

Cryo-FIB microscopes for cryo-electron tomography and volume electron microscopy

Cryo-focused ion beam (cryo-FIB) technology has made it possible to maintain the integrity of frozen (vitrified) samples during 3D FIB-SEM imaging and TEM lamellae preparation. Volume electron microscopy and cryo-tomography use cryo-FIBs to explore below the surface of cellular ultrastructure and tissue at micron to millimeter volume scales, at nanometer-level resolution and native state.



Aquilos 2 Cryo-FIB

Dedicated cryo-FIB for cellular cryo-ET sample preparation

Aquilos 2 Cryo-FIB produces cryo-lamellae for cryo-ET; key steps can be automated through user-friendly milling recipes

Key Features

- Gallium FIB
- iFLM Correlative System
- Cryo-liftout
- Cryo-rotation stage
- Cryo-preparation and transfer station
- Accelerate Service and Support Programs

Applications: Cryo-electron tomography, MicroED



Hydra Bio Plasma-FIB

For volume electron microscopy and cryo-electron tomography

Hydra Bio Plasma-FIB provides breakthrough capabilities for cryogenic and room temperature vEM and versatile TEM lamella preparation for cryo-ET

Key Features

- Plasma-FIB (xenon, oxygen, argon, nitrogen)
- iFLM Correlative System
- Cryo-liftout
- Cryo-rotation stage
- Cryo-preparation and transfer station
- Spin Mill Bio Method
- Room temperature or cryo-conditions

Applications: Volume electron microscopy, Cryo-electron tomography, MicroED



Arctis Cryo-Plasma-FIB

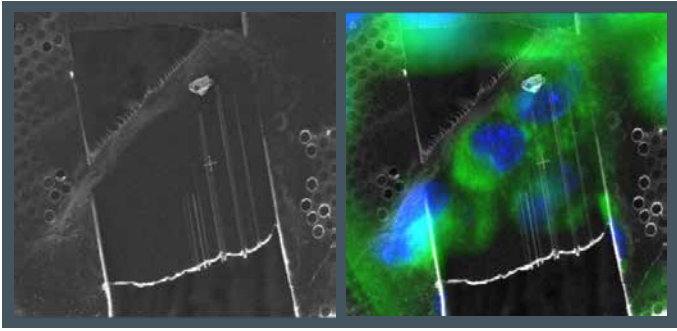
Automated cryo-plasma-FIB for connectivity in the cryo-ET workflow

Arctis Cryo-Plasma-FIB automates high-throughput TEM lamellae production and features Autoloader connectivity for the cryo-ET workflow.

Key Features

- Plasma-FIB (xenon, oxygen, argon)
- iFLM Correlative System
- Autoloader with TomoGrids
- Cryo CompuStage
- Compact sample chamber and cryo-box
- Web-based UI
- BSL3 biosafety enclosure

Applications: Cryo-electron tomography, MicroED

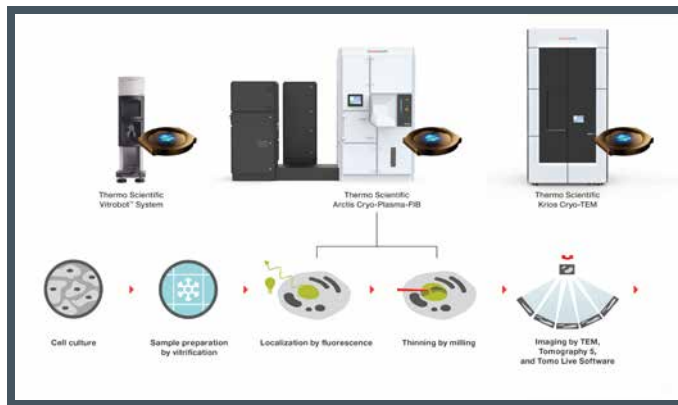
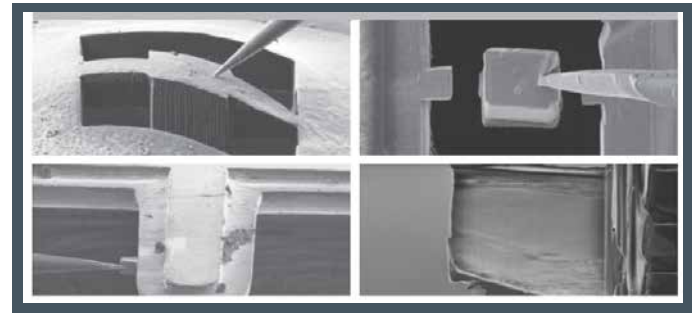


Integrated fluorescence and electron imaging

The Thermo Scientific™ iFLM™ Correlative System allows you to combine fluorescence imaging and ion milling within a single high-vacuum chamber. The iFLM Correlative System is an optional (retrofitable) optical module for the Thermo Scientific™ Aquilos™ 2 Cryo-FIB and the Hydra Bio Plasma-FIB. The integrated light microscope enables identification, targeting, and validation of fluorescence signals in frozen-hydrated samples and can be used with cryo-lift-out workflows. It also supports correlation of fluorescence data obtained using external light microscopes.

Cryo-Lift-Out for bulk frozen tissue

Prepare lamellas from previously selected target regions with nanometer-position accuracy with the Thermo Scientific™ EasyLift™ Cryo-Lift-Out System. As an additional option on the Aquilos 2 Cryo-FIB and Hydra Bio Plasma-FIB, the EasyLift System enables extraction of site-specific regions from plunge frozen or high-pressure frozen samples labeled, for example, by fluorescence. These bulk lamellae can subsequently be placed inside AutoGrids for further thinning and cryo-tomography data acquisition.



Automate cryo-tomography sample preparation

Designed for the cryo-electron tomography workflow, the new Thermo Scientific™ Arctis™ Cryo-Plasma-FIB is the first focused ion beam scanning electron microscope (FIB-SEM) to feature an Autoloader, offering robotic sample loading, storage of up to twelve frozen specimens, and direct connectivity to any Autoloader-equipped Thermo Fisher Scientific cryo-TEM. Now you can set up milling runs from anywhere with the web-based user interface and perform autonomous, multi-day jobs for automated lamella preparation.

Learn more at thermofisher.com/cryofib