

PhD candidate (m/f/d)

“Genomic and epigenetic basis of cuticular hydrocarbon diversity in Hymenoptera”

3-year PhD positions (65% TV-L E13)

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Project description

Cuticular hydrocarbons (CHCs) serve insects as desiccation barrier, and chemical communication signals, representing a prime example of a multifunctional trait. Within insects, Hymenoptera show an astonishing **CHC profile diversity**. Yet little is known about the evolutionary mechanisms at the genomic and regulatory level that give rise to this diversity.

We aim to fill this knowledge gap by applying a **comparative genomic, transcriptomic and epigenetic** approach to study this multifunctional trait in a collaborative project in which multiple PIs and two PhD students are involved.

We are looking for a highly motivated candidate with interest in molecular evolution, genomics, epigenetics, and chemical ecology. The PhD project will focus on the identification of gene regulatory mechanisms (including epigenetics) governing species- and sex-specific CHC profile variation in a total of 26 wasp, ant, and bee species.

The successful applicant (m/f/d) will join an international dynamic scientific environment at the Johannes-Gutenberg-University of Mainz (JGU) and the Senckenberg Biodiversity and Climate Research Institute Frankfurt and will have access to state-of-the-art laboratories and computing facilities. He/she will work part of the time at the JGU and at the Senckenberg BiK-F. Both locations are spatially close to each other. The working language in both research groups is English. The position is funded by the German Research Foundation (DFG) for a period of 3 years (65% TV-L E13). Starting date should be ...

The project is a collaboration with Prof. Dr. Oliver Niehuis and PD Dr. Volker Nehring (University of Freiburg), Dr. Jan Büllesbach (University of Münster), and Prof. Dr. Thomas Schmitt (University of Würzburg) and involves close cooperation with a second PhD student in the project who is applying a comparative genomic approach. The project is embedded in the Priority Programme (SPP) 2349 “Genomic Basis of Evolutionary Innovations” funded by the German Research Foundation (<http://g-evol.com/>). The PhD candidate will receive hands-on training in bioinformatics and statistical methods and will benefit from various courses offered by the participants of the SPP.

Your tasks

- CHC profile analysis
- RNA extraction and construction of ATAC-seq and whole-genome bisulfite sequence libraries
- Bioinformatic analyses
- Publication of results in internationally peer-reviewed journals
- Close collaboration with the comparative genomics counterpart

Your profile

- Master degree in evolutionary biology, molecular biology, computational biology/bioinformatics or a related subject
- Teamwork-oriented, excellent communication skills with proficiency in written and oral English
- Interest to collaboratively work in an interdisciplinary team
- Previous experience with working on insects, in chemical ecology, molecular biology, statistics, and/or bioinformatics is advantageous, but not mandatory.

Application

Please send your application as a single pdf file containing

- ✓ **a cover letter outlining your motivation, research interests, and skills on one page**
- ✓ **a detailed CV with list of publications,**
- ✓ **copies of transcripts, credentials and certificates,**
- ✓ **contact details of two potential referees.**

Please send your application to Dr. Barbara Feldmeyer (barbara.feldmeyer@senckenberg.de) and PD Dr. Florian Menzel (menzef@uni-mainz.de) until **September 11th, 2022**. Interviews with selected candidates will likely take place **September 26th, 2022**. Do not hesitate to contact us if you have further questions.

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