Medicenna Presents Updated Results of Single Agent MDNA11 Anti-tumor Activity from Dose Escalation and Ongoing Dose Expansion of the Phase 1/2 ABILITY-1 Study at the 2024 Annual Meeting of the American Association for Cancer Research (AACR)

April 9, 2024

100% reduction of target lesions in one melanoma and one pancreatic cancer patient observed among 4 Partial Responses (PR) to date which include 2 of 4 evaluable dose expansion patients and 2 of 2 MSI-H patients

Durable stable disease (SD) in 3 melanoma patients for 6 to 18 months with concomitant tumor shrinkage

With response rate and clinical benefit rate increasing to 29% and 50% (4 PR, 3 SD), respectively, MDNA11 continues to demonstrate compelling single-agent activity in the ABILITY-1 study amongst high-dose phase-2 eligible patients (N=14) who have failed checkpoint inhibitor therapies

MDNA11 is generally well tolerated with no dose-limiting toxicities or vascular leak syndrome reported in any of the dose escalation cohorts

Medicenna believes that these data reaffirm the differentiated and promising therapeutic activity, safety, PD and PK profile of MDNA11 in patients with advanced solid tumors who have failed multiple prior lines of therapies

TORONTO and HOUSTON, April 09, 2024 (GLOBE NEWSWIRE) -- Medicenna Therapeutics Corp. ("Medicenna" or the "Company") (TSX: MDNA), a clinical-stage immunotherapy company focused on the development of Superkines, presented updated clinical results from the monotherapy dose escalation and ongoing expansion portions of the Phase 1/2 ABILITY-1 (**A B**eta-only **IL**-2 **I**mmuno**T**herap**Y**) study evaluating MDNA11, a long-acting 'beta-enhanced not-alpha' interleukin-2 (IL-2) super-agonist, in patients with advanced solid tumors, at the 2024 Annual Meeting of the American Association for Cancer Research (AACR) held in San Diego, CA, on April 9th, 2024.

"Although early, we have been impressed with MDNA11's single agent activity demonstrating a response rate of 29% and clinical benefit rate of 50% in patients with advanced solid tumors who have all failed prior immunotherapies," said Fahar Merchant, Ph.D., President and Chief Executive Officer of Medicenna. "We are very encouraged by a new partial response in a 85 year-old MSI-High patient with small bowel cancer and are particularly pleased with 100% reduction of all baseline target lesions in two of the four partial responders which includes a pancreatic cancer and a melanoma patient. MDNA11 continues to demonstrate its best-in-class potential. To further expedite the study, new sites in the US and Korea have started enrolment in the ongoing monotherapy expansion and combination escalation arms of the ABILITY-1 study as we look forward to reporting additional data at a medical conference in the first half of 2024."

Key findings from the monotherapy dose escalation and ongoing expansion portions of the ABILITY-1 study at the time of data cut-off (i.e. March 22, 2024) include:

Acceptable safety profile: No dose limiting toxicity (DLT) reported and no evidence of vascular leak syndrome (VLS). The vast majority (95%) of treatment-related adverse events (TRAEs) were of grade 1-2 and resolved within 48 hours; grade 3 TRAEs mainly constituted asymptomatic transient LFT elevations; no grade 4 or 5 events were reported.

Encouraging single-agent anti-tumor activity at doses of ≥ 60 µg/kg in phase 2 eligible patients (N=14) who were all resistant to immune checkpoint inhibitors:

