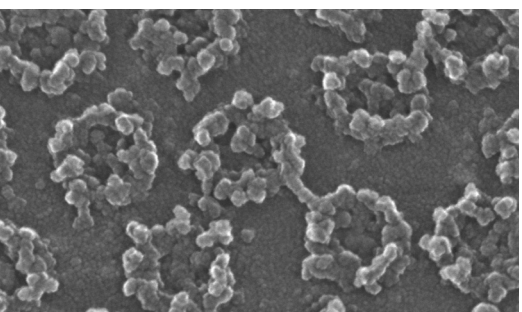
From Eye to Insight

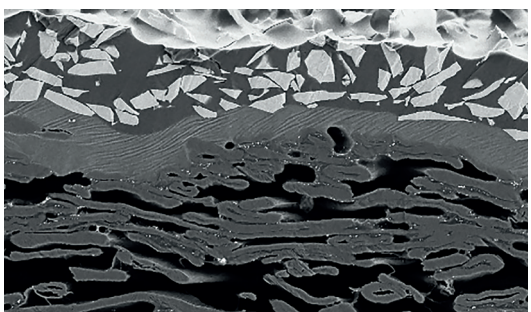
Leica
MICROSYSTEMS

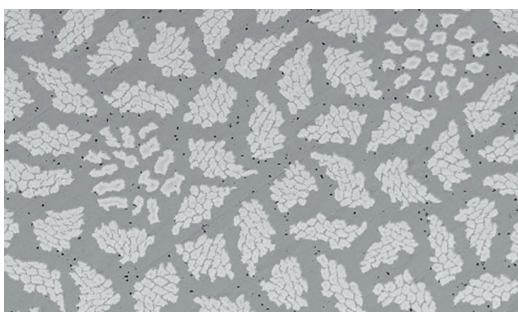
MEETING THE CHALLENGES OF EM SAMPLE PREPARATION

THE LEICA EM SAMPLE PREPARATION PRODUCT PORTFOLIO

Comprehensive product portfolio for
preparation of biological, medical, and industrial samples.







SAMPLE PREPARATION WITH LEICA MICROSYSTEMS – THE PORTFOLIO THAT GIVES YOU SUCCESS FOR YOUR APPLICATION

TRIMMING & MECHANICAL PREPARATION	EM TXP, EM RAPID
ION BEAM MILLING	EM TIC 3X
ULTRAMICROTOMY & CRYO-ULTRAMICROTOMY	UC Enuity, EM KMR3
SAMPLE TRANSFER	EM VCT500, EM VCM
CLEM & CRYO CLEM	Coral Life Coral Cryo
CRYO PREPARATION	EM ICE, EM GP2, EM AFS2, EM CTD
COATING	EM ACE200, EM ACE600
TISSUE PROCESSING	EM TP
CONTRASTING	EM AC20
CRITICAL POINT DRYING	EM CPD300

FOCUSING ON WORKFLOW SOLUTIONS, WE PROVIDE A PRODUCT RANGE ALIGNED WITH YOUR NEEDS FOR TEM, SEM, CLEM, AND AFM EXPERIMENTS.

Cover images: top: Nematode Eubostrichus dianae with ectosymbiotic bacteria layer, critical point dried with the EM CPD300 (source: Mag. N. Leisch, University of Vienna, Austria); bottom left: Clawed frog (Xenopus laevis), nuclear pores (source: Dr. Martin Goldberg and Christine Richardson, University of Durham, UK); bottom middle: cross section of abrasive paper, prepared with the EM TIC 3X (source: Wolfgang Grünewald, TU Chemnitz, Germany); bottom right: cross-section of a Nb3Sn superconductor, prepared with the EM TXP and EM TIC 3X (source: Wolfang Grünewald, TU Chemnitz, Germany).

TRIMMING & MECHANICAL PREPARATION

EM TXP
EM TXP is Leica's dedicated tool designed for precise mechanical target preparation for a broad range of light and electron microscopy applications.

- Allows for very fine polishing of surfaces, revealing buried features
- Accurate preparation of barely visible targets
- In-situ stereomicroscope observation

EM RAPID
Advanced specimen trimming device for TEM, SEM, and LM.

- 0.5, 1, 10, 100 µm step advance
- Adjustable cutting speed 300–20,000 rpm
- Advance indication on LCD display

ION BEAM MILLING

EM TIC 3X
The Triple Ion Beam Milling System allows for production of cross sections and planed surfaces for SEM microstructure analysis (EDS, WDS, Auger, EBSD), and AFM investigations.

- Broad and deep cross sections
- Uniform, large area milling
- Interchangeable stages: Standard stage, Multiple sample stage, Cooling stage, Rotary stage
- Preserve sample quality by adding EM VCT500 – a versatile vacuum cryo transfer system.

