

Advance Notice: 1 PhD position in Natural Product Chemistry

Project Title: Identification of microbial defensive secondary metabolites and elucidation of their biosynthesis

Call: announcement approx. mid of January 2018 => **ILRS webpage:** <http://www.ilrs.de/>

Project Start: spring 2018

Project Outline: Our general scientific activity focuses on the biochemical analysis of multilateral symbiotic interactions – in particular chemical signals that orchestrate the interactions between termites, their fungal cultivar, fungal competitors and associated bacteria. We hypothesize that bacteria residing within the comb provide a third line of defence against invading alien species by secretion of antimicrobial secondary metabolites. This project focuses on the chemical analysis of genome-sequenced symbiotic bacteria, which have been isolated from a fungus-growing termite nest. The PhD candidate will first pursue the comparative metabolomic analysis of selected bacterial strains using co-culture set-ups. The metabolomic analysis can be complemented by genome mining and transcriptional studies. In selected cases, in depth studies of unique biosynthetic enzymes using heterologous expression and invitro assays will be performed.

Main Topics and Potential Tasks:

- Comparative metabolomic analysis using LC-(HR)MS and NMR
- Characterization of novel secondary metabolites using NMR, HRMS, IR, etc.
- Identification novel biosynthetic genes and gene clusters
- real-time PCR of selected regulatory and biosynthetic genes

Requirements:

- Theoretical and practical skills in Molecular Biology **and/or**
- Expertise in Analytical Chemistry (NMR, HRMS, IR, HPLC, LC-MS)
- The candidate should embrace working in a young international research team
- A Master degree (or equivalent) in chemistry and related natural and life sciences. Candidates about to obtain their degree are welcome to apply!
- An integrative and cooperative personality with enthusiasm for actively participating in a lively community of the HKI, the JSMC (www.jsmc.uni-jena.de) and ILRS (www.ilrs.hki-jena.de) Community
- To be able to perform team-oriented as well as independent work
- Very good communication and writing skills (English)

We offer: A highly translational project with a promising career perspective. Highest standard laboratories with state-of-the-art instrumentation and the collaborative and constructive atmosphere at the HKI provide ideal conditions for the success of your project.

We offer you great work opportunities in a dynamic research institute with high reputation. As a doctoral researcher you will be integrated into the structured training of our graduate schools and benefit from the extensive qualification program of the Graduate Academy of the Friedrich Schiller University. The successful candidate will be hosted in the Junior Research Group *Chemical Biology of Microbe-Host Interactions*.

For further information regarding the research topic: please contact: Dr. Christine Beemelmans (christine.beemelmans (at) leibniz-hki.de)

For applications: please check the **ILRS webpage** (<http://www.ilrs.de/>) for the official upcoming call (approx. mid of January) and further instructions how to submit your applications.