

Policy Biochemical Imaging Centre Umeå (BICU):

The Biochemical Imaging Centre Umeå is part of the VR-funded National Microscopy Infrastructure (NMI). This open access facility provides state-of-the-art equipment for super-resolution microscopy, advanced live cell imaging, atomic force microscopy, correlative imaging approaches and, in addition, affinity measurements by BIACORE/PROTEON, ITC, CD and QCM-D

ORGANIZATION

BICU staff:

Director: Richard Lundmark: richard.lundmark@umu.se

Facility manager and Light Microscopy specialist: Irene Martinez: irene.martinez@umu.se

Light Microscopy and Electron Microscopy specialist: Naga Venkata Gayathri Vegesna: gayathri.vegesna@umu.se

Affinity specialist: Johan Olofsson Edlund: johan.olofsson.edlund@umu.se

IT specialist: Hussein Haggag: [hussein.haggag@umu.se](mailto:husseini.haggag@umu.se)

Advisory Board:

- Thomas Borén, Medicinsk Kemi och Biofysik, UmU
- Richard Lundmark, Integrativ Medicinsk Biologi, UmU
- Linda Sandblad, Kemi, UmU
- Anders Olofsson, Medicinsk Kemi och Biofysik, UmU
- Jonathan Gilthorpe, Integrativ Medicinsk Biologi, UmU
- Stephanie Robert, Umeå Plant Science Centre, SLU
- Mattias Alenius, Molekylärbiologi, UmU
- Irene Martinez Carrasco, UmU
- Marta Bally, UmU

Affiliated to advisory board:

- Erik Johansson, Prefekt, Medicinsk kemi och Biofysik, UmU
- Staffan Johansson, Prefekt Integrativ Medicinsk biologi, UmU

II. POLICIES AND PROCEDURES OF THE FACILITY

1. LIGHT MICROSCOPY:

User registration:

All users have to be registered via the online application form prior to the use of any equipment and prior to receiving any assistance at the microscopes.

The registration form can be found here: <https://nmi.scilifelab.se>

Services provided:

- Consultation prior to imaging
- Technical support for image acquisition

- Personal training to provide driver's license per instrument.
- Assistance with Image analysis (including image pre-processing: improvement of image quality and intermediate processing: segmentation of the image. We are not involved in high-level image processing: model prediction)
- All projects and experiments are important and deserve equal attention from us

Care and Use of Equipment:

All UmU-researchers have access to the services provided by the facility. External users are accommodated as time permits. We encourage the independent use of the instruments; however, all unassisted use must have the approval of a BICU staff member, and prior registration in the online application form: <https://nmi.scilifelab.se>

Never attempt to fix any equipment problems no matter how trivial they may seem. As soon as possible, contact BICU staff. We will attempt to rectify the problem or will contact the appropriate service personnel.

Following instrument use, the room and equipment should be left clean, operational, and in the standard configuration. The logbook must be filled in.

Users may not change BICU designated settings on any instrument. Repair of damage to instruments by the users may be billed to the Principal Investigator.

Training:

All users must be trained by a BICU staff member prior to using any instrument in the facility. The training is on a first-come, first-served basis. If you would like training, please start by contacting BICU staff. The training has been standardized and consists of three sessions at the microscope. During the first session, an overview of the software and the microscope with a standard sample will be performed. During the second and the third sessions, the user will have the chance to use the microscope with their own samples. Investigators, staff or students must never provide initial training to other users. Users must follow all instructions of the BICU staff. If a significant amount of time elapses between training and use of the instrument, the user may be denied access to the instrument and asked to attend training again. Operating these instruments is a complex procedure and must be practiced regularly.

Booking:

Once the user has finished the training, the e-booking system will be activated for him/her.

You can find the link on the website: <https://booking.chem.umu.se/EZbooking/>

Users can only reserve time for their own use and no user may reserve time on any instrument for someone else.

