

The Department of Functional Neuroanatomy (Director: Prof. Dr. Thomas Kuner) at Heidelberg University/Medical Faculty Heidelberg offers a DFG-funded

## **PhD Position in Cellular and Systemic Neuroscience.**

The project aims at understanding the role of cortico-thalamo-cortical communication in the somatosensory system. Our preliminary work suggests that functional ensembles in the higher-order thalamus, the posterior medial nucleus (POM) in the rodent whisker system, are likely generated by motor, sensory and context-dependent variables (whisking, locomotion, salience). Although we do not know the exact relationship between POM ensembles and distinct behaviours, these complex thalamic representations largely reflect cortical computations, which are conveyed via corticothalamic (CT) pathways to higher-order thalamic networks. Our overarching goal is to understand the function of these “higher-order ensembles” in behavior – they could be involved in detecting salient stimuli and preparing an appropriate motor response, or might play a role for selective attention, or in modulating sensory-motor integration. Microendoscopy allows us to spatially define thalamic neuronal ensembles and register them to corticothalamic (CT) pathways in the context of behaviour. Optogenetics will be used to probe circuit mechanisms of cortico-thalamo-cortical communication. Together, these approaches will use behavioural tests in conjunction with cellular ensemble imaging to identify the hitherto unknown physiological role of CT pathways.

We expect applicants to be highly motivated and keenly interested in experimental neuroscience. A Master’s degree in life sciences, preferentially neuroscience, neurobiology or related areas and experience in fluorescence imaging, animal surgeries (FELASA-B), analysis of complex data sets using tools such as MIN1pipe and coding in MATLAB or Python are strongly encouraged.

The research is carried out in collaboration with Prof. Alexander Groh (Institute of Physiology and Pathophysiology), involving a vibrant environment and a wide array of techniques and expertise.

The position is funded according to the public salary scheme TV-L (E13, 65%), is available at the closest possible date and is limited to a three-year period. Heidelberg University and University Hospital provide attractive support for young families.

Please submit your application in a single PDF file containing a cover letter stating your research experience and interests, career goals (max 2 pages), CV, two references or letters of recommendation and academic transcript until 15.08.2021 to:

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