

University of Melbourne

Advanced Microscopy Facility

Access and Usage Handbook

The Advanced Microscopy Facility houses three transmission electron microscopes, four scanning electron microscopes and two confocal microscopes along with associated preparation equipment. The Units aim is to provide advanced microscope investigation capabilities. This resource is accessible to all members of the research community and to commercial users on a cost-per-use basis and/or collaboration.

Facility Staff

Manager (Bio21 node)	Eric Hanssen
Research Fellow	phone: +61 (3) 834 42449, fax: +61 3 9347 8265 email: ehanssen@unimelb.edu.au microscopes: TF30 cryo TEM, SP5
Manager (Botany node)	Simon Crawford
Research Fellow	phone: +61 (3) 834 45047, fax: +61 3 9347 5460 email: sacraw@unimelb.edu.au microscopes: CM120, XL30 FEG, SP2
Research Fellow	Sergey Rubanov
	phone: +61 (3) 834 42515, fax: +61 3 9347 8265 email: sergey@unimelb.edu.au microscopes: TF20 TEM and Nova Focus Ion beam
Electron microscopist	Roger Curtain
	phone: +61 (3) 834 42513, fax: +61 3 9347 8265 email: rcac@unimelb.edu.au microscopes: Quanta ESEM and XL30 SEM EDS

Staff support

The main functions of the Advanced Microscopy Facility (AMF) staff are to maintain the EM facilities, train new investigators, and assist facility users in obtaining the best possible results from the equipment available. It is not a function of the staff to act exclusively as research support staff for individual investigators. However, as time permits, they are able to provide support to investigators who do not have support for electron microscopy. The Unit staff are knowledgeable in the aspects of electron microscopy that are provided in the Unit. If required, they will offer advice on the suitability and quality of preparation techniques, and on the quality of the final images. It is not their job to interpret findings, since they are not necessarily specialists in the investigators particular field. Interpretation and analysis of images obtained from the microscopes is the responsibility of the investigator. In the case of students, interpretation and analysis is the responsibility of those students and their academic supervisor(s). If extended EM research is to be done by a student it may be a good idea to have one of the AMF unit academic staff as co-supervisor.

Publication/Authorship Policy

Even though the AMF provides electron microscopy services on a fee-for-service basis, the AMF should be acknowledged in publications in which microscopy results are utilized. Co authorship on resulting publications should be considered and discussed with the unit staff when projects brought to the AMF require significant technical, scientific or intellectual input from the AMF personnel. **Data taken on the microscopes becomes the IP of the person who acquires the data.**

<http://www.abrf.org/index.cfm/page/reference/Authorship.htm>

One of the measures of the Units effectiveness is the published and/or presented results obtained from work carried out in the facility. It is important that the Unit has an up-to-date record of work that was done, including all publications resulting from the work, oral presentations such as seminars, conferences etc. As the AMF is a facility which investigators use and then move on, it can be over looked by the time a paper including work done in the Centre is published.

It is the responsibility of the investigator to inform the Unit Manager of all presentations and publications resulting from work done in the Centre. A copy of all abstracts, in the case of oral presentations, and a copy of the all publications, in the case of papers, must be filed with the Unit.

Training in Techniques and Equipment Usage

The AMF staff contact person will provide (or arrange) training in the required electron microscopy preparation, safety procedures and disposal methods required for the successful pursuit of your project. The Contact Person will also provide the training in the operation of the microscopes.

No other person is permitted to train a new investigator without the approval of the facility manager

This stipulation is to prevent damage to equipment and to ensure a consistent level of training. The aim of the AMF is to enable investigators to obtain results and basic skills as easily and as quickly as possible; and to assist those who wish to achieve a higher level of competence.

Any damage to a microscope resulting from misuse or operator error will be charged back to the research group to which the user belong (eg. FEG tip: \$20,000; FIB pole piece: \$60,000)

Level of Liability

Work is undertaken in the AMF on the understanding that it will be done to the best of the Unit staffs' ability, and in good faith. However, the nature of electron microscopy, is such that the various techniques do not always produce consistent results, nor always the results that the investigator may expect. It is assumed the investigator understands this. The Unit will use its best endeavours to achieve the projects aims.

