ERA4TB - European Tuberculosis Regimen Accelerator

In 2018 alone, about 10 million people became ill with tuberculosis (TB) globally and 1.5 million people died from it, placing this disease among the top 10 causes of death in the world. According to the WHO, about one fourth of the global population has been infected by Mycobacterium tuberculosis, although most infected individuals are asymptomatic. About 5-15 % of those infected develop tuberculosis and can transmit the disease. The standard TB treatment requires a 6-month course and involves the combination of several antimicrobial drugs, what makes the access and adherence to the treatment complicated. The TB epidemic has become even more serious with the rise of multidrug-resistant tuberculosis (MDR-TB) and the emergence of extensively drug-resistant TB (XDR-TB). Only half of the patients with MDR-TB are successfully treated, whereas those with XDR-TB type have few treatment options. The EU-funded project ERA4TB is accelerating development of highly active oral drugs with shortened treatment durations to help end all forms of TB by 2030.

The European Regimen Accelerator for Tuberculosis (ERA4TB) has the explicit goal of developing a new combination therapy to treat all forms of TB starting from ~20 leads and drug candidates provided by EFPIA. Since details of these are as yet unavailable, we will implement an agile drug development algorithm that entails profiling and portfolio construction. Profiling involves characterisation and ranking molecules in preclinical studies comprising in vitro drug combination assays, hollow fiber and single cell analysis, innovative murine and non-human primate models, PK/PD studies, combined with biomarker discovery and non-invasive NIR or PET/CT imaging to monitor disease progression and response to treatment.
Modelling, simulation and artificial intelligence tools will help progress compounds from early preclinical to clinical development and to predict drug exposure, human doses and the best combinations. After extensive preclinical profiling, selected compounds will enter portfolio development for first time in human tests and phase I clinical trials in order to ensure that they are safe, well-tolerated and bioavailable with negligible drug-drug interactions. If needed, formulation studies will be conducted to improve pharmacological properties.
ERA4TB has assembled the best expertise and resources available in Europe, to build a highly effective and sustainable drug development consortium with a flexible and dynamic management system to execute the profiling and portfolio strategy, aided by clearly defined go/no-go decision points. The expected outcome of ERA4TB is a series of highly active, bactericidal, orally available drugs to constitute two or more new combination regimens with treatment-shortening potential ready for Phase II clinical evaluation. These regimens will be compatible with drugs used to treat common comorbidities, such as HIV-AIDS and diabetes, and should impact UN Sustainable Development Goal 3, namely, ending TB by 2030.

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University of Dundee (United Kingdom)

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Find out more: **https://cordis.europa.eu/project/id/853989**