- **Partial response reported for four patients with aggressive tumor types who had progressed on prior checkpoint inhibitors**:
    - **A pancreatic ductal adenocarcinoma (MSI-H) patient** with primary resistance to pembrolizumab who was treated with MDNA11 (60 µg/kg) showed 100% resolution of all baseline lesions at week 66. A new lymph node lesion developed during a 8-week MDNA11 treatment break (vacation) was treated with a single course of radiotherapy prior to resumption of MDNA11. All baseline lesions remained completely resolved and the new lymph node lesion was <10 mm (considered physiological per RECIST v1.1), and MDNA11 treatment ended at week 90 while follow-up continues.
    - **A patient with cutaneous melanoma** progressed on dual checkpoint inhibitors, was treated with MDNA11 (90 µg/kg), and showed 100% resolution of the target lesion at weeks 28 and 36 with continuing reduction of the non-target lesions. Patient remains on MDNA11 treatment.
    - **A second checkpoint-resistant cutaneous melanoma patient (nivolumab & rechallenge)** showed partial response on MDNA11 (90 µg/kg) with a 31.25% reduction of target lesion at week 12 following pseudo-progression at week 8. A new lymph node lesion developed at week 16 while baseline target and non-target lesions remained stable or decreased. Patient remains on MDNA11 treatment.
    - **An 85-year-old small bowel cancer (MSI-H) patient with secondary resistance to pembrolizumab** showed partial response on MDNA11 (90 µg/kg) at week 20 with 37% reduction in target lesions. Patient remains on MDNA11 treatment.

- **Durable stable disease (SD) for ≥ 24 weeks with shrinkage of target lesions observed in three metastatic melanoma patients:**

    - Two patients (acral and cutaneous) with SD for >24 weeks on MDNA11 (120 µg/kg).
    - A third patient (cutaneous) with SD for > 1.5 years started on MDNA11 at 10 µg/kg dose and was subsequently dose escalated to 30, 60 and 90 µg/kg.

MDNA11 continues to exhibit potent effector immune profile with sustained peripheral expansion of cytotoxic $CD4^+$ T, $CD8^+$ T and NK cells with minimal impact on immunosuppressive Tregs. CD8/Treg ratio and activation markers ($CD25^+$ and $OX40^+$) showed peak increase in $CD8^+$ T cells at the Recommended Dose for Expansion (RDE, 90 µg/kg Q2W IV). OX40 on Tregs also peaked at the RDE but in contrast to $CD8^+$ T cells, it leads to impairment of their immune suppressive function.

Monotherapy expansion is continuing to enroll patients with metastatic melanoma, non-melanoma skin cancers (cSCC, MCC, and BCC) and MSI-H/dMMR tumors. Combination dose escalation has also commenced.

A copy of the poster and a related slide deck have been posted to the "Scientific Presentations" page of Medicenna's website.

About MDNA11

MDNA11 is a long-acting 'beta-enhanced not-alpha' interleukin-2 (IL-2) Superkine specifically engineered to overcome the shortcomings of aldesleukin and other next generation IL-2 variants by preferentially activating immune effector cells ($CD4^+$ T, $CD8^+$ T and NK cells) responsible for killing cancer cells, with minimal or no stimulation of immunosuppressive Tregs. These unique proprietary features of the IL-2 Superkine have been achieved by incorporating seven specific mutations and genetically fusing it to a recombinant human albumin scaffold to improve the pharmacokinetic (PK) profile and pharmacological activity of MDNA11 due to albumin's natural propensity to accumulate in highly vascularized sites, in particular tumor and tumor draining lymph nodes. MDNA11 is currently being evaluated in the Phase 1/2 ABILITY-1 study as both a monotherapy and in combination with pembrolizumab (Keytruda®).

About Medicenna

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, and follow us on Twitter and LinkedIn.

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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 the Company's cash runway, preclinical and clinical development activities and the potential benefits of its Superkine platform, clinical trial designs and results, clinical performance, potential, expectations and beliefs around safety profiles and upcoming milestones and data reporting, including with respect to MDNA11, the ABILITY study and its expansion, bizaxofusp (MDNA55), MDNA113 and MDNA223. 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 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. Forward-looking statements are based on a number of assumptions believed by the Company to be reasonable at the date of this news release. Although the Company believes that the expectations reflected in such forward-looking statements are reasonable, there can be no assurance that such statements will prove to be accurate. These statements are subject to certain risks and uncertainties and may be based on assumptions that could cause actual results and future events to differ materially from those anticipated or implied 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.

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 or implied in forward-looking statements. 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.

This news release contains hyperlinks to information that is not deemed to be incorporated by reference in this news release.

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