



2 PhD student positions available in Neurobiology

We are seeking 2 outstanding PhD (E13, 65%) candidates as part of a DFG-funded collaborative research project between the Institute of Molecular and Cellular Anatomy (Stefan Britsch group) at Ulm University and the Institute of Physiology and Pathophysiology (Andreas Draguhn group) at Heidelberg University.

Our groups have long-standing experience in studying the molecular and cellular mechanisms underlying differentiation, organization and functional integration of cortical neurons (Simon et al., EMBO-J, 2012; Thome et al., Neuron, 2014; Wiegrefe et al., Neuron, 2015; Zhong et al., PNAS, 2017; de Bruyckere et al., Front. Mol. Neurosc., 2018).

Project description:

The hippocampus is a key structure for spatial and declarative memory formation. The live-long plasticity of hippocampal networks involves the generation of newborn neurons (neurogenesis), their cell type specific differentiation and functional integration. This is particularly critical for granule cells of the dentate gyrus which form strong, convergent connections to pyramidal cells of the CA3 region via the mossy fiber system. Using molecular genetic and electrophysiological methods we recently discovered that structure and function of the mossy fiber synapses depend on the transcription factor Bcl11b/Ctip2.

We want to untangle the molecular mechanisms by which Bcl11b/Ctip2 regulates development, maintenance and network-level functions of mossy fiber connectivity in CA3. The project combines state-of-the-art molecular, ultrastructural as well as electrophysiological strategies, and it will qualify PhD students both in the field of molecular/cellular neurobiology as well as cellular/systems neurophysiology. Impairments of the hippocampal mossy fiber system are common with neuropsychiatric or developmental disorders of the nervous system. Thus, we also expect a better understanding of pathophysiological processes.

Environment, Research and Training:

One position will be based at Ulm University (<https://www.uni-ulm.de/med/med-anatomie.html>) and focus on advanced molecular genetic and imaging approaches, the other position will be at Heidelberg University and focus on electrophysiological and optogenetic methods (http://www.medizinische-fakultaet-hd.uni-heidelberg.de/index.php?id=11_p0991&L=en).

As part of this project you are working in a multi-disciplinary team of molecular neurobiologists, geneticists, and electrophysiologists. The successful candidate will further benefit from state-of-the-art technical equipment and biomedical research training programs at both, Ulm and Heidelberg Universities.

Eligibility:

We are looking for highly motivated, qualified young researchers, preferably with first class undergraduate and master's degree (or equivalent) in Biology, Biophysics, Medicine or a related discipline, ideally with a focus on neuroscience. Research experiences in electrophysiology, molecular biology and/or mouse genetics will be advantageous.

Application:

Please send your application, including a letter of motivation, CV, list of publications, copies of certificates as well as the names and contact details of two referees to:

andreas.draguhn@physiologie.uni-heidelberg.de or stefan.britsch@uni-ulm.de