Medicenna Reports MDNA11's Compelling Anti-Cancer Activity is Associated with Significant Expansion of 'Stem-Like' Cancer Fighting Immune Cells at the Inaugural AACR-Immuno-Oncology Conference and Provides ABILITY-1 Study Update

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MDNA11 significantly expands a unique population of 'stem-like' CD8+ T cells that leads to more persistent and effective anti-tumor activity

MDNA11 has shown durable single agent activity, with a 30% (3 of 10) objective response rate (ORR) in the monotherapy dose expansion cohort in checkpoint-resistant patients (as of Dec. 5, 2024)

Disease control rate (DCR) of 78% (7 of 9) in combination with Merck's (known as MSD outside of Canada and the US) anti-PD-1 therapy, KEYTRUDA® (pembrolizumab), includes one complete response, one partial response and five stable disease (as of Dec. 5, 2024)

Safety Review Committee cleared the 120 µg/kg MDNA11 every two weeks in combination with KEYTRUDA® as no dose-limiting toxicities (DLTs) have been observed to date

To improve patient convenience, dosing of 120 µg/kg MDNA11 every three weeks as a monotherapy or in combination with KEYTRUDA® is currently in progress

Additional tumor types to be evaluated as part of ABILITY-1 Study in monotherapy and combination dose expansion cohorts with combination dose expansion expected to initiate mid 2025

Updated safety and efficacy results of MDNA11 as a monotherapy and in combination with KEYTRUDA® are to be presented at medical conferences in H1 2025

TORONTO and HOUSTON, Feb. 25, 2025 (GLOBE NEWSWIRE) -- Medicenna Therapeutics Corp. ("Medicenna" or the "Company") (TSX: MDNA, OTCQX: MDNAF), a clinical-stage immunotherapy company focused on the development of Superkines, today announced the presentation of new clinical data from its ongoing ABILITY-1 study evaluating MDNA11 alone or in combination with Merck's (known as MSD outside of the US and Canada) anti-PD-1 therapy, KEYTRUDA® (pembrolizumab), in patients with advanced solid tumors. The data was presented in a late-breaking abstract at the inaugural American Association for Cancer Research Immuno-Oncology Conference (AACR-IO), taking place in Los Angeles, California, from February 23-26, 2025.

Cancer often leaves the immune system in a state of exhaustion, where its frontline defenders – $CD8^+$ T cells – lose their ability to function effectively. Checkpoint inhibitors, such as anti-PD-1, have been shown to reinvigorate exhausted T cells and improve the outcome in patients with cancer. Unfortunately, only a fraction of the patients with cancer respond to PD-1 blockade, thus prompting a vigorous search for other pathways that can improve the efficacy of immunotherapies. A rare type of immune cells, called stem-like $CD8^+$ T cells, holds the key to maintaining powerful, long-term immune responses. Stem-like T cells have the remarkable ability to resist burnout, have the ability to renew themselves, to proliferate, and remain in battle mode until all tumor cells are eliminated.

"To the best of our knowledge these are the first reported human clinical data to demonstrate the ability of any type of IL-2 to dramatically boost the population of stem-like T cells that subsequently result in durable tumor control," said Dr Fahar Merchant, President and CEO of Medicenna. "Stem-like T cells are like the 'superheroes' of the immune system. They can renew themselves, multiply, and keep fighting cancer over time. What's exciting about these pharmacodynamic data is that they provide us with a potential roadmap for how we might further reinvigorate the immune system with MDNA11 to leverage stem-like T cells, the immune system's secret power, to improve health outcomes for people living with cancer, further demonstrating MDNA11's best-in-class potential."

Dr. Arash Yavari, Director of Clinical Strategy at Medicenna, added, "The combination of MDNA11 with KEYTRUDA® in ABILITY-1 has shown consistent pharmacokinetic and pharmacodynamic profiles with repeated dosing. Combined with preliminary evidence of clinical activity in less immunologically responsive tumor types observed to date during combination dose escalation, these findings highlight the potential of MDNA11 to enhance both the efficacy and scope of immune checkpoint inhibition. We have also announced the addition of several new tumor types in the ABILITY-1 trial. We are confident about the potential of the combination of MDNA11 with KEYTRUDA® to improve outcomes for patients with a range of difficult-to-treat cancers."

Key Highlights from the Presentation:

Pharmacokinetics

- MDNA11 exhibits consistent PK profiles with repeat administration as both single agent and when combined with KEYTRUDA®.

Pharmacodynamics

- MDNA11 associated with dose-dependent expansion of $CD8^+$ T and NK cells which is sustained over repeat dose cycles as both single agent and when combined with KEYTRUDA®.

- **Significant expansion of activated effector CD8$^+$ T cells, effector memory T cells and central memory T cells with MDNA11**, key immune cell subsets associated with durable anti-tumor response.
- **MDNA11 promotes the expansion of a unique subset of cancer fighting CD8$^+$ T Cells with stem-like properties:** MDNA11 significantly expands a unique progenitor population of stem-like TCF1$^+$ CD8$^+$ T cells, which possess remarkable self-renewal capabilities and have the ability to differentiate into potent effector cells upon encountering tumor antigen to promote sustained anti-tumor immune responses. These cells are regarded as critical for maintaining long-lasting anti-tumor immunity and have been positively linked to immunotherapy responses such as immune checkpoint blockade.
- **Greater expansion of stem-like CD8$^+$ T cells was significantly associated with clinical responses to MDNA11** (pooled monotherapy and combination therapy data).

Other ABILITY-1 Study Updates:

- Additional tumor types to be evaluated as part of MDNA11 monotherapy and KEYTRUDA® combination dose expansion cohorts: MSI-H/dMMR, TMB-H, cutaneous melanoma, virally associated tumors (monotherapy portion only), and gynecological tumors (combination portion only).
- Completion of monotherapy expansion and combination dose escalation enrollment anticipated mid calendar 2025.
- Combination dose expansion expected to initiate mid calendar 2025.

A copy of the presentation has been posted on the "Scientific Presentations" page of Medicenna's website.

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. MDNA11 is being evaluated in the Phase 1/2 ABILITY-1 Study (NCT05086692) as monotherapy and in combination with KEYTRUDA®. 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 high-affinity IL-2β biased IL-2/IL-15 Super-antagonists, from its MDNA209 platform, are being evaluated as potential therapies for autoimmune and graft-versus host diseases. 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 medicenna.com, and follow us on Twitter and LinkedIn.

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

Forward-Looking Statements

This news release may contain 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 therapeutic treatment potential and safety profile of MDNA11 (both as monotherapy and in combination with KEYTRUDA®), expected future milestones, strategic outlook and the timing and/or release of any additional clinical updates. 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. 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 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. 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 new release.

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