MannKind's Inhaled Clofazimine Will Advance to an Adaptive Phase 2/3 Study For Potential Treatment of Rare Lung Disease

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- *Direct delivery of clofazimine to the lungs may provide a treatment option for nontuberculous mycobacterial (NTM) lung disease that potentially overcomes systemic toxicity and lessens side effects*
- *Paper published on clofazimine inhalation suspension demonstrates promising tolerability and toxicokinetics for treating pulmonary NTM infection*

DANBURY, Conn. and WESTLAKE VILLAGE, Calif., Jan. 23, 2023 (GLOBE NEWSWIRE) -- **MannKind Corporation (Nasdaq: MNKD)**, a company focused on the development and commercialization of inhaled therapeutic products and devices for patients with endocrine and orphan lung diseases, today announced clofazimine inhalation suspension (MNKD 101) will advance to an adaptive Phase 2/3 study. Additionally, a paper has been published in the *American Society for Microbiology* journal *Antimicrobial Agents and Chemotherapy* examining the potential for treatment of nontuberculous mycobacterial (NTM) infection through direct delivery of inhaled clofazimine to the lungs, overcoming the systemic toxicity witnessed in oral treatments.

Pulmonary NTM infection is recognized as a major global health concern due to its rising prevalence worldwide. It is a serious infection that is caused by bacteria common in the environment that can lead to a reduction in lung function, cough, fatigue, and quality of life. It is estimated that approximately 86,000-180,000 people in the U.S. alone are living with NTM lung disease, and it is on the rise growing 8% each year with women, the elderly, and those with underlying lung conditions at greatest risk. MNKD-101 has been designated by the FDA as both an orphan lung and a qualified infectious disease product (QIDP) for the treatment of pulmonary NTM infections.

"NTM lung disease typically translates to prolonged oral drug treatments used off label that often result in high systemic toxicity and serious side effects," said Michael Castagna, PharmD, Chief Executive Office of MannKind Corporation. "We are encouraged by the preclinical and Phase 1 data, and how inhaled clofazimine may finally resolve these issues, and most importantly, provide patients with a potentially improved NTM therapy."

The 28-day preclinical toxicology study included toxicokinetic analyses on days 29, 56, and 84. The findings indicated:

- Significant residual drug in lung tissue, and long lung residence post-dosing at all three dose levels
- Drug concentrations in the lung remained well above the average NTM minimum inhibitory concentration (MIC, for MAC and Mabsc) at all time points, with measurable clofazimine levels at 28- and 56-days post-dosing

"We are pleased to observe that in the preclinical model, our drug concentration in the lung remained well above the average NTM MIC when dosed for 28 days followed by a 56-day drug holiday," said Thomas Hofmann, MD, PhD, Chief Scientific Officer of MannKind Corporation. "The demonstrated tolerability and lung loading capability of inhaled clofazimine has been impressive and confirmed in the Phase 1. We are now looking forward to studying this investigational formulation for efficacy and safety in an NTM patient population."

Study MKC-CI-001 was a Phase I randomized, double-blind, placebo-controlled, single- (SAD) and multiple-ascending dose (MAD) study to evaluate the safety, tolerability, and pharmacokinetics (PK) of MNKD-101. The dosing study evaluated low, mid, and high doses of clofazimine administered using a jet nebulizer. The key safety findings of the study included:

- Clofazimine inhalation solution found to be generally well tolerated at daily doses of up to 90 mg
- No lab abnormalities, QT prolongation, or serious adverse events were identified

A paper on clofazimine inhalation suspension is now available online in the *American Society for Microbiology* journal *Antimicrobial Agents and Chemotherapy*.

About MannKind
MannKind Corporation (Nasdaq: MNKD) focuses on the development and commercialization of innovative therapeutic products and devices to address serious unmet medical needs for those living with endocrine and orphan lung diseases.

We are committed to using our formulation capabilities and device engineering prowess to lessen the burden of diseases such as diabetes, pulmonary arterial hypertension (PAH) and nontuberculous mycobacterial (NTM) lung disease. Our signature technologies – dry-powder formulations and inhalation devices – offer rapid and convenient delivery of medicines to the deep lung where they can exert an effect locally or enter the systemic circulation.

With a passionate team of Mannitarians collaborating nationwide, we are on a mission to give people control of their health and the freedom to live life.

Please visit mannkindcorp.com to learn more, and follow us on LinkedIn, Facebook, Twitter or Instagram.

Forward-Looking Statements
This press release contains forward-looking statements about the implications of clinical data that involve risks and uncertainties. Words such as “believes”, “anticipates”, “plans”, “expects”, “intends”, “will”, “goal”, “potential” and similar expressions are intended to identify forward-looking statements. These forward-looking statements are based upon MannKind’s current expectations. Actual results and the timing of events could differ materially from those anticipated in such forward-looking statements as a result of various risks and uncertainties, which include, without limitation, the risk that continued testing of an investigational drug product may not yield successful results or results that are consistent with earlier testing, and other risks detailed in MannKind’s filings with the Securities and Exchange Commission, including its Annual Report on Form 10-K for the year ended December 31, 2021 and subsequent periodic reports on Form 10-Q and current reports on Form 8-K. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this press release. All forward-looking statements are qualified in their entirety by this cautionary statement, and MannKind undertakes no obligation to revise or update any forward-looking statements to reflect events or circumstances after the date of this press release.

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