Two PhD positions in Behavioral Neurogenetics – Gompel lab

Scientific context and projects

Animal diversity is manifest, not only in the seemingly infinite variations of their morphology, but also in the variety of their innate behaviors. Our research group as recently set up a simple paradigm to examine the genetic and neuronal changes underlying a simple change in behavior. We are studying how a female fly (*Drosophila*) choses a suitable site to lay her eggs. We found that this key reproductive decision is made differently by closely related species of *Drosophila* with different ecologies. All species we have examined are akin to the model species *D. melanogaster* and use their sense of touch to probe substrate suitability for their eggs. Yet, their preferences for substrate stiffness have changed. In particular, the invasive pest species *D. suzukii* hardly choses between substrates of different stiffness, unless the difference is equivalent to that of a green strawberry vs. a ripe strawberry. By contrast, *D. melanogaster* proves extremely choosy, and prefers the stiffness equivalent to that of a rotten fruit over that of a very ripe fruit.

We our looking for a PhD candidate to dissect how a female fly (*D. melanogaste*r) senses and selects substrate stiffness at the genetic and neuronal levels. We will elaborate on recent finding that have identified a key gene in this process, to decipher how and in which neurons this gene is used, and where these primary neurons dispatch the sensory information. The candidate will benefit from the abundant ressources available for *Drosophila melanogaster* neurogenetics.

We are also looking for a second PhD candidate to understand how the egg-laying substrate preferences have evolved in *Drosophila*. The candidate will first focus on single flies of different species with different preferences, and describe their behavior quantitatively to decipher how they operate their choice. The candidate will then ask if the key gene for the choice behavior mentioned in the first project above, has itself accumulated changes in its coding sequence or in its regulation explaining the change of behavior. Finally, the candidate will search for possible changes in the primary sensory neurons mediating the choice, by comparing their anatomy and by manipulating the key gene between species (exchanging alleles).

Our research group is located at the Biozentrum of the Ludwig Maximilian University (LMU) in Munich. With an international and interdisciplinary team, we train students to become full-fledge neurogeneticists, covering aspects as diverse as behavioral experiments, molecular biology, advanced microscopy, quantitative data analysis.

Expected candidate background

We are looking for independent and driven candidates to work on these projects. Successful candidates are expected to have a strong background in Neuroscience as well as a solid general knowledge in molecular and cellular biology. Practical experience with *Drosophila* genetics or molecular biology is an asset but not necessary for these positions. Proficiency in English (oral and written) is required.

Salary

The salary is in accordance with the German public service salary scale (65% E13 TV-L).

Application

Send your resumé, a transcript of your latest grades (Master or equivalent), and a 1-page motivation letter to Prof. Dr. Nicolas Gompel (gompel@bio.lmu.de).

Additional information can be found on www.gompel.org