



## PhD position available

### **Project title: “Neuronal circuits underlying social fear in mice: Role of septal OXT and CRF signaling”**

Social anxiety disorder is a highly prevalent anxiety disorder characterized by intense fear and avoidance of social situations. Social trauma can contribute to the etiology of social fear, but little is known about the neuronal mechanisms underlying this psychopathology. The PhD student will use our established mouse model of social fear conditioning, to study the role of OXT and CRF signaling in the lateral septum (LS - a key brain structure, where OXT acts to reverse social fear) in social fear acquisition and extinction. Specifically, the student will study the activity of OXT and CRF neurons, and the downstream targets of oxytocin receptor (OXTR)- and CRF receptor 2 (CRFR2)- expressing neurons of the LS. This will be done in male, female, and lactating mice. The student will especially focus on the role of lactation (wherein the OXT system is upregulated and stress response induced by CRF system is downregulated) as a modifier of social fear expression in mice. Together we will figure out how an innate state of lactation can alter responses to social stimuli of positive and negative valence in mice.

The student will start off by elucidating the differential activity of LS-CRFR2 and LS-OXTR expressing neurons in lactating and virgin female mice at different timepoints during the SFC. Following this the student will characterize the downstream targets of these neurons. In the final stage, the student will functionally manipulate these circuits in the context of social fear extinction and also assess possible lateral inhibition within the LS which might regulate LS-OXTR and LS-CRFR2 activity.

Methods such as behavioural analyses, stereotaxic surgery, e.g., for pharmacological manipulation, viral vector microinfusion, blood sampling and hormone analyses, immunohistochemistry, neuronal tracing, IMARIS, RNA scope, RNA and protein quantification will be used in combination with *in vivo* calcium imaging, optogenetic or chemogenetic approaches, where appropriate.

#### **Start of funding: May 2023**

The position is funded for at least three years, according to the German pay scale TV-L E13 (65%). The project is part of the DFG Graduate Program “Neurobiology of Social and Emotional Dysfunctions” GRK 2174

<https://www.uni-regensburg.de/research/grk-emotion/grk-home/index.html>

**For application details please see our webpage or contact:**

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