HZI HELMHOLTZ Centre for Infection Research

Reference: DINF Master Thesis

Job advertisement for Master Thesis

The Helmholtz Centre for Infection Research (HZI), Dynamics of Respiratory Infections group (DINF), Group leader: Prof. Dr. med. Hortense Slevogt is looking for a motivated master student from 01.06.2024 with later starting dates possible.

Master student (m/f/d)

The HZI is Germany's largest non-university infection research center in the Helmholtz Association. Its focus is on cutting-edge research in the field of infectious diseases. Scientists at HZI work on the development of new methods and strategies to fight infectious diseases faster and more effectively.

Information regarding Group/Project

Our research group at the HZI in Braunschweig focuses its research on interactions between lung microbes and the host where we apply combined approach of clinical and molecular biology methods. We are closely connected to the Clinic for Pulmonology and Infectious Diseases at the MHH and we are a part of the German Center for Lung Research (DZL), which opens up excellent opportunities for translational research. Our team currently consists of nine scientists who use a wide range of methods, including cell culture, molecular biology, infection biology and bioinformatics.

In the context of a comprehensive project, the Master's thesis will focus on the areas below. Cold atmospheric plasma (CAP) is a cutting-edge technology with immense potential in antimicrobial therapy. CAP represents a unique state of matter composed of partially ionized gases containing reactive oxygen and nitrogen species. While CAP's broad-spectrum antibacterial efficacy is well established, its specific impact on the lung microbiota, including commensal organisms, pathogens, and fungi, remains largely unexplored. This research aims to investigate the interactions between CAP and lung microbiota, potentially revealing new therapeutic interventions against respiratory infections.

Your tasks and responsibilities for this project include:

- Cultivating bacteria under different conditions, both on agar plates and in liquid culture media, to establish diverse and representative bacterial cultures for experimentation. This will involve varying factors such as nutrient composition, temperature, and incubation time to simulate different environmental conditions encountered in the lung microbiota.
- Applying Cold Atmospheric Plasma (CAP) on bacterial cultures using a plasma generator and precise exposure system to ensure controlled treatment conditions.
- Evaluating the antimicrobial effect of CAP by quantifying colony-forming units (CFUs), providing quantitative data on the efficacy of CAP treatment in reducing bacterial viability.
- Analysing the obtained results to discern trends, correlations, and potential implications, contributing to a comprehensive understanding of CAP's antimicrobial potential against lung microbiota.

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Required skills and qualifications

- Bachelor in Biology, Biotechnology, Microbiology or similar.
- Mathematical understanding and good observation skills.
- Knowledge of aseptic techniques.
- Hands-on experience in cell culture is a plus.
- Motivation and curiosity to join our team and contribute to the field of Lung Research.

We offer

- An exciting occupation in a future-oriented research institute at the Science Campus in Braunschweig.
- Access to state-of-the-art infrastructure and the latest technologies.
- Professional supervision and technical support during your master thesis.
- The opportunity of scientific work on a relevant topic with application on medical field.
- The integration in interdisciplinary international team with a pleasant working atmosphere.

People with severe disabilities and equivalent professional qualifications who are suitable for the position are given preference. In order to protect your rights, we ask you to provide us with a clearly recognizable reference to the existence of a degree of severe disability in your cover letter or resume.

The HZI strives for professional equality between women and men; hence, we particularly welcome applications from qualified women.

Start

From 01.06.2024 with later starting dates possible (autumn, winter).

For more information, please contact Dr. Hanna Fokt, phone +49 531 6181-3606 or send an e-mail to: hanna.fokt@helmholtz-hzi.de

How to apply

When sending us your application documents, **please confirm** that you have read our privacy policy and that you agree to the processing of your personal data. Please use the text module in our privacy policy for this purpose. **Without these declarations, we cannot consider or process your application** and will immediately delete any application documents already received after the application deadline.

Please include a cover letter, CV, (employment) references and certificates. Please refrain from sending a photo. Please send you complete application by email to slevogt.hortense@mh-hannover.de.

We look forward to receiving your application!