Medicenna's IL-2 Superkine Platform Featured in Peer-Reviewed Publication Demonstrating its Superiority and Ability to Reprogram the Tumor Microenvironment in Pancreatic Cancer

July 14, 2021

-- Preclinical results in a pancreatic cancer model show that MDNA109, delivered by an oncolytic adenovirus, induced superior anti-tumor response with tendency towards complete tumor regression, improved survival, and long-term immune memory effect

-- The data highlight the ability of MDNA109 armed oncolytic virus to reshape the tumor microenvironment from an immunosuppressive to a pro-inflammatory one and its potential to treat immunologically "cold" tumors such as pancreatic cancer

TORONTO and HOUSTON, July 14, 2021 (GLOBE NEWSWIRE) -- Medicenna Therapeutics Corp. ("Medicenna" or "the Company") (NASDAQ: MDNA TSX: MDNA), a clinical stage immuno-oncology company, today announced the peer-reviewed publication of preclinical data on MDNA109, the Company's IL-2 Superkine platform that forms the basis for MDNA11. The paper, which was published in *Frontiers in Immunology*, was independently authored by researchers at the University of Helsinki (Finland) and other institutions.

"This publication externally validates MDNA109's superiority and ability to reprogram the tumor microenvironment when it is used as an alternative to native IL-2 to arm oncolytic viruses," said Fahar Merchant, PhD, President and Chief Executive Officer of Medicenna. "These findings highlight yet another use of the MDNA109 platform, which is a core component of our BiSKITs™ and MDNA11 programs. We look forward to sharing preliminary safety, PK/PD and biomarker results from the Phase 1/2 trial of MDNA11 in late Q4 of calendar 2021. In addition, we continue to leverage the versatility of MDNA109 and our Superkine platform to build a robust pipeline of interleukin-based therapies for subsequent partnership and collaboration opportunities."

Preclinical studies presented in the paper evaluated oncolytic adenoviruses that were unarmed or armed to code for MDNA109 (MDNA109-virus) or wild-type IL-2 (wt-IL-2-virus) in a hamster pancreatic tumor model. Oncolytic adenoviruses promote selective infection and lysis of cancer cells and can effectively deliver therapeutic levels of cytokines into tumor lesions as well as boosting the host's underlying anti-tumor immunity [1]. While wild-type IL-2 (Proleukin) has been approved for the treatment of metastatic melanoma and kidney cancer, it has several shortcomings that the MDNA109 platform aims to address such as a poor safety profile and a propensity to amplify tumor-protecting Treg cells.

Key findings from the paper include:

- Treatment with MDNA109-virus led to superior tumor growth inhibition by showing a clear tendency towards complete tumor regression and improved survival.
- Treatment with MDNA109-virus induced efficient T cell receptor signaling and cytotoxic activity of tumor infiltrating immune cells.
- MDNA109-virus strongly stimulated antigen presenting cells, which activate anti-tumor immune cells, at the tumor site.
- MDNA-109-virus weakened tumor-protecting myeloid cells in the tumor microenvironment (TME).
- MDNA109-virus demonstrated the ability to induce anti-tumor immune memory to protect previously treated hamsters against re-challenge with pancreatic tumor cells.
- Mechanistically, treatment response with MDNA109-virus was associated with substantial repression of genes linked to myeloid cell mediated immunosuppression in the TME.
- Concurrently, MDNA109 exerted a direct effect on T-cell anchoring and T-cell toxicity, as a strong correlation was observed between expression of these genes and cytotoxicity of tumor infiltrating lymphocytes (TILs).
- Treatment with MDNA109-virus did not result in any histopathological changes in normal tissues.

In summary, these results highlight the prospective therapeutic potential of the MDNA109-virus for the treatment of immunosuppressive tumors such as pancreatic cancer.

In the paper, which was titled: "Oncolytic Adenovirus Coding for a Variant Interleukin 2 (vIL-2) Cytokine Re-Programs the Tumor Microenvironment and Confers Enhanced Tumor Control," MDNA109 is referred to as "variant IL-2," "IL-2 variant," "vIL-2," or "vIL2." Note that MDNA11, Medicenna's lead long-acting IL-2 Superkine candidate that is derived from the MDNA109 platform and expected to treat the first patient in a Phase 1/2 clinical study in the third quarter of 2021, has 2 additional mutations when compared to MDNA109. These mutations further enhance MDNA11's selectivity for tumor killing immune cells.

The work reported in this publication is covered by Medicenna patents and patents in-licensed by Medicenna.

Reference

1. Quixabeira, et al (2021) Front. Immunol.,12:67440; https://doi.org/10.3389/fimmu.2021.674400

About Medicenna

Medicenna is a clinical stage immunotherapy company focused on the development of novel, highly selective versions of IL-2, IL-4 and IL-13 Superkines and first in class Empowered Superkines for the treatment of a broad range of cancers. Medicenna's long-acting IL-2 Superkine asset, MDNA11, is a next-generation IL-2 with potentially superior CD122 binding without CD25 affinity and therefore preferentially stimulates cancer killing

effector T cells and NK cells when compared to competing IL-2 programs. Medicenna's early-stage BiSKITs™ program (**Bi**functional **S**uper**K**ine **I**mmuno**T**herapie**s**) is designed to further enhance the ability of Superkines to treat immunologically "cold" tumors. Medicenna's lead IL4 Empowered Superkine, MDNA55, has completed a Phase 2b clinical trial for rGBM, the most common and uniformly fatal form of brain cancer. MDNA55 has been studied in five clinical trials involving 132 subjects, including 112 adults with rGBM. MDNA55 has obtained Fast-Track and Orphan Drug status from the FDA and FDA/EMA, respectively.

Forward-Looking Statement

This news release contains forward-looking statements within the meaning of applicable securities laws and relate to the future operations of the Company and other statements that are not historical facts including statements related to the Phase 1/2 clinical trial of MDNA11 and its timeline, the potential and development of the BiSKITs™ program and our ability to build a robust pipeline of interleukin-based therapies for subsequent partnership and collaboration opportunities. Forward-looking statements are often identified by terms such as "will", "may", "should", "anticipate", "expects", "believes" and similar expressions. All statements other than statements of historical fact, included in this release, including the future plans and objectives of the Company, are forward-looking statements that are subject to risks and uncertainties. There can be no assurance that such statements will prove to be accurate and actual results and future events could differ materially from those anticipated in such statements. Important factors that could cause actual results to differ materially from the Company's expectations include the risks detailed in the annual information form and Form 40-F of the Company and in other filings made by the Company with the applicable securities regulators from time to time in Canada and the United States.

The reader is cautioned that assumptions used in the preparation of any forward-looking information may prove to be incorrect. Events or circumstances may cause actual results to differ materially from those predicted, as a result of numerous known and unknown risks, uncertainties, and other factors, many of which are beyond the control of the Company. The reader is cautioned not to place undue reliance on any forward-looking information. Such information, although considered reasonable by management, may prove to be incorrect and actual results may differ materially from those anticipated. Forward-looking statements contained in this news release are expressly qualified by this cautionary statement. Except as required by law, we do not intend and do not assume any obligation to update or revise publicly any of the included forward-looking statements.

Further Information

For further information about the Company please contact:

Elizabeth Williams, Chief Financial Officer, 416-648-5555, ewilliams@medicenna.com

Investor Contact

For more investor information, please contact:

Dan Ferry, Managing Director, LifeSci Advisors, 617-430-7576, daniel@lifesciadvisors.com

MEDICENNA

Source: Medicenna Therapeutics Corp.