

Usage Policy

BOKU Core Facility Biomolecular & Cellular Analysis (BMCA)

BMCA offers state-of-the-art instrumentation and techniques for the characterization of biomolecules and biomolecular interactions. Furthermore, our services include protein X-ray crystallography, supported by a complete infrastructure for crystallization and downstream analysis. Additionally, we specialize in the analysis and sorting of cells and cellular components using flow cytometry.

Usage Conditions and Pricing Policy

Available Service Modes at BMCA

- **Trained user mode:** Independent use of instrumentation after appropriate training.
- **Full-service mode:** Execution of experiments and, when applicable, report generation by skilled staff

BMCA staff and users jointly determine the appropriate mode of operation (or a combination thereof) based on the specific requirements of the planned experiment (e.g., technical complexity, number of samples), staff availability, and financial considerations. BMCA operates on a first-come, first-served basis, regardless of the selected usage mode or the user's institutional affiliation. Exceptions may be granted for time-sensitive experiments (e.g., manuscript resubmissions), subject to prior approval.

Internal Users (BOKU)

Service fees for internal users are determined based on the legal basis of the project under which the work is conducted. Prior to the start of any

experiment, the Principal Investigator (PI) must provide the following information:

- Project name
- Funding agency
- Account number for invoicing (6-digit cost center or 10-digit internal order number)

Based on this information, the PI will receive applicable internal pricing information. BMCA reserves the right to revise service fees and pricing at any time, also for ongoing projects.

External Users (Non-BOKU)

External users receive a customized offer after a project discussion. The offer, sent via email, must be confirmed in a written form (typically by email) before starting any experimental work. BMCA pricing updates also apply to ongoing projects, unless otherwise agreed upon in a written form.

Project Initiation

To initiate a new project, please contact the facility at bmca@boku.ac.at (see [Contact](#)) to discuss available service options and receive instructions on how to order services.

Users are encouraged to prepare the following information in advance to facilitate an efficient and productive consultation:

- Any previous experimental attempts or relevant experience
- Publications or data demonstrating similar approaches or desired outcomes
- A clear research objective, including the specific question to be addressed and the expected results

This preparatory information helps ensure appropriate planning and optimal use of facility resources.

Instrument Usage

List of Instrumentation

- Surface plasmon resonance spectrometer – **Biacore T200** (GE Healthcare)
- Biolayer interferometer – **Octet RED96e** (Pall)
- Isothermal titration calorimeter – **PEAQ-ITC** (Malvern Panalytical)
- Size-exclusion chromatography – light scattering – **OMNISEC multi-detector GPC/SEC system** (Malvern Panalytical)
- Protein purification – **ÄKTA go** (Cytiva)
- Differential scanning calorimeter – **PEAQ-DSC** (Malvern Panalytical)
- Dynamic light scattering – cuvette mode – **Zetasizer Nano ZSP** with autotitrator (Malvern Panalytical)
- Nano differential scanning fluorimeter – dynamic light scattering – **Uncle** (Unchained Labs)
- Flow cytometry – analysis – **CytoFLEX S** (Beckman Coulter)
- Flow cytometry – cell sorting – **SH800S** (Sony)
- Flow cytometry – cell sorting – **BC MoFlo Astrios EQ** (Beckman Coulter)
- Pipetting robot **Mosquito LCP** (SPT Labtech)
- Crystal imaging hotel – **Rock Imager 1000** (Formulatrix)
- Stereomicroscope – **SteREO Discovery.V12** (Zeiss)
- Protein formulation screen builder – **FORMULATOR 10** (Formulatrix)

Training

Use of BMCA instrumentation is strictly permitted only after successful training by BMCA staff. Important: Users are not allowed to train other users under any circumstances. Violating this rule will result in the loss of access to the facility for both the unauthorized trainer and trainee.

To schedule training, please contact the facility. If a user has not used a particular instrument for over one year, they must consult with BMCA staff for a refresher or retraining session, if needed.

Training also includes an introduction to the facility's safety regulations. If a user fails to complete training successfully, or does not comply with facility rules (especially regarding safety) BMCA staff reserves the right to suspend or permanently revoke the user's access to instrumentation.

