Research interests: Host-pathogen Interactions - Development of live bacterial vaccines

Our research interests involve exploring host-pathogen interactions in order to better understand the role of bacterial virulence factors in pathogenicity and in the induction of immune responses in the host. In particular, we currently focus on the mechanisms involved in the persistence of *Mycobacterium tuberculosis* and the implications for drug susceptibility and vaccine efficacy. We are also investigating the virulence mechanisms of *Bordetella pertussis*, the agent of whooping cough.

Increased knowledge in host-bacteria relationships may also be very helpful to develop vaccination strategies involving bacteria as delivery systems. Live recombinant bacteria represent an attractive means to induce both mucosal and systemic immune responses against heterologous antigens. The strategy for the expression of the passenger molecule, the invasiveness, the immunogenicity, as well as the safety of the bacterial vector have to be considered altogether.
We develop mucosal (oral and nasal) vaccines against various pathogens including Dengue virus, Enterovirus 71 and influenza virus using live recombinant bacteria as delivery system. The highly attenuated strain of *Bordetella pertussis* as well as the food-grade *Lactococcus lactis* bacterium are used as vehicle for the delivery of the vaccine candidates.