The group of Prof. Dr. Alexander Westermann at the Institute of Molecular Infection Biology, University of Würzburg, Germany is offering a

**PhD Student Position (f/m/non-binary)**

The contract will be fixed term for 1 year and may be renewed on expiry. Remuneration will be based on the *Tarifvertrag für den öffentlichen Dienst der Länder* (Collective Agreement for the Public Service of German Federal States, TV-L).

The Westermann lab is recruiting a PhD student to work on an innovative DFG-funded research project within the framework of the collaborative research center (CRC) “DECisions in Infectious DisEases” (DECIDE; https://www.crc-decide.de/de). The collaborative project is centered on the interaction of the microbiota species Bacteroides thetaiotaomicron with enteric pathogens (Bornet & Westermann 2022 Trends Microbiol.). The successful applicant will work with a young and dynamic team of scientists and will apply advanced cell culture/tissue techniques, bacterial genetics, and functional assays to dissect the interplay of Bacteroides with Clostridioides difficile and determine its influence on the host epithelium.

A healthy microbiota presents the most formidable barrier against enteric infections. This protective function, called colonization resistance, comprises various mechanisms that can be either direct/microbiota-mediated or indirect/host-mediated. Antibiotic-induced disruption of the microbiota leads to a breakdown of this resistance and increased susceptibility to enteric infections. Clostridioides difficile (Cd) is a spore-forming human pathogen that exploits antibiotic-associated dysbiosis to cause detrimental colitis through the production of enterotoxins. Antibiotic-induced changes of the microbiota and its metabolome favor intestinal spore germination and vegetative growth by Cd, and failure of microbiota recovery is associated with disease recurrence. While mechanisms of postantibiotic Cd colonization are increasingly understood, the impact of post-antibiotic changes in epithelial responses to Cd toxins remains an open question. Here, we aim to dissect post-antibiotic epithelial responses to Cd toxins, and how they are modulated by the microbiota, using Bacteroides thetaiotaomicron (Bt) as a representative mucus-associated gut commensal. By combining classic microbiological techniques, biochemical and imaging assays with transcriptomics, metabolomics, and drug-based host perturbation experiments, we will unravel how Bt modulates epithelial immune responses to Cd toxins at multiple levels. This strategy will identify novel molecular decision points to develop urgently needed, host-centric intervention strategies against C. difficile infections.

In the past, the lab drew from a toolkit of bacterial reporter strains, advanced cell culture, and tissue engineering approaches to answer similar questions (PMIDs: 32071273; 36939013; 30523110).

**Requirements:**

- Master’s or equivalent degree in molecular, cellular, infection, or microbiology, or a related field of the life sciences
- Background in infection biology or the microbiota
- Experience with standard molecular biology and cell culture techniques
- Strong written and spoken English language communication skills
- Highly motivated and organized
We offer:

Cutting-edge expertise in all disciplines contributing to DECIDE, single-cell RNA-seq, advanced human and animal tissue model, enhanced through the support of core facilities in sequencing, bioinformatics, mass spectrometry and microscopy. PhD students will be members of the Integrated Research and Training Group of the CRC (IRTG DECIDE), a structured graduate and post-graduate program including a state-of-the-art training program.

How to apply:

The JMU aims to reduce the underrepresentation of women and therefore explicitly encourages qualified women to apply. Severely handicapped applicants will be given preferential consideration in the case of broadly equal suitability, ability, and professional achievements.

Please mail or email your application documents (including a short letter of motivation, CV, certificates, and a ½ - 1 page description of a prior research project) to

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You are also welcome to provide reference names in your CV. For further information, please contact Jun. Prof. Dr. Alexander Westermann.

The closing date for applications is August 6th, 2023.

Please do not send any original documents to us; only send photocopies. As we need to save costs, we will not be able to return your documents to you. They will be shredded shortly after a hiring decision has been made. If you enclose a postage-paid return envelope, we will return your application documents to you three months after a hiring decision has been made.