of double strand DNA break repair pathways including homologous recombination [Abstract #1859]

SNS-595 is a novel naphthyridine analog, structurally related to quinolones, a class of compounds which has not been used previously in the treatment of cancer.

About Sunesis Pharmaceuticals

Sunesis is a clinical-stage biopharmaceutical company focused on the discovery, development and commercialization of novel small molecule therapeutics for oncology and other serious diseases. Sunesis has built a broad product candidate portfolio through internal discovery and in-licensing of novel cancer therapeutics. Sunesis is advancing its product candidates through in-house research and development efforts and strategic collaborations with leading pharmaceutical and biopharmaceutical companies. For additional information on Sunesis Pharmaceuticals, please visit http://www.sunesis.com.

Safe Harbor Statement

This press release contains forward-looking statements including without limitation statements related to the potential efficacy, mechanism of action and benefits of SNS-595, and the potential for SNS-595 to be tested in other indications. Words such as "may," "potential," "could" and similar expressions are intended to identify forward-looking statements. These forward-looking statements are based upon Sunesis' current expectations. Forward-looking statements involve risks and uncertainties. Sunesis' actual results and the timing of events could differ materially from those anticipated in such forward-looking statements as a result of these risks and uncertainties, which include, without limitation, the risk that Sunesis' drug discovery and development activities, including enrollment and reporting of results, could be halted significantly or delayed for various reasons, the risk that Sunesis' clinical trials for SNS-595 may not demonstrate safety or efficacy or lead to regulatory approval, the risk that preliminary data and trends may not be predictive of future data or results, the risk that Sunesis' preclinical studies and clinical trials may not satisfy the requirements of the FDA or other regulatory agencies, risks related to the conduct of Sunesis' clinical trials and manufacturing of SNS-595 and risks related to Sunesis' need for additional funding. These and other risk factors are discussed under "Risk Factors" and elsewhere in Sunesis' annual report on Form 10-K for the year ended December 31, 2007 and other filings with the Securities and Exchange Commission. Sunesis expressly disclaims any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in the company's expectations with regard thereto or any change in events, conditions or circumstances on which any such statements are based.

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