

RESEARCH TO FIGHT TUBERCULOSIS

The challenge

Tuberculosis (TB) is the leading infectious disease killer, taking the lives of 1.5 million people each year. Over 4 000 people die of TB every day and up to 2 billion are infected with the causative agent, *Mycobacterium tuberculosis*. Of the 700 000 antimicrobial-resistance related deaths each year, one quarter are due to multi-drug resistant TB (MDR-TB).

Already in 1993 the World Health Organization (WHO) designated TB a global public health emergency. The WHO End TB Strategy calls for a 90% reduction in TB deaths and an 80% reduction in TB incidence rate by 2030, compared with 2015. These goals will be very challenging to meet, but the EU Framework Programmes for Research and Innovation are working hard to accelerate development of new vaccines, diagnostics and drugs, and to fight *M. tuberculosis* and the terrible disease that it causes.

The European Union's TB research

Under the FP7, between 2007 and 2013, a total of 50 TB research projects were funded with total EU funding of EUR 118 million. These projects focused on basic and operational research, diagnosis, vaccine and drug development, as well as management of the rising threat of MDR-TB and extensively drug-resistant TB (XDR-TB).

In the current research programme, Horizon 2020, the Commission is contributing to the WHO End TB Strategy to control TB by investing in the development of new tools against TB and delivery of healthcare solutions in countries with high disease burden. A total of EUR 150 million has already been awarded for the development of diagnostics, vaccines and drugs, implementation of diagnostics in high burden settings, and for basic research to improve our understanding of the disease. The European and Developing Countries Trials Partnership (EDCTP) has played an important role in TB research by supporting clinical trials and capacity building in Sub-Saharan Africa.

Key initiatives

The European & Developing Countries Clinical Trials Partnership (EDCTP)¹, a public-public partnership between countries in Europe and sub-Saharan Africa, and the European Union, was launched in 2003. The first EDCTP programme (2003-2013) was highly successful, with 254 projects being given EUR 383 million in funding, involving 190 African and 70 European research institutions and where 49% of the trials were led by African researchers. As a result of this success, the budget for the second programme (2014-2024) has increased to EUR 1.3 billion. One example of current work in EDCTP is the project PanACEA2, *Pan-African Consortium for the Evaluation of Antituberculosis Antibiotics*. This is a major African-European TB drug development initiative, focusing on the selection of promising drug candidates and the design and conduct of clinical trials. In addition, three different TB vaccine candidates are in Phase II clinical trials in sub-Saharan Africa with EDCTP funding.

¹ <http://www.edctp.org/>

The **Innovative Medicines Initiative (IMI)**² a partnership between the EU and the European pharmaceutical industry to boost pharmaceutical innovation has a total budget of EUR 3.3 billion (2014-2020), including in-kind contributions from private companies. Priorities span the entire healthcare chain from prevention, diagnosis, treatment, as well as addressing barriers to new medicines. IMI's **Antimicrobial Resistance (AMR) Accelerator**³ programme is making a major contribution to establishment of a new combination therapy to treat all forms of TB. Five different projects, **RespiriTB, TRIC-TB, PreDICT-TB, ERA4TB** and **UNITED4TB** are addressing development of the new pipeline and complementing each other.

InnovFin Infectious Diseases⁴, a finance facility, launched jointly by the EC and European Investment Bank, ensures that new drugs, vaccines and medical and diagnostic devices or research infrastructure for infectious diseases are made available faster.

Success stories

To accelerate and foster the development of new antitubercular drugs, the **anTBiotic**⁵ project is studying new classes of compounds as well as testing drug combinations in the clinic including repurposed drugs that have not been previously used against TB. The consortium is undertaking novel Early Bacteriocidal Activity Phase IIa studies aiming at improving the current TB drug pipeline and avoiding drug resistance in the field.

TBVAC2020⁶ consortium has been one of the main drivers of European TB vaccine research. Most of the candidates in clinical TB vaccine pipeline originate from the predecessors of this project. TBVAC2020 has diversified the pipeline by advancing novel and promising TB vaccine candidates from discovery to preclinical and early clinical testing.



Both projects have collaborated with the EDCTP, and making a strong case for developing the next generation of TB drugs and vaccines that could potentially save the lives of millions.

Additional information

Horizon 2020: www.ec.europa.eu/programmes/horizon2020

Health research: www.ec.europa.eu/research/health

H2020 Participant Portal: <http://ec.europa.eu/research/participants/portal>

Contact: European Commission, DG Research and Innovation, People Directorate, Combatting Diseases, Email: RTD-COMBATTING-DISEASES@ec.europa.eu

² <https://www.imi.europa.eu/>

³ <https://www.imi.europa.eu/projects-results/project-factsheets/amr-accelerator>

⁴ <http://www.eib.org/products/blending/innovfin/products/infectious-diseases.html>

⁵ https://cordis.europa.eu/project/rcn/207216_en.html

⁶ https://cordis.europa.eu/project/rcn/194057_en.htm