The EM TIC 3X outfitted with an EM VCT500 docking station is the ideal solution for environmentally sensitive and / or cryogenic sample transfer.

SAMPLE TRANSFER

EM VCT500
Versatile vacuum cryo transfer system for contamination-free transfer of specimens between different preparation and analysis instruments.

- Specimen monitoring throughout workflows.
- Connects workflow steps from sample preparation to EM
- Connects to more than one SEM
- Various specimen holders for SEM, FIB-SEM, freeze-fracture, and more

EM VCM
LN_2 cooled workstation for contamination-free specimen manipulation.

- From sample loading on, all transfers under vacuum
- Improved connectivity given by a movable loading sphere, Cryo-TEM transfer holders, and CLEM adaptors for STELLARIS Cryo

ULTRA MICROTOMY & CRYO-ULTRA MICROTOMY

UC Enuity - Room temperature configuration
Ultramicrotome for ultrathin sectioning of biological and industrial samples with automated setup functions. Make every section count for array tomography. Collect uniformly aligned ultra-thin sections straight on the wafer for fast and reliable transfer to SEM.

- Work smarter with automated technology
- Trim towards your target with the help of fluorescence or µCT data
- High quality sections for volume EM experiments

UC Enuity - Cryo configuration
Low temperature ultrathin cryosectioning of biological and industrial samples. Experience better quality cryo sections with superb precision and safety.

The UC Enuity cryo configuration can be outfitted with an EM VCT500 to transfer environmentally sensitive and / or cryogenic samples.

- Temperature working range from -15 °C to -185 °C
- Individual temperature settings for specimen, knife, and gas
- Easy section collection using micromanipulator and EM CRION ionizer
- Option to add: EM VCT500 – a versatile vacuum cryo transfer system

UC Enuity - Fluorescence configuration
Trim your target with the help of fluorescence
UC Enuity allows you to monitor the fluorescence signal during sectioning at both room temperature and in cryo conditions. Quickly identify your region of interest in the resin block.

- Seamless serial sectioning for downstream SEM analysis, ensuring consistent high-quality results
- Uniform, ultra-thin, and thin ribbons for array tomography experiments, at reduced risk of losing precious sections
- Reliable and precise sample collection, minimizing the risk of section loss or displacement

EM KMR3
Balanced-break glass knife maker to produce 45° glass knives from 6.4 mm, and 8 mm glass.

- Highly reproducible, outstanding knife quality
- Automatic reset of the breaking and scoring mechanism
- Ergonomic design for comfortable use

CLEM & CRYO CLEM

Coral Life
Correlative live-cell and electron microscopy workflow

> Investigation of dynamic events with nanometer resolution.
> Combination of fluorescence dynamic data with precisely timed EM analysis.

THUNDER Imager Nano
3D live-cell microscope with incubator, SampLink chambers for fast sample transfer to the EM ICE Nano, and a sapphire-optimized objective.

> Fast, 3D live-cell imaging for accurate physiological studies
> Blur removal for better target identification with THUNDER technology.
> Optimized resolution and targeting with a sapphire-corrected objective

EM ICE Nano
High pressure freezing for cryo-immobilization of live cells and optimal sample fixation. Full compatibility with SampLink chambers.

> Enables capturing of transient events with a transfer time under 5 seconds
> Full vitrification of adherent cells
> Optimal results with the market-leading solution

Coral Cryo
Target what matters for your cryo-tomography workflow.

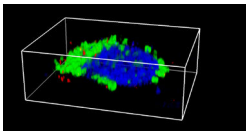
> Resolve and identify intracellular targets in 3D
> Reduce handling steps in your workflow

STELLARIS Cryo
Confocal cryo light microscope with a dedicated cryo objective and a cryo imaging chamber.

> More precise targeting of 3D structures of interest: in room temperature and under cryogenic conditions
> Monitoring of ice thickness
> Access to advanced information by fluorescence life time (TauSense)

Cryo Microscopy Kit
Cryo transfer shuttle and cryo stage for loading, transfer, and imaging under vitreous conditions.

> Safe and intuitive sample loading as well as straightforward transfer, while maintaining the sample under optimal cryo conditions
> Constant overpressure of gaseous nitrogen against the surrounding atmosphere



LAS X Coral Cryo Software
Guided workflow and advanced confocal imaging

> User-friendly software workflow
> Registering the exact target coordinates identified in the cryo light microscope
> Export open access coordinates for greater system interoperability

CRYO PREPARATION

EM ICE
High pressure system for freezing aqueous samples delivers optimal sample preservation. Offers the highest flexibility to meet multiple application demands.

