

The Max Planck Institute for Developmental Biology in Tübingen is a world-renowned research institute of the German Max Planck Society. The Department "Microbiome Science" of Prof. Dr. Ruth E. Ley is studying the role of lipids in host-microbiome symbiosis.



PhD position in Bacterial Lipidomics (m/f/d)

The position:

We present a unique and exciting opportunity for a PhD student to develop a MALDI mass spectrometry-based screening approach to characterize lipid biosynthesis genes and their role in host-microbiome symbiosis.

The project:

Lipids are crucial components of both eukaryotes and bacteria that function in energy storage, membrane biosynthesis, and chemical signaling. Recently, their role in host-microbiome interactions has gained significant attention, where lipids produced by the gut commensal *Bacteroides thetaiotaomicron* (Bt) were found to have an impact on intestinal homeostasis, immune responses and host lipid profiles. However, the identity and mechanism of the genes responsible have not yet been fully characterized. In response, we are using a Bt transposon insertion library to explicitly characterize the genetic determinants of lipid biosynthesis and their role in host-microbiome symbiosis.

Description:

We are seeking an intelligent, motivated PhD candidate to carry out this work. Anticipated experimental work will include the generation of library replicates, establishing a MALDI mass spectrometry-based transposon mutant screening strategy, the identification of genes involved in Bt lipid biosynthesis, the generation of inducible systems for genes of interest, and the characterization of those genes in a gnotobiotic mouse model. The project requires the candidate to work closely with research technicians, students, postdocs, and principal investigators while engaging with the scientific community via conference presentations and publications. The position is ideal for someone interested in making a major impact in deepening the understanding of bacterial lipidomics while working in a fast-paced environment with a diverse and creative team.

Position Requirements:

- Must have a strong background in molecular biology, microbiology, bacterial genetics, mass spectrometry, analytical chemistry or related field;
- Must have working knowledge of molecular biology and/or bacterial genetics;
- Must have working knowledge of mass spectrometry;
- Must have excellent English communication skills (written and spoken);
- Experience with high-resolution mass spectrometry (FT-ICR) and mass spectrometry imaging (MALDI) is a plus;
- Experience with lipidomics is a plus;
- Experience with mass spectrometry data analysis (Compass DataAnalysis, SCI LS Lab) is a plus;
- Hands-on experience with mice is a plus;
- Must be comfortable (after training) handling organic solvents and S2 bacteria safely;
- Must have the ability to prioritise and perform multiple tasks simultaneously

The position is available early 2022. Applications (cover letter, CV, list of references) should be sent to micro_admin@tuebingen.mpg.de. Please indicate the project title in the mail subject and address to Prof. Ruth E. Ley, Ph.D. Position is open until filled.