MONASH University

MONASH RESEARCH PLATFORMS

MICRO IMAGING MHTP NODE

Monash Micro Imaging at the Monash Health Translation Precinct (MMI-MHTP) is a node of MMI, a world-class optical imaging Platform at Monash University. The Platform offers microscopy services specifically catered to the researchers based at the Monash Medical Campus, as well as providing access to specialised imaging modalities at the MMI Core Platform on Clayton campus.

Our imaging modalities cater for a diverse range of morphological and functional characterisation in the life sciences and allow scientists and students to explore their research from the molecule through to the whole organism. All technologies are underpinned by expert support from our staff and software for bioimage analysis.

KEY TECHNOLOGIES

Our instrumentation is sourced from major innovative microscope companies, including Leica, Olympus, Nikon, Abberior, and GE.

- Widefield fluorescence microscopy
- Stereology
- Confocal microscopy
- Multiphoton microscopy
- Deconvolution microscopy
- Super-resolution Microscopy (via MMI Clayton Campus)
- Lightsheet microscopy including Lattice Lightsheet and Ultramicroscopy (via MMI Clayton Campus)
- Dynamic Fluorescence analysis: FRAP, FLIM, FCS, photoactivation, ratio metric approaches (via MMI Clayton Campus)
- Image analysis: ImageJ/FIJI, Metamorph, CellSens, HALO, LASAF, NIS elements, SymPhoTime (FLIM), Imaris Suite, Huygens Core/Professional, Drishti.

EXPERTISE

Our team provide expertise and training across a wide range of analytical microscopes and microscopy modalities in the biomedical and life sciences. Our services range in complexity from sample preparation and labelling for fluorescence analysis to performing live-cell experiments for cell signalling and organ/organism development. We provide guidance and training to allow scientists and students to undertake cutting-edge analytical research with confidence.

Our platform works closely with other MTRPs, such as Histology, Cryo-EM and eResearch, to provide integrated microscopy support to a large research community.

WORKING WITH US

- Fee for access
- Training

SPECIALIST SERVICES

Our team provides quality microscopy instrumentation and analytical technologies to the research community at Monash Medical Campus. Our available technologies allow you to capture brilliant images of life on all scales: from individual molecules to entire tissues and organs.

Stereology

Stereology is a technique for obtaining unbiased statistical estimates of number, length, area and volume of three-dimensional (3D) structures from two-dimensional (2D) serial sections. MMI-MHTP offers a specialised Stereology microscope with VisioPharm software which allows you to image, count and analyse your data in a single workflow.

Live-Cell Imaging

Live-Cell Imaging is one of our specialities. Most of our instruments are equipped with live-cell incubators or specialised cell chambers that support live and long-term imaging experiments. We have extensive knowledge in experimental design, labelling and analysis of live cells.

Slide Scanning

In close collaboration with the Monash Histology Platform (MHP), we offer a complete end-to-end slide scanning service, for both brightfield and fluorescence imaging. Through MHP and MMI-MHTP we can offer complete service from advice in planning and preparing your samples, imaging and analysis via HALO software.

Special Methods and Emerging Technologies

Our expert staff at MHTP and Clayton offer extensive support for the more novel or complex instruments and applications, including Fluorescence Lifetime Imaging Microscopy (FLIM), Lattice Lightsheet Microscopy, Stimulated Emission Depletion Microscopy (STED), birefringence microscopy, Airy Scan, Deconvolution microscopy (from both widefield and confocal sources) and, in conjunction with the Cryo-EM platform, correlative light and electron microscopy.

Image Analytics and Data Handling

Extracting and understanding bioimaging data is crucial, and handling big datasets is often a bottleneck in research. Our Staff are available to train scientists and students in the analytical software we licence (ImageJ/FIJI, Imaris, Huygens, Metamorph, HALO). In conjunction with eResearch, we are also building data handling and analysis pipelines to facilitate the flow of (big) data from the instrument to computational workspaces and ultimately to publication.

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