Medicenna Presents Positive Data Demonstrating Superior Safety and Efficacy Potential of its First-in-Class anti-PD-1 x IL-2 Bifunctional Superkine MDNA113 at AACR 2026

April 21, 2026

New in vivo data demonstrate exceptional selectivity, localization and potency of MDNA113 in the tumor and tumor microenvironment while enhancing the systemic tolerability profile

Head-to-head non-human primate comparison against an anti-PD-1 x IL-2α-biased bispecific demonstrates MDNA113's superior tolerability and significantly wider therapeutic window

MDNA113 was well tolerated at doses up to 50 mg/kg in non-human primates with pharmacokinetics consistent with approved anti-PD-1 therapies, supporting advancement toward an Investigational New Drug (IND) submission expected in the second half of 2026

TORONTO and HOUSTON, April 21, 2026 (GLOBE NEWSWIRE) -- Medicenna Therapeutics Corp. ("Medicenna" or the "Company") (TSX: MDNA, OTCQX: MDNAF), a clinical-stage immunotherapy company focused on the development of proprietary Superkines targeting cancer and autoimmune diseases, today presented new positive preclinical data from MDNA113, its first-in-class tumor-anchored and conditionally activated anti-PD-1 x IL-2 bifunctional Superkine, at the American Association for Cancer Research (AACR) Annual Meeting 2026 in San Diego, California.

The data demonstrate that MDNA113's architecture delivers on the promise of a truly differentiated and highly tolerable PD-1 x IL-2 bifunctional. In a head-to-head non-human primate study, MDNA113 was well tolerated at doses up to 50 mg/kg while a representative anti-PD-1 x IL-2α-biased bispecific could not be administered a second dose at a fraction of that exposure due to severe toxicity, including evidence of vascular leak syndrome.

"Taken together, these data demonstrate that MDNA113 is a first-in-class PD-1 x IL-2 bifunctional with exquisite design that delivers superior tolerability and a significantly wider therapeutic window compared with first-generation approaches," said Fahar Merchant, Ph.D., President and CEO of Medicenna. "This is exactly the kind of data we had hoped for on our design thesis: by combining tumor anchoring, dual conditional activation, and a β-enhanced not-α IL-2 Superkine, we can dose at levels comparable to approved anti-PD-1 therapies without the systemic toxicity that has forced competitors to compromise on potency by lowering the dose and attenuating activity of IL-2. With MDNA113, we have fused a blockbuster anti-PD-1 with our IL-2 Superkine, which has already demonstrated promising single-agent activity in immunotherapy-resistant patients, significantly de-risking clinical development. We look forward to advancing MDNA113 toward an IND submission later this year."

PD-1 bispecifics have emerged as a leading next-generation approach to enhancing the efficacy of PD-1 inhibitors, the best-selling class of oncology drugs in the world. The commercial potential of PD-1 x IL-2 bispecifics specifically has been validated by recent multi-billion-dollar transactions.

MDNA113 is built on the Company's IL-2 and IL-13 Superkine platforms. The β-enhanced not-α IL-2 Superkine at the core of MDNA113 is shared with MDNA11, the Company's clinical-stage IL-2 Superkine, which has demonstrated durable single-agent anti-tumor activity and a manageable safety profile in the ongoing Phase 1/2 ABILITY-1 study in patients with advanced solid tumors. Unlike competing PD-1 x IL-2 programs that utilize proprietary anti-PD-1 antibodies, MDNA113 incorporates variants of commercially validated, approved human anti-PD-1 antibodies.

MDNA113 is designed to address the safety and dosing limitations that have constrained first-generation molecules in this class by combining a commercially validated anti-PD-1 antibody with Medicenna's clinically validated IL-2 Superkine, the only next-generation IL-2 with demonstrated durable single-agent anti-tumor activity, in a tumor-targeted, conditionally activated architecture.

Key highlights from the presentation:

- MDNA113's masking architecture achieved >10,000-fold attenuation of IL-2R agonism relative to the non-masked parent molecule while preserving full PD-1/PD-L1 blockade, and the masking domain demonstrated stability in serum for at least 8 days, confirming that IL-2 Superkine is effectively shielded from systemic exposure until activated within the tumor microenvironment

- MDNA113 demonstrated two independent mechanisms of conditional activation: tumor-associated matrix metalloprotease (MMP) cleavage fully restored IL-2R signaling at the tumor site, and proximity-dependent unmasking upon engagement with PD-1-expressing T cells provided a second activation pathway independent of protease expression, a key differentiator versus competing masked programs that rely solely on MMP cleavage

- MDNA113's IL-13Rα2 tumor-targeting domain drove selective accumulation and prolonged residence at the tumor site for at least 3 days in IL-13Rα2-expressing tumors, with clearance from non-expressing tissue, a tumor-anchoring capability not incorporated by any other PD-1 x IL-2 bispecific in development

