

Regulations and usage costs of the UKE Core Facility for Electron Microscopy

1. General Guidelines

The Core Facility for Electron Microscopy (CFEM) is a facility of the University Medical Center Hamburg-Eppendorf (UKE). The aim of the facility is to provide a modern and future-oriented research infrastructure for internationally competitive research in the field of ultrastructural imaging using electron microscopy. The usage regulations follow the DFG guidelines for the operation of core facilities.

The facility offers access to both internal and external users. UKE-associated institutions have the highest priority. Processing projects from other academic institutions and external partners is possible depending on our capacity.

The Facility has its own internal booking system through which individual workstations and equipment can be booked for users. Users can only be trained by CFEM employees.

The usage guidelines are mandatory for all users. All users have to sign the user agreement and accept the usage regulations.

2. Contacts

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3. Technical equipment

The Core Facility for Electron Microscopy is currently equipped with two transmission electron microscopes. Two Leica EM Ultracuts UC7 (one with cryo attachment) and a Leica Ultracut S are used for sectioning. The group also has two automatic freeze substitution systems and a PC workstation for image analysis.

4. Electron Microscopes

TEM JEOL JEM 2100plus
TEM ZEISS 900
Block-Face SEM (TBD)

5. User requests for projects and co-authorship

At the beginning of every new project, an overview and documentation of the research project with a clear formulation of the central question is necessary. This is sent to em@uke.de.

In the second step, a meeting is held to discuss the project's scope, approach, and implementation. In this discussion, it is also clarified which steps can be carried out by the users independently and which are carried out by the technical staff of the facility. Depending on their wishes and needs, the users are instructed on the relevant devices. An order form is finally created as a user agreement with the documentation of the developed work steps, including a project number, and a cost plan.

6. Use of Data and Image Material in Publications

The work of the CFEM must be appropriately acknowledged in publications in accordance with the rules of good scientific practice:

- a. In publications in which images or data from the CFEM are used, the CFEM must be acknowledged at least in the acknowledgments section. In addition, the practical work carried out by CFEM staff must be listed in the relevant sections (e.g., materials and methods or results). Extensive consultation on experimental design and methodological development constitutes an intellectual scientific contribution and must be recognized through co-authorship of the significantly involved persons. Reimbursement of incurred costs does not exempt from this obligation.
- b. Depending on the scope and complexity of the contribution, individual staff members may be named in the acknowledgments or in the author list. For projects that require above-average processing that goes beyond general support and advice, a scientific collaboration will be agreed. This includes co-authorship and participation in the writing of scientific publications.
- c. The CFEM must be informed prior to submission of a publication.
- d. After successful publication, an electronic copy of the publication must be provided to the CFEM.
- e. The UKE publication policy in its current version applies.

7. Acknowledgments

If not discussed differently, acknowledgements are made with the names of the technical staff and a reference to the entry in the research infrastructure database of the German Research Foundation: RI_00590.

8. Operating Costs

The use of the services and equipment of the UKE Core Facility for Electron Microscopy is charged by an hourly usage fee as a contribution to our maintenance and consumables. This fee is mandatory for all researchers and can be found in the table below. The fees are calculated based on the DFG guidelines on equipment usage costs and equipment centers

<https://www.dfg.de/de/formulare-55-04-246878>. Funds to cover usage fees can be requested from the DFG as part of funding applications. The Facility is happy to support researchers in estimating costs and applying for funds in the field of electron microscopy projects.

The usage fees listed below charged by the Facility are calculated twice a year, as a flat rate in hours of examination time required on the microscopes, and include the project-specific effort from sample preparation to the creation of publishable data.

Depending on the project effort, consumables may be charged separately.

Costs for Imaging

Device		Application operation (EUR/h)	Service Operation (EUR/h)
TEM 80kV (Zeiss)	Instrumentation class II	60.-	115.-
TEM 200kV (JEOL)	Instrumentation class II	60.-	115.-
SEM (TBD)	Instrumentation class I	35.-	70.-
Block-Face (TBD)	Automated Acquisition	110.- entry fees plus 85.- per started day	170.- entry fees plus 100.- per started day

Examples of project costs

Example 1: Analysis of Extracellular Vesicles (e.g., patient healthy vs. disease)

For the analysis of EVs or comparable samples for negative staining, we calculate 0.5 h per sample.

Example 2: Morphological analysis of tissue ultrastructure (e.g., WT vs KO)

For ultrastructural analysis we calculate 1 h per sample.

Example 3: Pre-embedding Immunogold staining (e.g., subcellular localisation of 2 antigens under 2 conditions)

For the analysis of immunogold-stained samples we calculate 1.5 h per sample.

9. Data backup and storage

Microscopy images generated by the facility staff are stored in the facility and passed on to the principal investigator when needed. Sample blocks embedded in epoxy resin are archived in the facility for at least ten years. This applies to embedded sample material, microscopy-ready grids, and microscopy-ready SEM / SBF-SEM samples. Subsequent reactivation of the material

by the original project owner is possible. All material can be returned to the project owner upon request.

10. Liability

The UKE is only liable for intent and gross negligence. A limitation of liability shall not apply in the event of a breach of material contractual obligations, damage resulting from injury to life, limb, or health, or in the event of guaranteed quality, fraudulent intent claims under the Product Liability Act, or other mandatory statutory liability. In the event of a breach of material contractual obligations, UKE shall only be liable for simple negligence up to the amount of the foreseeable damage typical for the contract (material contractual obligations are those whose fulfillment characterizes the contract and on which the customer may rely).