

PhD Position – Virology (3 years)

Institute of Virology and Immunology (IVI)

Department of Infectious Diseases and Pathobiology (DIP), Vetsuisse Faculty,
University of Bern

PREPAREDNESS RESEARCH AGAINST PRE-PANDEMIC RESPIRATORY INFECTIONS/SPECIES BARRIERS TO MERS-CORONAVIRUS

Background: Pandemics pose a considerable threat to societies. Respiratory viruses are predisposed to become pandemic because of their favorable transmission pattern. The Middle East Respiratory Syndrome-Coronavirus (MERS-CoV) is a prototypic prepandemic agent for which no approved treatment or vaccine is available. MERS-CoV is acquired as a zoonotic infection upon contact with infected dromedary camels. Among the major viral epidemics in the past years (MERS, Ebola, Zika), MERS-CoV poses the most continuous threat as it has an active source in a livestock species, and is transmitted via the respiratory route. The establishment of sustained human-to-human transmission would inevitably lead to a pandemic. As we have no data on the variability of transmissibility among different MERS-CoV strains including those in animals, the virus is one of the most threatening issues in global health security today.

The project: The aim of this project is to model host transition in the respiratory epithelium. Virus-host interactions will be analyzed using different coronavirus isolates and virus chimeras in primary airway epithelial cell cultures. These fully differentiated cells morphologically and functionally resemble airways in vivo. They form a pseudostratified epithelial layer that generates mucus and contains basal, secretory, columnar and ciliated cell populations. We will establish these primary cultures for different species to better understand prerequisites for zoonotic transmission. This approach will provide insight into risks associated with the existing zoonotic reservoir, and will also provide important data regarding the necessity to adapt vaccines in the future.

We are looking for: Highly motivated and talented candidates. Applicants must hold a master's degree in biology, biomedicine, biochemistry or a related discipline.

Please send your application in one single file (reference number 17-39) that should include a motivation letter, CV, copies of grade, diplomas, and references until October 31st to:

Prof. Volker Thiel (email: barbara.gautschi@vetsuisse.unibe.ch).