RESEARCH TO FIGHT TUBERCULOSIS

The challenge

Tuberculosis (TB) is the leading infectious disease killer, taking the lives of 1.7 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).

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 Development 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 supporting the development and delivery of healthcare solutions in countries with high disease burden. A total of EUR 107 million has already been invested for the development of vaccines and drugs, implementation of diagnostics in high burden settings, and for basic research to improve our understanding of the disease. Out of this funding, EUR 58 million has been given through the European and Developing Countries Trials Partnership (EDCTP) for clinical trials and capacity building in Sub-Saharan Africa.

Key initiatives

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) 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.

The Innovative Medicines Initiative (IMI)\(^1\) 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

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companies. Priorities span the entire healthcare chain from prevention, diagnosis, treatment, as well as addressing barriers to new medicines.

**InnovFin Infectious Diseases**\(^2\), 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.

**Success stories**

**ORCHID**\(^3\) 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 is continuing in the Horizon 2020 project **anTBiotic**\(^3\) that will aim for a new treatment regimen, performing a series of clinical trials.

**TBVAC2020**\(^4\) is one of the main drivers of European TB vaccine research. Most of the candidates in clinical TB vaccine pipeline originate from this project, giving it a strong chance to develop the next generation of TB vaccines that could potentially save the lives of millions.

**TANDEM**\(^5\) is a project that addressed the need for optimal and cost-effective screening and management of combined TB and diabetes, and to understand underlying cellular and molecular mechanisms. Over 2,000 patients were screened for TB and diabetes, and the project found that diabetes was associated with higher TB treatment failure, relapse and mortality. Genetic markers were also identified that were associated with the interaction of the two diseases.

**Additional information**

- Health research: [www.ec.europa.eu/research/health](http://www.ec.europa.eu/research/health)

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\(^3\) [http://cordis.europa.eu/project/rcn/96802_en.html](http://cordis.europa.eu/project/rcn/96802_en.html)
\(^4\) [https://cordis.europa.eu/project/rcn/207216_en.html](https://cordis.europa.eu/project/rcn/207216_en.html)