Equipment Usage and After Hours Usage

Unit access comes under 3 categories;

Category 3) New users who are attended by a staff member during working hours, 9am to 5pm

Category 2) Users with enough experience to work unattended between the hours of 9am to 5pm

Category 1) Highly experienced users who are able to work independently 24/7

Approval to use the facilities and equipment in the Unit without supervision and/or after hours will be given by the appointed staff contact person, once competence has been proven and is solely at the discretion of the AMF staff. It is the responsibility of all investigators to ensure that the equipment they use is left ready for the next investigator at the end of their session and that the laboratory area is kept tidy. Approval for facility use will be withdrawn in the event of serious neglect or damage of equipment, inappropriate use of equipment, neglect of safety and disposal procedures, or allowing unauthorised persons access to the Unit.

If an investigator has not used an item of equipment *for a period exceeding three months*, they are not permitted to use that equipment until a refresher session has been held with either their appointed AMF staff contact person or another Unit staff member. A high degree of professionalism is expected with regard to equipment usage. Being a multi-user Facility, any down time due to negligent or inappropriate use may result in other investigators research being compromised.

Access cards must never be handed on to a third party.

Bookings

Bookings are to be made via one of the unit staff. In some circumstances the unit staff will grant users with the possibility of online booking. Whether online or via a unit staff member cancellation or delay should be done with a 24h notice. Failure to do so will result in the down time being charged to the user.

Staff Offices, Desk Area's and Computer's

A staff member's desk area and computer is that staff members' personal space. This space is not to be intruded upon without the permission of the staff member concerned and under no circumstances are any personnel items to be taken away. The Unit staff members' computers are not to be used without the permission of the staff members.

Never install any software or save any files (but microscope images) onto Microscope or Unit support computers without permission from the AMF staff. Under no circumstances is software to be installed on the microscope computers or their settings changed. The machines are not networked so cannot be used for sending emails or web surfing.

Charging Policy

Day to day running costs for an electron microscope laboratory are high. We have service contracts on all our microscopes and user charges are necessary to try to recoup some of these costs. Before work can commence in the AMF a Registration Form must be completed. On this form you must supply an account code to which the costs incurred are to be charged and this must be signed by the account supervisor. Current charging costs can be obtained from the Unit personnel or on the website

Health and Safety

Common sense rules;

- No eating or drinking in the laboratory or at the microscopes.
- Please note the EM Unit is not PC2 certified so no infectious, toxic, radioactive or otherwise potentially dangerous samples are to be brought into the facility.
- Lab coats must be worn when working in the main "wet" lab area of the AMF if working with chemicals, e.g. When negative staining.

- Safety glasses and gloves must be used when using chemicals or liquid nitrogen.
- Use the fume hood (one on the left) if working with solvents or toxic substances. Clean up afterwards and do not leave any unlabeled chemicals in the lab or in the fumehood.
- The AMF is not a storage area, all sample, stain or solution left in the Unit without the authorization of the manager will be discarded. All unlabelled sample (name of the sample, name of the user, date prepared) will be destroyed regardless of authorization.
- Be aware of dangers e.g. assume hot plates are hot, find out what hazards a substance presents before using it. MSDS safety data sheets and Risk assessment are located in the white folders in the main lab (near the first aid kit).
- Clean up and correctly dispose of all spillages, change gloves if they become contaminated.
- Tidy up as you go, a messy lab encourages messy habits.

Specimens, Images and Data

Images and data obtained on the instruments in the AMF remain the property of the investigator who acquired the data. The investigator is responsible for the archiving of these files. Under no circumstances are Unit staff responsible for any lost data.

The Unit is not responsible for the storage of any specimens, stain and solutions. Specimens left in the Unit without labelling or informing AMF Staff may be disposed of at any time.