



Faculty of Mathematics and Natural Sciences

Two doctoral positions (f/m/x)

Siegfried Roth Laboratory - Institute for Zoology

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.

Evolution of Toll's role for axis formation in insects

Toll signaling is known for its role in innate immunity. However, in insects Toll is also involved in establishing the dorsoventral body axis. Our past work suggests that this is an evolutionary novelty of insects. In the cricket *Gryllus bimaculatus*, Toll signaling has convergently acquired a morphogen function comparable to that in *Drosophila melanogaster*. We seek two doctoral students to explore the molecular underpinnings of the striking parallels between DV patterning in crickets and flies. They will work closely together, one student focusing on protein dynamics and the identification of new genes of the network, the other focusing on epigenetic methods and cis-regulatory elements.

YOUR TASKS

- » CRISPR/Cas mediated genome editing in crickets
- » Creating fluorescent protein-tagged transgenes
- » Live imaging of morphogen dynamics
- » Differential transcriptome analyses (RNA-seq) for identifying network components
- » Mapping open chromatin by ATAC-seq in order to identify cis-regulatory elements
- » Computational analysis of cis-regulatory sequences
- » Collaborations with international experts

YOUR PROFILE

- » Interest in evolutionary developmental biology
- » Master's degree (or equivalent) in biology, ideally focused on molecular biology, developmental biology, and/or bioinformatics
- » Experience with or high motivation to learn about molecular, developmental and live imaging microscopic techniques
- » Motivation to acquire bioinformatic skills
- » Open for lab exchange with our international collaborators

WE OFFER

- » Interactions with several international research groups, modern imaging Facility
- » Expertise in imaging analysis
- » Expertise in NGS methods and data analysis
- » Expertise in development and molecular genetics of insects
- » A diverse working environment with equal opportunities
- » Support in balancing work and family life
- » Flexible working time models
- » Extensive advanced training opportunities
- » Occupational health management offers

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 Gender Equality Act of the State of North Rhine-Westphalia (LGG NRW). We also expressly welcome applications from people with disabilities / special needs or of equal status.

The position is available from the earliest possible starting date on a full-time basis. The position is 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 (65%) 13 TV-L of the pay scale for the German public sector.

Please send your application (without a photo) with proof of the required qualifications to <https://jobportal.uni-koeln.de> with the reference number Wiss2303-22.

The application deadline is 15 April 2023.

If you have any questions, please contact Professor Dr. Siegfried Roth (siegfried.roth@uni-koeln.de)