Conventional fluorescence microscopy, laser scanning microscopy and digital image processing

Course teachers: PD Dr. Fabian Blank (DBMR, LCI), Carlos Wotzkow (DBMR, LCI), Selina Steiner (DBMR, LCI), Dr. Yury Belyaev (MIC), Dr. Guillaume Witz (SciITS-MIC)

Date: Tuesday, 11.07.2023 until Thursday, 13.07.2023 / 3 days

Location: DBMR LCI Core Facility, Murtenstrasse 24, 3008 Bern

Max. number of participants: 20

ECTS / Evaluation: 1.5 / Poster

Content:

1. Sample preparation (Theory)
   a. The use of fixed samples (what is the ideal fixation method?)
   b. Labelling of individual samples with immunofluorescence and fluorescent labeling
   c. Mounting of samples (requirements for mounting media and coverslips etc.)

2. Microscopy (Practical)
   a. Conventional Fluorescence Microscopy
   b. Single-point confocal
   c. Multi-point confocal
   d. Live cell imaging

3. Image processing (Practical)
   a. Visualize, process and analyze your data: We will focus on workflows employing FIJI and will touch on other software applications (e.g. QuPath)
   b. Optimizing fluorescence signal quality (deconvolution, Huygens Remote Manager)

Prerequisites:
- Master students: Passing the exam of lecture “Advanced Microscopy”
- PhD Students: Basic knowledge in light microscopy (in particular fluorescence microscopy)
- Participants have to pay a fee of CHF 300.- per person for this course. Students involved in the PhD program of the graduate School for Cellular and Biomedical Sciences (GCB) are eligible for refund by the GCB office.
- Students are strongly encouraged to bring their own samples and/or datasets for imaging and processing.

For registration, please contact Fabian Blank: fabian.blank@unibe.ch