

Pre and post-exposure vaccines for TB

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M. tuberculosis, the causative agent of tuberculosis (TB) remains a major worldwide health problem that causes more than two million deaths annually. In addition, an estimated 2 billion people are latently infected with *M. tuberculosis*. The bacterium is one of the oldest human pathogens and has evolved complex strategies for survival. Therefore, to be successful in the high endemic regions, any future TB vaccine strategy will have to be tailored in accordance with the resulting complexity of the TB infection and anti-mycobacterial immune response.

We have identified several *M.tb* antigens expressed in different stages of infection and have tested these extensively for their vaccine efficacy in several animal TB models. This has resulted in two preventive subunit vaccines, Ag85B-ESAT-6 and Ag85B-TB10.4, that have now entered clinical trials. Presently, we are also working on TB vaccines specifically tailored to combat *M.tb* in latently infected individuals. These vaccines include antigens specifically expressed by dormant or resuscitating bacteria, and the first of these vaccines have indeed been shown to exhibit strong post-exposure vaccine efficacy. Finally, we have also studied the immune response in the different infectious stages, so as to be able to tailor the vaccines (preventive or post-exposure) both in terms of the antigens and the induced immune response. These results will be presented.