NEWS RELEASE

Lorus Announces Publication Supporting Novel Mode of Anticancer Therapy for LOR-253 Class of Compounds

- Potent anticancer activity and novel mechanism of action represent a promising new therapeutic approach -

TORONTO, CANADA, September 21, 2009 – Lorus Therapeutics Inc. (TSX: LOR) ("Lorus"), a biopharmaceutical company specializing in the research and development of pharmaceutical products and technologies for the management of cancer, today announced a publication from Lorus' research team.

The article entitled "A Novel Small Molecule with Potent Anticancer Activity Inhibits Cell Growth by Modulating Intracellular Labile Zinc Homeostasis" was published on line on September 15 in the peer-reviewed journal, *Molecular Cancer Therapeutics*.

In the article, data was presented from the preclinical evaluation of ML-133, a parent compound that was a precursor in the development of LOR-253, a novel first-in-class inhibitor of the cancer target, Metal-Responsive Transcription Factor 1 (MTF-1). LOR-253 is currently in late stage preclinical development in preparation of an Investigational New Drug (IND) application for a Phase I dose escalation clinical trial in selected solid tumors.

The studies demonstrated potent anticancer activity in cancer cell lines and in an animal model of human colon cancer. Further examinations on the mechanism of action confirmed target dependent induction of the novel tumor suppressor called Krüppel-like factor 4 (KLF4), a critical checkpoint protein that inhibits cell cycle progression in several cancer types. The mechanism of activity of this promising new class of antitumor agent described in the publication, suggested a novel method for treating several different types of cancer.

"This publication represents an important validation of the novelty and effectiveness of the anticancer mechanism for Lorus' LOR-253 class of compounds", said Dr. Aiping Young, Lorus' President and CEO. "We are confident that this will be the first of many publications that will demonstrate the value of the LOR-253 class of compounds and our small molecule pipeline in general".

About LOR-253

LOR-253 is a small molecule compound that has shown selective and potent antitumor activity in a variety of human cancer cell lines and in an animal model, including colon cancer and non-small cell lung cancer. The compound has shown an excellent therapeutic window due to its apparent low toxicity. LOR-253 is a first-in-class inhibitor of the novel cancer target Metal-Responsive Transcription Factor 1 (MTF-1). The mode of action of LOR-253 involves the downregulation of cyclin D1, an important regulator of cell cycle progression and cell proliferation, and decreased expression of genes involved in tumor hypoxia (low oxygen content) and angiogenesis. Increased angiogenesis and alterations in the cyclin D1 regulatory pathway have been linked to the development of cancer.

About Lorus

Lorus is a biopharmaceutical company focused on the research and development of novel therapeutics in cancer. Lorus' goal is to capitalize on its research, preclinical, clinical and regulatory expertise by developing new drug candidates that can be used, either alone, or in combination with other drugs, to successfully manage cancer. Through its own discovery efforts and an acquisition and in-licensing program, Lorus is building a portfolio of promising anticancer drugs. Lorus Therapeutics Inc. is listed on the Toronto Stock Exchange under the symbol LOR.

Forward Looking Statements

This press release may contain forward-looking statements within the meaning of Canadian and U.S. securities laws. Such statements include, but are not limited to, statements relating to: our research program plans, our plans to conduct clinical trials, the successful and timely completion of clinical studies and the regulatory approval process, our ability to fund future research, our plans to obtain partners to assist in the further development of our product candidates, the establishment of corporate alliances, the Company's plans, objectives, expectations and intentions and other statements including words such as "continue", "believe", "plan", "expect", "intend", "will", "should", "may", and other similar expressions. Such statements reflect our current views with respect to future events and are subject to risks and uncertainties and are necessarily based upon a number of estimates and assumptions that, while considered reasonable by us are inherently subject to significant business, economic, competitive, political and social uncertainties and contingencies. Many factors could cause our actual results, performance or achievements to be materially different from any future results, performance, or achievements that may be expressed or implied by such forward-looking statements, including, among others: our ability to continue as a going concern, our ability to obtain the capital required for research and operations, the inherent risks in early stage drug development including demonstrating efficacy, development time/cost and the regulatory approval process; the progress of our clinical trials; our ability to find and enter into agreements with potential partners; our ability to attract and retain key personnel; changing market conditions; and other risks detailed from time-to-time in our ongoing quarterly filings, annual information forms, annual reports and annual filings with Canadian securities regulators and the United States Securities and Exchange Commission.

Should one or more of these risks or uncertainties materialize, or should the assumptions set out in the section entitled "Risk Factors" in our Annual Information Form underlying those forward-looking statements prove incorrect, actual results may vary materially from those described herein. These forward-looking statements are made as of the date of this press release and we do not intend, and do not assume any obligation, to update these forward-looking statements, except as required by law. We cannot assure you that such statements will prove to be accurate as actual results and future events could differ materially from those anticipated in such statements. Investors are cautioned that forward-looking statements are not guarantees of future performance and accordingly investors are cautioned not to put undue reliance on forward-looking statements due to the inherent uncertainty therein.

Lorus Therapeutics Inc.'s recent press releases are available through the Company's website at www.lorusthera.com. For Lorus' regulatory filings on SEDAR, please go to www.Sedar.com. For SEDAR filings prior to July 10, 2007 you will find these under the company profile for Global Summit Real Estate Inc. (Old Lorus).

Enquiries:
For further information, please contact:

Lorus Therapeutics Inc.
Dr. Saeid Babaei, 416-798-1200 ext. 490; ir@lorusthera.com