



## CENTER FOR INTEGRATIVE INFECTIOUS DISEASE RESEARCH



**HEIDELBERG  
UNIVERSITY  
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The laboratory of Prof. Dr. Oliver T. Fackler, Center for Infectious Diseases, Integrative Virology, CIID, University Hospital Heidelberg, Germany recruits a

**Postdoctoral fellow** (TVL E13, 100%) **and a PhD student** (TVL E13, 65%)

Projects starting in fall 2021 are open in the areas of

### **Actin dynamics in lymphocyte activation**

and

### **Innate sensing of HIV-1 infection**

The positions are funded by grants from the Deutsche Forschungsgemeinschaft. Please indicate in your letter of motivation for which project we should consider your application.

#### **Actin dynamics in lymphocyte activation**

Dynamic remodelling of the actin cytoskeleton is a hallmark of lymphocyte activation and has predominantly been studied at the plasma membrane. We recently identified that the first response of CD4 T cells to T cell receptor engagement is the formation of a transient F-actin meshwork in the nucleus (Tsooulidis et al., 2019, *Science Immunology*). We further demonstrated that this nuclear actin dynamics regulates the expression of a specific set of genes to drive T helper function in vivo. We now aim at characterizing how nuclear actin dynamics governs selective gene expression to regulate CD4 T function and to explore the involvement of similar processes in other types of immune cell signalling. These studies will apply immunology, biochemistry and cell biology approaches, including a mouse model to study humoral immunity, with a particular focus on imaging.

#### **Innate sensing of HIV-1 infection**

HIV-1 infection is sensed by the innate immune system of primary target cells and subject to interference by antiviral host cell factors (restriction factors). Specific replication strategies and the expression of viral proteins that allow evasion from host cell innate immunity allow HIV-1 to overcome these barriers. We recently demonstrated that the host cell restriction factor SERINC5 not only suppresses the infectivity of HIV-1 particles but also facilitates innate sensing of HIV-1 particles by myeloid target cells (Pierini et al., 2021, *Journal of Virology*; Ananth et al., 2019, *Journal of Virology*). We will now address the mechanisms of this sensitization to innate recognition as well as of antagonism of antiviral SERINC5 activities by the HIV-1 pathogenesis factor Nef. These analyses will involve advanced virology, immunology, biochemistry and microscopy approaches in primary human cells and include work with replication competent HIV-1 (BSL3 laboratory). Prior experience with the purification and differentiation of primary human monocytes/macrophages and with experimental HIV-1 infection will be an asset.

The laboratory is located in the new Center for Integrative Infectious Disease (CIID) research building with its state-of-the art imaging facility at the heart of the Heidelberg life science campus. We offer an international and highly interactive environment to address projects at the interface of immunology, biochemistry, cell biology, and virology. We are searching for highly motivated candidates with genuine curiosity and passion for science. Please send your applications (including letter of motivation and full CV with publication record, high school and university diplomas, record of transcripts) until September 19 to:

Dr. Kathrin Bajak

Scientific coordinator in the laboratory of Prof. Dr. Oliver T. Fackler

Department of Infectious Diseases - Integrative Virology

Center for Integrative Infectious Disease Research (CIID)

University of Heidelberg

Im Neuenheimer Feld 344

69120 Heidelberg

phone: ++49- (0)6221-56-5061

fax: ++49- (0)6221-56-5003

Email: [kathrin.bajak@med.uni-heidelberg.de](mailto:kathrin.bajak@med.uni-heidelberg.de)

homepage <https://ciid-heidelberg.de/research-groups/fackler/>