September 20, 2021

Matinas BioPharma Announces Accomplished Biotechnology Executive and Drug Developer Kathryn Penkus Corzo as Nominee to the Board of Directors

– Ms. Corzo brings a 25+ year successful track record in biopharma, excelling in oncology drug development with Takeda, Sanofi Genzyme, and Eli Lilly –

BEDMINSTER, N.J., Sept. 20, 2021 (GLOBE NEWSWIRE) -- Matinas BioPharma Holdings, Inc. (NYSE AMER: MTNB), a clinical-stage biopharmaceutical company focused on improving the intracellular delivery of critical therapeutics through its paradigm-changing lipid nanocrystal (LNC) platform delivery technology, today announced the nomination of Kathryn Penkus Corzo to stand for election to the Company's Board of Directors at its 2021 Annual Meeting of Stockholders, scheduled for November 1, 2021.

Ms. Corzo is currently partner at Takeda Ventures, Inc. and previously Head of Oncology Cell Therapy Development at Takeda Pharmaceuticals, a global, values-based, R&D-driven biopharmaceutical leader headquartered in Japan. Ms. Corzo is located at Takeda's R&D hub in Cambridge, Massachusetts.

"We are thrilled to nominate Kathryn to our Board of Directors," stated Herbert Conrad, Chairman of the Matinas BioPharma Board of Directors, and Chair of the Nominating and Governance Committee. "Kathryn is a highly-regarded biotechnology executive with an extensive record of drug development accomplishments. Her leadership roles and development successes with major pharmaceutical companies will be extremely valuable to our Company as we develop and expand the utilization of our LNC platform delivery technology."

Ms. Corzo commented, "I am honored to have been nominated to join the Matinas Board of Directors at such an exciting time for the Company. The LNC platform presents a unique and promising opportunity to transform the intracellular delivery of complex molecules and I look forward to working with the Board and the management team to optimize the value and impact of this potentially disruptive technology."

The Company also announced today that Patrick LePore will not stand for re-election to the Board of Directors at the Company's Annual Meeting of Stockholders on November 1, 2021.

"On behalf of the Board of Directors and Matinas, I would like to thank Pat LePore for his service to the Company. His leadership, expertise and insight have been invaluable in our

efforts to serve the best interests of all of Matinas' stakeholders these past three years. We wish him the absolute best in the future," stated Jerome D. Jabbour, Chief Executive Officer of Matinas.

"I am extremely grateful to Jerry and Herb, as well as the entire Board of Directors, for the opportunity to serve the Company as Vice Chairman," commented Patrick LePore. "With the recently announced positive EnACT data and several other important clinical and strategic milestones in place over the next few quarters, Matinas is extremely well-positioned for the future. Kathryn is a tremendous addition to the Board and her development expertise and scientific acumen will be instrumental in maximizing the opportunity ahead with the LNC platform."

About Kathryn Penkus Corzo

Kathryn Corzo is a biotechnology executive who has served in senior leadership roles for several leading biotechnology and pharmaceutical companies. Since February 2020, she has been the Head, Oncology Cell Therapy Development at Takeda Pharmaceuticals responsible for leading and overseeing development of Takeda's Oncology cell therapy pipeline including collaborations with academic and biotech innovation partnerships. Kathryn recently joined Takeda Ventures as a partner. Previously, Kathryn served in various leadership roles at Sanofi Genzyme (2010-2019) where she was Vice President of R&D and Global Program Head for Myeloma from June 2015 through December 2019. She is credited for steering multi-disciplinary teams advancing therapeutic candidates from early proof of concept through pivotal trials, worldwide regulatory approvals, indication expansions and product launches. She also led an initiative to establish Sanofi's U.S. R&D innovation center and digital accelerator based in Cambridge, MA. Before Sanofi, she successfully built a two-decade career at Hoffmann-La Roche, Roche Molecular Systems, Eli Lilly and Syndax taking on responsibility in R&D operations, global clinical development, medical affairs, business development, market access and brand management across multiple platforms and indications. Kathryn has worked to improve outcomes for cancer patients and played an integral role in the development of 12 innovative investigational drugs and five therapeutic products.

