

PhD position on the 'Impact of the microbiome on *Drosophila* cold tolerance'

Microbial symbionts represent major sources of evolutionary innovation by providing novel ecological traits to their hosts. While the impact of bacterial mutualists on the interaction of insects with their biotic environment (antagonists, diet, etc.) has received increasing attention over the past decades, the importance of microbial symbionts for the adaptation to abiotic conditions remains poorly understood. Preliminary data indicate that microbes associated with *Drosophila* can improve the fly's cold tolerance in a diet-dependent manner. We offer a 3-year PhD position (65% TV-L EG13) in the group of Dr. Martin Kaltenpoth at the JGU Mainz to understand (i) which microbial taxa that are naturally associated with fruit flies enhance cold tolerance, (ii) how they do so on the mechanistic level, and (iii) whether these effects are ecologically relevant.

The project will be embedded into the project consortium on "Seasonal temperature acclimation in *Drosophila*" (headed by Suzanne Eaton at the Technical University in Dresden), which is funded by the German Science Foundation (DFG). The interdisciplinary consortium includes experts in molecular biology, biochemistry, biophysics, mass spectrometry, epigenetics, evolutionary biology, and ecology, who will closely collaborate to gain a comprehensive understanding of the mechanisms that allow *Drosophila* to acclimate and adapt to different climatic conditions. The PhD candidate will benefit from the integration into the consortium by regular meetings, workshops, retreats, and the exchange of methodological expertise.

We are looking for a highly motivated student with an MSc degree in biology or molecular biology (or equivalent), excellent English speaking and writing skills and a deep interest in the evolutionary ecology of insect-microbe interactions. Previous experience with insect rearing, microbiology, molecular biology, and/or bioinformatics techniques are of advantage.

We offer a dynamic, international working group with broad expertise and state-of-the-art equipment in entomology, microbiology, molecular biology, and chemical analytics at the new Biocenter of the Johannes Gutenberg-University in Mainz. The research group is integrated into the recently established Institute for Organismic and Molecular Evolution (iOME) at the Faculty of Biology. Mainz is a charming, medium-sized, historic city situated at the river Rhine, in close vicinity to the Frankfurt metropolitan area.

Applications should include a cover letter (1-2 pages) describing the motivation, previous research activities and current research interests of the applicant; the CV of the applicant (with BSc/MSc grades, publications if applicable); and two reference letters. Please send all documents as a single PDF file (except for the references, which should be sent directly by the referees) before February 20th, 2018, to Prof. Dr. Martin Kaltenpoth (mkaltenpoth@uni-mainz.de). The PhD position is available at the earliest convenience.

The Johannes Gutenberg University of Mainz is interested in increasing the number of women in science. Applications from women are therefore strongly encouraged. Qualified candidates with disabilities will be preferred.