

## **User guidelines of the core facility Multi-Parametric Bio-Imaging and Cytometry (MPBIC)**

The imaging and microscopy platform **Multi-Parametric Bio-Imaging and Cytometry (MPBIC)** functions as a central facility for cell analysis and supports institutes and clinical departments of the medical faculty for all questions relating to **light microscopy** and **flow cytometry**. In addition to the access to state of the art cytometers, confocal and wide-field microscopes, the MPBIC offers services in **intravital microscopy** and **Multi-Epitope-Ligand-Cartography (MELC)**.

### **1. Equipment**

A detailed description of the available equipment is listed on the MPBIC website: <http://mpbic.med.ovgu.de/>.

### **2. Preface**

The equipment of the core facility **Multi-Parametric Bio-Imaging and Cytometry** consists of precision measuring devices and is thus expensive to purchase and maintain. If the equipment is not used properly, severe danger to the health of users can occur. Therefore, all devices and the entire laboratory should be used carefully and responsibly. Following the laser security rules defined by the "Dienstanweisung 01/2020/96" of the Medical Faculty of the OvGU Magdeburg is mandatory.

If you make a mistake or a malfunction occurs, please inform the head and the staff of the core facility immediately. Any repairs or modifications must only be carried out by authorized staff.

The rooms of the MPBIC have an S2 biosafety level. Wearing lab coats and following the S2 biosafety rules is therefore mandatory.

Individuals who intend to work in the core facility MPBIC must adhere to the following rules and regulations. Principal investigators are responsible for their staff, guests and students. The prime rule for all users is:

**BE CAREFUL AND BE CONSIDERATE TO ALL USERS.**

Please remember: You are responsible for protecting yourself and your colleagues!

### **3. Access**

Access to the equipment of the MPBIC is possible for all research groups of the institutes and clinical departments of the medical faculty.

In addition, the equipment can be booked for scientific studies by the following:

- Employees of the OvGU and other research institutions from Magdeburg
- Scientists from other academic organizations from Germany and abroad

In order to access the platform, the envisaged experiments have to be outlined as described under "9. Project planning". Based on this information, the technical feasibility of the projects will be assessed by the platform staff, and, in case of projects requiring high measurement time and resources, by a scientific advisory board according to criteria described under "9. Project planning" before acceptance. In case of overbooking, a prioritization of accepted projects according to these criteria can be made by the advisory board. Apart from this, for all accepted experiments, the policy

is “first come first serve”.

The equipment is available from Monday to Friday from 8:00 until 17:00. The service platform is also open outside of these hours for users that have been specifically trained and authorized by the MPBIC staff.

In principle, the equipment of the service department can be used for industry and business projects. In this case, special arrangements and terms of use have to be discussed.

#### **4. Regulation of usage priorities**

All users with authorized projects have the same priority regarding the reservation of equipment. A given user and/or individual project can be booked for a maximum of two full days per week. If more time is required, please contact the head of the MPBIC. Booking equipment more than three weeks in advance must be approved by the head of the MPBIC. In case of the equipment being used at full capacity, priority will be assigned by the advisory board based on the evaluation of project outlines (see “9. Project planning”).

#### **5. Costs**

At the moment the booking and use of MPBIC equipment is free for members of the medical faculty. Users only pay for the consumables that are necessary to conduct the experiments. For external users, the fees specified in the appendix apply.

In the future, fees for using the equipment and services will be determined in accordance with DFG regulation. During an introduction phase, only virtual invoices will be sent to project leaders and principal investigators. On request, fees may be reduced if experiments are in the interest of the MPBIC (e.g. scientific collaborations, teaching).

#### **6. Health and safety regulations and documentation**

Measurements may only be carried out by individuals who have completed a safety training with the respective device(s), and have received an S2 as well as a laser safety introduction and signed a safety statement as well as a data protection statement based on article 6,1b DSGVO.

Work at biosafety level S2 can only take place with the approval of the biosafety officer of the Institute for Molecular and Clinical Immunology, Dr. Stefanie Kliche, and with official permission from the regional council in Halle. The respective permissions and registration numbers from the authorities (both S1 and S2) have to be submitted to the MPBIC before the start of the experiments. At each measurement station, all work at biosafety level S2 (including the reference number for the S2 proposal) has to be documented in a list. Please note that even if the respective S2 work has been approved already by the official authorities, registration of new S2 pathogens and/or genetic constructs will have to be updated for the respective platform rooms by the biosafety officer of the Institute for Molecular and Clinical Immunology, Dr. Stefanie Kliche.

#### **7. Allocation of measurement time and booking rules**

##### **Registration**

When registering for the use of equipment for the first time, each user must fill out a registration form (available on the MPBIC website), providing information about themselves and the planned project. In addition, risk assessments regarding chemical and biological safety and occupational safety must be submitted by the person running

the experiment and the project leader. Without providing the duly completed registration form, including the individual authorization numbers for S1 and S2 work, access to the equipment is not possible.

Time slots at the different FACS and microscopy systems are organized and scheduled via a web-based booking system. The link to the booking system is available on the website of the MPBIC.

Registered users will receive a personal user login and a password for the reservation and use of equipment. Sharing this login information with third parties is not allowed and can result in the account being disabled. Additionally, untrained or unregistered persons are not permitted to operate microscopes or FACS devices unattended during time slots booked by registered users.

Users have to inform the MPBIC if their employment contract ends, they change their work group affiliation or a scientific project ends, so that the user account and personal data can be deactivated/deleted.

Booked measurement times should be used efficiently. Users are asked to only reserve the time that is necessary to carry out the measurements. Repeated unnecessary booking can result in exclusion from access.