Kathryn holds an M.B.A. from Massachusetts Institute of Technology Sloan School of Management and a B.S. in Pharmacy from Massachusetts College of Pharmacy.

About Matinas BioPharma

Matinas BioPharma is a biopharmaceutical company focused on improving the intracellular delivery of critical therapeutics through its paradigm-changing lipid nanocrystal (LNC) delivery platform. The Company is developing its own internal portfolio of products as well as partnering with leading pharmaceutical companies to develop new formulations that take full advantage of the unique characteristics of the LNC platform.

Preclinical and clinical data have demonstrated that this novel technology can provide solutions to many of the complex challenges in achieving safe and effective intracellular delivery, for both small molecules and larger, more complex molecules, such as mRNA, DNA plasmids, antisense oligonucleotides and vaccines. The combination of a unique mechanism of action and flexibility in both the formulation and route of administration (including oral), position Matinas' LNC technology to potentially become the preferred next-

generation intracellular drug delivery vehicle and an important improvement over both lipid nanoparticles and viral vectors.

MAT2203 is an oral, LNC formulation of the highly effective, but also highly toxic, antifungal medicine amphotericin B, primarily used as a first-line treatment for invasive fungal infections. MAT2203 is currently in a Phase 2 open-label, sequential cohort study (EnACT) in HIV-infected patients with cryptococcal meningitis. EnACT has completed the first two patient cohorts and efficacy dated presented from Cohort 2 demonstrated 95% survival in 40 patients and mean Early Fungicidal Activity of 0.38, well above the prespecified primary endpoint threshold of >0.20. Enrollment in Cohort 3 has commenced following unanimous DSMB approval, with enrollment completion for Cohort 3 expected by the end of 2021.

MAT2501 is an oral, LNC formulation of the broad-spectrum aminoglycoside antibiotic amikacin, primarily used to treat chronic and acute bacterial infections. With the support of the Cystic Fibrosis Foundation, MAT2501 is currently undergoing important preclinical studies and expects to enter a Phase 1 human clinical trial later in 2021. MAT2501 would be the first and only oral aminoglycoside and is being positioned with an initial indication for the treatment of nontuberculous mycobacterial (NTM) lung disease, including infections in patients with cystic fibrosis (CF).

LYPDISO™, is a prescription-only omega-3 fatty acid-based composition, comprised primarily of EPA and DPA, intended for the treatment of cardiovascular and metabolic conditions. This next-generation omega-3 therapy has been shown in two head-to-head studies to provide effective triglyceride-lowering and significantly higher EPA blood levels than Vascepa®. The Company has initiated a process to identity and potentially secure a partner to continue development of LYPDISO.

This Press Release Does Not Constitute a Solicitation of Proxies

This press release is not a solicitation of proxies from holders of common stock of Matinas BioPharma Holdings, Inc. (the "Company"). The Company will provide stockholders with a proxy statement and other relevant materials in connection with the 2021 Annual Meeting of Stockholders. Any solicitation of proxies by or on behalf of the Company in connection with the 2021 Annual Meeting of Stockholders will be conducted upon and following the dissemination of the proxy statement and other materials in accordance with applicable law. We urge shareholders to read the proxy statement and any other relevant documents to be filed with the SEC when available, as such documents will contain important information. Shareholders will be able to receive the proxy statement and other relevant documents free of charge at the SEC's website at http://www.sec.gov.

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 potential of our LNC platform delivery technology, the election of Ms. Kathryn Penkus Corzo to the Board of Directors, the potential benefits from the potential election to the Matinas Board of Ms. Corzo, and the future development of its product candidates, including MAT2203, MAT2501, the anticipated timing of regulatory submissions, the anticipated timing of clinical studies, the anticipated timing of regulatory interactions, 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 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 and Media Contacts

Peter Vozzo
Westwicke/ICR
443-213-0505
peter.vozzo@westwicke.com

Source: Matinas BioPharma Holdings, Inc.

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