Medicenna's IL-2 Superkine, MDNA19, Demonstrates Best-in-Class Features in a Non-Human Primate Study

March 25, 2020

TORONTO and HOUSTON, March 25, 2020 /CNW/ - Medicenna Therapeutics Corp. ("**Medicenna**" or "**the Company**") (TSX: MDNA, OTCQB: MDNAF), a clinical stage immunotherapy company developing Superkines and Empowered Cytokines, will present pre-clinical data including non-human primate (NHP) data from its IL-2 Superkine program during a conference call and webcast today.

The presentation (details below) will highlight data from the long-acting variant MDNA19, engineered to have enhanced binding to CD122 without binding to CD25. This allows MDNA19 to specifically activate naïve CD8 T cells and natural killer (NK) cells with minimal stimulation of T regulatory cells (Tregs), thereby circumventing toxicity and demonstrating potential for best-in-class features.

"We are very excited by the overwhelmingly positive data for MDNA19 following our pilot study in NHP which shows that, unlike competing programs, MDNA19 is able to dramatically boost cancer-killing immune cells for an extended duration without underlying safety issues," said Dr. Fahar Merchant, President and CEO, Medicenna. "These results demonstrate for the first time, that unlike peglylated versions of IL-2 which also tend to block activation of naïve CD8 T cells and NK cells, a long-acting IL-2 super-agonist can deliver best-in-class features without the complexity and limitations associated with other competing approaches. These data are a significant milestone for Medicenna as it paves the way for advancing our IL-2 Superkine program into the clinic next year having successfully closed a $35M financing last week."

Highlights from the presentation include:

- Kinetic studies in NHP showed a dose-dependent upregulation of Ki67 in CD8 T-cells lasting for almost two weeks post-MDNA19 administration, with no apparent side effects.
- When administered to NHP, MDNA19 increases the absolute number of circulating CD8 T-cells in the absence of Treg and eosinophil stimulation (the latter being a major source of IL-5 production which is responsible for triggering vascular leak syndrome and associated toxicity).
- MDNA19 administration as a monotherapy in syngeneic mice with pre-established CT26 colon cancer led to 60% survival and induction of strong and long-lasting memory responses correlating with resistance to subsequent re-challenges.
- Furthermore, MDNA19 treatment of B16F10 tumors favored activation of CD8 T cells over Tregs in the tumor microenvironment driving a strong therapeutic effect.

"Several groups have focused on strategies to limit the effects of IL-2 on Treg activation and expansion in order to boost the anti-cancer activity of IL-2," states Dr. Moutih Rafei, Head of Discovery at Medicenna. "Approaches such as pegylation techniques, although effective in reducing binding to CD25, have inadvertently led to reduced potency towards effector CD8 T-cells and NK cells as well. MDNA19 is effective in both directions (diminishing binding to CD25 while increasing affinity to CD122) and the preclinical data demonstrate MDNA19's promise to restore both NK cell and memory CD8 T cell compartments in both small rodent and non-human primate models."

The full results will be presented in more detail on a conference call today at 10:00am by the following individuals:

Dr. Moutih Rafei, Associate Professor, Department of Pharmacology and Physiology, **Université de Montréal**
An immunologist by training, Dr. Rafei is an expert in cellular and molecular immunology with major focus on cell-based therapies and therapeutics. Dr. Rafei has published his research in cytokine biology and designed novel cytokine fusions and fusokines.

Dr. Peter Lloyd, Director, KinDyn Consulting
More than 25 years pharmaceutical development experience, mostly at Novartis, in both the early and late development arena. Expertise in pharmacokinetics, pharmacokinetic / pharmacodynamic models and exposure response relationships with both small molecule NCEs and biologics. Most recently he was Head of DMPK Biologics at Novartis.

Paul Smith, Managing Director, MetisRA Consulting
A senior regulatory affairs professional with 30 years of experience in drug development with over 20 years at Amgen and more recently at Tusk Therapeutics, a pre-clinical immuno-oncology company acquired by Roche.

Conference call and webcast details:
Date: March 25, 2020
Time: 10:00 am ET

To access the conference audio:
Local dial in: 416-764-8650
North American Toll Free: 1-888-664-6383
Conference ID No.: 22234399

To access the webcast and slide presentation:
https://event.on24.com/wcc/r/2234112/BD716A8F0744C880AD83827518F67931

Following the event, the archived webcast and Medicenna presentation will be available on the Company's website at www.medicenna.com. The webcast will be archived for 30 days after the event.

About MDNA19
Developed by scientists at Stanford University, MDNA109 is an engineered version of IL-2 that binds up to 200 times more effectively to IL-2Rβ (CD122), thus greatly increasing its ability to activate and proliferate the immune cells needed to fight cancer. MDNA19 is a long acting version of the IL-2 Superkine that preferentially drives the expansion and responses of effector T cells and Natural Killer (NK) cells over Treg cells. It is the only IL-2 in development with a distinct mechanism by virtue of its high affinity towards CD122 allowing it to effectively combat NK cell anergy (exhaustion) which occurs frequently after cancer immunotherapy.

About Medicenna Therapeutics Corp.
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 Cytokines™ (ECs) for the treatment of a broad range of cancers. Medicenna's lead IL4-EC, 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 patients, including 112 adults with rGBM. MDNA55 has demonstrated compelling efficacy and has obtained Fast-Track and Orphan Drug status from the FDA and FDA/EMA respectively. Medicenna's lead long-acting IL2 Superkine asset, MDNA19, is a best-in-class next-generation IL-2 in development with superior CD122 binding without CD25 affinity and therefore preferentially stimulating cancer killing effector T cells and NK cells when compared to competing IL-2 programs. It is anticipated that MDNA19 will be ready for the clinic in 2021. For more information, please visit www.medicenna.com.

This news release contains forward-looking statements relating to the future operations of the Company and other statements that are not historical facts. Forward-looking statements are often identified by terms such as "will", "may", "should", "anticipate", "expects" and similar expressions. All statements other than statements of historical fact, included in this release, including, without limitation, that MDNA19, demonstrated best-in-class features in a non-human primate study, that the pilot study in NHP shows overwhelmingly positive data for MDNA19, that the results demonstrate for the first time a long-acting IL-2 super-agonist can deliver best-in-class features without the complexity and limitations associated with other competing approaches, that the data is a significant milestone for Medicenna, that Medicenna's IL-2 Superkine program will enter into the clinic next year and statements related to the future plans and objectives of the Company, are forward-looking statements that involve 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 of the Company dated June 24, 2019 and in other filings made by the Company with the applicable securities regulators from time to time.

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 at the time of preparation, 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. The forward-looking statements contained in this news release are made as of the date of this news release and the Company will update or revise publicly any of the included forward-looking statements only as expressly required by Canadian securities law.

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For further information: For further information, please contact: Fahar Merchant, President and Chief Executive Officer, 604-671-6673, fmerchant@medicenna.com; Elizabeth Williams, Chief Financial Officer, 416-648-5555, ewilliams@medicenna.com.