Sample Quality

All samples submitted to or tested at BMCA must meet basic quality standards. Users are expected to:

- Ensure sample identity (e.g., by mass spectrometry)
- Ensure purity/homogeneity (e.g., by SDS-PAGE, SEC-LS, etc.)
- Accurately determine sample concentration before requesting services

BMCA is happy to assist with meeting the above-mentioned quality criteria upon request. Please note that additional characterization required to complete a service may incur extra charges. BMCA assumes no responsibility for negative results caused by poor sample quality or errors in provided materials.

Biosafety and Lab Safety

Use of BMCA services and infrastructure is strictly limited to biosafety level 1 (BSL-1) materials.

This means that no infectious, toxic, or otherwise hazardous biological material may be brought into or processed within the facility. If you are unsure whether your material meets BSL-1 requirements, please consult with BMCA staff before initiating any work.

Instrument Booking and Cancellation

Most BMCA instrumentation is available to trained users during regular working hours (Mon-Fri, 9:00 AM - 5:00 PM). Use outside these hours requires prior approval. BOKU-internal users may access flow cytometry instruments 24/7, but only after completion of training, which includes instruction on the use of the emergency device. Please contact BMCA staff for further details.

All instrument use and training must be booked via the [booking software Stratocore](#) (PPMS).

- **BOKU-internal users:** Log in with your BOKU credentials to request an account.
- **External users:** Email your full name, email, phone number, PI's full name, and billing address to bmca@boku.ac.at to set up a user account.

All bookings (except flow cytometers) require confirmation by BMCA staff and must be submitted at least 24 hours in advance. Confirmations are sent via email.

Usage of most instruments (Octet, SPR, ZetaSizer, CytoFLEX, and Sony Sorter) is automatically tracked by PPMS (the user must log in to the instruments). For others (ITC, DSC, Uncle, OMNISEC and the protein crystallization instruments), the user must manually order the number of samples or crystallization packages in PPMS. Consumables (except basic lab equipment e.g., gloves, pipette tips, reaction tubes etc.) must also be ordered via PPMS based on actual usage.

Cancellations within 24 hours of training or booked instrument time must be made in person or by phone – emails are not sufficient. Unused bookings must be cancelled, or they will be fully charged.

Instruments may not be booked for more than seven consecutive days, with exceptions for urgent cases (e.g., manuscript revisions) or short-term external visits.

BMCA staff are exempt from booking limits for project or maintenance work. If instruments become unavailable, users will be notified as early as possible. BMCA may cancel bookings at short notice for repairs or maintenance, which will be planned to minimize disruption to users.

Users are expected to handle instruments carefully, use resources responsibly, and consult BMCA staff if issues arise or if anything is unclear. All instructions provided by BMCA staff or protocols must be strictly followed.


User Samples and Reagents

All user samples and reagents must be clearly labeled with the compound name, user name, and date. Unlabeled items will be discarded without prior notice for safety and hygiene reasons.

During active projects, users may store materials in designated facility areas. These must be cleared immediately after project completion. BMCA staff may discard uncollected materials if cleanup requests are ignored.

For full-service projects, users will be notified when experiments are complete and if materials remain. Users are expected to promptly collect any remaining materials. If samples need to be returned to off-campus users, all shipping costs must be covered by the user.

Waste Management

All (biological) samples and any disposables that have come into contact with them must be discarded in containers labelled with: 

Dirty lab ware (e.g., bottles, beakers) must be placed on the designated trays, with all labels removed prior to disposal. Methanol-containing waste from PEAQ-ITC use must be collected separately in the designated container. Detailed disposal instructions will be provided during instrument training.

General Lab Equipment

The following basic laboratory equipment is available for users at BMCA:

- Personal protective equipment (coat, safety glasses, gloves)
- (Multi-channel) pipettes and tips, dispenser pipette
- Plastic reaction tubes (non-sterile)
- Glass bottles and beakers
- Syringes and sterile syringe filters (0.22 µm)
- (Micro) pH-electrodes
- Balances
- Magnetic stirrer (heatable) and vortexer
- Particle-free ultrapure water (Milli Q)
- Ultrasonic bath (heatable)
- Vacuum pump for filtration of buffers
- Coolable centrifuge (compatible with 1.5/2 mL reaction tubes, 15/50 mL tubes, and plates)
- DeNovix instrument for protein/DNA/RNA concentration determination (absorbance and fluorescence) in microliter or cuvette mode
- Stunner instrument (Unchained Labs) to measure the concentration of proteins, DNA, RNA, LNPs and VLPs

Users are expected to inform BMCA staff when supplies are running low. Additionally, we encourage users to suggest equipment or

consumables they believe should be added to the facility's standard repertoire. Please note that failure to return items, improper cleaning, or damage to equipment may result in the user being charged for the cost of cleaning, repair, or replacement.

