October 26, 2016

Matinas BioPharma Presents Preclinical Data of Orally Administered Encochleated Influenza Vaccine in Murine Model at IDWeek 2016

Encochleated influenza vaccine demonstrates that oral or intranasal administration enhances systemic and mucosal, antibody and cell mediated responses

BEDMINSTER, N.J., Oct. 26, 2016 (GLOBE NEWSWIRE) -- Matinas BioPharma Holdings, Inc. (OTCQB:MTNB), a clinical-stage biopharmaceutical company focused on identifying and developing safe and effective broad spectrum therapeutics for the treatment of serious and life-threatening infections, announced the presentation of positive preclinical data demonstrating its cochleate lipid-crystal nano-particle drug delivery technology significantly enhances the immune response of intranasally or orally administered influenza vaccine in murine models of influenza and provides a high level of protection from viral infection.

Influenza is a contagious respiratory illness caused by influenza viruses, which can cause mild to severe illness. Severe cases of influenza can result in hospitalization or death. Traditional vaccines for influenza are made to protect against three flu viruses; an influenza A (H1N1) virus, an influenza A (H3N2) virus and an influenza B virus. These influenza vaccines cause antibodies to develop in the body about two weeks after vaccination and provide protection against infection with viruses that are represented in the vaccine.

Raphael Mannino, Ph.D., Senior Vice President and Chief Scientific Officer of Matinas, will present the poster entitled, *"Formulation of Orally and Intranasally Administered Influenza Vaccine in Cochleate Lipid-Crystal Nano-Particles Significantly Enhances Immune Response in Murine Models of Influenza"* on October 27 at IDWeek 2016 in New Orleans.

"The encochleated formulation of the influenza vaccine demonstrated the advantages of Matinas' less invasive administration options and increased delivery efficiency of our proprietary cochleate lipid-crystal nano-particle technology," stated Roelof Rongen, CEO of Matinas Biopharma. "The data in this study show that the encochleated vaccine provided significant antibody responses with associated viral protection at lower doses. Importantly, these data not only showcase the broad utility of our proprietary technology platform but provide further evidence of the efficiency of our cochleate lipid-crystal nano-particle technology."

Oral or intranasal administration of encochleated influenza vaccine demonstrated stimulation of systemic and mucosal, antibody and cell mediated responses, for which future studies are

warranted, the study concluded. Antibody responses were favorable and trended towards higher efficiency and provided a high level of protection from viral infection. Investigators observed full lung protection at doses of 12.5μg and higher and with 22 out of 25 mice receiving 6μg or higher having no virus present in the trachea. The data confirmed the dose efficiency of the cochleate nano-particle formulation with neutralizing antibody titers more than 10x higher than unformulated influenza vaccine at each dose level.

The influenza vaccine is currently administered intramuscularly, intradermally or intranasally. The influenza vaccine used in this study was prepared by incorporating extracted influenza virion hemagglutinin antigen (HA) and neuraminidase antigen (NA) protein into Matinas BioPharma's proprietary cochleate lipid-crystal nano-particle delivery technology.

This preclinical research was led by Dr. Mannino and Ruying Lu of Matinas BioPharma.

About IDWeek™ 2016

IDWeek 2016 is an annual meeting of Infectious Diseases Society of America (IDSA), the Society for the Healthcare Epidemiology of America (SHEA), the HIV Medicine Association (HIVMA) and the Pediatric Infectious Diseases Society (PIDS). With the theme "Advancing Sciences, Improving Care," IDWeek features the latest science and bench-to-bedside approaches in prevention, diagnosis, treatment, and epidemiology of infectious diseases, including HIV, across the lifespan. IDWeek 2016 takes place October 26-30 at the New Orleans Ernest N. Morial Convention Center, in New Orleans, Louisiana. For more information, visit www.idweek.org.

About Matinas BioPharma

Matinas BioPharma is a clinical-stage biopharmaceutical company focused on identifying and developing safe and effective broad spectrum therapeutics for the treatment of serious and life-threatening infections. The Company's proprietary, disruptive technology utilizes lipid-crystal nano-particle cochleates to nano-encapsulate existing drugs, making them safer, more tolerable, less toxic and orally bioavailable. The Company's lead drug candidate is MAT2203, an orally-administered, encochleated formulation of amphotericin B (a broad spectrum fungicidal agent). The Company has an open Investigational New Drug (IND) application for MAT2501, which is an orally-administered, encochleated formulation of amikacin (a broad spectrum aminoglycoside antibiotic agent) for acute bacterial infections, including non-tuberculous mycobacterium (NTM) and multi-drug resistant gram negative bacterial infections.

The Company's lead anti-infective product candidates, MAT2203 and MAT2501, position Matinas BioPharma to become a leader in the safe and effective delivery of anti-infective therapies utilizing its proprietary lipid-crystal nano-particle cochleate formulation technology. For more information, please visit www.matinasbiopharma.com and connect with the Company on Twitter, LinkedIn, Facebook, and Google+.

Forward Looking Statements: *This release contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, including those relating to the Company's strategic focus and the future development of its product candidates, including MAT2203 and MAT2501, the anticipated timing of regulatory submissions, the anticipated timing of clinical studies, the Company's ability to identify and pursue*

development and partnership opportunities for its products or platform delivery technology on favorable terms, if at all, and the ability to obtain required regulatory approval and other statements that are predictive in nature, that depend upon or refer to future events or conditions. All statements other than statements of historical fact are statements that could be forward-looking statements. Forward-looking statements include words such as "expects," "anticipates," "intends," "plans," "could," "believes," "estimates" and similar expressions. These statements involve known and unknown risks, uncertainties and other factors which may cause actual results to be materially different from any future results expressed or implied by the forward-looking statements. Forward-looking statements are subject to a number of risks and uncertainties, including, but not limited to, our ability to obtain additional capital to meet our liquidity needs on acceptable terms, or at all, including the additional capital which will be necessary to complete the clinical trials of our product candidates; our ability to successfully complete research and further development and commercialization of our product candidates; the uncertainties inherent in clinical testing; the timing, cost and uncertainty of obtaining regulatory approvals; our ability to maintain and derive benefit from the Qualified Infectious Disease Product (QIDP), Orphan and/or Fast Track designations for MAT2203 and MAT2501, which does not change the standards for regulatory approval or guarantee regulatory approval on an expedited basis, or at all; our ability to protect the Company's intellectual property; the loss of any executive officers or key personnel or consultants; competition; changes in the regulatory landscape or the imposition of regulations that affect the Company's products; and the other factors listed under "Risk Factors" in our filings with the SEC, including Forms 10-K, 10-Q and 8-K. Investors are cautioned not to place undue reliance on such forward-looking statements, which speak only as of the date of this release. Except as may be required by law, the Company does not undertake any obligation to release publicly any revisions to such forward-looking statements to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events. Matinas BioPharma's product candidates are all in a development stage and are not available for sale or use.

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Source: Matinas BioPharma Holdings, Inc.