- In syngeneic mouse tumor models, MDNA113 demonstrated significant tumor growth inhibition with preferential expansion of CD8+ T cells expressing Granzyme B over NK cells and regulatory T cells, and efficacy was compromised with an uncleavable version, confirming conditional activation within the tumor microenvironment is required for therapeutic effect

- MDNA113 was well tolerated at doses of 10, 30 and 50 mg/kg in non-human primates with pharmacokinetics consistent

with approved anti-PD-1 antibodies, expanded CD8+ T cells without significant regulatory T cell increase, and did not produce dose-limiting adverse findings at any dose level tested

- In a head-to-head non-human primate comparison at molar-equivalent doses, an anti-PD-1 x IL-2α-biased bispecific (1.4 mg/kg) exhibited severe toxicity after a single dose, including evidence of vascular leak syndrome, significant body weight loss, decreased serum albumin, elevated blood urea and liver enzymes, and increased white blood cell counts, and could not receive a second dose due to ongoing adverse events

- By contrast, MDNA113 was well tolerated at exposures more than 30-fold higher than the single tolerated dose of the α-biased comparator and received repeat dosing without treatment-limiting findings, demonstrating a fundamentally wider therapeutic window than competing first-generation anti-PD-1 x IL-2α-biased bispecifics

A copy of the poster is available on the “Scientific Presentations” page of Medicenna’s website.

About MDNA113

MDNA113 is a novel, first-in-class tumor-targeted and tumor-activated bifunctional anti-PD-1x IL-2 Superkine with exceptionally high affinity for IL-13Rα2 without binding to the functional IL-13Rα1. IL-13Rα2 is overexpressed in a wide range of solid tumors, including “immunologically cold” tumors, with minimal to no expression in normal tissues. IL-13Rα2-expressing tumors also have abundant matrix metalloproteases in the tumor microenvironment that may efficiently activate MDNA113. IL-13Rα2 expression is associated with poor clinical outcomes in multiple tumor types including prostate, pancreatic, ovarian, liver, breast and brain cancer, with an annual worldwide incidence of over 2 million.

About Medicenna Therapeutics

Medicenna is a clinical-stage immunotherapy company focused on developing novel, highly selective versions of IL-2, IL-4 and IL-13 Superkines and first-in-class Empowered Superkines. Medicenna’s long-acting IL-2 Superkine, MDNA11, is a next-generation IL-2 with superior affinity toward CD122 (IL-2 receptor beta) and no CD25 (IL-2 receptor alpha) binding, thereby preferentially stimulating cancer-killing effector T cells and NK cells. Medicenna’s first-in-class targeted PD-1 x IL-2 bifunctional, MDNA113, is in development for solid tumors and was designed using the Company’s proprietary BiSKITs (Bifunctional SuperKine ImmunoTherapies) and T-MASK (Targeted Metalloprotease Activated SuperKine) platforms. Medicenna’s IL-4 Empowered Superkine, bizaxofusp (formerly MDNA55), has been studied in 5 clinical trials enrolling over 130 patients, including a Phase 2b trial for recurrent GBM, the most common and uniformly fatal form of brain cancer. Bizaxofusp has obtained Fast Track and Orphan Drug status from the FDA and FDA/EMA, respectively.

For more information, please visit www.medicenna.com, and follow us on X and LinkedIn.

Forward-Looking Statements

This news release contains forward-looking statements within the meaning of applicable securities laws. Forward-looking statements include, but are not limited to, express or implied statements regarding the future operations of the Company, estimates, plans, strategic ambitions, partnership activities and opportunities, objectives, expectations, opinions, forecasts, projections, guidance, outlook or other statements that are not historical facts, such as statements on or in respect of: the therapeutic potential, safety profile and/or other potential biological responses to administration (or lack thereof) of MDNA113; any IND submission and/or first-in-human trial for MDNA113 (including any expected timing thereof); and any potential sales or revenue generation from the sale or other commercialization of MDNA113 or any other PD-1 inhibitors (including any expected timing thereof). Drug development and commercialization involve a high degree of risk, and only a small number of research and development programs result in commercialization of a product. Results in early-stage pre-clinical or clinical studies may not be indicative of full results or results from later stage or larger scale clinical studies and do not ensure regulatory approval. You should not place undue reliance on these statements, or the scientific data presented.

Forward-looking statements are often identified by terms such as “will”, “may”, “should”, “anticipate”, “expect”, “believe”, “seek”, “potentially” and similar expressions and 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 latest annual information form of the Company and in other filings made by the Company with the applicable securities regulators from time to time in Canada.

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. 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 hereof and except as required by law, the Company does not intend and does not assume any obligation to update or revise publicly any of the included forward-looking statements.

Contacts:

Investors
Shushu Feng
Investor Relations, Medicenna Therapeutics
(416) 964-5442
ir@medicenna.com

Media
Carly Scaduto
THRUST
carly@thrustsc.com

Source: Medicenna Therapeutics Corp.