- Programmable sequential freezing of nine samples (3 × 3)
- Automated LN_2 re-filling of the sample storage dewar
- One minute recovery time between freezing cycles
- Retrofitable light and/or electrical stimulation mode

EM ICE Light Stimulation (LS)
All the features of EM ICE standard, in addition offers fully integrated light stimulation.

- Software integrated programming for LS
- Automatic recondition of the specific light module
- Modules with different LEDs (wave lengths): UV, blue, red, green, amber
- Detailed log file of each experiment
- Light stimulation precision of 1 millisecond

EM ICE Electrical Stimulation (ES)
All the features of EM ICE standard, in addition offers fully integrated electrical stimulation.

- Millisecond precision
- Complete coordination of electrical discharge at the moment of freezing
- Capturing and imaging action potential and membrane trafficking events

EM GP2
Automatic plunge freezer for EM grids.

- Automatic single and multiple sided blotting
- Single sided sensor blotting
- Fast, easy, and safe filling of the secondary cryogen with the unique liquifying head
- Controllable secondary cryogen temperature
- Environmental chamber with adjustable temperature and humidity
- Intuitive control via touch panel

EM AFS2
Freeze substitution and low temperature embedding for light and electron microscopy.

- Temperature range from -140 °C to +70 °C
- Transfer function – LN_2 gas regulation in the chamber to minimize contamination
- LED UV polymerization
- Stereomicroscope viewing

EM FSP
Automatic reagent handling / dispensing system for freeze substitution and PLT.

- One step preparation
- Flexible built-in UV light for polymerization
- Up to 20 samples per run
- Reduced setup time

EM CTD
Cryo tool dryer

- Combines heated air flow and heating plate for de-icing
- Maximum temperature +50 °C

COATING & FREEZE FRACTURING

EM ACE200
Desk-top coater for homogeneous coatings of conductive metal or carbon. Fully automated instrument. Options include:

> Carbon thread evaporation
> Sputtering
> Both methods with interchangeable heads
> Quartz crystal measurement
> Planetary rotation
> Glow discharge

EM ACE600
Fully automated, versatile high vacuum coater producing very thin, fine-grained, conductive metal and carbon coatings. Up to two angled coating sources configurable. Designed for high resolution analysis, required in FE-SEM and TEM applications.

> Sputtering
> Carbon thread evaporation
> Carbon rod evaporation
> E-beam evaporation
> Glow discharge
> 104 mm automated rotating stage with planetary option
> EM VCT500 option for cryo-coating, freeze-fracture, double-replica, and controlled environmental transfer

The EM ACE600 outfitted with EM VCT500 is the ideal solution for contamination-free cryo-SEM sample preparation with complete environmental control.

TISSUE PROCESSING

EM TP
Automated tissue processor for LM and EM sample preparation.

> Programming of all processing steps
> Integrated touch-screen-based software
> Consistent, reproducible performance
> Processing of multiple tissues in one run
> Environmental conditions maintained during preparation

CONTRASTING

EM AC20
Automatic contrasting of ultrathin sections for electron microscopy.

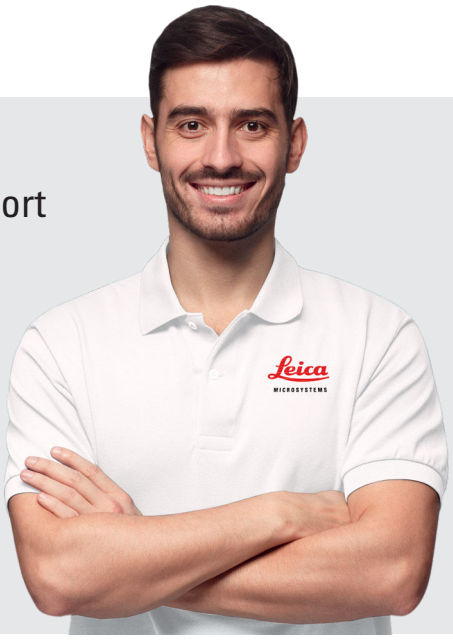
> 60 runs per one set of Ultrostains
> Low reagent consumption
> High contrast

CRITICAL POINT DRYING

EM CPD300
Critical point dryer for biological (pollen, tissue, plants and insects) and industrial (Micro Electro Mechanical Systems (MEMS), hydro or aerogels) samples.

> Reduced process times by Leica filler / sample holder concept
> Minimized CO_2 consumption and minimal user interaction time
> Integrated waste separator prevents direct contact with chemical waste

WHY LEICA SERVICE?



Enabling your success with complete workflow support

Keep your operations running around the globe with best-in-class services entirely dedicated to microscopy and over 170 years of history.

Key features

- Leica Team: 500+ Service & Application experts
- Leica Training: 4-level factory certification program
- Leica Logistics: 5 regional hubs for genuine parts
- Leica One*Call*: PhD-level hotline assistance

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