

RESEARCH TO FIGHT TUBERCULOSIS

The challenge

Tuberculosis (TB) is the leading infectious disease killer, taking the lives of 1.5 million people each year. 4000 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, almost one-third are due to multi-drug resistant TB (MDR-TB).

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 can hardly be met, but the EU Framework Programmes for Research and Development can make a difference in accelerating development of new tools, vaccines, diagnostics and drugs, and to fight the successful pathogen *M.tuberculosis* and the disease it is causing.

The European Union's TB research

Under the FP7 Framework Programme, a total of 50 TB research projects have been funded with a support of EUR 118 million. These projects have 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 Horizon2020 the Commission will continue to support research on better tools against TB and to contribute to the WHO END TB Strategy to control TB by supporting the development and delivery of healthcare solutions in countries with high disease burden. A total of EUR 77 million has already been invested for e.g. development of vaccines and drugs, for implementation of diagnostics in high burden settings, and for basic research. Of the investment EUR 28 has been through the European and Developing Countries Trials Partnership (EDCTP)¹ for clinical trials and capacity building in Sub-Saharan Africa.

Key initiatives

The **EDCTP**¹ was launched in 2003 by 16 European countries and the European Commission to support clinical trials and capacity building to fight HIV/AIDS, malaria and tuberculosis in Africa. The first EDCTP programme (2003-2013) supported 254 projects with EUR 383 million, involving 190 African and 70 European research institutions and where 49% of the trials were led by African researchers. The EU's commitment has an increased budget of EUR 1.3 billion for the second programme (2014-2024). Under the second European and Developing Countries Clinical Trials Partnership programme, the project PanACEA2, Pan-African Consortium for the Evaluation of Antituberculosis Antibiotics, 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.

¹ <http://www.edctp.org/>

The **Innovative Medicines Initiative (IMI)** 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. www.imi.europa.eu

InnovFin Infectious Diseases, a new 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: <http://www.eib.org/products/blending/innovfin/products/infectious-diseases.html>

Success stories

The **ORCHID** project² created a portfolio of TB drug lead compounds for the later stages of development and moved forward three classes of compounds: beta-lactams, InhA inhibitors and whole cell inhibitors. The beta-lactams were tested in a clinical trial and a clinical development plan has been established for the two other classes. The successful work will continue in the Horizon2020 project **anTBiotic** that will aim for a new treatment regimen, performing a series of clinical trials.



TBVAC2020³, Advancing novel and promising TB vaccine candidates from discovery to preclinical and early clinical development, a Horizon2020 project is one of the main drivers of European TB vaccine research. Most of the candidates in clinical TB vaccine pipeline are coming from the predecessors of TBVAC2020 project, giving it good grounds for developing the next generation of TB vaccines, where lessons have been learned from clinical testing of the first generation of candidates. It has produced good results in diversification of the pipeline and in rational selection of candidates to move forward in the pipeline.

Additional information

FP7: www.ec.europa.eu/research/fp7 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, Health Directorate, Fighting Infectious Diseases and Advancing Public Health.
Email: RTD-INFECTIOUS-DISEASES-PUBLIC-HEALTH@ec.europa.eu

² http://cordis.europa.eu/project/rcn/96802_en.html

³ http://cordis.europa.eu/project/rcn/194057_en.html