Service Level Agreement for the Transmission Electron Microscope Facility

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Definition of service

The Facility uses a Jeol JEM 1400 Flash for ultrastructural research running at 120 kV accelerating voltage and is equipped with a Morada (EMSIS) side entry CCD (Charge Coupled Device) camera with imaging software (iTEM, Olympus Soft Imaging Solutions) and a bottom mounted Orius-S1000 camera (Gatan).

It also has a Jeol JEM 2100Plus for Cryo-TEM for observation of fluid sample in vitreous thin film which operates at 200 kV accelerating voltage. This TEM is equipped with OneView 16-megapixel camera (Gatan) and Serial-EM for imaging.

The TEM Facility offers the imaging of samples prepared by conventional TEM fixation and embedding procedures, Immunogold labelling and Freeze Fracture replication for biological samples including plant, animal, cell suspension and bacteria. We also offer negative staining for particles in suspension (proteins, polymers, nanoparticles, exosomes). Furthermore services for ultra-sectioning of polymer films, membranes and plastics for materials science research are available.

Cryo-EM services are tailored for Structural Biology projects on protein complexes, it comprises of sample preparation, sample Screening, High Resolution Data collection and image processing and data analysis. We can also offer observation of vesicles embedded in vitrified water.

How to Request a service

To request a service from the TEM facility, you should fill the service request form and send it to the facility managers. Further discussion or training or time scheduling might be needed to fulfil the request.

Service provided

The facility will process the samples using relevant techniques and produce three grids per each sample, ready to be visualised on the Microscope. An agreed number of micrographs will be recorded at the TEM. The cost of work completed by the facility is tailored to each individual, depending on several circumstances, such as ease of task. All prices are subject to continual review.

Training

If you wish to use the microscope independently, training is compulsory and usually can be completed in 3 sessions of 1 hour or until achieved confidence.

To apply for training suffice filling in the form and send it to …

Charge will apply to anyone wishing to be trained (£30 per hour), the cost covers for the microscope maintenance.

For cryo-EM training, it usually takes several days to complete a series of training sessions including JEM2100 operation, sample preparation using Leica GP2 plunger and sample screening by serialEM.

User responsibilities

The user is responsible for providing details of any hazards associated with the preparation in line with COSHH regulations. Furthermore, the user is requested to complete a risk assessment associated with his experiment. Cat 2 material cannot be examined unless it has been previously fixed.

The user is responsible to obtain sufficient training before attempting independent work. Damage of instruments due to misuse will need to be re-paid by the user.

Confidentiality

All data and any related information regarding work carried out in the TEM Facility will remain confidential and not released in any format without the permission of the user. Confidentiality agreements with commercial users can be made upon request.

The images will remain property of the Transmission Electron Microscopy Facility at Queen Mary University of London, School of Biological and Chemical Sciences and may be used for promotional purposes.

Publication and acknowledgements

Where the TEM facility has contributed to the work, one that is worthy of authorship, the service provider will be a co-author on resultant publications.

Problem management

The user may approach Prof. Conrad Mullineaux or Prof. Richard Pickersgill in the case of any concern or for resolution of any difficulty.