Contribution of the swine model in the study of human sexually transmitted infections

The pig has garnered more and more interest as a model animal to study various conditions in humans. The growing success of the pig as an experimental animal model is explained by its similarities with humans in terms of anatomy, genetics, immunology, and physiology, by their manageable behavior and size, and by the general public acceptance of using pigs for experimental purposes. In addition, the immunological toolbox of pigs has grown substantially in the last decade. This development led to a boost in the use of pigs as a preclinical model for various human infections including sexually transmitted diseases (STIs) like Chlamydia trachomatis. In the current review, we discuss the use of animal models for biomedical research on the major human STIs. We summarize results obtained in the most common animal models and focus on the contributions of the pig model towards the understanding of pathogenesis and the host immune response. In addition, we present the main features of the porcine model that are particularly relevant for the study of pathogens affecting human female and male genital tracts. We also inform on the technological advancements in the porcine toolbox to facilitate new discoveries in this biologically important animal model. There is a continued need for improvements in animal modeling for biomedical research inclusive STI research. With all its advantages and the highly improved toolbox, the porcine model can play a crucial role in STI research and open the door to new exciting discoveries.