

## Open PhD Position at HHU in Microbiology/Microbial Biochemistry

### Background

Lanthanides (“rare-earth elements”, Ln) are the most recently described life metals. The belief of Ln being rare is misleading. The name “rare earth” is a consequence of Ln occurring in poorly soluble minerals, which hinders their recovery for industry. Dubbed “vitamins of the Anthropocene”, Ln are highly relevant to our modern way of living. Ln are not biologically inert, but highly relevant for microbial C1-metabolism and likely other aspects of microbial physiology. Previous work has shown that differences in terms of Ln supplementation have a pronounced effect on gene expression. Combining sequencing-based small RNA profiling and ribosome profiling, with (protein) biochemical work, focusing on RNA-Ln interactions and identifying new proteins involved in Ln-dependent metabolism, we want to take a closer look at the regulatory landscape linked to Ln-dependent metabolism.

### Your responsibilities

- Batch and high-throughput cultivation experiments
- Extraction of small RNA and bulk total RNA followed by rRNA depletion and sequencing
- library preparation
- Establishment of dry-lab data processing pipelines for small RNA sequencing, and ribosome profiling data analysis
- Characterization of Ln - RNA interactions using structural analysis and interaction studies
- Examining potential new proteins partaking in Ln-dependent metabolism
- Work on a scientific qualification project: doctorate, writing and publishing scientific papers in peer-reviewed journals, presenting results at national and international conferences

### Your profile

- MSc. Degree in biosciences, ideally with a focus on microbiology/microbial biochemistry
- Knowledge about microbial physiology is expected
- A strong background in cultivation and experience with molecular techniques (RNA extraction, sequencing library preparation, protein extraction)
- Knowledge about bioinformatics (RNAseq data analysis) and/or structural analysis/interaction studies would be desirable but not mandatory
- Excellent English communication skills, both written and spoken, are desirable
- Enthusiasm, motivation, and creativity to shape your own thesis project

### We offer

- An interdisciplinary project, in a dynamic field of research, involving cutting-edge methods and collaborations with national and international partners
- A comprehensive mentoring programme with supervision by a team of advisors and qualification and development measures
- A family-friendly working environment with a supportive team

The position is limited to 3 years (67% E13). The project is supervised by Prof. Dr. Lena Daumann and Dr. Carl-Eric Wegner; the **place of work will be HHU Düsseldorf**.

If you believe you fit the description then please send a brief letter of motivation, a short CV highlighting your academic and research accomplishments as well as copies of academic certificates and the contacts of two references **as one pdf file** to [lena.daumann@hhu.de](mailto:lena.daumann@hhu.de)

<https://www.exploringmicrobes.science/>

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