CMCB TECHNOLOGY PLATFORM
Center for Molecular and Cellular Bioengineering TU Dresden

CMCB Light Microscopy Facility (LMF)

User Rules (valid from 01.07.2025)

1. Booking Rules

1.1. General

- Users can book LMF equipment 24 hours 7 days a week.
- Bookings can be created or extended by users at any time prior to the start of the slot.
- Support by the LMF team is available on weekdays during normal working hours.
- If users are working in the facility at “after office” hours, users have to ensure that they are not alone and able to call for help in case of an emergency.

1.2. Deletion and Cancellation

- A user (other than an admin) can cancel or shorten a reservation **only up to 24 hours** before the scheduled reservation time. Cancellations are not possible after this period.
- The user will be charged for the slot and stays responsible for the system, especially if it is the last slot of the day.
- Users may inform the facility if they are unable to use their reserved slot after the cancellation period has ended. If time allows, facility staff will attempt to find another user to take over the slot.

1.3. Restrictions

- The bookings can, **at maximum, be done 21 days (3 weeks) in advance**.

2. At the microscope

2.1. Starting

- The system should be checked for obvious damage or problems.
- If there is an initialization/starting procedure, make sure that there are no obstructions, in particular that moving parts (e.g., stages, nose piece) do not lead to collisions with other parts (e.g., objective lenses).

2.2. During the session

- The user is only allowed to use functionalities of the system that he/she has received training for.
- If unknown problems occur, facility staff should be contacted for assistance.
- Users are asked to report any suspicious incidents to facility staff as also seemingly small incidents can have large impacts on safety and instrument health. In doubt, please get in touch with the LMF team!

2.3. After the session

- Please make sure that the next user can start on time with an instrument that is ready to be used.
- Samples must be removed; waste must be discarded; S2 waste must be taken back to the lab and be discarded there.
- Objectives must be cleaned and checked for remaining contamination; if an objective cannot be cleaned using the procedure that the user was instructed to apply, facility staff has to be informed immediately.
- The system has to be checked for contaminations (immersion oil, buffer, dirt of any kind, etc.); contaminations must be removed.
- The last user of the day is responsible for switching off the system (unless for individual instruments another policy applies).
- Please leave the instrument switched on if it is booked within the next two hours.
- Please aim at leaving the system in a better state than you found it - this will help keeping instruments in the best shape possible, which is enabling high quality measurements for everybody in the user community including you!

3. Safety Instructions

3.1. Laser Safety

This section relates to all laser scanning microscopes (LSMs), but also to wide-field microscopes that are equipped with laser illumination (Leica Live Cell/TIRF inv, Laser Capture Microdissection inv, Ultramicroscope up, Lattice Light sheet inv). Laser radiation can irreversibly harm your eyes. Therefore, all users need to be very careful when using microscopes equipped with lasers, as well already when working in LMF-rooms containing microscopes with lasers:

- Users are not allowed to remove objective lenses or other parts from the microscope system.
- The LMF microscopes are intended to be used with biological samples. Any other types of samples (i.e., reflective samples in material sciences) are not allowed to be used without prior consultation with the LMF team.
- Do not touch, tilt or exchange the sample during image acquisition.
- Do not put your hand into the laser beam.
- Image acquisition needs to be stopped before the sample can be touched, or removed, or exchanged to another sample.
- Do not bring any reflective items into the laser beam (tools, mirrors, wristwatch, jewelry).
- Avoid looking into the microscope from a direction towards the objective lens, where the laser could emerge from.
- Use minimal suitable laser power for your measurements.
- Alcohol and drugs can retard the blink reflex; do not work with laser devices in this case.
- Users are not allowed to bring colleagues /students etc. to the LMF rooms unless they learned about and signed these rules.
- Do not enter LMF-rooms when laser service is in progress (a warning sign will be at the door).

3.2. Mercury lamps safety instructions

- On most of the microscope systems, there are mercury lamps installed for wide-field epi-fluorescence observation (“fluorescence lamps”, called HBO, HXP, X-cite or similar). For all these lamp types, there is the danger of a lamp breakage, which would result in mercury being released into the air.

- Whenever a user enters an LMF room with a running fluorescence lamp, the user has to verify that the lamps are working correctly. This is typically indicated by a green LED at the lamp house.
- In the case of a mercury lamp burst (loud bang), all personnel should leave the immediate area (the room) at once, so that no mercury vapor is inhaled.
- If any malfunction of a lamp has happened or is suspected, the user has to inform the LMF team immediately.
- The LMF will ventilate the room thoroughly (at least 20 to 30 minutes, 2-3 air exchanges) and exchange the lamp.
- LMF-staff will announce when the room can be used again in such a case.

