

Helmholtz-Zentrum für Infektionsforschung GmbH



As a member of the Helmholtz Association, the Helmholtz Centre for Infection Research, based in Braunschweig, conducts top-level research in the field of infectious diseases. Our scientists develop novel methods and strategies to fight infectious diseases faster and more effectively. Our common goal is to develop novel approaches for 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 substances and vaccines.

Master Thesis in the area of human microbiome research

“Investigating functionalities impacting human gut microbiome transmission”

City: Braunschweig; Starting date (earliest): At the earliest possible; Remuneration: □ An expense allowance of EUR 450 per month for a maximum of 6 months; Reference number: Master MIKI; Closing date: 14/12/25

Working field

The human gut microbiome contains thousands of microbial species and trillions of microbial cells. Far from being static, our gut microbiomes evolve throughout life through ongoing microbial acquisition and transmission, affecting human health beyond infectious diseases. Although environmental factors (such as proximity and interpersonal relationships) influence microbiome transmission, the role of inherent biological traits of gut microbes in person-to-person transmission remains largely unexplored.

Aim of the thesis:

This project aims to examine microbial functional and metabolic traits that may affect the person-to-person transmission of commensal gut microbes (e.g., *Segatella copri*). The study will combine bioinformatics methods with large internal and external datasets to explore functions in commonly transmissible gut species.

References:

- [1] K. D. Huang, M. Müller, P. Sivapornnukul, A. A. Bielecka, L. Amend, C. Tawk, T. R. Lesker, A. Hahn, T. Strowig . Dietary selective effects manifest in the human gut microbiota from species composition to strain genetic makeup. 2025. Cell Reports.
- [2] Y. E. Mouali, C. Tawk, K. D. Huang, L. Amend, T. R. Lesker, F. Ponath, J. Vogel, T. Strowig. The RNA landscape of the human commensal *Segatella copri* reveals a small RNA essential for gut colonization. 2024. Cell Host & Microbe.
- [3] M. Valles-Colomer, A. Blanco-Míguez, P. Manghi, F. Asnicar, F. Armanini, F. Cumbo, K. D. Huang, S. Manara, G. Masetti, F. Pinto, L. Ricci, M. Zolfo, O. Farrant, A. Goncalves, M. Selma-Royo, A. G. Binetti, J. E. Becerra, B. Han, J. Lusingu, J. Amuasi, L. Amoroso, A. Visconti, C. M. Steves, M. Falchi, M. Filosi, A. Tett, A. Last, Q. Xu, N. Qin, H. Qin, D. Eibach, M. V. Corrias, M. Ponzoni, E. Pasolli, T. D. Spector, E. Domenici, M. C. Collado, N. Segata. The person-to-person transmission landscape of the gut and oral microbiomes. 2023. Nature.

Requirements

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

- Advanced master's degree
- Proficiency in at least one programming language: Python, R, or Bash.
- Familiarity with Unix systems
- A basic understanding of HPC (High-Performance Computing) environments would be an advantage
- Sufficient understanding of biostatistics, ecology, evolution, and molecular biology
- Strong motivation to acquire new bioinformatics skills and knowledge

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 Prof. Dr. Till Strowig via email: till.strowig@helmholtz-hzi.de, or by phone: +49 531 6181-4700.

How to apply:

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

Please include a cover letter, CV, (work) references and certificates with your application documents. Please do not send a photo. Please send your application digitally by email to till.strowig@helmholtz-hzi.de.

We look forward to receiving your application!

More information at <https://stellenticket.de/199415/TUBS/>
Offer visible until 14/12/25

