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 June 2023

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 [X] Form 40-F [ ]

EXHIBIT INDEX

Exhibit Number	Description
99.1	Press Release dated June 27, 2023

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: June 27, 2023

By: /s/ Elizabeth Williams
Name: Elizabeth Williams
Title: Chief Financial Officer

EXHIBIT 99.1

Medicenna Reports Fiscal Year 2023 Financial Results and Operational Highlights

- *MDNA11 demonstrates durable single-agent activity in forth-line metastatic pancreatic cancer patient with a partial response continuing for over 40 weeks and stable disease for over 70 weeks as a third-line treatment in a patient with metastatic melanoma*

- *MDNA11 clinical update is anticipated during calendar Q3 2023, for all dose escalation patients including high dose cohorts five and six including outcomes from safety review committee; conference call to be held in conjunction with clinical update*

- *Phase 2 ABILITY study's single agent dose expansion portion is expected to commence in calendar Q3 2023*

- *$33.6 million in cash and cash equivalents as of March 31, 2023 expected to provide runway through key milestones of the ABILITY study and through calendar Q3 2024*

TORONTO and HOUSTON, June 27, 2023 (GLOBE NEWSWIRE) -- Medicenna Therapeutics Corp. ("Medicenna" or "the Company") (NASDAQ: MDNA TSX: MDNA), a clinical-stage immunotherapy company, today reported financial results and corporate highlights for the fiscal year ended March 31, 2023, as well as anticipated near-term corporate milestones.

"Over the past fiscal year, we have made substantial progress in demonstrating the best-in-class potential of MDNA11, as it has shown encouraging preliminary safety, PK/PD and efficacy data in heavily pre-treated end-stage cancer patients," said Fahar Merchant, Ph.D., President and CEO of Medicenna. "Achieving a durable partial response in an end-stage pancreatic cancer patient at this very early stage of the clinical trial, designed to primarily establish safety of MDNA11, is very encouraging indeed. We continue to collect results from the remaining patients in the high dose cohorts, including at least one post-treament scan, complete the safety review, and finalize the design of the Phase 2 dose expansion study. This will enable us to share a comprehensive data set and next steps during calendar Q3 2023. We believe that MDNA11 has the potential to demonstrate its positive attributes by further bolstering its efficacy in patients with less advanced cancers receiving the optimal dose, while retaining its safety features, in the upcoming Phase 2 expansion portion of the trial."

Based on Medicenna's current development plans, it is anticipated that the current cash on hand will be sufficient to fund operations past key milestones of the ABILITY study and through calendar Q3 2024.

Program highlights for the fiscal year ended March 31, 2023, along with recent developments, include:

MDNA11: IL-2 Superkine Program

In March 2023, Medicenna provided its most recent update on the MDNA11 clinical development program. MDNA11 is a next-generation IL-2 therapy currently being studied in the Phase 1/2 ABILITY (A Beta-only IL-2 ImmunoTherapY) clinical trial. In the monotherapy dose escalation portion of ABILITY, MDNA11 continued to demonstrate prolonged and persistent single-agent activity in heavily pre-treated, end-stage cancer patients, with desirable safety and PK/PD data in the fifth dose cohort, allowing dose escalation to proceed to the sixth and final dose of 120µg/Kg every 2 weeks.

Clinical activity highlights include:

- A participant with fourth-line metastatic pancreatic ductal adenocarcinoma ("PDAC") maintained a confirmed partial response ("PR") for two target lesions and achieved complete regression of a non-target metastatic lesion.
- A participant with third-line metastatic melanoma maintained stable disease ("SD") at week 70.
- A participant with third-line non-clear cell renal cell carcinoma showed a meaningful period of SD prior to disease progression at week 23.

In January 2023, Medicenna strengthened its intellectual property protection for the MDNA11 and BiSKITs™ programs with the United States Patent and Trademark Office's issuance of U.S. Patent No. 11,542,312, which covers methods of treating cancer with an IL-2 Superkine and PD1/PDL1 or CTLA-4 checkpoint inhibitor, administered in combination or as a single agent BiSKIT™. The patent's term extends into at least 2039 without accounting for any potential extensions.

In November 2022, Medicenna presented clinical data from the Phase 1/2 ABILITY study of MDNA11 at the Society for Immunotherapy of Cancer 37th Annual Meeting. The company's two poster presentations covered the PK/PD, safety and anti-tumor activity of MDNA11 at that time point.

In September 2022, Medicenna announced a clinical collaboration with Merck to evaluate MDNA11 in combination with KEYTRUDA® (pembrolizumab) in the ABILITY trial.

Bizaxofusp (formerly MDNA55): Empowered IL-4 Superkine Program

In January 2023, topline results from the single-arm Phase 2b clinical trial of MDNA55 were published in the peer reviewed journal, *Neuro-Oncology*. The study, in patients with recurrent unresectable glioblastoma, met its primary endpoint, allowing for

alignment with U.S. Food and Drug Administration ("FDA") on an innovative, open-label hybrid design for a potential pivotal trial.

