



MONASH MICRO IMAGING — MHTP NODE

Monash Micro Imaging (MMI) at the Monash Health Translation Precinct (MMI-MHTP) is a node of MMI, a world class optical imaging facility at Monash University. The Platform offers microscopy services specifically catered to the needs of researchers based at the Monash Medical Campus, as well as providing access to specialised imaging modalities at the MMI core facility on Clayton campus. MMI technologies include advanced light microscopy, fluorescence and confocal microscopy, multiphoton microscopy, super-resolution microscopy, lightsheet technologies and dynamic fluorescence analysis.

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 access to instrumentation and software for bioimage analysis.

KEY TECHNOLOGIES

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

- Widefield Fluorescence Microscopy
- Confocal Microscopy
- Deconvolution Microscopy
- Multiphoton Microscopy
- Live Cell Widefield and Confocal Microscopy
- Stereology
- High Content Screening
- Slide Scanning (in collaboration with MHTP Histology platform)
- Super-resolution Microscopy (via Clayton Campus) by dSTORM or STED
- Lattice Light Sheet and SPIM (via Clayton Campus)
- Dynamic Fluorescence Analysis including FRAP, FLIM, FCS and Ratiometric approaches (via Clayton Campus)
- Image Analysis Workstation and Software

EXPERTISE

Our team provide expertise and training across a wide range of microscopy modalities in the biomedical and life sciences. We provide guidance and training to allow scientists and students to undertake cutting edge analytical research with confidence. Our services include sample preparation, guidance with experiments, training, collaborative imaging, assistance with image preparation and analysis.

Our platform works closely with other technology platforms such as Histology, Cell Therapies and eResearch to provide comprehensive microscopy support to a large research community.

WORKING WITH US

- Fee for access
- Training
- Collaborative Research

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 take brilliant pictures of life on all scales; from individual molecules with our super-resolution technology, to cells with our numerous widefield and confocal imaging modalities to entire tissues and organisms using multiphoton and lightsheet microscopy.

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) 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. MMI-MHTP works with the Histology platform to train you in Stereology techniques, plan your samples, imaging and analysis to meet your experimental needs and to ensure your samples are prepared in a way that meets the requirements for Stereology.

Slide scanning

In close collaboration with the Monash Histology Platform at MHTP, we offer a complete end-to-end slide scanning service, available for both brightfield and fluorescence imaging. In an initial consultation with both MHP and MMI staff we will assist you in planning and preparing your samples, imaging and analysis. MHP will provide their specimen preparation services and perform your slide scanning, after which MMI will prepare your data for collection and assist with any analysis needs.

Image analysis and data handling

Extracting and understanding bioimaging data is crucial to research, and handling the large datasets that often accompany imaging can be a challenge. Our staff are available to train scientists and students in the analytical software we licence (ImageJ/FIJI, Imaris, Huygens, Metamorph). We also work closely with eResearch to constantly improve data handling and analysis pipelines that can facilitate the flow of big datasets from instruments to workspaces and ultimately to publication.

3D printing

MMI-MHTP has a 3D printer available for the quick and easy manufacturing of specialised parts for microscopy and other research needs. We can print customised combs for electrophoretic gels, specialised tube attachments for centrifuges, and inserts or holders of any size for your microscopy needs. MMI-MHTP can print from a design you bring to us or work with you to design what you need from start to finish.

Virtual Reality

Our range of imaging modalities includes confocal, multiphoton and lightsheet technologies that can create 3D images by optical sectioning. In the past these 3D images would be examined on a 2D computer screen. With MMI-MHTP's HTC Vive VR equipment we can load your 3D images into virtual reality and allow you to explore your data in a whole new way.

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