

Ultrastructural analysis of biological and bio-composite samples by electron microscopy



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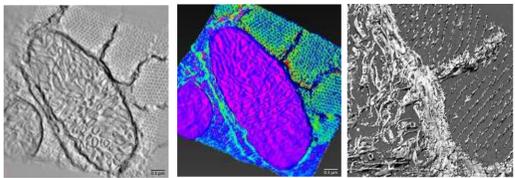
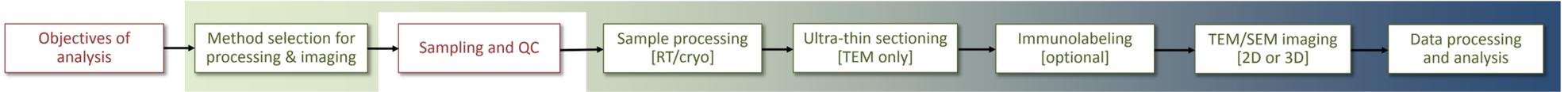
A*STAR Microscopy Platform, Skin Research Institute of Singapore



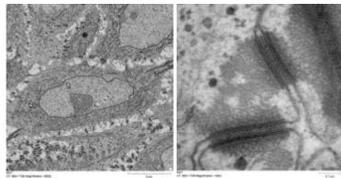
Electron microscopy (EM) is a powerful imaging tool for analysis of composition, ultrastructure and function of biological samples and bio-composite materials. From tissues and cells to subcellular structures and macromolecular complexes, Transmission and Scanning electron microscopy (TEM and SEM) provides 2D and 3D morphological analysis with optional detection and localization of specific antigens by immuno-gold labelling. As a core technology platform open to A*STAR institutes, Academia and industry, the AMP|EM provides instrumentation and expertise in use of ultrastructural imaging and complex services from sample processing to imaging, data analysis and training. Equipped with scanning and transmission electron microscopes and outstanding cryo-EM sample preparation equipment, our team collaborates on development and fine-tuning of technical approaches to support challenging imaging projects.

How to start ?

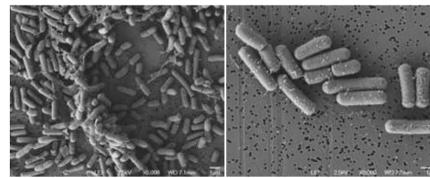
What we support ?



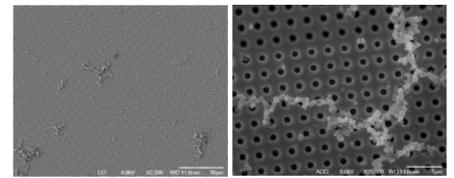
3D-reconstruction of Mitochondria cristae (EM tomography)



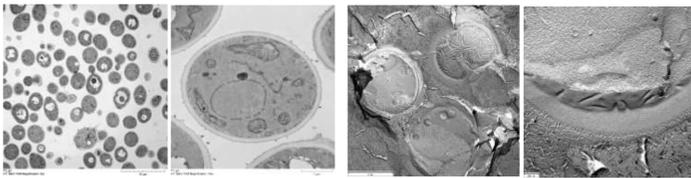
Keratinocyte desmosomes (TEM)



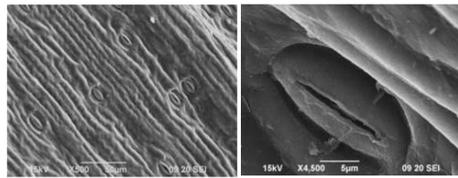
Airborne bacteria (critical-point drying, SEM)



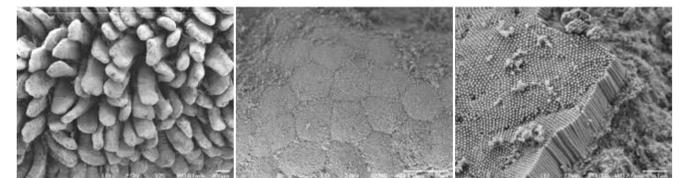
Nanoparticles on porous silicon chip (SEM)



Yeast cells wall by TEM: ultra-thin sections (left), freeze-fracture replica (right)

