

Position Offer for a Master's Thesis

The Helmholtz Centre for Infection Research (HZI), Department of Respiratory Infection Dynamics (DINF), led by Prof. Dr. med. Hortense Slevogt, is seeking a master's student to join our team at the earliest opportunity

Master's Student (m/f/d)

We offer an exciting research project at the intersection of microbiome research, host-pathogen interactions, and advanced sequencing technologies. This project will explore the microbial and fungal ecosystems of the human respiratory tract using next-generation sequencing (NGS), whole-genome shotgun metagenomics, and ITS sequencing.

Information about the Department/Project:

The HZI is Germany's largest non-university infection research center, dedicated to cutting-edge research in infectious diseases. Our research group in Braunschweig focuses on respiratory microbe-host interactions, combining clinical and molecular biology. We collaborate closely with the Clinic for Pneumology and Infectiology at MHH and the German Center for Lung Research (DZL), ensuring a strong bench-to-bedside approach. Our experienced team of nine scientists has extensive expertise in mentoring master's students and employs state-of-the-art methods, including cell culture, bioinformatics, molecular biology, and infection biology.

Project Description:

This project aims to investigate the microbial and fungal ecosystems of the human respiratory tract through NGS-based approaches. Using curated mock communities of *Candida albicans* and *Aspergillus fumigatus*, among others, we will refine DNA extraction methods, optimize primer designs, and validate sequencing pipelines for clinical applications.

Main objectives:

- **Development of wet-lab workflows:** Optimization of metagenomics and mycobiome protocols, including DNA extraction, primer refinement, and bioinformatics pipelines.
- **Translational application:** Applying optimized pipelines to human respiratory tract samples to assess microbial and fungal diversity in health and disease.

Methods:

- Cultivation of fungi and bacteria
- DNA extraction
- Quantitative PCR (qPCR)

- Next-Generation Sequencing (NGS) library preparation
- Bioinformatics analysis

Your Qualifications and Skills:

- Bachelor's degree in biochemistry, microbiology, biology, biomedicine, or related fields
- Experience in aseptic and clean laboratory practices
- Strong mathematical understanding and good observational skills
- Precise and scientific working methods
- Very good English skills are an advantage
- Motivation, good communication skills and team spirit

We Offer You:

- An engaging research environment with access to cutting-edge infrastructure
- Strong academic support and supervision
- Hands-on experience in an interdisciplinary team
- Financial support of 450€ per month

We aim for gender equality and welcome applications from qualified women. If you have a disability, please indicate this in your application, and preference will be given to equally qualified candidates with disabilities.

Start Date: As soon as possible (e.g. April, May, or June).

Contact for Further Information:

For more information, please contact Dr. Cristina Zubiria Barrera at +49 531 6181-3603 or via email at cristina.zubiriabarrera@helmholtz-hzi.de.

How to Apply:

Please confirm your acknowledgment of our data protection policy and consent to the processing of your personal data by including the relevant text block from our data protection declaration with your application. Without this consent, we cannot process your application and will delete any received applications after the position is filled.

Submit your application including a cover letter, CV, certificates, and references (please avoid to include a photo) via email to slevogt.hortense@mh-hannover.de.

We look forward to receiving your application!