Medicenna Provides Clinical Update from Monotherapy Dose Escalation Portion of Phase 1/2 ABILITY Study

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- Additional evidence of durable anti-cancer activity with MDNA11 monotherapy seen in latest radiographic scans from first four dose escalation cohorts

- Continued tumor reduction and complete regression of one of three metastatic lesions in fourth-line pancreatic cancer patient with confirmed partial response

- Stable disease maintained for more than 70 weeks in patient with metastatic melanoma

- MDNA11 continues to selectively and dose-dependently stimulate anti-cancer immune cells through ABILITY's fifth dose escalation cohort

TORONTO and HOUSTON, March 30, 2023 (GLOBE NEWSWIRE) -- Medicenna Therapeutics Corp. ("Medicenna" or "the Company") (NASDAQ: MDNA TSX: MDNA), a clinical stage immunotherapy company, today announced updated data from its Phase 1/2 ABILITY study of MDNA11, 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. These data include the most recent anti-tumor activity data from the trial's first four dose escalation cohorts and initial pharmacokinetic/pharmacodynamic (PK/PD) data from the fifth dose escalation cohort.

"MDNA11 continues to demonstrate prolonged and persistent single-agent activity in heavily pre-treated, end-stage cancer patients, while preserving the desired PK/PD and safety profiles that may contribute to its best-in-class potential," said Fahar Merchant, Ph.D., President and CEO of Medicenna. "In the metastatic pancreatic cancer patient who had previously achieved a confirmed partial response, tumor reduction of both target lesions continued. We also observed complete regression of the non-target lesion. Furthermore, a patient with metastatic melanoma maintained stable disease for more than 70 weeks. Finally, PK/PD data indicate that MDNA11's ability to selectively stimulate an anti-cancer immune response may be enhanced at higher doses with improved drug exposure."

"Collectively, these findings fuel our enthusiasm as we look forward to upcoming readouts from ABILITY's Phase 2 expansion cohorts, which will evaluate an optimal dose in less advanced cancer and in patients with tumor types that are most likely to benefit from MDNA11."

Initial PD data from ABILITY's fifth dose escalation cohort, reported today, were consistent with the encouraging findings from the first four cohorts. MDNA11 continued to exhibit prolonged, selective, and dose-dependent effects on anti-cancer immunity. Results showed MDNA11 stimulating the proliferation and activation of anti-cancer CD8+ T cells but not regulatory T cells (Tregs), which are associated with pro-tumor immune pathways. The data also showed post-treatment expansion of anti-cancer NK cells but not eosinophils, which are associated with vascular leak syndrome (a known side effect of the only approved IL-2 therapy). Moreover, new PK data showed dose-dependent increases in exposure that were sustained with repeat dosing, suggesting there is no clinically meaningful anti-drug antibody response to MDNA11. Taken together, these results suggest MDNA11's ability to further boost immune activity may be enhanced at higher doses.

As previously reported, tumor control was achieved in five of fourteen evaluable participants in ABILITY's first four (low and mid) dose escalation cohorts. Participants in these cohorts failed up to four lines of systemic therapy prior to enrolling in the trial, including eleven (79%) who relapsed on, could not tolerate, or did not respond to at least one prior immunotherapy with a checkpoint inhibitor. Three participants were on-study at the prior data cutoff date: a fourth-line (4L) metastatic pancreatic ductal adenocarcinoma (PDAC) patient with a confirmed partial response (PR); a 3L metastatic melanoma patient with stable disease (SD); and a 3L non-clear cell renal cell carcinoma patient with SD. Updated anti-tumor activity data on these participants are described below and incorporated into swimmer and waterfall plots in Medicenna's investor presentation.

Participant with 4L metastatic PDAC

- Maintained confirmed PR, with both target lesions shrinking by a total of 59% at week 46 from 37% at week 23, relative to baseline.
- Achieved complete regression of the non-target metastatic lesion.

Participant with 3L metastatic melanoma

- Maintained SD at week 70 scan and has escalated to a 90 µg/kg dose of MDNA11 (SD first achieved at 10 µg/kg; participant was on a 60 µg/kg dose at the most recent scan).

Participant with 3L non-clear cell renal cell carcinoma

- Week 23 scan showed progressive disease demonstrating a meaningful period of stable disease prior to progression.

Dosing is currently underway in the sixth dose escalation cohort of the ABILITY study. No dose-limiting toxicities, dose interruptions, dose de-escalations, or treatment discontinuations due to safety issues have been observed to-date. Participants in Cohort 6 receive 30, 60, and 90 µg/kg "priming" doses of MDNA11 followed by a further step-up to a fixed 120 µg/kg dose. MDNA11 is dosed intravenously every two weeks in ABILITY.

Medicenna expects to report initial anti-tumor activity data from ABILITY's fifth dose escalation cohort at a medical meeting in the second quarter of

2023. Early anti-tumor activity data from ABILITY's sixth dose escalation cohort and Phase 2 single-agent expansion portion are expected in the third quarter of 2023. Early anti-tumor activity data from ABILITY's combination arm evaluating MDNA11 plus pembrolizumab are expected in the fourth quarter of 2023.

About the Phase 1/2 ABILITY Study

The ABILITY (**A** **B**eta-only **IL**-2 **I**mmuno**T**herap**Y**) study is designed to assess the safety, pharmacokinetics, pharmacodynamics, and anti-tumor activity of various doses of intravenously administered MDNA11 in patients with advanced, relapsed, or refractory solid tumors. The trial includes an MDNA11 monotherapy arm, as well as a combination arm designed to evaluate MDNA11 with KEYTRUDA® (pembrolizumab). Approximately 104 patients are expected to be enrolled into the ABILITY Study. Following establishment of the recommended Phase 2 dose (RP2D) and optimal treatment schedule in the study's dose escalation phase, Medicenna plans to conduct a dose expansion phase that will enroll patients with melanoma and other solid tumors in monotherapy and combination settings. For more information, see ClinicalTrials.gov Identifier: NCT05086692.

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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, (**Bi**functional **S**uper**K**ine **I**mmuno**T**herapies) 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 clinical development and potential of MDNA11 and the report of additional data that are not historical facts. 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 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. 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

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