Juvabis Announces Positive Phase 1 Results of EBL-1003 in the Innovative Medicines Initiative's ENABLE Consortium

Single intravenous dose Phase 1 study in healthy volunteers showed that EBL-1003 (apramycin) was safe and well tolerated in all dose groups. The results support further clinical development of EBL-1003 in patients.

ZURICH, Switzerland, Nov. 24, 2020 – Juvabis AG, a clinical-stage biopharmaceutical company focused on discovering and developing treatments in areas of high unmet medical need involving multidrug-resistant bacterial infections, today announced the completion and positive results from its first-in-human single-ascending dose Phase 1 study of EBL-1003 in healthy volunteers. EBL-1003 is being developed in partnership with the European Gram-Negative Anti-Bacterial Engine (ENABLE), a project funded by the Innovative Medicines Initiative (IMI), as a treatment for infections caused by multidrug-resistant Gram-negative bacteria.

The randomised, double-blind, placebo-controlled study was designed to assess the safety, tolerability and pharmacokinetics of single intravenous doses in healthy volunteers. In summary, EBL-1003 was safe and well tolerated with a pharmacokinetic profile similar to that of gentamicin. A Phase I study to determine the pharmacokinetics, safety and tolerability of multiple doses of EBL-1003 in patients with complicated urinary tract infections is now being planned.

"The safety, tolerability and pharmacokinetic results in this first-in-human study are very encouraging and clearly support our commitment to progressing the clinical development of EBL-1003," said Dr. Sven Hobbie, CEO of Juvabis. "Several studies, both our own and those by independent researchers, have demonstrated the superior coverage of drug-resistant pathogens, and in particular *Acinetobacter baumannii*. This differentiation is afforded by a very distinct and unique chemical scaffold within the aminoglycoside class. EBL-1003 has the potential to replace aminoglycosides currently used in the clinic, but whose utility is seriously threatened by rising pan-aminoglycoside resistance. Thus, EBL-1003 offers the opportunity to provide a safe and clinically-valuable carbapenem-sparing regimen and, in the absence of any powerful antibiotic to reliably treat *A. baumannii* infections, also offers a safe alternative to colistin in the treatment of life-threatening multidrug-resistant infections," said Dr. Hobbie.

"Juvabis' EBL-1003 programme is the most advanced within the ENABLE pipeline. The successful completion of this Phase 1 study is a very important milestone, and the ENABLE Project has now achieved all its initial key objectives," said Anders Karlén, leader of ENABLE Managing Entity and professor at Uppsala University.

Dr Pierre Meulien, Executive Director, Innovative Medicines Initiative (IMI) said: "We urgently need new antibiotics to tackle the ever-growing threat of antimicrobial resistance. ENABLE's successes demonstrate that with the right support from a team of experts from academia and

industry, potential antibiotics can be identified and supported through the highly challenging early stages of antibiotic development. More broadly, this result demonstrates the strength of public-private partnerships in tackling major health challenges."

About EBL-1003

EBL-1003 is a crystalline free base of the aminoglycoside apramycin designed to treat Gram-negative bacterial infections. EBL-1003 for infusion has demonstrated potent broad-spectrum activity and rapid bactericidal killing of *Acinetobacter baumannii* and other Gram-negative bacteria, including organisms identified by the World Health Organization (WHO) and the Centers for Disease Control and Prevention as urgent and serious threats to human health. EBL-1003 is the only new aminoglycoside currently in clinical trials, according to the latest published report by the WHO that analysed exhaustively the antibacterial clinical development pipeline in 2019. The unique chemical structure of EBL-1003 results in minimal cross-resistance to other aminoglycoside antibiotics and warrants potent efficacy against highly drug resistant infections, including those that have been described as "pan-aminoglycoside resistant". Animal studies have further suggested better tolerability of EBL-1003 when compared to other products of the same drug class. The molecular and biological differentiation of apramycin from other aminoglycoside antibiotics in clinical use was first discovered by researchers at the University of Zurich (UZH) in Switzerland, an early consortium member of ENABLE, and has since been confirmed by a number of independent research groups worldwide. The UZH biotech start-up and ETH-Zürich spin-off Juvabis has acquired a worldwide exclusive license for the commercialization of apramycin and its derivatives in human therapy.

About Juvabis

Juvabis strives to design next-generation aminoglycoside antibiotics that evade mechanisms of bacterial drug-resistance and at the same time display a superior safety profile when compared to benchmark drugs. A UZH proprietary technology platform of engineered ribosomes enabled the identification of apramycin's favourable antimicrobial profile leading to the EBL-1003 R&D program, and also facilitated the rational design of a pipeline of additional next-generation aminoglycoside lead-scaffolds, which hold promise for addressing various infectious disease indications.

About ENABLE

In ENABLE, over 50 European partners from academia and industry, co-led by GlaxoSmithKline and Uppsala University, joined forces in a 6-year project funded by the Innovative Medicines Initiative (IMI) to develop novel antibiotics against key Gram-negative bacteria such as *E. coli*, *K. pneumoniae*, *P. aeruginosa*, and *A. baumannii*. ENABLE has rapidly succeeded in building a bottom-up drug development engine with an engaged group of highly competent scientists all working towards new drugs. Contact Lilian Löwenau for any communication related question (info@nd4bb-enable.eu). ENABLE is part of the ND4BB programme. www.nd4bb-enable.eu

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composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in-kind contribution. The ENABLE project is also financially supported by contributions from Academic and SME partners.
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About IMI

The Innovative Medicines Initiative (IMI) is working to improve health by speeding up the development of, and patient access to, innovative medicines, particularly in areas where there is an unmet medical or social need. It does this by facilitating collaboration between the key players involved in healthcare research, including universities, the pharmaceutical and other industries, small and medium-sized enterprises (SMEs), patient organizations and medicines regulators. IMI is a partnership between the European Union (represented by the European Commission) and the European pharmaceutical industry (represented by EFPIA, the European Federation of Pharmaceutical Industries and Associations).
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