### **Cancelling or rescheduling reservations**

If users have to cancel a reservation, they are obliged to inform the MPBIC staff as well as the users that have reservations before and after the cancelled reservation. This has to happen in the form of a telephone call and an email. Unused bookings must be reported no later than two workdays before the measurements would start. Project-specific exceptions must be authorized by the head of the MPBIC.

If a user does not show up within 30 minutes of the start time for their booking and has not sent a cancellation email with an explanation, the measurement time will be redistributed without consultation.

The service unit retains the right to reschedule and cancel individual appointments due to technical and organizational reasons after consulting the user.

## **8. User support**

If needed, users will be supported and advised in all specific technical and experimental questions by members of the service unit before and during the planning phase as well as during the project. The contact information for the service unit can be found on the homepage of the MPBIC.

## **9. Project planning**

Users must submit a registration form (available on the MPBIC website) including a short project outline describing the work plan, preliminary experiments, experience with the necessary equipment, support required from the MPBIC staff and measurement methods.

The project outline is evaluated by the staff of the platform regarding the technical feasibility of the project. A scientific advisory board (Microscopy: Prof. Dr. Andreas Müller, Prof. Dr. Klaus Dieter Fischer, Cell sorting and FACS analysis: Prof. Dr. Thomas Schüler, Prof. Dr. Thomas Tüting) can be consulted to evaluate the scientific aspects. This is mainly the case for projects requiring extensive measurement time and resources. Based on these evaluations, it will be decided if the study is achievable with reasonable effort and expense. The main criteria for this decision are:

- Scientific quality of the concept/excellence

- Feasibility (availability of adequate equipment, required technical assistance, legal aspects)
- Ratio between effort/expenses and chances of success
- Value to the medical faculty and its research groups.

In case of overbooking, projects may be prioritized based on these criteria.

### **10. User responsibilities**

Users must use the equipment as they were trained to do. The MPBIC staff should be contacted if a user is uncertain how to properly operate the equipment.

In order to prevent damage or injury, the MPBIC staff should be immediately informed if uncontrolled release of experimental solutions occurs in the workplace or if other chemical or biological contaminations occur.

While using the equipment, the instrument and the workspace must be kept clean and organized for the next user (FACS-devices: rinsed, trash removed; Microscopes: clean lenses and a clean microscope table, rinsed holder for experimental solutions, no broken glass, syringes removed).

Laser and fluorescence lamps must be left in the correct state (on or off) for the next user based on the booking calendar: laser and fluorescence light sources have to be turned off if there is no booking starting within the next four hours. For this, check the booking calendar or ask staff members of the MPBIC.

The respective principal investigators are responsible for their employees regarding their use of the microscopes and FACS equipment. PIs have to ensure that their scientists are properly trained with regard to essential laboratory skills and all necessary health and safety trainings.

Work at biosafety levels S1 and S2 is only allowed if the MPBIC department has approved and has received a copy of the relevant project approval of the work group, and the respective experiments are documented (see also "6. Health and safety regulations and documentation").

### **11. Experimental data & data security**

The service department does not guarantee the secure long-term storage of experimental data. Experimental data regarding a current project can only be saved after consultation with the leader of the MPBIC.

After an experiment is finished, data may not remain on the local computers of the FACS machines and microscopes for more than one week. The MPBIC staff asks users to transfer data to their own storage spaces. For this transfer, only newly formatted storage devices which are registered by the Medical Computer Centre (MRZ) (<http://intranet.med.ovgu.de/Alle+Meldungen/Meldungen+2019/Nutzung+externer+Datentr%C3%A4ger.html>) are allowed. If the capacity of 10 GB per user or 50 GB per workgroup is exceeded for more than 2 weeks, and after two written warnings, the data will be deleted without further notice.

Users of the Fortessa FACS devices have to export their data from the database to the export folder of their workgroup and should remove their data from the database after the measurement. The database of both Fortessa devices is cleaned regularly by members of the MPBIC facility.

Each user is responsible for complying with the user guidelines. Data that are not saved on the appropriate drive are not secure and can be deleted without further notice at

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any time.

Saving data on the C-drive, the desktop and the local equipment-specific document folders is strictly forbidden. These data will be deleted without further notice.

It is not allowed to download and install any software. If you need a particular program or consider it useful, please contact the MPBIC staff. The use of MPBIC computers for private internet research is not allowed and can result in suspension.

## **12. Acknowledgements**

Users are requested to include the following statement in their manuscripts, meeting presentations, and research proposals to acknowledge the MPBIC:

"The author(s) acknowledge the Multi-Parametric Bio-Imaging and Cytometry core facility MPBIC at the Medical Faculty of the OvGU Magdeburg for instrument use, scientific and technical assistance."

Users and principal investigators are requested to inform the head of the MPBIC if a new paper with an acknowledgement is published.



Prof. Dr. sc. Andreas J. Müller  
Scientific head of MPBIC  
Otto-von-Guericke University Magdeburg  
Medical Faculty  
Institute of Molecular and Clinical Immunology  
Leipziger Str. 44  
39120 Magdeburg

**Appendix: breakdown of usage fees**

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|--|---------|
| Cell Sorter Aria III                             | 60 €/h  |
| FACS-Analysis Device BD Fortessa 3 laser system  | 15 €/h  |
| FACS- Analysis Device BD Fortessa 5 laser system | 25 €/h  |
| Confocal Microscope Leica Sp8                    | 50 €/h  |
| Life-Cell Microscope Leica DMI8                  | 20 €/h  |
| 2-Photon Microscope: Lavisision, Zeiss           | 50 €/h  |
| Fluorescence Microscopes                         | 10 €/h  |
| Multi-Epitope-Ligand-Cartography (MELC)          | 100 €/d |

Fees for new equipment will be based on those of current systems.

Each registered project has a time allocation of ten hours for orientation and evaluation, which is provided free of charge.