3.3. Biological Safety

All LMF rooms are at least classified as **S1**. The LMF room **BIOTEC-226 is classified as S2**. All further instructions need to be obeyed as stated in the Genetic Engineering Laboratory Operating Procedures and *Hygiene Plan*, which are positioned in the respective rooms.

- Eating and drinking is not permitted in any LMF room.
- Wearing a lab coat is required.
- If gloves are worn to handle the sample, they need to be taken off for handling the microscope.
- Parts of devices which cannot be avoided touching with gloves (microscope transmitted light arm, stage insert clamps, incubator doors etc.) need to be carefully decontaminated by the user, in case they are contaminated with S1 or S2 material.
- This needs to be done right after contamination and at the end of the imaging session, according to the hygiene plan (with 80% ethanol for S1-contamination, and with Mikrozid AF liquid for S2-contamination).
- S1-samples can be disposed of at the respected LMF bins. S2 samples need to be taken back to the user's home lab by using a S2 transport box.

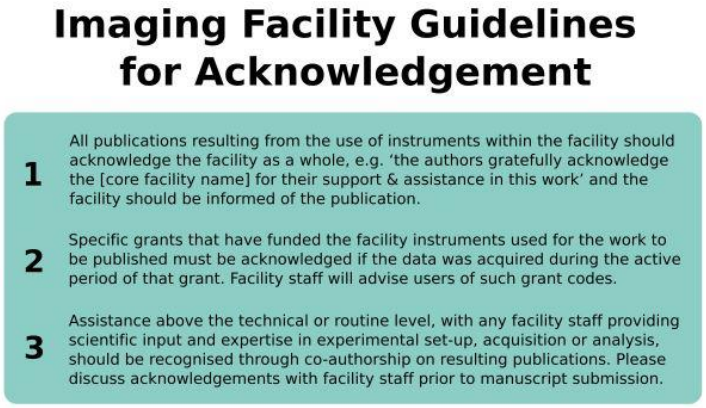
4. Data storage an automated deletion procedure

- Transfer data from local storage space of the instrument (which is not backed-up) to a storage space that is backed-up immediately after the imaging session.
- The LMF cannot guarantee the safety of your data on LMF computers, as hard drives may fail.
- The LMF is regularly cleaning up hard drives three times a year (Apr/Aug/Dec) after email notification.

5. LMF Acknowledgement

LMF users are obliged to acknowledge LMF usage and LMF support when presenting data that was acquired with facility equipment in **presentations** as well as in **publications**.

- Consider the following guidelines:



Example scenarios with baseline recommendations:

Sample Preparation	Fast, routine sample preparation with standard protocol.	Simple acknowledgement
	Development of new sample preparation protocols. Optimisation of existing protocols for specific samples.	Inclusion of specific facility member on author list
Image Acquisition	Training of users to acquire images themselves. Simple acquisition of raw data.	Simple acknowledgement
	Operational image acquisition with input and decisions dependent on expertise. Design or re-design of experimental conditions.	Inclusion of specific facility member on author list
Image Analysis	Recommendation of analysis software and tools. Basic data analysis help and advice.	Simple acknowledgement
	Constructive data analysis and interpretation. Creation of complex custom image analysis tools.	Inclusion of specific facility member on author list

Based on the publication policy compiled by Natasha Stephen, Plymouth Electron Microscopy Centre, after discussions with the RMS EM-UK community

Royal Microscopical Society

BioImagingUK

- Acknowledgment is possible in the material & methods part as well as in the acknowledgement. This could read like the following:
- **Material & methods:** "Confocal laser scanning was performed on an inverted Zeiss LSM 780 microscope of the CMCB light microscopy facility, a Core Facility of the CMCB Technology Platform at TU Dresden, using a Zeiss C-Apochromat 40x/1.2 water objective. Images were collected using 405, 488 and 561 nm laser lines for excitation and spectral detection bands …"
- **Acknowledgements:** "We thank the CMCB light microscopy facility, a Core Facility of the CMCB Technology Platform at TU Dresden for excellent support."
- Once the LMF is acknowledged in a publication the facility should be linked to the publication in the ***F**orschungs**i**nformations**s**ystem* (FIS) database of the TUD.
- This "link" in FIS has to be made manually by the person, that adds or edits the publication to FIS. Ideally, you include supporting Core Facilities directly when you add the publication and check for the correct affiliations of all authors.
- Detailed instructions how to link a facility to your publication in FIS can be found here
- Please send your publication to LMF – we like to congratulate you!