Master Thesis in Neurophysiology and Social Cognition: Vasopressin in the olfactory bulb

The project outline:
Vasopressin (VP) is a famous mediator of vertebrate social behavior. Although it is known that its action is required for individual social odor discrimination in rats, it is still rather unexplored how VP influences the processing of social signals in the cellular network of the olfactory bulb, e.g. precisely how VP mediates the encoding of specifically social odors on the cellular and the systemic level of the bulb, are far from being understood. Further, there exists a conceptual gap between VP neuromodulation on the cellular level and how these mechanisms actually account for the maintenance of social memory.

Available topics for a master thesis:

- Modulatory effects of VP on GABAergic interneurons in the olfactory bulb
  (Techniques: whole-cell patch clamp electrophysiology and/or calcium population imaging in acute in-vitro brain slices during pharmacological manipulations)

- Characterization of VP cells in the olfactory bulb
  (Techniques: fluorescence immunohistochemistry for cellular markers, mapping of VP cells in the olfactory bulb, morphological reconstructions of VP cells)

- Effects of pharmacological manipulation of the olfactory bulb VP system on social odor recognition/processing
  (Techniques: Social behavioral assays during pharmacological manipulation, immunohistochemistry for neuronal activity markers)

If you are interested please contact:

Dr. Michael Lukas
AG Prof. Egger (Neurophysiology)
Email: michael.lukas@ur.de
Tel.: +49 (0)941 943-3080
Ausweichgebäude Biologie D4.2.309