

ELECTRON MICROSCOPY CORE IMAGING FACILITY

CIBR: Center for Innovative Biomedical Resources

CORE INSTRUMENTATION

Transmission Electron Microscope

FEI tecnai T12 is a high performance, high resolution transmission electron microscope equipped with a tungsten filament. It is well suited to be a general purpose instrument in a multi-user facility. The tecnai T12 is also equipped with a Gatan 626 cryo transfer holder for observing frozen hydrated biological sample at liquid nitrogen temperature.



Scanning Electron Microscope

The FEI Quanta 200 is a versatile high performance, low-vacuum scanning electron microscope with a tungsten electron source. It can be operated in three different vacuum modes, High Vacuum (HV), Low Vacuum (LV) and Environmental Mode (ESEM), thus accommodate a wide range of sample of any SEM system. The Quanta 200 is also equipped with a Gatan Cryo transfer unit (ALTO2100) for cryo SEM imaging and freeze fracture.



Automated Specimen Processor

ASP01000 is a multifunctional robotic specimen processing platform. The instrument is controlled through a bioreaction automation software, COBRA, and can be programmed to perform specimen fixation, dehydration, embedding, negative staining and immunogold labeling, etc., in automation.

Cryo Sample Preparation Instruments

- High Pressure Freezer
- Automated Freeze Substitution
- Plunge Freezer
- Cryoultramicrotome
- Gatan TEM Cryotransfer Holder
- Gatan SEM Alto Cryo Chamber

MISSION

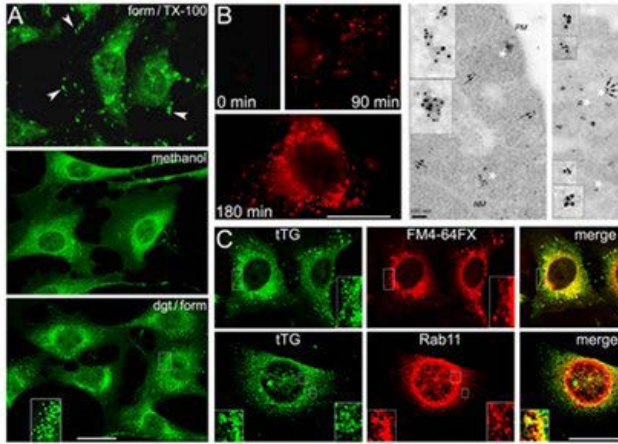
The Electron Microscopy Core Imaging Facility provides electron microscopy related research, consultation and imaging services to all faculty and staff of the University of Maryland Baltimore campus and the academic and industrial community in the Washington, D.C. and Baltimore areas. The objective of this facility is to provide affordable electron microscopy research services using the modern EM techniques and state-of-the-art instrumentation from sample processing to image acquisition and analysis.

CORE SERVICES

- Conventional TEM sample preparation, including embedding in various types of resin and ultrathin sectioning
- Conventional SEM sample preparation, including chemical dehydration, critical point drying and sputter coating
- Cryo-sample preparation for both TEM and SEM, including high pressure freezing, freeze substitution, cryo-ultramicrotomy, plunge freezing and freeze fracture
- Immuno electron microscopy using pre-embedding, post embedding or Takuyasu methods
- Negative staining of purified macromolecular complexes, bacteria, viruses, liposomes, nanoparticles, or viral like particles (VLP)
- Advanced microscopy techniques, such as cryoEM, correlative LM/EM (CLEM) and 3D EM
- Electron microscopes imaging for trained or novice users
- Advanced consultation and training of electron microscopy related techniques and equipment usage
- Annual Current Electron Microscopy Techniques workshop
- Annual Ultramicrotomy Minicourse
- Instrument demonstration

ELECTRON MICROSCOPY CORE IMAGING FACILITY

CIBR: Center for Innovative Biomedical Resources



Zemskov EA, Mikhailenko I, Hsia R-C, Zaritskaya L, *et al.* (2011) Unconventional Secretion of Tissue Transglutaminase Involves Phospholipid-Dependent Delivery into Recycling Endosomes. *PLoS ONE* 6(4): e19414. doi:10.1371/journal.pone.0019414

CONTACT



Ru-ching Hsia, PhD
Director
rhsia@umaryland.edu

LOCATION

Room 696, John Eager Howard Hall
660 West Redwood Street
Baltimore, MD 21201
410-706-7992

Email

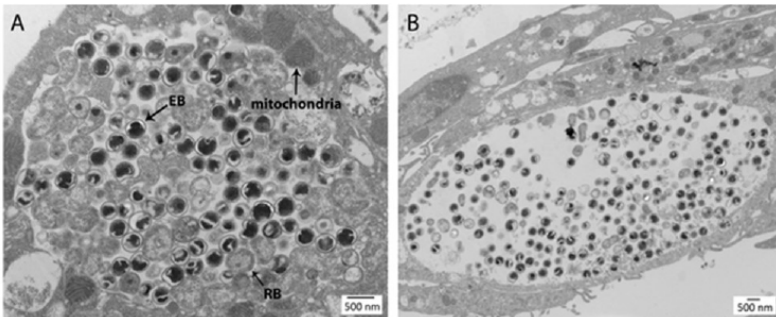
Coreimaging@umaryland.edu

Web Address

<http://www.dental.umaryland.edu/Core-imaging/>

Training Calendar

<http://www.dental.umaryland.edu/Core-imaging/workshops-and-courses/>



Vorimore F, Hsia R-c, Huot-Creasy H, Bastian S, *et al.* (2013) Isolation of a New Chlamydia species from the Feral Sacred Ibis (*Threskiornis aethiopicus*): *Chlamydia ibidis*. *PLoS ONE* 8(9): e74823. doi:10.1371/journal.pone.0074823