

Cryo-EM facility

Overview

The Cryo-EM Facility provides microscope access, training as well as scientific for sample preparation and data collection.

Equipment

- GLACIOS cryo-electron microscope equipped with a Falcon 4i DED
- VITROBOT Mark IV
- clipping station
- mounting station
- sample storage Dewar
- heating plate

User manuals are delivered after the instrument training

Location

The bacteria culture room is located on the basement floor, north side, GEOTEC 00 480 -1.054-055 and 00 480 -1.048

Opening hours

Monday to Sunday: H24

Please note that, according to the Safety Guidelines of University of Padua:

“Do NOT work alone outside of working hours, particularly in N2 confined environment, or in rooms with X-ray sources and in cases of complex and dangerous operations. It is always important to check if specific procedures require special attention.

The presence of undergraduate students is conditioned on the presence of at least one structured staff unit.”

Service Coordinator

Prof. Roberto Steiner (Scientific Coordinator)

Staff

Dr. Alessandro Grinzato (Technical/Scientific staff)

Guidelines

Frequent users with a subscription plan are expected to perform experiments independently after adequately trained to ensure proper use of the instruments.

Sporadic users must perform experiments in collaboration with a trained user.

Use of the instrument and training

Prior to the first use of the instruments, please contact the service coordinators for the mandatory training.

Booking procedures

The instrumentations booking must be made using the following google forms:

Glacios: <https://forms.gle/N4srQmJ2QSSYQkPu7>

Vitrobot: <https://forms.gle/1QQ3VRFkEs4QKz368>

If necessary, Vitrobot reservations can be cancelled no later than 24h prior to the reserved slot and microscope reservations can be cancelled no later than 72h prior to the reserved slot. In the booking webpage is it possible to book separately the sample preparation instruments (Vitrobot and clipping station) and the microscope. The Vitrobot booking is on an hourly basis with a minimum of two hours and include also the booking for the clipping station, while the microscope reservation is for the whole day (24 h) starting at 9:30 am.

Rules

Vitrobot and clipping station:

Before your session

- Equipment must be checked in all their parts: everything must be clean and without any obvious damage. If this is not the case, please immediately contact the facility coordinator.
- The humidifier cylinder must be filled before switching on the instrument
- Heating plate must be checked to be at a temperature between 30 to 40 ° C
- Report to the staff the presence of incorrect behavior or waste not properly disposed of.
- Retrieve the ethane gas cylinder from the cabinet.

During your session:

- Good lab practices must be followed to prevent damage to the instrument.
- If facility consumables are used (grids, grid box, c-clip, rings) the exact number of items consumed must be recorded in the logbook.

After your session:

- Remove the blotting paper and empty the humidifier.
- DO NOT leave anything in the room.
- Switch off the vitrobot after each use.
- Switch off the heating plate.
- Remove any unused liquid nitrogen.
- Warm up and dry all nitrogen containers (dewars, clipping station, vitrobot puck) and tools (tweezers, clipping tools).
- Store all the used tools.
- Close and store back to the cabinet the ethane gas cylinder.
- Properly discard solid biological waste into a biological bin of your lab.
- All liquid biological waste must be DISCARDED IN YOUR OWN LAB.
- Contaminated gloves must be discarded.
- If the mQ water bottle is empty, it must be refilled before the next user shift.
- Equipment must be checked in all their parts: everything must be clean and without any obvious damage. If this is not the case, please immediately contact the facility coordinator.

Microscope

Before your session

- Equipment must be checked in all their parts: everything must be clean and without any obvious damage. If this is not the case, please immediately contact the facility coordinator.
- The microscope session starts at 9:30 am. Users must organize themselves with those of the previous shift for the insertion and retrieval of grids from the microscope.
- Every grid inserted in the microscope **MUST** be checked for corrected clipping before loading and after removing from the cartridge. Any mis clipped grids removed from the microscope must be noted down in the log book.
- The exact number of grid loaded and their position in the cartridge must be recorded in the logbook
- DO NOT load any grid in position 1

During your session:

- Good lab practices must be followed to prevent damage to the instrument.
- Regular users MUST follow the given instruction and DO NOT change the microscope preset parameters
- Advanced user can change the preset parameters, but the standard parameters MUST be restore at the end of the session.
- Any unusual behavior of the instrument MUST be immediately reported, and NO FURTHER operations must be performed until the problem has been resolved by and advance user or a facility member.
- Data must be stored in the User folder with the following name:
YYMMDD_projectname_ATLAS for grid atlas folder
YYMMDD_projectname for images folder
YYMMDD_projectname_samplename_EPU for EPU data collection

After your session:

- The microscope session ends at 9:30 am of the following day. Users must organize themselves with those of the following shift for the insertion and retrieval of grids from the microscope.
- Data must be removed within one week of the instrument reservation date
- Equipment must be checked in all their parts: everything must be clean and without any obvious damage. If this is not the case, please immediately contact the facility coordinator.
- The mounting station, the nano capsule and the clipped grids tweezers must be warmed up and dried.
- The instrument logbook must be filled in every section.
- Grids can be stored in the storage dewar in a traceable grid box for at maximum of 6 month.

Costs

Instrument	Use	DSB	University of Padova	Accademia	Industries
Glacios Microscope + mounting station	Sporadic User: single use, 1 day	500,00 €/24h	600,00 €/24h	800,00* €/24h	2000,00* €/24h
	Frequent User: subscription 10 days	4.000,00 €	5.000,00 €	6.000,00* €	15.000,00* €
Vitrobot + clipping station (consumables not included)	Minimum 2 hours	30,00 €/h	35,00 €/h	40,00* €/h	70,00* €/h

*Costs without VAT