

PRESS RELEASE

Introducing the PowerTome PT FL A collaboration between The Francis Crick Institute and RMC Boeckeler

Tucson, Arizona, 1st July, 2019. Introducing the new PTFL fluorescence location system, an ultramicrotome-mounted fluorescence microscope, capable of imaging cells and tissues, prepared with In-Resin Fluorescence protocols, on-the-fly during trimming and sectioning.

In many biological electron microscopy labs, the researchers target is a rare structure or event, the 'needle in the haystack'. Fluorescent proteins are often used as markers, to highlight these rare cells and regions of interest (ROIs) in tissues. Even so, finding them can be a laborious task. Until now. With the PTFL, resin-embedded samples can be quickly evaluated and the ROI isolated utilizing the PTFL location system, a mini fluorescence microscope with a digital camera and LED excitation, integrated into the Powertome ultramicrotome. The system can sequentially image the block surface during trimming until the ROI is revealed. The researcher can then collect ultrathin sections of only the ROI for TEM (transmission electron microscopy) using support grids, for SEM (scanning electron microscopy) utilizing a substrate of choice, for example silicon, or for volume EM by removing the trimmed blockface and attaching it to a pin for Serial Block Face SEM or Focused Ion Beam SEM.

The instrument was the inspiration of the Electron Microscopy Science Technology Platform at the Francis Crick Institute in London, UK, headed by Dr. Lucy Collinson and her team, including Dr. Martin Jones, Dr. Lizzy Brama, Dr. Wei Guan and Dr. Chris Peddie.

"We work on more than 100 projects per year, most of which involve correlative microscopy, since the biological events being studied are usually rare in space and time. We see a big move in the community towards preserving fluorescent markers in resin-embedded cells and tissues, to improve the accuracy of correlative microscopy. The PTFL then becomes essential to track the fluorescent regions during sample preparation in the ultramicrotome", explained Dr. Lucy Collinson, Head of EM at The Francis Crick Institute in London. "The alternative – cutting sections and then checking them under a separate fluorescence microscope – is painfully slow and becomes unmanageable when working with sample volumes bigger than a cell monolayer. Time-saving instrumentation is necessary in today's fast-moving research world, and the PTFL was designed to make finding the 'needle in the haystack' a much faster, simpler process".

RMC Boeckeler will be showing the PTFL at the mmc Conference in Manchester, UK on the Labtech Booth # 330 and at the M&M conference in Portland, Oregon in August, where you can find us on Booth # 828. Please come by to speak with our specialists or come to our tutorials, where Dr. Lucy Collinson and her team will be presenting the system.

For more information about the PT FL please visit our website rmcboeckeler.com or email us at info@boeckeler.com.

RMC Boeckeler – The Ultramicrotome Company - is an innovative developer, manufacturer and distributor of sample preparation equipment. The company is comprised of a small, passionate team, based in Tucson, Arizona, dedicated to the science of nanotechnology as well as providing outstanding customer service.

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