



The University of Lübeck offers

PhD position (m/f/d)

Clonal heterogeneity in *Klebsiella* spp. from urinary tract infections and its contribution to AMR plasticity

within the Leibniz ScienceCampus Antimicrobial Resistance Plasticity (AMR-PLAS). Fixed-term position for 3 years and 6 months, 65% TV-L / TVöD E13.

The Leibniz ScienceCampus AMR-PLAS investigates how microorganisms adapt and evolve in response to antibiotics, with the goal of improving our understanding of antimicrobial resistance (AMR). The rapid global spread of AMR is leading to an increase in difficult-to-treat infections and poses a major challenge for controlling infectious diseases. Within AMR-PLAS, we study genomic and non-genomic mechanisms of bacterial plasticity in clinically relevant pathogens, including ESKAPE pathogens, mycobacteria, and other medically important species.

The project

This PhD project, supervised by Prof. Rupp and Dr. med. Kocer, investigates the clonal heterogeneity of *Klebsiella* spp. in clinical isolates from urinary tract infections and its role in the plasticity of antimicrobial resistance. Routine diagnostics typically characterise a single colony and thereby overlook co-existing subclones with differing resistance profiles. Combining conventional multi-colony characterisation and whole-genome sequencing with a culture-independent single-cell workflow (B.SIGHT), the project aims to make this hidden diversity visible and to assess its clinical relevance.

Your tasks

- Culturing and phenotypic characterisation of longitudinal clinical *Klebsiella* isolates, including antimicrobial susceptibility testing
- Multi-colony analysis combined with whole-genome sequencing (WGS) to capture subclonal diversity
- Establishing and applying a culture-independent single-cell workflow (B.SIGHT) to isolate single cells from urine samples
- Bioinformatic analysis of sequencing data (assembly, variant and resistance-gene analysis, comparative genomics, phylogenetics)
- Benchmarking the single-cell method against the conventional colony-based approach
- Documentation, presentation and publication of results

Your profile

- A completed university degree (Master's or equivalent) in medical microbiology, molecular biology, biology, biomedicine or a related field
- Knowledge of microbiological and/or molecular biology methods; a clinical and/or bioinformatics background is an advantage
- Experience with, or strong interest in, whole-genome sequencing and bioinformatic data analysis
- An independent, structured and careful way of working, and enthusiasm for interdisciplinary collaboration between laboratory and clinic
- Very good command of English (written and spoken); knowledge of German is an advantage

What we offer

- A structured PhD within the Leibniz ScienceCampus AMR-PLAS, alongside fellow doctoral candidates across the network, with close mentoring from a junior scientist
- An internationally competitive research environment with state-of-the-art facilities and experimental, molecular, genomic and theoretical approaches
- Interdisciplinary collaboration, structured training, early-career networking and research-to-practice transfer
- Remuneration at 65% E13 TV-L / TVöD, fixed-term for 3 years and 6 months, including full social security benefits

Your application

Please send your complete application (cover letter, CV and certificates) as a single PDF by 27 July 2026 to kaan.kocer@uni-luebeck.de. For questions, please contact Kaan Kocer (kaan.kocer@uni-luebeck.de).