

Light-sheet microscopy facility

Terms of Use

General Information

The Institute of Physiological Chemistry (directed by Prof. Beat Lutz) established a Light-sheet microscopy facility, providing the use to the research groups of the University Medical Center, the Johannes Gutenberg University Mainz, the Institute of Molecular Biology (IMB) gGmbH, and the Leibniz Institute for Resilience Research (LIR) gGmbH as well as their collaborators.

The facility is located at the Institute of Physiological Chemistry, Duesbergweg 6, 55128 Mainz (<https://www.unimedizin-mainz.de/physiolchemie/light-sheet-microscopy-facility.html>).

Mr. Azad Hos, further referred to as Administrator in this document, provides hands-on training and support.

In order to make working in the facility easy, convenient, and fair for everybody, it is necessary for all Users to adhere to the following rules.

Training

Before you can book/use the facility you have to receive an introduction by the Administrator on the particular setup you want to use. There is no charge for the introduction session.

The possibility to use the equipment without assistance may be granted upon sufficient training.

Liability

In case of improper use or lack of sufficient training of the User, the Administrator is authorized to exclude individual Users from the facility.

Users will be fully liable for any damage due to carelessness and charged the repair costs according to the manufacturer's cost estimation.

Booking Instruments

Booking of the instrument before use is obligatory. Instruments can be booked up to 6 weeks in advance via a request sent to OpenIRIS booking platform (<https://researchinfrastructure.unimainz.de>). Bookings from the host group are prioritized.

Long-lasting experiments (>4 days) must be first discussed with the Administrator.

Users can cancel/reschedule their bookings up to 24 hours before the booked slot. Later cancellations will not be accepted and the time slot will be charged at full price.

Billing Procedure

Use of all instruments are subject to an hourly charge. Billing is based on the booked slot in the booking platform.

The table below shows a summary of prices. The use of instrumentation during non-peak hours (weekends, overnight acquisitions) is subjected to a discount. Projects on collaborative basis are subject of negotiation.

Instrument	Price/Hour (€)		
	Independent	Assisted	Service
Usage type			
Ultramicroscope Blaze	15	25	60
arivis Vision 4D	4	10	80

Consultation

To ensure optimal usage of the facility for every particular project, we offer the possibility to discuss scientific projects and suggest optimal technical solutions to address the scientific questions using the Ultramicroscope Blaze and tissue clearing methods. Therefore, we kindly ask the Users to submit the Project proposal form (see Appendix 1 below) before starting working in the facility.

Set-up

The User is required to fill in the User Log (usage time, number of samples, other info).

After the training, the User is able to perform operations, discussed during the consultation and training: single and multi-color simple acquisition, mosaic and batch acquisition.

It is not allowed to access or introduce any modifications to the hardware of the Ultramicroscope Blaze. Changes to the hardware: removing the dipping cap, adjustment of the objective to a different media, as well as mounting and unmounting of the imaging cuvette, are performed by the Administrator. If you foresee a necessity to introduce any changes to the default setup, please indicate it in your booking request.

It is the responsibility of the User to check the instrument before use. If something is damaged or misaligned, immediately notify the Administrator (either in person or via email). When using the microscope, wipe off dust and any smears from the dipping cap of the lens using lens paper (first soaked in ethanol and then in methanol). Never use dry lens paper; it might scratch the lens surface. Check which imaging liquid is required for your sample.

Usage

By default, the imaging solution is DBE (Dibenzyl Ether compatible with iDISCO+). The imaging cuvette is pre-filled and mounted. If you would like to use a different imaging media, it is important to notify the Administrator in advance. The Administrator can provide some of the

imaging liquids upon prior request. If the imaging media is not available in the facility, the User has to provide 550ml of the imaging media of their choice.

Always keep in mind the Refractive Index (RI) of the imaging liquid and assign it accordingly in the microscope operating software (ImSpector). Be especially careful when mounting and unmounting the sample to avoid spilling.

The User should store the data only in the designated folder on the HIVE. The folder is mounted as a network drive to the microscope PC.

If your booking lasts for several consecutive days, the imaging liquid can be stored in the cuvette. In this case, the cuvette, as well as the sample holder, must stay mounted in the microscope. Please make sure to indicate precisely what imaging liquid is inside the cuvette.

Clean-up

After every acquisition, clean the dipping cap with lens tissues provided, soaked in ethanol, to avoid drops of imaging liquid. After last acquisition with current imaging media, the dipping cap has to be thoroughly cleaned with lens tissues soaked first in ethanol and then in methanol. If you need to unmount the dipping cap, inform the Administrator.

Fill in the User Log. Clean the bench, remove personal items. Log off from the PC. If you are the last User of the day, make sure to switch off the microscope PC, as well as the hardware of Ultramicroscope Blaze.

Data Management

Users must transfer their data to another location after data acquisition. If it is agreed that the data is stored in the facility, the User is obliged to back up the data on a separate location. Data files of expired projects will be erased. The working group of Prof. Beat Lutz does not take any responsibility for the storage of your data.

The facility does not allow the usage of any USB storage devices. All data transfers are performed strictly over the network connection.

Access

The access to the facility under regular working hours is not restricted. If you would like to obtain access to the microscope during evening time, weekends and holidays, you may apply for a guest transponder via an email to V. Stanganelli (vstangan@uni-mainz.de).

Biosafety

The labs of the Institute of Physiological Chemistry are designated biosafety level S1. You are not allowed to eat and drink in the lab area and in the microscopy rooms. Do not bring any samples with a classification, higher than S1.

Appendix 1

Project proposal

Applicant: _____

Address: _____

Email: _____

Group leader: _____

Address: _____

Email: _____

Prior experience

Do you have any experience with:

Tissue clearing yes no

Image analysis yes no

Light-sheet microscopy yes no

Sample

Do you need any assistance with:

Sample preparation yes no

Data acquisition yes no

Data analysis yes no

Project description

Please provide a short description. Indicate the state of the project (pilot, support of a publication in prep, paper review, so on), your target of interest, if you have any other microscopy acquisitions to support the scientific hypothesis. If known, please provide the info on your planned sample: organ, epitopes and fluorophores of interest, required magnification/resolution.