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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549**

**FORM 6-K**

**REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES  
EXCHANGE ACT OF 1934**

**For the month of February 2024**

Commission File Number: **001-39458**

**Medicenna Therapeutics Corp.**  
(Translation of registrant's name into English)

**2 Bloor St. W., 7th Floor  
Toronto, Ontario M4W 3E2, Canada**  
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.  
Form 20-F  Form 40-F

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## EXHIBIT INDEX

**Exhibit Number**    **Description**

[99.1](#)                    [Press Release dated February 13, 2024](#)

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## SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

**MEDICENNA THERAPEUTICS CORP.**

Date: February 13, 2024

By: /s/ Fahar Merchant, PhD  
Name: Fahar Merchant, PhD  
Title: Chief Executive Officer

## Medicenna Announces First Patient Dosed in ABILITY-1 Study of MDNA11 in Combination with KEYTRUDA® (pembrolizumab) in Patients with Advanced Solid Tumors

- *The ABILITY-1 Study is evaluating MDNA11, a highly selective long-acting IL-2 Superkine, in combination with KEYTRUDA® (pembrolizumab) for treatment of patients with advanced solid tumors*
- *MDNA11 continues to demonstrate encouraging single-agent activity from the monotherapy dose escalation portion of the ABILITY-1 Study*
- *Company expects to report results from both the monotherapy expansion and combination escalation and expansion arms of the Phase 2 study in H1 and H2 2024*

TORONTO and HOUSTON, Feb. 13, 2024 (GLOBE NEWSWIRE) -- Medicenna Therapeutics Corp. (“Medicenna” or the “Company”) (TSX: MDNA, OTCQB: MDNAF), a clinical-stage immunotherapy company focused on the development of Superkines, today announced the first patient dosed in the combination arm of the Phase 1/2 ABILITY (A Beta-only IL-2 ImmunoTherapY) study evaluating MDNA11, a long-acting, “beta-enhanced not-alpha” interleukin-2 (IL-2) super-agonist, with KEYTRUDA® (pembrolizumab). The combination portion of the study is designed to evaluate the potential for a synergistic effect of MDNA11 with KEYTRUDA® in patients with advanced solid tumors.

“Dosing the first patient in the combination arm with MDNA11 and KEYTRUDA® is a significant milestone for Medicenna and we are excited with the progress of our novel IL-2 superkine,” said Fahar Merchant, PhD, President and CEO of Medicenna. “By combining MDNA11 with KEYTRUDA®, we are building upon the promising data generated to date by MDNA11 as a single agent. Targeting the PD1/PD-L1 pathway in addition to MDNA11’s differentiated mechanism of action is expected to further stimulate and restore the patient’s immune system, which should result in improved antitumoral activity and patient outcomes. We are thrilled to enter this new phase of development of MDNA11 and further demonstrate its potential in combination with the world’s best-selling drug.”

Solid tumors represent 90% of all cancers and although CPI therapies have shown promising advances in some types of immunosensitive cancers, more than 70% of patients do not respond to or become resistant to such therapies. MDNA11, with its uniquely differentiating ‘beta-enhanced not-alpha’ features, continues to be a potential best-in-class next-generation IL-2 super-agonist for treatment of advanced solid tumors. Pre-clinical data published in JITC in 2022 demonstrated that mice receiving both, MDNA11 and checkpoint inhibitors achieved complete and sustained tumor control even after multiple rechallenges, demonstrating the capacity for MDNA11 to sensitize solid tumors to checkpoint blockade<sup>1</sup>.

The ABILITY-1 Study is actively recruiting patients with different types of recurrent or metastatic solid tumors at multiple sites in the USA, Canada, Australia, and South Korea and is expected to initiate patient enrolment in Europe. Preliminary results from both the monotherapy expansion and combination escalation and expansion arms of ABILITY-1 the study will be available in H1 and H2 2024.

KEYTRUDA® is a registered trademark of Merck Sharp & Dohme Corp, a subsidiary of Merck & Co., Inc., Kenilworth, NJ, USA.

<sup>1</sup><https://pubmed.ncbi.nlm.nih.gov/35058325/>

### About the ABILITY-1 Study

The ABILITY-1 study (NCT05086692) is a global, multi-center, open-label study that assesses the safety, tolerability, pharmacokinetics, pharmacodynamics and anti-tumor activity of MDNA11 as monotherapy or in combination with pembrolizumab (Keytruda®). In the combination dose escalation of the Phase 2 study, approximately 6-12 patients are expected to be enrolled and administered ascending doses of MDNA11 intravenously once every two weeks in combination with KEYTRUDA®. This portion of the study includes patients with a wide range of solid tumors with the potential for susceptibility to immune modulating therapeutics. Upon identification of an appropriate dose regimen for combination, the study will proceed to a combination dose expansion cohort.

### About MDNA11

MDNA11 is an extensively engineered long-acting recombinant IL-2 “Superkine” fused with human albumin. MDNA11 has complete abrogation of IL-2 receptor alpha binding and is the only IL-2 therapy in clinical development with enhanced binding to the intermediate affinity receptor (beta-gamma). These changes enable effective expansion and activation of anti-tumor CD8<sup>+</sup> effector and NK cells while avoiding excessive stimulation of immunoinhibitory Treg cells or side effect inducing endothelial cells, as well as ensuring retention in the tumor and tumor draining lymph nodes. These changes vastly increase efficacy and therapeutic index over the predecessor drug aldesleukin. MDNA11 is currently being evaluated in the Phase 1/2 ABILITY-1 study as both a monotherapy and in combination with the PD-1 blocking antibody pembrolizumab (Keytruda®).

### 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 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 FastTrack and Orphan Drug status from the FDA and FDA/EMA, respectively. Medicenna's early-stage BiSKITs™ (Bifunctional SuperKine ImmunoTherapies) and the T-MASK™ (Targeted Metalloprotease Activated SuperKine) programs are designed to enhance the ability of Superkines to treat immunologically "cold" tumors.

For more information, please visit [www.medicenna.com](http://www.medicenna.com) and follow us on Twitter and LinkedIn.

### **Forward-Looking Statements**

This news release contains forward-looking statements within the meaning of applicable securities laws that relate to the future operations of the Company, plans and projections and other statements that are not historical facts, including, without limitation, statements on the clinical development and potential of MDNA11, the ABILITY-1 Study and its enrolment and the timeline for reporting results and additional data. 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 and Annual Report on Form 20-F 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. 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. The forward-looking statements contained in this news release are made as of the date hereof and 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.

### **Contacts**

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