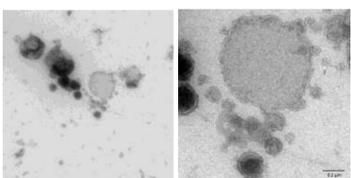
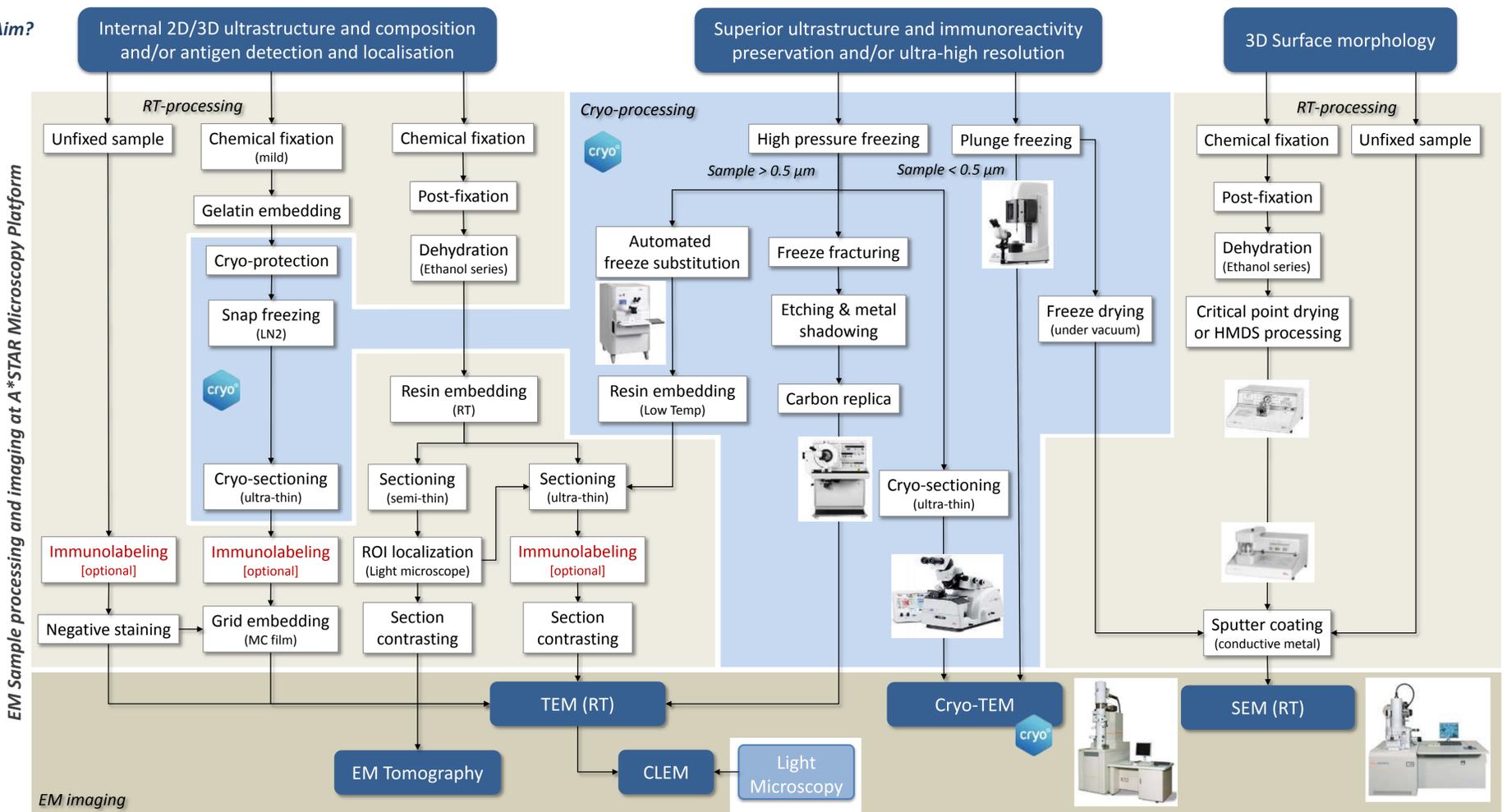


Plant leaf surface and stomata (freeze-drying, SEM)

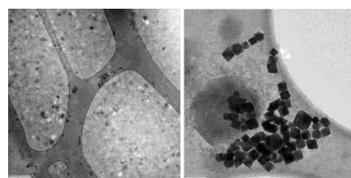


Mouse intestine villi and microvilli (critical-point drying, SEM)

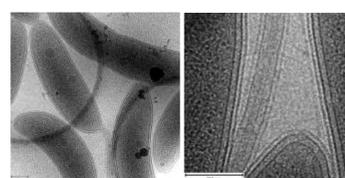
Aim?



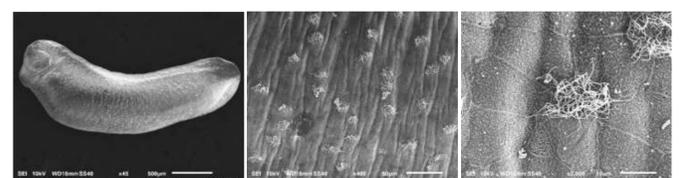
Purified exosome fraction (Negative staining, TEM)



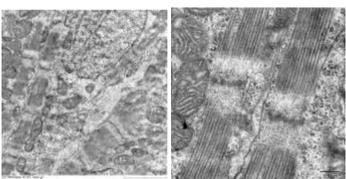
Iron oxide nanoparticles (15 nm) (Plunge-freezing and cryo-TEM)



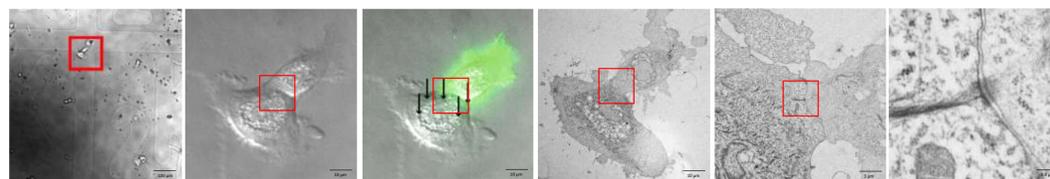
Caulobacter membrane ultrastructure (plunge-freezing, cryo-TEM)



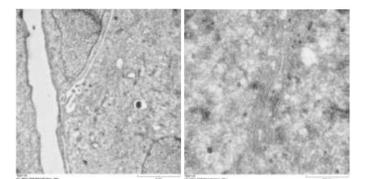
Xenopus skin and cilia ultrastructure (SEM)



Cardiac muscle sarcomere (ultra-thin sections, TEM)



Localization and ultrastructure of inter-cellular junction by single cell Correlative Light-Electron Microscopy (CLEM)



Golgi apparatus complex ultrastructure (Thawed cryo-sections for immuno-EM)

