Eagle Pharmaceuticals Announces First Patient Randomized in Phase 2 Study Evaluating CAL02, a Novel First-in-Class Anti-Toxin Drug Candidate, in Severe Community-Acquired Bacterial Pneumonia (SCABP)

July 24, 2023

Despite the availability of antibiotics, the death rate from pneumonia in the U.S. has seen little improvement in the past half century[1]

– CAL02 is a unique therapeutic agent that works differently from antibiotics, disarming an infectious pathogen's virulence factors to reduce damage and mitigate disease –

– CAL02 has been designed to neutralize a broad range of bacterial toxins to lessen the virulence effect on disease progression and severity –

– With its unique mechanism of action, CAL02, an adjunctive therapy to standard of care, including antibiotics, has the potential to redefine the treatment of SCABP without contributing to antibiotic resistance –

– Company believes CAL02 is a new chemical entity (NCE), which would result in five years of marketing exclusivity upon approval or three years without NCE designation –

– CAL02 received FDA Fast-Track and Qualified Infectious Disease Product (QIDP) Designations, Providing Five-Year Exclusivity Extension; total potential of eight or ten years of exclusivity –

WOODCLIFF LAKE, N.J., July 24, 2023 (GLOBE NEWSWIRE) -- Eagle Pharmaceuticals, Inc. (Nasdaq: EGRX) ("Eagle" or the "Company") today announced that the first patient has been randomized in its multi-center adaptive, randomized, double-blind, placebo-controlled Phase 2 study designed to assess the efficacy and safety of CAL02 administered intravenously in addition to standard of care in patients with severe community-acquired bacterial pneumonia (SCABP). The Phase 2 study plans to enroll approximately 276 patients with SCABP at more than 100 sites in over 20 countries worldwide. Additional details are available on ClinicalTrials.gov (Identifier: NCT05776004). The Company expects to have approximately 50 sites up and running by the end of September, with 100 sites up by year-end in readiness for the global pneumonia season. In addition, depending upon recruitment rates, Eagle anticipates having its first 50% interim report around the first quarter of 2024.

SCABP is a worldwide prevalent infectious disease associated with high morbidity and mortality, despite the availability of vaccines, effective antibiotic regimens, and state-of-the-art critical care therapy. CAL02 is a novel first-in-class broad-spectrum anti-virulence agent being developed as an add-on to standard of care treatment of SCABP. CAL02 consists of proprietary, engineered liposomes that capture and neutralize bacterial toxins known to dysregulate inflammation, cause organ damage, and impede immune defense. A Phase 1 safety and tolerability trial in SCABP patients was successfully completed, in which encouraging trends for efficacy were observed. The results were published in *The Lancet Infectious Diseases*, where accompanying comments characterized CAL02 as "One step closer to precision medicine for infectious diseases," describing the study as a "medical breakthrough."

"Owing to the complexity of severe bacterial pneumonia, patients are in need of more effective treatment options. This presents an opportunity to develop a novel adjunctive therapy for SCABP patients. While antibiotics address the bacterial infection, patient recovery is imperiled by the effects of bacterial virulence factors, which can cause immunological and inflammatory responses that may lead to organ failure, sepsis and death," stated Scott Tarriff, President and Chief Executive Officer of Eagle Pharmaceuticals. "Until now, drugs targeting virulence factors have been limited by the need to know which bug specifically caused the infection. Because CAL02 relies on mechanics common across a vast majority of virulence factors produced by the most common pathogens, we believe it could have broad utility. We believe CAL02 has the potential to elevate the standard of care for severe bacterial pneumonia, and we are delighted to be moving this clinical program forward. While we are currently focused on the U.S., we have a worldwide license, which could result in additional commercial markets for CAL02 in the future."

"Mortality rates for intensive care unit pneumonia patients remain as high as 40%[2] worldwide due to complications that can occur even when tissues are pathogen-free and the lungs are clearing. Virulence factors are increasingly considered to be a common denominator in severe, complicated, and resistant bacterial infections," stated Dr. Valentin Curt, Senior Vice President, Clinical Drug Development and Interim Chief Medical Officer for Eagle Pharmaceuticals.

"CAL02, a first-in-class, broad-spectrum, anti-virulence agent under development for the treatment of SCABP, neutralizes the most common virulence factors. It has the potential to mitigate organ damage, pro-inflammatory responses, and to facilitate killing the underlying pathogen, without contributing to antibiotic resistance. We are excited by the opportunity to build on the promising clinical results of the Phase I first-in-human study, with the goal of advancing SCABP patient care and providing critical care and infectious disease physicians with urgently needed additional treatment options."

Eagle believes that CAL02 could also be eligible for breakthrough therapy and new chemical entity (NCE) designations.

Eagle is also further developing the patent estate to protect the intellectual property resulting from the development of this novel, first-in-class therapy. CAL02 is currently protected by issued U.S. Patent No.10,744,089, which extends until September 2035, and may be eligible for Patent Term Extension for up to five years until 2040. CAL02 is also protected by granted counterparts in important markets globally, e.g., Europe and Japan. In addition, CAL02 and its uses are the subject of pending patent families as reflected in published applications WO2017216282, WO2018158375, WO2019201937, WO2019202101, US2023/0028179, US2021/0275452, US2021/0030677, US2021/0259967, and other families under development. These families would provide patent term until approximately 2037 or later.

In August 2021, Eagle entered into a worldwide licensing agreement with Combioxin SA for the commercial rights to CAL02.

