



BOKU Core Facility Multiscale Imaging (MSI)

MSI offers high-end research light microscope and related applications for imaging and monitoring uni- or multi-cellular model organisms or biomolecules either in their native environment (“in vivo”) or in artificial matrices. The facility offers wide-field fluorescence and confocal microscope but also equipped with label-free technologies, like Raman and FT-IR microspectrometry.

General policy

Microscopes of the facility MSI can be only used after receiving a training or proving relevant personal skills. Training on the various microscope setups must be given by the head of the facility. After the training, the user can have either a novice or an expert user right to book a microscope.

In **full service mode** the facility staff performs the experiments, evaluate the data and generate report.

The staff provides project discussions – free of charge -, in order to choose the most appropriate microscope for the planned experiments. As the project progresses, further discussions are always possible.

Use of the facility’s infrastructure is restricted to material that is classified as safety level S1(S2?) (no infectious or hazardous material).

Service fees and prices are specified in the User fees table. MSI reserves the right to update prices at any time. Users can receive a customized offer per email after a project discussion and before starting the experiments. Updates of service fees and prices apply for ongoing projects, too.

To start any new project, please contact the person responsible for the service area of interest (see Communication) to discuss the possibilities available and instructions on how to order service. Users are encouraged to have some initial information ready, such as previous attempts, papers that show results similar to those the user would like to obtain, and - last but not least - a clear idea of what one would like to see and what question(s) one would like to answer.

Infrastructure of the facility

List of available microscopes:

- Leica TCS SP5 confocal microscope
- Leica TCS SP8 – STED super-resolution confocal microscope
- Leica TIRF microscope
- Leica DMI6000B fluorescence microscope
- Leica LMD laser microdissection microscope
- Molecular Devices ImageXpress Micro HCS wide-field systems



- Horiba XploRA INV Raman microscope
- Bruker Hyperion 2000 Ft-IR microscope
- Bruker LUMOS II Ft-IR microscope

There is also a dedicated workstation for image analysis which can be reserved as the above-mentioned microscopes.

Training

Autonomous work in the MSI facility is exclusively allowed after receiving a training by the facility staff. A training only applies for a selected microscope; autonomous usage of all microscopes is possible but, requires a separate training on every single setup. Users are not allowed to train newcomers. To schedule training, please contact the facility head. During training, future users will be informed about safety and booking regulation. If training is not successful or if the user does not comply with the rules of the facility, in particular safety rules, facility staff can ban individual users temporarily or permanently from the utilization of instrumentation or the facility.

Biosafety and Lab safety

General rules for biosafety and lab safety are available in a separate document. Use of MSI services and infrastructure is restricted to material that is classified as safety level S1 (no infectious or hazardous material).

Instrument Booking

All microscopes of the facility and the image analysis workstation are available to trained users around the clock (24/7).

Instruments must be booked in advance via GroupWise mailbox calendar and users must log usage in the provided paper logbooks, and report any error message/failure of functions that occur during their work. Problems with samples should not be recorded.

Users cannot cancel their bookings; to modify or to delete a reserved slot, please send an email to the staff. Cancellation request within 24 hours before start of instrument time, does not guarantee that the staff receives the information in time. In this case or in emergency, as well as on weekends, please contact the staff by phone. If not cancelled, the booked instrument time will be charged. For BOKU users, the academia rate of the respective instrument will be charged! Users who repeatedly do not log their slots will be banned from using the infrastructure.

MSI reserves the right to cancel bookings – even on short notice -, when instrument maintenance or repair is necessary. Preventive maintenance will be scheduled to minimize impact on usage. Booking restrictions for a given microscope will be provided during training. No restrictions for booking apply to



MSI staff for carrying out co-operation projects or for maintenance. If instruments become unavailable, Facility staff will inform all affected users at the earliest possibility.

It is self-evident that every microscope should be used with utmost care, that resources should be used wisely, that users check back with facility staff immediately if anything is unclear or if problem occurs during operation, despite the instructions laid down in protocols and given by MSI staff.

User samples and reagents

All samples, buffers and reagents that are brought to the facility by users must be clearly labelled, at least with a designation of the sample material, the name of the user and the date. These items must be taken when the user leaves the facility at the end of the reserved slot. Samples, buffers and reagents may be stored in the facility upon request. For temporary storage, please consult the facility head. For safety reasons and cleanliness, unlabeled and unattended samples will be discarded by the staff without previous warning.

The MSI facility takes absolutely no responsibility for properties left in their laboratories. Therefore, users are kindly asked to pick up any material left in the facility. Any shipping costs resulting from returning samples to off-campus locations must be fully covered by the user.

Waste management

All (biological) samples and disposables which they came in contact with, must be discarded in containers labelled with:



Dirty lab ware (bottles, beakers etc.) has to be placed on designated trays.

Data transfer and storage

Raw data acquired/generated on MSI microscopes/workstations must be saved on the facility's server and immediately transferred to the user's own BOKU (cloud) space. Data may temporarily be stored on the facility's servers but they are subject of deletion when the server's storage capacity is in danger.

Users will be informed before data removal on the server.



Any data saved on the server 2 years before current date can be deleted by the facility head without previous warning!

Usage of USB sticks is strictly prohibited!

Publications, acknowledgement

If users present their data obtained with support of facility/facility staff, they must acknowledge in publications or oral/poster presentations the facility and the person. Citing the facility in the acknowledgement is the only way we can track the impact of our services. We would appreciate receiving a copy of all publications for which the infrastructure was used. If users need help with preparing a manuscript discussing data generated via MSI services (e.g. presentation of data or description of the methodology), please contact the staff. Fair scientific practice demands that members of the facility who intellectually contributed to a publication are considered as co-authors.

Possible variants:

1. "This project was supported by ... and the BOKU Core Facilities Multiscale Imaging." (In this case, there was no need for any guidance or support from the staff during work with facility instruments)
2. "We thank X.Y. for his/her help with microscope experiments. The ... microscope was kindly provided by the BOKU Core Facilities Multiscale Imaging."
3. Core facility staff member listed as author, and "The ... microscope was kindly provided by the BOKU Core Facilities Multiscale Imaging."

Mailing

To request project discussion prior experiments, service or training, please email

Monika.Debreczeny@boku.ac.at

Feedback and evaluation

Users are highly encouraged to give feedback about the performance of the facility and make suggestions for improvement at any time to the facility head.