



Electron Microscopy Facility

What we do

Study of the role of actin in clathrin mediated endocytosis. (Jiri Friml group)

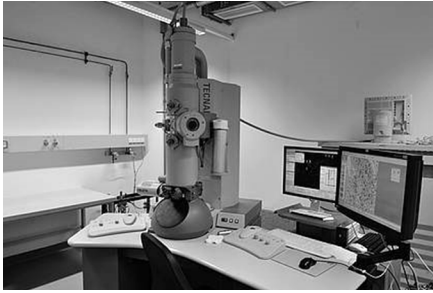
The dynamic actin cytoskeleton plays an important role in clathrin-mediated endocytosis. Its exact functions remain unclear due to limitations in visualizing clathrin-coated vesicles together with actin filaments. This project aims to unravel the precise and simultaneous localization of actin and clathrin-coated vesicles, the exact stage of endocytosis when actin filaments appear at the endocytic spot and whether there is direct association of actin and clathrin-coated vesicles. One of EM applied approaches is detergent-based tissue extraction followed by critical point drying and replication (platinum replica EM). Sample visualization is done by means of scanning electron microscopy.

IST Austria

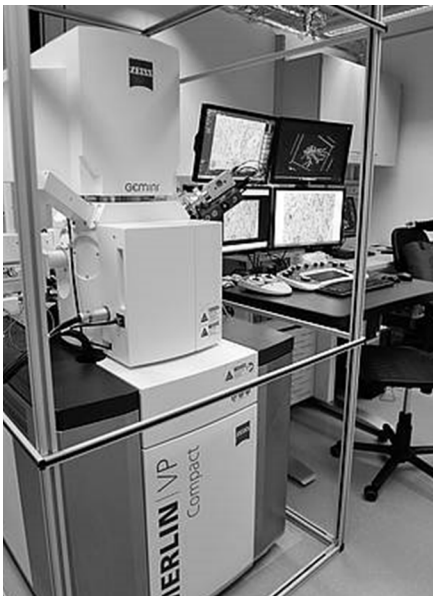
Am Campus 1, 3400 Klosterneuburg, Austria
Lab Building East I06
www.ist.ac.at
ludek.lovicar@ist.ac.at



Scanning Transmission Electron Microscope:
Joel JEM2800 + 3D Tomography + EDS system



Transmission Electron Microscopes: FEI Tecnai
12 & Tecnai 10



Field Emission Scanning Electron Microscope:
Carl Zeiss Merlin VP Compact + ATLAS Array To-
mography

Services and Methodologies Provided

The current scope of EMF at IST Austria is primarily in life sciences. Range of samples EMF team deals with covers plants (*Arabidopsis thaliana* roots, hypocotyls, flower, cells), insects (*Drosophila* embryos & adults; ants), vertebrates (mouse and rat brain; lymphatic system; zebrafish progenitor cells and zebrafish embryos, human synovial tissue). As a standard, room temperature chemical fixation and cryo-fixation are applied. Among sample preparation techniques, freeze fracture replica combined with immunolabelling is one of very special technique, where EMF at IST Austria has a strong position from the global perspective. For sample imaging, both transmission electron microscopy and scanning electron microscopy are available. Beside of these standard EM imaging techniques, EMF at IST Austria is equipped with two advanced imaging setups: Array Tomography setup and 3D tomography setup. Both allow users to reconstruct volume of observed sample. Dedicated software for reconstruction and analysis of acquired EM data is provided.

Equipment

The full list of EMF equipment, which includes sample preparation equipment, imaging equipment and data analysis tools, is available at:

<https://ist.ac.at/ssus/list-of-facilities/emf/>

Contact and Location

IST Austria

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