Anxiety disorders are widespread in the human population. At the same time, the behavioral paradigm of fear learning offers researchers a platform to investigate the neuronal circuit basis of emotionally motivated learning behaviors, exploiting state-of-the-art optic- and genetic approaches in mice.

Content
Anxiety disorders are widespread in the human population. At the same time, the behavioral paradigm of fear learning offers researchers a platform to investigate the neuronal circuit basis of emotionally motivated learning behaviors, exploiting state-of-the-art optic- and genetic approaches in mice. Understanding the fundamental molecular, cellular- and circuit mechanisms of fear learning will form the basis for an improved treatment of anxiety in the future.

The PhD students will actively participate in the Symposium with questions and discussion participation. As a control that the students have reached the learning aims of the course, PhD students will summarize a presentation of their choice during a final 3h block session under the supervision of the course instructors.

MONDAY 25th NOVEMBER 2019

Session 1 Mechanisms of fear learning: amygdala circuits
Chair: Ralf Schneggenburger
09:00 – 09:30 Andreas Lüthi (FMI, Basel, CH)
Adaptive disinhibitory gating permits associative learning
09:30 – 09:40 Discussion
09:40 – 10:10 Bo Li (Cold Spring Harbor, USA)
Amygdala circuits in motivated behaviors
10:10 – 10:20 Discussion
10:20 – 10:35 Short Talk 1
10:35 – 10:40 Discussion
11:10 – 11:40 Sheena Josselyn (University of Toronto, CDN, Toronto, Canada)
Making, Breaking and Linking Memories in Mice
11:40 – 11:50 Discussion
11:50 – 12:20 Wulf Haubensak (IMP, Wien, Austria)
Assembling affective states by amygdala hierarchical interactions
12:20 – 12:30 Discussion
12:30 – 14:00 Lunch & Poster Session

Session 2 Beyond the amygdala: circuits of fear and pain involved in learning
Chair: Johannes Gräff

14:00 – 14:30 Cyril Herry (Neurocentre Magendie, Bordeaux, France)
- Dynamic prefrontal population coding of value and action during aversive learning

14:30 – 14:40 Discussion

14:40 – 15:10 Nadine Gogolla (MPI für Neurobiologie, Munich, Germany)
- Regulation of fear and anxiety through insular cortical circuits

15:10 – 15:20 Discussion

15:20 – 15:35 Short Talk 2

15:35 – 15:40 Discussion

15:40 – 16:10 Coffee break

16:10 – 16:40 Rohini Kuner (University of Heidelberg, Germany)
- Fear and Pain: two sides of the same coin?

16:40 – 16:50 Discussion

16:50 – 17:20 Herta Flor (ZI Mannheim, Germany)
- The contextual modulation of fear: implications for mental disorders

16:40 – 16:50 Discussion

17:30 – 19:00 Poster Session

TUESDAY 26th NOVEMBER 2019

Session 3  Circuits for fear prediction and extinction
Chair: Carmen Sandi

09:00 – 09:30 Andrew Holmes (NIH, Bethesda, USA)
- Neural circuits mediating ambiguous threat

09:30 – 09:40 Discussion

09:40 – 10:10 Jelena Radulovic (NW University, Chicago, USA)
- Processing valence in episodic memory circuits

10:10 – 10:20 Discussion

10:20 – 10:35 Short Talk 3

10:35 – 10:40 Discussion

10:40 – 11:10 Coffee break

11:10 – 11:40 Valerie Doyère (Paris-Saclay Institute of Neuroscience, France)
- The amygdala and the temporal expectation of an aversive stimulus

11:40 – 11:50 Discussion

11:50 – 12:20 Merel Kindt (University of Amsterdam, Netherlands)
- Tba

Keywords
- Anxiety disorders, Fear, Neuronal circuits

Learning Prerequisites

Recommended courses
- Neuroscience 2, 3 (MS-courses)

Assessment methods

The PhD students will actively participate in the Symposium with questions and discussion participation. As a control that the students have reached the learning aims of the course, PhD students will summarize a presentation of their choice during a final 3h block session under the supervision of the course instructors.

Resources

Websites
- https://neurosymposiumwinter2019.epfl.ch