



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%).

The projects start in fall 2023 and address two aspects of HIV-1 pathogenesis:

**Therapeutic targeting of the HIV-1 pathogenesis factor Nef**

and

**Dissecting innate immune restrictions to HIV-1 in resting CD4 T cells**

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

**Targeting the HIV-1 pathogenesis factor Nef**

The Nef protein of HIV-1 is key for pathogenesis and disease progression by serving as versatile protein interaction adaptor that rewires many host cell properties and pathways to the benefit of the virus. Owing to its multiple functions and relevant protein-interaction motifs, Nef is not yet targeted therapeutically. We recently identified a protein interaction surface that mediates all cardinal Nef functions (Ananth et al., 2019, J. Virol.; Kaw et al., 2020, Embo J). The goal of the project is to develop a microscopy-based screening platform to identify lead compounds of a broadly acting Nef inhibitor and to dissect the mechanism of action of this protein interaction surface. This will involve the development of an advanced microscopy acquisition and analysis pipeline and applying immunology, biochemistry and cell biology approaches. For this project, we are looking for candidates with strong background in microscopy and cell biology.

**Dissecting innate immune restrictions to HIV-1 in resting CD4 T cells**

While HIV-1 efficiently replicates in activated CD4 T cells, many barriers at different steps of the viral life cycle prevent productive infection of resting CD4 T cells (Pan et al., 2013, Cell Research). A recently developed gene editing method allows us for the first time to address the molecular bases of these restrictions without altering the activation state of these cells (Albanese et al., 2022, Nat. Methods). Exploiting this novel technology, the project aims at dissecting identity and mechanism of these restrictions and at assessing how they are alleviated by T cell activation. These analyses will involve advanced virology, microscopy and cell biology approaches in primary human cells and include work with replication competent HIV-1 (BSL3 laboratory). Prior experience with the purification and manipulation of primary human CD4 T cells and with experimental HIV-1 infection will be required for this project.

The laboratory is located in the Center for Integrative Infectious Disease (CIID) 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 August 28 to:

Dr. Kathrin Bajak

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

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