Fees:

The billing is made twice a year to the Principal Investigator. If a research group uses the facility instruments on regular basis, a discount on the final cost will be made. Technical method development would follow a different payment policy in agreement with BICU staff. Microscope instruments are charged on a per hour basis. If payment is not provided, access to the facility will be terminated.

Academic Institutions:

Confocal microscopes: 250kr per hour. Driver's license: 2000kr

Wide field microscopes: 150Kr per hour. Driver's license: 2000kr
IncuCyte microscope: 20Kr per hour. Driver's license: 500kr

For long-term experiment such as *in vivo* over night, the price is fixed if the experiment is longer than 10 hours. If the experiment continues next day, the hours start to count again from 8:00 a.m (This does not apply to the IncuCyte microscope)

Industry and External Users:

The users will pay full price for the use of the instruments: 500Kr per hour. Driver's license 2000kr

Widefield and TIRF virology Microscope

User registration, services provided, care and use of the equipment and booking follows the same BICU policy already described

Training:

All users must be trained by the instrument responsible prior to using the microscope. The training is on a first-come, first-served basis and dependent on the availability of the instrument responsible. If you would like training, please start by the instrument responsible or BICU staff. The training has been standardized and consists of two sessions at the microscope. During the first session, an overview of the software and the microscope is provided. The instrument responsible provide assistance with performing an experiment on a sample provided by the user. During the second session, the user demonstrates to the instrument responsible that he/she can turn on and off the instrument and that he/she is able to image the sample reasonably well. Note that separate training is provided for the use of the TIRF/FRAP or the widefield units. Specifically, certified widefield users are not allowed to use the TIRF/FRAP unit until additional training has been provided Users must follow all instructions of the instrument responsible and the BICU staff. If a significant amount of time elapses between training and use of the instrument, the user may be denied access to the instrument and asked to attend training again. Operating these instruments is a complex procedure and must be practiced regularly.

Fees:

Academic Institutions:

Wide field microscopes: 150Kr per hour. Driver's license: 2000kr

TIRF unit 200 Kr per hour. Driver's licence: 2000 Kr

FRAP unit 200 Kr per hour. Driver's licence: 2000 Kr

For long-term experiment such as *in vivo* overnight, the price is fixed if the experiment is longer than 10 hours. If the experiment continues next day, the hours start to count again from 8:00 a.m.

Industry and External Users:

The users will pay full price for the use of the instruments: 500Kr per hour. Driver's license 2000kr

Contacts:

Responsible person: Konrad Thorsteinsson, konrad.thorsteinsson@umu.se, Marta Bally, marta.bally@umu.se

Administrator: Irene Martinez Carrasco, irene.martinez@umu.se

2. AFFINITY INSTRUMENTS USER CLUB: CD, ITC, Proteon, and Biacore:

User registration:

The Affinity Instruments at BICU are running under a User Club basis. In order to access the instruments, the Principal Investigator must contact BICU manager to join the user club and sign an agreement contract (see training paragraph below). Currently one can choose between a partial membership that only covers the use and training of the CD instrument, or a full membership with all instruments covered.

Care and Use of Equipment: Please never attempt to fix any equipment problems no matter how trivial they may seem. As soon as possible, contact BICU staff. We will attempt to rectify the problem or will contact the appropriate service personnel. Following instrument use, the room and equipment should be left clean, operational, and in the standard configuration. The logbook must be filled in. If the instrument is damaged due to a bad usage of the instrument the Principal Investigator will be charged accordingly

Training:

For use of Biacore/ITC/QCM-D/CD equipment, it is mandatory to first take the corresponding driver's license per instrument. Services from the platform includes instructions for use and cleaning of equipment, as well as test running and verification of performance status. If users are found to lack appropriate driver's license for the equipment but still use it, access to the facility will be terminated for the user and the corresponding group and PI. Renewed access will only be considered after application by the PI to the board.

