



UNIVERSITY
OF COLOGNE

Faculty of Mathematics and Natural Sciences

2 Doctoral Researcher positions – TRR 341 Plant Ecological Genetics (f/m/x)

Institute for Plant Sciences

We are one of the largest and oldest universities in Europe and one of the most important employers in our region. Our broad range of subjects, the dynamic development of our main research areas and our central location in Cologne make us attractive for students and researchers from around the world. We offer a wide range of career opportunities in science, technology, and administration.

The TRR 341 is a Collaborative Research Centre funded by the German Research Foundation (DFG) at the Universities of Cologne, Düsseldorf, Bochum, Marburg and the Max Planck Institute for Plant Breeding Research. In a joint and interdisciplinary approach, combining plant molecular biology and ecology, we are investigating the genetic underpinnings of plant responses and adaptation to global environmental change. Together, our aim is to provide new molecular and genetic data and tools to better understand the molecular basis of plant adaptation. We thereby hope to support current and future efforts for the preservation of plant biodiversity.

Both positions are located in the group led by Professor Zuccaro at the Institute for Plant Sciences at the University of Cologne. The overall aim of this project is to investigate plant genetic polymorphisms affecting colonization by beneficial microorganisms and their impact on functional traits and plant performance under manipulated environmental conditions.

POSITION 1: IMPACT OF BENEFICIAL MICROBES ON PLANT TRAITS

YOUR TASKS

- » Investigate the synergistic effects of beneficial microbes on plant adaptability and fitness under biotic and abiotic stress conditions
- » Utilize a diverse panel of *A. thaliana* and *H. vulgare* accessions to quantify genetic variation in beneficial interactions with endophytes
- » Conduct experiments to assess plant phenotypic responses and disease symptoms to different microbial combinations
- » Collaborate with experts to analyse genetic data and identify host genes associated with microbial-dependent phenotypes

POSITION 2: MICROBIAL CONTRIBUTIONS TO PLANT FITNESS

YOUR TASKS

- » Evaluate microbial community structure in *Hordeum* and *Brassicaceae* species under varying soil nutrient levels
- » Investigate how host genotype and environmental conditions drive shifts in the root-associated microbiome
- » Conduct amplicon sequencing and correlative analysis to identify microbial taxa associated with plant fitness traits
- » Design and perform single-strain drop-out experiments to validate microbial contributions to host adaptation strategies

YOUR PROFILE

- » Master's degree (or equivalent) in Biology, Genetics, Microbiology, or a related field
- » Experience with molecular biology techniques and bioinformatic analysis
- » Drive, curiosity and creativity as well as a strong ability to solve problems through critical analytical thinking
- » Strong communication and teamwork skills
- » Ability to work independently and contribute to collaborative research efforts
- » Fluency in English

WE OFFER

- » Access to state-of-the-art facilities and an interdisciplinary research environment
- » A comprehensive training programme from our "Graduate School in Ecological Genetics" (GEcoGEN)
- » Working in an inspiring and collaborative German-wide research project
- » A diverse working environment with equal opportunities
- » Support in balancing work and family life
- » Extensive advanced training opportunities
- » Occupational health management offers
- » Flexible working time models

The University of Cologne is committed to equal opportunities and diversity. Women are especially encouraged to apply and will be considered preferentially in accordance with the Equal Opportunities Act of North Rhine-Westphalia (Landesgleichstellungsgesetz – LGG NRW). We also expressly welcome applications from people with disabilities / special needs or of equal status.

The positions are available immediately on a part-time basis (25,90 hours per week). The contracts are to be filled for a fixed term of 3 years. If the applicant meets the relevant wage requirements and personal qualifications, the salary is based on remuneration group 13 TV-L of the pay scale for the German public sector.

Please apply online with proof of the required qualifications without a photo with contact information for three references under: <https://jobportal.uni-koeln.de>. Please specify the preferred position (position 1 or 2). The reference number is Wiss2403-07. The application deadline is 05.04.2024.

For further inquiries, please contact Margaret Kox (mkox1@uni-koeln.de).