JÄSCHKE LAB
chemical biology of nucleic acids

INSTITUT FÜR PHARMAZIE UND MOLEKULARE BIOTECHNOLOGIE

UNIVERSITÄT HEIDELBERG
ZUKUNFT SEIT 1386

ERC-funded postdoc position in RNA mass spectrometry

The research group of Prof. Dr. Andres Jäschke at the Institute of Pharmacy and Molecular Biotechnology (IPMB), Heidelberg University, offers a full-time position funded by an ERC Advanced Grant. The candidate will study novel epitranscriptomic RNA modifications by mass spectrometry and multi-OMICS approaches.

Background:
The Jäschke group is among the leading labs in epitranscriptomics, studying the role of natural RNA modifications in biology. By discovering and characterizing regulatory RNAs connected to the redox coenzyme NAD in various bacteria (*Nature* 2015, *Nature Protocols* 2017, *Cell Reports* 2018), Eukaryotes (*Nature Communications* 2021), and Archaea (*BioRxiv* 2023), we contributed to the establishment of a new field, directly linking redox biology and gene expression. We also reported the first enzyme that can remove this novel RNA modification (*Nature Chemical Biology* 2016). Recently, we discovered an exciting biological role of NAD-RNAs in the context of the viral takeover of the host's genetic machinery (*Nature* 2023) In 2020, Prof. Jäschke was awarded an Advanced Grant by the European Research Council, providing generous funding for the next years.

Objectives:
NAD is just one of many coenzymes and metabolic intermediates that share certain structural features. This project aims to establish the scope and biological significance of coenzyme-linked RNAs in biology. We will develop new capture methods to identify cellular RNAs modified with coenzyme A, flavin, thiamine, and N-acetylglucosamine. We will apply these protocols to RNAs isolated from different organisms to explore the occurrence, abundance, and structural variety of such RNAs. For selected modified RNAs, we will unravel the biological significance and biosynthesis.
Within this interdisciplinary project, the candidate will develop, establish, and apply state-of-the-art techniques for the mass-spectrometric identification and quantification of various RNA modifications, and for the integration of mass-spec data into multi-OMICS datasets. The candidate will collaborate with various members of the epitranscriptomics team and external collaborators to provide mass-spec expertise to their projects.

Requirements:

- Applications are invited from enthusiastic and motivated candidates with a keen interest in RNA biochemistry and a desire to challenge textbook wisdom.
- A strong background (3 years +) in biological MS is required, including LC-MS/MS workflows and sample preparation, demonstrated by publications.
- Essential attributes for success in this role include creativity, initiative, teamwork, proficiency in the English language, and an inclination for teaching.
- While practical experience with RNA and multi-OMICS integration is considered advantageous, it is not mandatory.

Application details: To apply, please send a letter that motivates your application for this position, your CV, transcripts, a summary of previous research, and contact details of two academic references as a single pdf file to Prof. Dr. Andres Jäschke (jaeschke@uni-hd.de).

Practical information: The initial duration of the contract is fixed to 24 months, with a possibility of prolongation. The salary corresponds to E13 (100 %) TV-L.