Abstract:

*Bordetella pertussis* is a strictly human pathogen and a causative agent of whooping cough. The study of bacterial transmission, virulence factors and vaccine efficacy testing became a very relevant topic, due to the disease resurgence in well-vaccinated populations during the past decades. Detailed investigation of bacterial interactions *in vivo* requires a suitable animal model. The most common used animal for *B. pertussis* testing is a laboratory mouse, however mice are unable to develop the typical *B. pertussis* infection symptoms. In the field of vaccine research and testing, the newborn pig has also proved to be a suitable model. By far the best nonhuman host of *B. pertussis* is the recently discovered baboon model which can perfectly imitate the human respiratory tract conditions, immune response and also the host-to-host transmission. This thesis summarizes basic knowledge of model organisms used in the past and in the present for the study of *B. pertussis*. At the same time, it shows the comparison of the advantages and disadvantages of the discussed animal models.