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In Vivo Efficacy of Matinas BioPharma's Oral MAT2203 in Pulmonary Mucormycosis Published in Journal of Antimicrobial Agents and Chemotherapy

Studies in neutropenic mouse model demonstrate prolonged and enhanced survival, reduced fungal burden and improvement in lung infection

BEDMINSTER, N.J., April 30, 2024 (GLOBE NEWSWIRE) -- [Matinas BioPharma](#) Holdings, Inc. (NYSE American: MTNB), a clinical-stage biopharmaceutical company focused on delivering groundbreaking therapies using its lipid nanocrystal (LNC) platform delivery technology, announces that MAT2203, its oral formulation of the potent antifungal amphotericin B, demonstrated efficacy compared with placebo in treating the pulmonary mucormycosis fungal infections *Rhizopus delemar* and *M. circinelloides f. jenssenii* in immunosuppressed mice. Efficacy was demonstrated by prolonged median survival time, enhanced overall survival, reduced tissue fungal burden of target organs and improved histological architecture of infected lungs. In addition, MAT2203 activity appeared to be similar to IV-amphotericin B in survival studies in the *M. circinelloides f. jenssenii* mouse model.

The study results are reported in the manuscript "Efficacy of an oral lipid nanocrystal (LNC) formulation of amphotericin B (MAT2203) in the neutropenic mouse model of pulmonary mucormycosis" (Gu, et al.) published in the peer-reviewed *Journal of Antimicrobial Agents and Chemotherapy* (<https://journals.asm.org/doi/10.1128/aac.01540-23>). The manuscript is available on the Matinas website [here](#).

"The promising outcomes of MAT2203 in these studies represent a significant step towards a less invasive and safer treatment approach to combating invasive mucormycosis, since unlike liposomal amphotericin B (LAMB) which is given intravenously, MAT2203 is administered orally and can be administered long-term without any of the significant toxicities associated with LAMB treatment," said lead manuscript author Ashraf Ibrahim, PhD at the Lundquist Institute for Biomedical Innovation at Harbor-UCLA Medical Center. "It's a testament to the potential of innovative drug delivery systems like lipid nanocrystals in transforming how we treat infectious diseases."

"Mucormycosis is frequently a life-threatening infection. A review of published mucormycosis cases found an overall all-cause mortality rate of 54%. The drugs currently used to treat mucormycosis are delivered intravenously and can be toxic. MAT2203, our oral formulation of amphotericin B, has been shown to effectively and safely deliver this potent antifungal in

mucormycosis and a variety of other potentially deadly invasive fungal infection through our Compassionate/Expanded Use Access Program (Program). Early results through our Program and promising *in vivo* studies in difficult-to-treat mucormycosis infections continue to strengthen our confidence in MAT2203's potential efficacy and safety in treating a variety of invasive fungal infections," commented [Dr. Theresa Matkovits, Chief Development Officer at Matinas](#). "These results also further support the anticipated positive clinical data from our Phase 3 ORALTO registration trial evaluating the efficacy and safety of MAT2203 as an early oral step-down therapy to IV-amphotericin B in severely ill patients with invasive aspergillosis who have limited treatment options."

About MAT2203

Matinas BioPharma is developing MAT2203 as a potential oral broad-spectrum treatment for invasive deadly fungal infections. Although amphotericin B is a fungicidal agent, it is currently only available through an intravenous route of administration, which is known to be associated with several significant safety issues such as renal toxicity and anemia due to very high circulating levels of amphotericin B. MAT2203 has the potential to overcome the significant limitations of the currently available amphotericin B products due to its targeted oral delivery. Combining comparable fungicidal activity with targeted delivery results in a lower risk of toxicity and potentially creates the ideal antifungal agent for the treatment of invasive fungal infections. MAT2203 was successfully evaluated in the completed Phase 2 EnACT study in HIV patients suffering from cryptococcal meningitis, meeting its primary endpoint, and achieving robust survival. MAT2203 will be further evaluated in a single Phase 3 registration trial (the "ORALTO" trial) as an oral step-down monotherapy following treatment with AmBisome® (liposomal amphotericin B) compared with the standard of care in patients with invasive aspergillosis who have limited treatment options.

About Matinas BioPharma

Matinas BioPharma is a biopharmaceutical company focused on delivering groundbreaking therapies using its lipid nanocrystal (LNC) platform delivery technology.

In addition to MAT2203, preclinical and clinical data have demonstrated that this novel technology can potentially provide solutions to many challenges of achieving safe and effective intracellular delivery of both small molecules and larger, more complex molecular cargos including small oligonucleotides such as ASOs and siRNA. The combination of its unique mechanism of action and flexibility with routes of administration (including oral) positions Matinas' LNC technology to potentially become a preferred next-generation orally available intracellular drug delivery platform. For more information, please visit www.matinasbiopharma.com.

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 our business activities, our strategy and plans, the future development of its product candidates, including MAT2203, the Company's ability to identify and pursue development, licensing and partnership opportunities for its products, including MAT2203, 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 continue as a going concern, 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 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.

Investor Contact

LHA Investor Relations

Jody Cain

Jcain@lhai.com

310-691-7100



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