Booking:

Once the user has finished the training, the e-booking system will be activated for him/her. You can find the link on the website: <http://booking.chem.umu.se/> Users can only reserve time for their own use and no user may reserve time on any instrument for someone else.

Fees:

Academic Institutions: An annual fee of 8000Kr, 2000Kr for the partial "CD only" or 2000 Kr for the partial "QCM-D only" membership agreements, will be paid after the respective membership agreement signature datum and it will be renewed with a written confirmation of the PI on an annual basis. ITC, Biacore and QCM-D instruments are charged per day basis and there will be a fee of 500Kr for each user day. The CD instrument is billed according to hours used, but can be booked for the full day for a fee of 1000Kr. Additionally, we will invoice a running cost fee of 500Kr (CD) and 1500Kr (Biacore, QCM-D and ITC) for each introduction session.

Industry and External Users: The users will pay full price for the use of the instruments.

Contacts:

Responsible persons:

Johan Olofsson (all instruments): johan.olofsson.edlund@umu.se

Hudson Pace (QCM-D) Hudson.pace@umu.se

Ikenna Obi (only CD) Ikenna.obi@umu.se

Administrator: Irene Martinez Carrasco, irene.martinez@umu.se

3. SAMPLES/ HAZARDOUS MATERIALS:

Users must communicate to the BICU staff if their samples are toxic or dangerous and require any specific handling. The principal investigator of the project is responsible for assuring that the analysis can be performed according to the Biosafety level (BSL) of the room where the instrument is located.

4. COMPUTERS AND DATA STORAGE:

Users are responsible for securing the long-term storage of their own data. The BICU-server is only intended to be used for data transfer. The facility does not take any responsibility for lost files due to technical problems with the computer/hard disks.

Do not download/upload programs or files onto BICU computers. Users doing so, may have their use of the facility restricted. BICU computers are not to be used for any purpose other than data acquisition or analysis.

5. ACKNOWLEDGEMENTS/CO-AUTHORSHIP POLICY:

Investigators are requested to recognize the role of BICU in producing data for publication in the acknowledgement section of the manuscript. This will enable us to demonstrate our importance to the research programs at the university and help to ultimately obtain additional equipment and funding critical for meeting the needs of our users.

- Recommended acknowledgement for microscopy: *"We acknowledge the Biochemical Imaging Center at Umeå University and the National Microscopy Infrastructure, NMI (VR-RFI 2019-00217) for providing assistance in microscopy"*
- Recommended acknowledgement for SPR and ITC measurements: *"We acknowledge the Biochemical Imaging Center at Umeå university".*

We would also appreciate if you could acknowledge BICU contribution in your oral presentations. BICU and NMI logos are available from the website

We ask that the authors or principal investigator to submit a copy of the bibliographic reference of the publication for our records.

Co-authorship for staff within BICU may be requested in the following instances:

- Significant intellectual contribution to experimental design.
- Extensive analysis and/or interpretation of data.
- Extensive and preparation of data for the purpose of publication.

Authorship agreements are made prior to initiation of work by the BICU staff in discussions with the director of BICU, BICU staff and the users. BICU staff cannot be included as an author without the opportunity to review the manuscript prior to publication.

6. BICU REPORT and SURVEY:

BICU presents an annual report to NMI and KBC where we reflect the budget for next year and the current use of the facility in terms of number of projects, users and publications. We also provide information about courses, workshops and teaching.

To keep contact and get feedback from users, we encourage users to fill in the survey at the website <https://www.umu.se/en/research/infrastructure/biochemical-imaging-centre-umea-bicu/bicu-feedback-survey/>

The image shows the logo for BICU (Biochemical Imaging Centre Umeå). The letters 'BICU' are rendered in a large, bold, light blue sans-serif font. The 'B' has a white vertical bar on its left side. The 'I' is a simple vertical bar. The 'C' is a large circle with a white horizontal bar on its right side. The 'U' is a simple U-shape. The logo is centered horizontally and is enclosed within a thin grey rectangular border.