



Master thesis in life sciences

Topic: Cell Biology, Organoids and Infection

The Science Campus South **Helmholtz Centre for Infection Research**, based in Braunschweig, conducts cutting-edge research in the field of infectious diseases. We develop novel methods and strategies to recognize and combat infectious diseases ever faster and more effectively. Our common goal is to find new approaches to the prevention, diagnosis and treatment of infectious diseases. This also includes mechanistic research into the molecular basis of infectious diseases. Our research centres on bacterial and viral pathogens and their interaction with the immune system. This also includes the subject areas of epidemiology, immunology, compound- and vaccine research.

The Department of **Cell Biology** currently comprises 4 scientific groups as well as the central units for electron and light microscopy. In the groups, we deal with cell movement processes during host-pathogen interaction. The current call for applications concerns the **Cell Biology** group headed by **Theresia Stradal**. Cells change their shape and motile behavior not only during differentiation, but also during **inflammation** or **infection**. We study motile processes that accompany specific cell differentiation steps, such as the polarization of macrophages, or differentiation of osteoclasts, of neurons, or the formation of the intestinal epithelial barrier. The common denominator is always a reorganization of the cytoskeleton, which constitutes or accompanies cell differentiation.

The formation of **organoids** from stem cells reproduces the differentiation steps and makes them accessible to us outside the organism. In recent years, the use of organoids for infection research has also begun. In this exciting, **interdisciplinary** field, we work on the cell movements that occur during the above-mentioned processes.

What you do with us

- You will participate in the establishment of organoid systems with a focus on brain and intestinal organoids.
- You will develop improved protocols for the **characterization** of our organoid systems using molecular (qPCR, NGS) and microscopic methods up to video microscopy with living specimens.
- You integrate existing protocols for the **transfection** of primary cells
- You are there when we analyze the behavior of organoids under infection conditions

What you bring with you

- Degree program in biology, biomedicine, biotechnology or similar
- Experience in sterile work with cell cultures
- Knowledge of microscopy and image analysis is an advantage
- Confident written and spoken German and English skills
- A supervisor from your local University who supports an external Master thesis

What you can expect

- A strong **team culture** with flat hierarchies is a matter of course for us. This means: high esteem and trust
- Professional **supervision** and technical support in the preparation of your student research project/thesis
- **Insight** into the current challenges of infection research

We value and promote the diversity of our employees and their skills and therefore welcome all applications - regardless of age, gender, nationality, ethnic and social origin, religion, ideology, disability, sexual orientation and identity. People with severe disabilities are given preference if equally qualified.