Data Transfer and Storage

Raw data generated on BMCA instruments is stored locally on the respective instrument control PCs. Please note that these PCs are not backed up. It is therefore the sole responsibility of users to transfer and securely store their data immediately after completing their experiments.

For the ITC, DSC, ÄKTA go, Astrios, and Stunner instrument, users must transfer their data directly from the respective control PCs using the dedicated USB devices provided (located in the small boxes beneath each control PC), and copy the files to the User-PC.

For all other instruments, the control PCs are connected to the network, allowing users to transfer data directly using platforms such as: drive.boku.ac.at, files.boku.ac.at, BOKU Box, Drop Box, or similar services. If you require assistance with data transfer or access, please do not hesitate to contact BMCA staff.

For the two CytoFLEX control PCs, all data files (.xit and .fcs) older than one year will be automatically deleted. Templates (.xitm) and compensation files (.xite) will remain unaffected.

Users are absolutely not allowed to use any USB devices other than those provided by BMCA for data transfer.

The User PC is available for BMCA users (Mon-Fri, 9:00 AM - 5:00 PM) on a first-come, first-served basis – no reservation required. The computer is equipped with all BMCA-specific instrument software for data analysis (with the exception of the ÄKTA go software). Please be aware that neither the User PC nor the USB transfer devices are intended for long-term data storage. All user data will be deleted from these devices without prior warning.

Publications

If users publish a manuscript that includes data generated using BMCA instrumentation or services, they are **required to report the publication via the PPMS system**.

If assistance is needed in preparing a manuscript (such as support in presenting data or describing the methodology) users are encouraged to contact BMCA staff. In accordance with good scientific practice, BMCA staff members who have made intellectual contributions to a project or publication should be offered co-authorship.

Acknowledgment Guidelines

All publications, oral presentations, or posters that include data or services from BMCA must acknowledge the facility. Depending on the usage mode and level of staff involvement, the following acknowledgment templates should be used:

1. **Trained user mode (e.g., SPR):** "The SPR equipment was kindly provided by the Connective Base GmbH and the project was supported by the BOKU Core Facility Biomolecular & Cellular Analysis."
2. **Full-service mode (e.g., SPR conducted by BMCA staff):** "We thank [staff name] for conducting surface plasmon resonance experiments. The SPR equipment was kindly provided by the Connective Base GmbH and the project was supported by the BOKU Core Facility Biomolecular & Cellular Analysis."
3. **Core Facility staff listed as co-author (e.g., SPR):** "The SPR equipment was kindly provided by the Connective Base GmbH and the project was supported by the BOKU Core Facility Biomolecular & Cellular Analysis."

Special Acknowledgment for ESRF Data

For any publications involving data collected at the European Synchrotron Radiation Facility (ESRF) via BMCA's Protein Crystallization Unit, the following points must be included:

1. **In the Material & Methods section:**
Refer to the DOI of your beamline session, i.e.: "The data DOI of that session is 10.15151/ESRF-XYZ." (Users can retrieve their DOI at <https://data.esrf.fr> or generate one to reference specific datasets. Detailed information on this topic is available at <https://www.esrf.fr/ICAT>.)
2. **In the Acknowledgment section:**
"This project was supported by the Connective Base GmbH and the Protein Crystallization Unit of the BOKU Core Facility Biomolecular & Cellular Analysis. We would like to thank the staff of the ESRF and EMBL Grenoble for assistance and support in using beamline(s) XX, YY, ZZ under proposal number MX2651."

Contact

For general inquiries, including service requests or training appointments, please contact us at:

bmca@boku.ac.at

Feedback and Evaluation

BMCA highly values user feedback. Users are encouraged to share their experiences, suggestions, or concerns regarding facility operations with the [Head of BMCA](#) at any time. Users are actively invited once a year to provide anonymous feedback through an online survey. Constructive feedback helps us continuously improve our services.