

Workshop: Circuits of emotions

Tuesday 15th September 2015

Lecturers:

Nicolas Singewald

Francesco Ferraguti

Target group

The topics will be introduced for PhD students and Postdocs with different backgrounds, e.g. neuroscience, biology or psychology, using a combination of video demonstrations and hands-on experience.

Workshop aim

The workshop is focused on experimental and theoretical methods to study how the emotions are encoded at the level of neuronal circuits.

- Fear and anxiety-related behavioral tests in rodents
- Functional mapping (immediate early genes)
- Tracing methods
- Connectomics

At first, tests aimed at investigating emotional states in animals will be analyzed and discussed. Students will then be encouraged to explore the bottom-up organization of the neural circuits underlying emotions starting from mapping of immediate early genes, 3D reconstructions of neurons responding to emotionally salient stimuli, to tracing and trans-synaptic labeling methods of inputs critically involved in encoding emotions (e.g. hippocampus-amygdala).

The workshop will also address translational aspects of pharmacological research into anxiety disorders.

Programme

15:00-16:20

- Monitoring animal behavior – Tools for acquisition and analysis of video data.
- Training strategies and caveats.
- Immediate early gene mapping – Technical tips and analysis
- Functional imaging in humans, translational aspects from animal to man.

Coffee break

16:40-18:00

- Neuronal functional connectivity and neuronal connectomics – NeuroLucida reconstruction of recorded and filled neurons.
- Tracing and trans-synaptic labeling methods.