



A boost for research towards a better understanding of local lung immunity to tuberculosis infection

The Horizon Europe programme has funded the TBVAC-HORIZON project to improve the understanding of lung immunity to tuberculosis infection and to establish a diversified innovative TB vaccine pipeline targeting mucosal immunity. TBVAC-HORIZON, consisting of 19 partners, will be coordinated by the Tuberculosis Vaccine Initiative (TBVI) and will run for 4 years.

Tuberculosis (TB) remains one of the most devastating infectious diseases worldwide, killing over 4,000 people every day. Prevention of TB by improved vaccines would provide the most cost-effective approach to achieve the goals of the WHO End TB strategy and the Sustainable Development Goals of the United Nations.

Innovating and diversifying the TB vaccine pipeline

While there are few vaccine candidates in late-stage clinical trials, the TB vaccine pipeline remains insufficient and needs diversification and innovation. TBVAC-HORIZON will address this by in-depth investigation of the mechanisms of immune responses to infection in the lung, which will identify biomarkers to rationalise vaccine design and improve monitoring of vaccine immunity. The translational component includes head-to-head comparison of novel candidate vaccines in standardised animal models, aligned comparative experimental medicine studies in humans and non-human primates, and assess immune responses in individuals with comorbidity-induced increased susceptibility to TB. The third component will establish novel delivery systems and adjuvant formulations. Finally, a novel GMP platform for live attenuated vaccines will be developed.

“I am enormously excited about the science we plan to perform within TBVAC-HORIZON, which spans basic and translational science with an interdisciplinary and integrated approach. This work will advance understanding of protective immunity, particularly in the target organ, the lung, and in parallel improve the development of novel TB vaccine candidates. As with previous TBVI-led consortia, partners will work together to deliver excellent science that will secure Europe’s leading role in the development of a more effective TB vaccine.”

Prof. Helen McShane, TBVAC-HORIZON's PI Translational Research

The consortium

The TBVAC-HORIZON consortium builds upon over two decades of collaborative R & D and has been the major contributor to the current global TB vaccine pipeline. The combination of basic, applied and translational research, preclinical efficacy and human experimental medicine studies, improved adjuvants, and novel GMP platforms will pave the way for novel concepts for candidate vaccines and improved immunisation strategies. Long-term de-risking and shortening of the complex TB vaccine product development pathway will help to lower the cost of vaccine development and TB health surveillance.

“As a Clinical Microbiologist I am enthusiastic about the opportunity to participate in this multidisciplinary consortium to combat the global burden of tuberculosis.

TBVAC-HORIZON provides a unique scientific environment to bring the field of TB vaccine development to the next level.”

Prof. Steffen Stenger, TBVAC-HORIZON's PI Basic Research

Aside from the EU, TBVAC-HORIZON receives co-funds by the Swiss federal government's SERI and the United Kingdom's funding agency UKRI.

Consortium partners:

- TuBerculosis Vaccine Initiative ([TBVI](#)) (Coordinator)
- Biomedical Primate Research Centre ([BPRC](#))
- Centre National de la Recherche Scientifique ([CNRS](#))
- Université Toulouse III - Paul Sabatier ([UT3](#))
- Istituto Nazionale per le Malattie Infettive 'Lazzaro Spallanzani' ([INMI-IRCCS](#))
- Institut Pasteur ([IP](#))
- Institut Pasteur de Lille ([IPL](#))
- Leiden University Medical Centre ([LUMC](#))
- Statens Serum Institut ([SSI](#))
- University of Zaragoza ([UNIZAR](#))
- University of Ulm ([UULM](#))
- CZ Vaccines, S.A. ([CZV](#))
- University of Basel ([UNIBAS](#))
- Vaccine Formulation Institute CH, Ltd. ([VFI](#))
- Department of Health ([UKHSA](#))
- London School of Hygiene and Tropical Medicine ([LSHTM](#))
- Medicines and Healthcare Products Regulatory Agency ([MHRA](#))
- University of Leicester ([ULEIC](#))
- University of Oxford ([UOXF](#))