

Medicenna Establishes At-the-Market Sales Facility

TORONTO and HOUSTON, Dec. 30, 2020 -- Medicenna Therapeutics Corp. ("Medicenna" or the "Company") (NASDAQ: MDNA, TSX: MDNA), a clinical stage immuno-oncology company, announced today that it has entered into a sales agreement with SVB Leerink acting as sales agent (the "Sales Agreement"), pursuant to which the Company may, from time to time sell, through "at-the-market" offerings on the Nasdaq Capital Market (the "Nasdaq") such number of common shares as would have an aggregate offering price of up to US\$25 million (the "ATM Offering") under the ATM Prospectus Supplement (as defined below).

SVB Leerink, at Medicenna's discretion and instruction, will use its commercially reasonable efforts to sell the common shares at prevailing market prices from time to time. No offers or sales of common shares will be made in Canada or through the facilities of the Toronto Stock Exchange (the "TSX"). The ATM Offering will be made by way of a prospectus supplement (the "ATM Prospectus Supplement") to the Company's Canadian final base shelf prospectus, as amended, and the Company's United States final base shelf prospectus which is contained in the Company's U.S. registration statement on Form F-10 (File No. 333-238905), dated July 28, 2020 and declared effective by the United States Securities and Exchange Commission (the "SEC") on July 30, 2020.

The ATM Prospectus Supplement has been filed in Canada with the Ontario Securities Commission, as principal regulator, the British Columbia Securities Commission and the Alberta Securities Commission and in the United States with the SEC. The TSX has conditionally approved the ATM Offering and the Nasdaq has been notified of the ATM Offering.

The Company plans to use the net proceeds of the ATM Offering, if any, for general corporate purposes including, but not limited, to working capital expenditures, research and development expenditures, and clinical trial expenditures.

The ATM Offering will terminate upon the earlier of (a) the sale of US\$25 million of common shares subject to the Sales Agreement, (b) the termination of the Sales Agreement by SVB Leerink or the Company, as permitted therein, or (c) August 28, 2022.

Copies of the ATM Prospectus Supplement will be available upon request by contacting SVB Leerink LLC, Attention: Syndicate Department, One Federal Street, 37th Floor, Boston, MA 02110, by telephone at 1-800-808-7525, ext. 6132, or by email at syndicate@sbvleerink.com. The ATM Prospectus Supplement (together with the related base shelf prospectus) is also available on the SEC's website (www.sec.gov). Before you invest, you should read the ATM Prospectus Supplement and the related base shelf prospectus and other documents that the Company has filed with the SEC for more complete information about the Company, the sales agreement and the ATM Offering.

This press release shall not constitute an offer to sell or a solicitation of an offer to buy, nor shall there be any sale of these common shares in any jurisdiction in which an offer, solicitation or sale would be unlawful prior to registration or qualifications under the securities laws of any such jurisdiction.

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 for the treatment of a broad range of cancers. Medicenna's long-acting IL2 Superkine asset, MDNA11, is a next-generation IL-2 with superior CD122 binding without CD25 affinity and therefore preferentially stimulates cancer killing effector T cells and NK cells when compared to competing IL-2 programs. Medicenna's lead IL4 Empowered Superkine, MDNA55, has completed a Phase 2b clinical trial for rGBM, the most common and uniformly fatal form of brain cancer. MDNA55 has been studied in five clinical trials involving 132 subjects, including 112 adults with rGBM. MDNA55 has obtained Fast-Track and Orphan Drug status from the FDA and FDA/EMA, respectively.

Forward-Looking Statement

This news release contains forward-looking statements under applicable securities laws and relate to the future operations of the Company and other statements that are not historical facts. Forward-looking statements are often identified by terms such as "will", "may", "plans", and similar expressions. All statements other than statements of historical fact, included in this release, including the statements regarding the possible sales of common shares, the anticipated use of proceeds from the sale of common shares and the future plans and objectives of the Company are forward-looking statements that involve 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, but are not limited to, the Company's ability to successfully sell common shares under the ATM Offering, the Company's ability to access capital generally, the Company's ability to develop candidates through the successful and timely completion of preclinical assays, studies and clinical trials, the receipt of all regulatory approvals by the Company to commence and then continue clinical studies and trials, and other risks detailed in the ATM Prospectus Supplement and documents incorporated by reference therein. 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 at the time of preparation, 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 of this news release and the Company will update or revise publicly any of the

included forward-looking statements only as expressly required by Canadian and United States securities laws.

Further Information

For further information about the Company please contact:

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Investor Contact

For more investor information, please contact:

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