About the Phase 2 CAL02 Study

A Phase 2 adaptive, randomized, double-blind, placebo-controlled study is underway, designed to assess the efficacy and safety of CAL02 administered intravenously in addition to standard of care in patients with severe community-acquired bacterial pneumonia (SCABP). The study plans to enroll approximately 276 patients with SCABP worldwide. Additional details are available on ClinicalTrials.gov (Identifier: NCT05776004).

About CAL02
CAL02 is an investigational, innovative, first-in-class anti-infective agent that acts as a competitive decoy, or lure, for bacterial virulence factors, which contribute to infection-related complications, sepsis, septic shock, and death. CAL02 consists of proprietary liposomes engineered to capture the virulence factors produced by a broad range of Gram-positive and Gram-negative bacteria causing severe infectious diseases, including severe pneumonia. CAL02 is poised to play a key role in the fight against anti-microbial resistance. Its action is complementary to that of antibiotics, and it does not appear to exert any selective pressure, which can contribute to antibiotic resistance. Because of these characteristics, CAL02 could be administered empirically in combination with standard of care as soon as patients show signs of severe pneumonia. Clinical results to date underscore the potential of CAL02 to transform the standard of care and to dramatically reduce the time and the cost of care for millions of critically ill SCABP patients. Eagle has a worldwide exclusive license on CAL02 acquired from Combioxin SA.

About Virulence Factors
Virulence is a bacteria's ability to infect a host and produce disease. Virulence factors are produced by a variety of pathogens and assist in potentiating infection, evading and suppressing the immune system, and damaging host cells, including immune cells, and organs. Blocking the activities of virulence factors is a new approach that has emerged over the last decade. Anti-virulence drugs, a new class of drugs, target virulence factors of pathogens, effectively disarming infectious pathogens.

About Eagle Pharmaceuticals, Inc.
Eagle is a fully integrated pharmaceutical company with research and development, clinical, manufacturing and commercial expertise. Eagle is committed to developing innovative medicines that result in meaningful improvements in patients' lives. Eagle's commercialized products include PEMFEXY®, RYANODEX®, BENDEKA®, BELRAPZO®, TREAKISYM® (Japan), and BYFAVO® and BARHEMSYS® through its wholly owned subsidiary Acacia Pharma Inc. Eagle's oncology and CNS/metabolic critical care pipeline includes product candidates with the potential to address underserved therapeutic areas across multiple disease states. Additional information is available on Eagle's website at www.eagleus.com.

Forward-Looking Statements
This press release contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, and other securities law. Forward-looking statements are statements that are not historical facts. Words and phrases such as "anticipated," "forward," "will," "would," "could," "may," "remain," "potential," "prepare," "expected," "believe," "plan," "near future," "belief," "guidance," and similar expressions are intended to identify forward-looking statements. These statements include, but are not limited to, statements regarding the Company's expectations for the design and timing of the planned Phase 2 study, including with respect to enrollment and site selection and the timing thereof; statements regarding the potential of CAL02 to be a medical breakthrough and offer unique or meaningful therapeutic benefits to seriously ill patients, potentially improving the treatment regimen for patients with severe community-acquired pneumonia, shortening the duration of illness and improving patient outcomes; statements regarding potential regulatory exclusivity, CAL02's potential eligibility for fast track and breakthrough therapy designations and the potential for a CAL02 new drug application for the treatment of SCABP to qualify for priority review; statements regarding the Company's expectation to strengthen the patent portfolio for CAL02; and the potential of the Company's pipeline and product candidates to address underserved therapeutic areas across multiple disease states. All of such statements are subject to certain risks and uncertainties, many of which are difficult to predict and generally beyond the Company's control, that could cause actual results to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. Such risks and uncertainties include, but are not limited to: the impacts of the ongoing COVID-19 pandemic, including interruptions or other adverse effects on clinical trials and delays in regulatory review or further disruption or delay of any pending or future litigation; delay in or failure to obtain regulatory approval of the Company's product candidates and successful compliance with FDA, European Medicines Agency and other governmental regulations applicable to product approvals; the outcome of litigation involving any of its products or that may have an impact on any of its products; the strength and enforceability of the Company's intellectual property rights or the rights of third parties; the risks inherent in drug development and in conducting clinical trials; and those risks and uncertainties identified in the "Risk Factors" sections of the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed with the Securities and Exchange Commission (the "SEC") on March 23, 2023, the Company's Quarterly Reports on Form 10-Q for the quarters ended March 31, 2023, filed with the SEC on May 9, 2023, and its other subsequent filings with the SEC. Readers are cautioned not to place undue reliance on these forward-looking statements. All forward-looking statements contained in this press release speak only as of the date on which they were made. Except to the extent required by law, the Company undertakes no obligation to update such statements to reflect events that occur or circumstances that exist after the date on which they were made.

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[1] https://www.thoracic.org/patients/patient-resources/resources/top-pneumonia-facts.pdf

[2] Laterre PF, Colin G, Dequin PF, Dugernier T, Boulain T, Azeredo da Silveira S, Lajaunias F, Perez A, François B. CAL02, a novel antitoxin liposomal agent, in severe pneumococcal pneumonia: a first-in-human, double-blind, placebo-controlled, randomised trial. Lancet Infect Dis. 2019 Jun;19(6):620-630. doi: 10.1016/S1473-3099(18)30805-3. Epub 2019 May 2. PMID: 31056427.