

Tuberculosis: From Basic Research on Pathogenesis to Rational Vaccine and Biomarker Design and Clinical Evaluation

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Tuberculosis (TB) remains a major health problem worldwide. At the Department of Immunology of the Max Planck Institute for Infection Biology, we aim at better understanding the host–pathogen interactions in TB. First, we analyze stimulation and fine-tuning of the acquired immune response by the innate immune system; second, we attempt to better understand confounding factors such as coinfection and immune suppression/exhaustion in TB; third, we have rationally defined a novel vaccine candidate against TB which is now assessed in clinical trials; fourth, we define biomarkers of resistance and susceptibility in TB. Within this broad framework, which ranges from basic research to translational medicine and includes both state-of-the-art technologies as well as field studies, we offer different projects with an emphasis on cellular immunology both in experimental mouse models and in the human system, molecular genetics of the pathogen *Mycobacterium tuberculosis* (*Mtb*) and different biomics approaches.