

2 PhD student positions in virology investigating antiviral mechanisms against zoonotic influenza A viruses

Dr. Laura Graf and Prof. Dr. Martin Schwemmle of the Institute of Virology in Freiburg, Germany, offer positions for

2 PhD students (m/f/d)

Avian influenza A viruses (IAVs) sporadically cross the species barrier and infect humans. Although such spillover events are rare, they often cause severe disease with high case fatality rates and may be the source of new pandemic strains. We are interested in the molecular mechanisms that prevent the transmission of IAVs from the avian reservoir to humans and how avian IAVs can overcome these barriers. Recently, we have identified inactive variants of an antiviral restriction factor, called MxA, in patients infected with the avian IAV H7N9 ([Chen, Graf et al., 2021, Science](#)). This factor is part of the innate immune response to viral infections and specifically inhibits zoonotic IAVs. Seasonal IAVs, circulating in the human population, have successfully escaped from restriction by MxA.

The two projects will focus on identifying and characterizing additional immunological and genetic susceptibility factors for infections with zoonotic IAVs. Using cutting edge technologies, the PhD students will (i) study additional genetic variants enriched in the H7N9 patients from our previous study, (ii) investigate whether preexisting autoantibodies against immune signaling molecules increase the risk for avian IAV infections, and (iii) identify MxA interactors that regulate its function and are therefore important factors of the species barrier as well. Interesting candidates will then be further analyzed in different model systems including primary cells and organoids. Furthermore, we want to understand how avian IAVs acquire MxA resistance mutations using a mouse model of human MxA.

We offer:

- a 4-year PhD position, salary according to German TV-L (salary agreement for public service employees; E13/65%)
- a highly stimulating, collaborative and international research environment. The projects are embedded in the Collaborative Research Center (CRC) 1160 “Immune-mediated pathology as a consequence of impaired immune reactions ([IMPATH](#))”.
- access to cutting-edge technologies and infrastructure including high-resolution microscopy, biosafety level 3 laboratories, proteomics and sequencing facilities
- diverse training and career development opportunities with the possibility to join an international and interdisciplinary PhD program
- participation in international and national conferences and workshops

Your profile:

- a Master's degree in infection biology, molecular medicine, biology, biochemistry, life sciences or a related subject
- substantial wet-lab experience; experience in experimental virology and immunology is a plus
- passion for basic research and virology and a high level of motivation and professional commitment
- team spirit, ability to develop own research ideas
- excellent communication skills and high proficiency in English

If you want to join our team and advance the knowledge about mechanisms that prevent IAV zoonoses, then send your application as one PDF file to laura.graf@uniklinik-freiburg.de by July 16, 2023. The positions are available immediately and applications will be evaluated upon receipt until the positions are filled.

Your complete application in English includes your CV, a letter of motivation including your research interests and experience, the contact details of two referees and the transcript of records of your master studies.

For further information please do not hesitate to contact Dr. Laura Graf (laura.graf@uniklinik-freiburg.de) or Prof. Dr. Martin Schwemmle (martin.schwemmle@uniklinik-freiburg.de).