

Helmholtz-Zentrum für Infektionsforschung GmbH



The Helmholtz Centre for Infection Research, based in Braunschweig, is a member of the Helmholtz Association and conducts cutting-edge research in the field of infectious diseases. Our scientists develop novel methods and strategies to combat infectious diseases more quickly and effectively. Our common goal is to develop novel approaches to the prevention, diagnosis, and treatment of infectious diseases. Our research focuses on bacterial and viral pathogens, their interaction with the human immune system, and new effective drugs and vaccines.

Master Thesis

“Interaction between commensal *Streptococcus* species and the human respiratory epithelium in the context of cell death and inflammation.”

City: Braunschweig; Starting date (earliest): At the earliest possible;

Remuneration: 450,00; Reference number: 593; Closing date: 28/02/26

Working field

The Department Dynamics of Respiratory Infections (DINF) under the direction of Prof. Hortense Slevogt at the Helmholtz Centre for Infection Research (HZI) is offering a

Master Thesis

“Interaction between commensal *Streptococcus* species and the human respiratory epithelium in the context of cell death and inflammation.”

Our research group at the HZI in Braunschweig is dedicated to investigating the interactions between lung microbes and the host. Our approach is characterized by the integration of clinical and molecular biological methods. Of particular note are our close ties to the Department of Pneumology and Infectiology at the MHH and our participation in 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, bioinformatics, molecular biology, and infection biology.

The master thesis project focuses on the human lung microbiome and its interactions with respiratory epithelial cells. These cells have an important barrier and immune function. In addition to known pathogenic lung pathogens such as *Staphylococcus aureus* and *Streptococcus pneumoniae*, new methods such as next-generation sequencing (NGS) are increasingly discovering bacterial species whose role and interaction with the lung epithelium is still unknown. The molecular interactions between pathogens and commensals of the lung and the lung epithelium are currently being investigated in our working group as part of a doctoral thesis. Close cooperation is planned for this purpose.

Aim of the thesis:

Characterization of streptococcal clinical isolates in terms of growth and metabolic profile, as well as performing infection experiments with the isolates, respiratory

pathogens and airway epithelial cells.

These tasks await you:

- Learning cell culture techniques, cultivation of human bronchial epithelial cells.
- Acquiring microbiological knowledge such as cultivation of bacteria under aerobic and eventually anaerobic conditions, performing growth curves.
- Conducting infection experiments with bacteria and human cells.
- Deepening your skills in molecular biology laboratory methods such as ELISA, LDH assay, RNA extraction, qPCR, histology, immunostaining, and microscopy.
- Evaluation and statistical analysis.

Requirements

We are looking for a Master-student who enjoys the activities described.

- Advanced master's degree in biology, biotechnology, biomedicine, or equivalent fields of study.
- Familiarity with aseptic and clean working practices.
- Prior knowledge of microbiology or bacterial cultivation.
- Basic knowledge of molecular biology and biochemical methods.
- Motivation and interest in experimental research.
- Precise and scientific working methods.
- Reliable communication and teamwork skills.
- Good English language skills are an advantage.

What we offer

- An expense allowance of EUR 450 per month for a maximum of 6 months.
- An exciting and varied role in a future-oriented research institute with an international environment on the Science Campus South in Braunschweig.
- Access to state-of-the-art infrastructure and the latest technologies.
- A corporate culture that promotes appreciation and equal opportunities.
- Professional supervision and technical support during your master's thesis.
- The opportunity to work on a current and practice-relevant topic in a scientific context and learn a lot in a friendly and international team.

Application

For more details regarding the position, please contact Mrs. Malena Bos, Tel. 0531 6181-3605 or via E Mail: malena.bos@helmholtz-hzi.de .

Please send your application digitally by email to malena.bos@helmholtz-hzi.de

Please include a cover letter, CV, (work) references and certificates with your application documents. Please do not send a photo.

We look forward to receiving your application!

More information at <https://stellenticket.de/200806/TUBS/>
Offer visible until 19/02/26

