

PhD student (m/f/d)

Project:

ADAM-mediated fine-tuning of antigen presenting cell homeostasis and function in the intestine

Project description:

The mammalian intestine represents a major barrier organ to the outside world. As such, it is exposed to a wide variety of environmental antigens, including food antigens and commensal bacteria, but also pathogens. Here, dendritic cells (DC) have the unique capacity to detect and discriminate between these diverse antigens and subsequently induce appropriate tolerogenic or protective immune responses. The molecular signals that enable DC to mediate these opposing tasks are incompletely understood. *A-disintegrin-and-metalloproteinase* (ADAM) family members are ectodomain-shedding proteinases. ADAM-mediated proteolysis regulates multiple cell functions such as cell adhesion and migration, as well as, pro-inflammatory cytokine secretion and/or signaling. We recently published that ADAM10 is required for the terminal differentiation and survival of specific DC subsets in the spleen (Diener et al., *Proc. Natl. Acad. Sci. USA* 2021).

The current project concerns the role of ADAM proteinases to govern critical aspects of intestinal DC homeostasis and function in the steady-state and during inflammation. The experiments will involve animal models as well as high-dimensional flow cytometry, immunohistochemistry, *in vitro* cell culture, and unbiased molecular (single-cell) profiling approaches.

Local embedding:

Our laboratory has a long-standing interest in studying the role and molecular control of DC in regulating adaptive immune responses, in particular, at epithelial borders to the environment. To this aim, our research focuses on the pathophysiology of various inflammatory disease models of the skin (psoriasis), intestine (colitis), and lung (asthma). Our group is part of the Institute for Molecular Medicine (IMM), headed by Prof. Dr. Ari Waisman (<https://www.unimedizin-mainz.de/molekulare-medicin/home.html?L=1>) at the University Medical Center of the Johannes Gutenberg-University Mainz. The IMM is located in the Paul Klein-Centre for Immune Intervention (PKZI), together with other research institutes focusing on different aspects of immunology, and thus offers a stimulating intellectual and scientific environment. In addition, our research is embedded in the highly interactive Research Center for Immunotherapy (FZI), which provides further opportunities for scientific interaction and cooperation, as well as state-of-the-art core facilities (<https://www.blogs.uni-mainz.de/fb04-rci/>).

Qualifications and skills:

You are a highly motivated graduate student with a strong interest in immunology and a background in medicine, (molecular or cell) biology, or a related field. You enjoy working independently as well as in a competitive research team. Relevant experience with murine models, flow cytometry, gene expression profiling, and cell culture would be advantageous. Fluent proficiency in written and oral communication in English is a prerequisite.

Terms of employment:

The position is available immediately and is initially limited to 3 years with the possibility of extension. The successful candidate will have the opportunity to enroll in the Mainz Research School of Translational Medicine (TransMed, <https://www.unimedizin-mainz.de/transmed/home.html>). We offer an interesting and challenging research project, individual supervision and working in a young, dynamic, international team. This project is funded by the German Research Foundation (DFG).

Information:

For further information regarding this vacancy, please contact Prof. Dr. Björn Clausen, E-mail: bclausen@uni-mainz.de, Tel: +49-(0)6131-2204.

Application:

The University Medical Center is committed to promoting women in professional life and applications from women are particularly welcome. Handicapped applicants will be given preferential treatment if they have the same qualifications.

Interested candidates can send their electronic application in German or English, including a detailed letter of motivation, Curriculum Vitae, and reference letters or reference contact information, to Mrs. Susanne Gahr (gahr@uni-mainz.de). Deadline for submission is October 15, 2022, or until the position is filled.