

Blockkurs “Developmental Biology and Neuroscience”

Duration: 6 weeks; 15 credit points

When: second half of spring term; 3rd year

Goal: The aim of the Developmental Biology and Neuroscience Course is to learn about current topics in these fields, and to gain first-hand experience in state-of-the-art experimental methods. The course consists of introductory lectures covering different research topics, practical experimental sessions and data analysis. In addition, students will be advised how to write a research report and how to critically assess scientific literature.

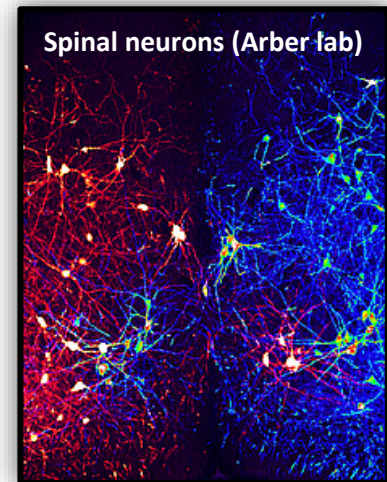
The main topics:

Developmental biology

- Stem cells
- Cell differentiation
- Organ and cell development
- Cell signalling

Neuroscience

- Connectivity in the brain and spinal cord
- Dynamics and plasticity of synapses in the brain
- Sensory and motor processing
- Imaging structure and function in the nervous system
- Biology of the Neuromuscular system



Laboratory experience:

- Immunostaining, tissue dissection, cell cultures
- Fluorescence activated cell sorting (FACS)
- Fluorescence microscopy
- Genetic analysis
- Live imaging *in vivo*
- Analysis of brain connectivity using online databases
- PCR, genotyping, enzyme assays
- Quantitative data and image analysis
- Gene expression analysis: quantitative PCR, bioinformatics approaches
- Behaviour

Additional skills:

- Data analysis and writing a research project
- Reading, interpreting, and critically assessing scientific literature
- Scientific writing and presentation
- Experience and discussions of contemporary and emerging research fields

The course lasts six weeks (compulsory attendance), followed by two weeks for exam preparation.

Language: English

Responsible person: Prof. Fiona Doetsch (fiona.doetsch@unibas.ch)

Co-organizers: Prof. Markus Affolter, Prof. Silvia Arber, Prof. Flavio Donato, Prof. Susan Mango, Prof. Markus Rüegg, Prof. Peter Scheiffele, Prof. Alex Schier

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