

Project Title: Phage decolonization of antimicrobial-resistant enteropathogenic bacteria

Supervisor: Dr. Thomas Fließwasser

Institute/group: Institute for Pharmaceutical Microbiology, DZIF JRG Fließwasser

Webpage: www.imp.uni-bonn.de/research/fliesswasser-group

Requirements: Interest in translational microbiology research, basic knowledge in biochemistry and molecular biology

Skills to be learned: Anoxic handling of strict anaerobic gut bacteria, multispecies co-cultivations using bioreactors, working with bacteriophages and pathogenic organisms, preparation of DNA from highly complex samples, 16S Sequencing, and HPLC.

Project Description (max. 150 words): The human microbiome is inhabited by a plethora of different bacteria that have mostly evolved a commensal and beneficial relationship with their host. Nevertheless, pathogenic bacteria can also reside within this environment, raising the risk for life-threatening infections that become increasingly harder to treat in the light of the silent pandemic of antimicrobial resistance. To tackle these infections, a promising approach is the selective decolonization of pathobionts before an infection occurs.

The Fließwasser lab is studying bacteriophages as precisely working agents for the decolonization of resistant ESKAPE enteropathogens from complex microbial communities using a bioreactor-based *in vitro* gut model as an evaluation platform. The translational research is part of cooperations within the German Center for Infection Research (DZIF) and aims to acquire IMPD data for clinical trials. The student will join the junior research group (JRG) and support their phage-related research.

Support concept (max. 75 words): Full integration into the JRG, including weekly general lab meetings and individual mentoring as required. Flexible working hours adjusted to the student's schedule and the needs of the project. Contact with national and international cooperation partners and access to the DZIF network. Possibility to extend aspects of the research topic for lab rotations, master's thesis, and doctorate. Support in applying for research and doctoral scholarships, if necessary.

Interested to recruit and finance a suitable student by own funds: NO