

### Job advertisement no. 197/2023

The junior research group Microbiota-Associated Natural Products led by Dr. Julian Hegemann, at the Helmholtz-Institute for Pharmaceutical Research Saarland (HIPS) in Saarbrücken, is offering a position as

#### **Doctoral Researcher (f/m/d) for the project “Generation of New-to-Nature Lasso Peptides”**

The Helmholtz Institute for Pharmaceutical Research Saarland (HIPS) researches new active ingredients against infectious diseases. It was founded in August 2009 as a branch of the Helmholtz Centre for Infection Research (HZI) in Braunschweig together with Saarland University. A new research building was moved into on the campus of Saarland University in 2015. Currently, 260 employees of international origin work at the institute, which is still under construction. The HIPS is the first publicly funded non-university research institution in Germany explicitly dedicated to pharmaceutical research. The institute cooperates with international and national research institutions and industrial companies.

The research group Microbiota-Associated Natural Products is focusing on the identification, isolation, characterization, and study of specific **RiPP natural products produced from commensal or pathogenic bacteria**. We are especially interested in **new bioactive compounds with antimicrobial properties** that can be used as potential drug leads for the **development of novel anti-infectives** and elucidating their **roles in their native environments**.

This project revolves around the **investigation and optimization of the stability and antimicrobial properties** of natural products belonging to the class of **lasso peptides**. In addition, **bioengineering strategies** will be employed to **install new functionalities** in these lasso peptide scaffolds and to **generate conjugates with other antimicrobial molecules**. The goals of this research project are to perform **structure-activity-relationship (SAR) studies** on the compounds and **improving their stability** under physiological conditions to enhance their **potential for the development of novel therapeutics**. This project will be carried out in collaboration with the laboratory of **Prof. John Chu from the National Taiwan University**. **Joint meetings** with the collaboration partners are planned to **take place both in Germany and in Taiwan** on an alternating basis.

#### **Responsibilities:**

- Ability to manage and conduct a natural product-based research project
- Establishing and modifying heterologous production systems for natural products using molecular cloning and mutagenesis methods, cultivation screens for production optimization
- Extraction, purification, and characterization of natural products using HPLC- and MS-based techniques
- Carrying out antimicrobial activity, proteolytic stability, transcription inhibition, and protein binding assays
- Structure elucidation of peptides
- Scientific writing (scientific publications, patents, and presentations)

**Requirements:**

- Completed scientific university studies in chemistry, biology, pharmacy, or any other relevant field (master's degree or equivalent).
- Professional experience in biochemical, molecular and/or microbiological work procedures
- Willingness to work independently in a goal-oriented manner in a collegial, international, and interdisciplinary environment
- Fluency in English (written and spoken)
- Very good skills in scientific writing

**Advantageous for this position:**

- Experience in natural product isolation, characterization, and/or analysis
- Experience in HPLC purification and (LC-)MS analysis
- Experiences in basic organic chemistry work procedures
- Experiences in NMR spectroscopy

**We offer you:**

- challenging and varied tasks in a dynamic and international research environment
- modern laboratories and state-of-the-art instrumentation
- extensive further training opportunities and the opportunity to enroll in a structured PhD program
- unique network of excellent partners to support your research endeavors
- 30 days vacation (24.12. & 31.12. are considered as completely free days)
- an annual additional payment (Weihnachtsgeld) analogue to § 20 TVöD
- social security included
- flexible working hours and workplace design
- a corporate culture of appreciation and promotion of equal opportunities
- Support for a better balance between work and private life through our family office

People with severe disabilities and equivalent professional qualifications who are suitable for the position are given preference. The HZI strives for professional equality between women and men. The position is suitable for part-time work.

<b>Starting date:</b>	As soon as possible. The contract will initially run for three years.
<b>Salary:</b>	analogue to E13 TVöD Bund (55%)
<b>Working time:</b>	19.5 hours per week
<b>Place of work:</b>	Saarbrücken/ HIPS
<b>Probation period:</b>	6 months
<b>Published:</b>	<b>08.December 2023</b>
<b>Closing date:</b>	<b>31.January 2024</b>
<b>Application:</b>	Applicants are required to complete the online application form here: <a href="https://hzi.opencampus.net/">https://hzi.opencampus.net/</a> (Please select Job No. <b>197/2023</b> ).

For further information please contact Dr. Julian Hegemann directly via email: [julian.hegemann@helmholtz-hips.de](mailto:julian.hegemann@helmholtz-hips.de).

Further information about the institute and the research group can be found on our website:  
<https://www.helmholtz-hips.de/en/research/teams/team/microbiota-associated-natural-products/>