APEIRON Biologics commences clinical COVID-19 trial with inhaled APN01

- Inhalation of APN01 to directly target SARS-CoV-2 virus in respiratory tract, the lung and tissue itself
- Primary objective is to evaluate safety and tolerability of inhaled APN01
- Phase 1 trial to enroll about 40 healthy volunteers
- Additional US Phase 2 trial with intravenous administration of APN01

Vienna, Austria, 12 October 2021: APEIRON Biologics AG, a privately held biotechnology company developing novel immunotherapies for cancer and respiratory diseases, today announced the start of a company sponsored Phase 1 trial for inhalation of APN01. The double-blind, placebo-controlled, dose-escalation study plans to enroll about 40 healthy volunteers in Austria to assess the safety, tolerability, pharmacokinetics, and pharmacodynamics of inhaled APN01.

Nebulized APN01 is a recombinant human angiotensin-converting enzyme 2 developed to treat COVID-19 patients by neutralizing SARS-CoV-2 in the lungs and mitigating lung damage caused by the infection. Primary study objective is the evaluation of safety and tolerability of single ascending doses (SADs) and multiple ascending doses (MADs) of inhaled APN01 when administered via a jet nebulizer in healthy subjects. Secondary objectives include the maximum tolerated dose and the effect of APN01 on key pharmacodynamic biomarkers of the renin-aldosterone-angiotensin system (RAAS).

Romana Gugenberger PhD, CMSO of APEIRON Biologics AG, explains: “The start of this company sponsored trial for APN01 is a vital next step in our development approach. Delivering a therapy via inhalation rather than intravenously allows patients in earlier stages of the disease to treat themselves, optimize treatment costs and reduce risk contacts for healthcare professionals. This study will form the basis not only for the treatment of COVID-19 with inhaled APN01 but enables further development strategies in chronic respiratory diseases with high unmet medical need such as Chronic Obstructive Pulmonary Disease (COPD) and Pulmonary Arterial Hypertension (PAH).”

Peter Llewellyn-Davies, CEO of APEIRON Biologics AG, adds: “We desperately need an effective treatment for COVID-19 and an inhaled application is an important strategic milestone for APEIRON. With the data from our concluded Phase 2 trial with APN01, recently supported by highly encouraging efficacy results in preclinical models, we are confident that inhalation with APN01 can deliver substantial benefits for patients suffering from COVID-19 infections. This is the third clinical trial dedicated to the multi-armed initiative of developing APN01 into vital therapy options in COVID-19. We look forward to the results of the ongoing trials which could pave the way for the future treatment of COVID-19 with APN01.”

Univ. Prof. Dr. Markus Zeitlinger, Department of Clinical Pharmacology at the Medical University of Vienna and principal investigator of the trial, comments: “The trial aims to

evaluate the drug delivery of APN01 through inhalation. Preliminary data from ongoing studies with inhalation of ACE2 based therapeutics show high efficacy in SARS-CoV-2 preclinical models. Delivery of the drug candidate directly to the respiratory tract should block viral entry into the lung cells and control inflammation. Importantly, APN01 may also be suitable against infections with variants of SARS-CoV-2 as already shown preclinically."

APEIRON's previously completed Phase 2 trial with intravenously administered APN01 demonstrated significant improvement in certain parameters of the Renin Angiotensin Aldosterone System (RAAS) with APN01 treatment compared to placebo. Data also suggested that APN01 will confer greatest therapeutic benefit to patients with lower WHO-CPS (World Health Organization Clinical Progression Scale) scores.

In parallel, APN01 is to be administered intravenously in a US Phase 2 trial conducted by the Vanderbilt University Medical Center (VUMC), Nashville, USA, and supported and funded by the National Institutes of Health (NIH). The four-arm, randomized, double-blinded, placebo-controlled trial is enrolling approximately 1,600 COVID-19 patients at more than 50 sites in the United States.

About APN01 (alunacedase alfa)
APN01 is a soluble recombinant human Angiotensin Converting Enzyme 2 (rhACE2) which mimics ACE2, a receptor identified as the critical cellular entry receptor for the SARS-CoV-2 virus and therefore plays a crucial role in combating COVID-19. The virus' spike uses the ACE2 protein on the cell membrane to enter the cells. APN01 as a soluble form of ACE2, potentially prevents binding of the virus spike protein to the cell surface receptor and thereby preventing infection of cells.

In addition, as shown in several studies human ACE2 is a key enzyme regulator of the Renin Angiotensin Aldosterone System (RAAS), a peptide system involved in blood pressure, lung disorders, diabetic kidney disease, inflammation, or cardiovascular diseases. ACE2 dials down the RAAS and thereby reduces blood pressure, diminishes inflammation, and protects multiple organs such as the heart, kidney, liver, lung or vasculature from damage. Thus, in addition to blocking the access of SARS-CoV-2 to its cell membrane-bound entry gate, the enzyme function of APN01, engineered into the same drug, potentially leads to reduction of organ injuries in COVID-19.

Additionally, due to the unique therapeutic approach of using the soluble form of the SARS-CoV-2 entry receptor ACE2, APN01 is inherently resilient to viral escape, thus an optimal drug candidate for novel variants of concern, as already shown for all variants of concern.

APN01 was first discovered and developed in 2003 in response to the first SARS outbreak by the founder of APEIRON Biologics, Prof. Josef Penninger MD.

About APEIRON Biologics AG

APEIRON Biologics is a privately held biotech company based in Vienna, Austria, focused on the discovery and development of treatments for respiratory diseases and novel cancer immunotherapies.

APEIRON received EU marketing approval for APN311 (dinutuximab beta, Qarziba®) in 2017 for the treatment of pediatric neuroblastoma patients and out-licensed global, exclusive rights for this product to EUSA Pharma Ltd.

APEIRON is developing a promising drug for COVID-19: APN01 (rhsACE2, alunacedase alfa), a soluble recombinant version of the SARS-CoV-2 cell entry receptor ACE2. APN01 has three distinct potential clinical benefits for COVID-19 and has completed a double blind, placebo-controlled Phase 2 trial in Europe and Russia. Based on promising results, APN01 was selected for a large-scale study in COVID-19 funded by the U.S. government.

APN401´s proprietary cellular therapy process may bring in a paradigm change in cancer treatment to fight hematological and solid tumors. The clinical program is a first-in-class ambulatory autologous transient therapy to strengthen immune reactivity via an intracellular master checkpoint inhibitor, Cbl-b. APN401 is currently evaluated in a Phase 1b clinical trial in patients with advanced-stage solid tumors.

APEIRON Biologics´ projects and technologies are based on a strong patent portfolio and partnerships with leading pharmaceutical companies and academic institutions.

Further information, visit www.apeiron-biologics.com and connect with us on Twitter and LinkedIn.

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