Preclinical Pipeline Programs

In April 2023, Medicenna presented preclinical data characterizing IL-13 Superkines and next-generation Superkines at the 2023 Annual Meeting of the American Association for Cancer Research. The preclinical data demonstrated that two IL-13 Superkines, MDNA132 and MDNA213, exhibit highly selective binding to the IL-13 decoy receptor (IL-13Rα2) and, in a mouse model, selectively accumulate in the tumor microenvironment for several days. The presentation also characterized a series of next-generation IL-13 Superkines.

In September 2022, Medicenna presented preclinical data demonstrating anti-tumor activity of an anti-PD1-IL-2 BiSKIT™ and long-acting IL-4/IL-13 super-antagonist at the 10th Annual Meeting of the International Cytokine & Interferon Society. The data demonstrated that single agent anti-PD1-IL-2 BiSKIT™ showed superior efficacy compared to a combination of an anti-PD1 antibody with an IL-2 Superkine in murine models of colon, skin, and breast cancer; and IL-4/IL-13 super-antagonist displayed monotherapy activity in multiple cancer models and synergy in combination with an IL-2 superkine.

Operational Highlights

In February 2023, Medicenna established an at-the-market offering facility with Oppenheimer & Co. Inc. whereby, Medicenna may sell common shares with an aggregate offering price of up to US$10 million.

In August 2022, Medicenna raised U.S. $20 million in a public offering. The proceeds are being used to fund pipeline advancement.

Expected Upcoming Milestones

Initial anti-tumor activity data from ABILITY's fifth and sixth dose escalation cohort expected in calendar Q3 2023.

Commencement of the ABILITY study's Phase 2 single agent dose expansion portion expected in calendar Q3 2023.

Clinical update from the ABILITY study's Phase 2 single agent portion expected in calendar Q4 2023.

Commencement of the ABILITY study's Phase 2 combination portion (MDNA11 plus KEYTRUDA®) expected in calendar Q4 2023.

Annual Financial Results

As of March 31, 2023, cash and cash equivalents were $33.6 million, compared to $20.5 million on March 31, 2022. These funds are expected to provide the Company with sufficient capital to execute its current planned expenditures through the key milestones of the ABILITY study and through calendar Q3 2024 based on its current plans and projections.

Net loss for the year ended March 31, 2023, was $10.0 million, or $0.16 per share, compared to a loss of $22.6 million, or $0.42 per share, for the year ended March 31, 2022.

The decrease in net loss for the year ended March 31, 2023 was a result of decreased research and development expenditures related to the MDNA11 program, a foreign exchange gain of $1.6 million and a non-cash change in the fair value of the warrant derivative (gain) of $4.3 million further contributed to the reduction in net loss. These reductions were partially offset by a reimbursement of $1.8 million under the CPRIT grant in the year ended March 31, 2022 which reduced R&D expenditures in the year ended March 31, 2022.

Research and development expenses of $9.3 million were incurred during the year ended March 31, 2023, compared with $14.7 million incurred in the year ended March 31, 2022. The decrease in research and development expenses in the current fiscal year is primarily attributed to costs associated with the development of MDNA11 incurred in the year ended March 31, 2022 including GMP manufacturing and IND enabling studies for which no comparable expenses were incurred in the current year. The reduction in MDNA11 development expenses was partially offset by higher clinical costs in the current year period.

General and administrative expenses of $7.0 million were incurred during the year ended March 31, 2023, compared with $7.8 million during the year ended March 31, 2022. The decrease in G&A expenses in the year ended March 31, 2023 primarily relates to a reduction in directors and officers liability insurance premiums.

Medicenna's financial statements for the year ended March 31, 2023 and the related management's discussion and analysis ("MD&A") will be available on SEDAR at www.sedar.com and on EDGAR at www.sec.gov.

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. Medicenna's long-acting IL-2 Superkine, MDNA11, is a next-generation IL-2 with superior CD122 (IL-2 receptor beta) binding without CD25 (IL-2 receptor alpha) affinity thereby preferentially stimulating cancer killing effector T cells and NK cells. Medicenna's early-stage BiSKITs™ program, ("Bifunctional SuperKine ImmunoTherapies") is designed to enhance the ability of Superkines to treat immunologically "cold"

tumors. Medicenna's IL-4 Empowered Superkine, bizaxofusp (formerly MDNA55), has been studied in 5 clinical trials 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.

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, including statements on the development and potential of the Company's IL-13 Superkines, the potential of MDN11 to demonstrate its positive attributes by further bolstering its efficacy and the expectation that current cash on hand will be sufficient to fund operations through key milestones in the ABILITY study and through calendar Q3 2024. 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 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 and in 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. 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.

Further Information

For further information about the Company, please contact:

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