MMI is a world class imaging facility, consisting of several core laboratories. Advanced Optical Imaging and Bio Electron Microscopy Facilities are located at the Clayton Campus, with additional nodes for Optical Imaging at the Monash Health Translation Precinct (MHTP, Clayton) and Alfred Medical Research and Education Precinct (AMREP, Prahran). MMI provides instrumentation, expertise and training in advanced light microscopy and all fluorescence modalities (widefield, confocal and multiphoton microscopy, and specialised applications such as FRAP, FRET, FLIM, super-resolution). The BioEM Facility supports both Scanning and Transmission Electron Microscopy and boasts special expertise in cryo sectioning and immuno labelling for the ultrastructural detection of proteins and peptides. All modalities are supported by dedicated image processing and analysis expertise.
Mission statement: To provide the highest quality of microscopy instrumentation and analytical techniques supported by expertise and innovative application development for the biomedical and life sciences. To provide research training in this area for our future scientists.

**Advanced light and fluorescence microscopy**

Our instrumentation (on all campuses) provides high quality imaging and automation (multi-position, multichannel, 3D) for cells and tissues for slides, chambers and multiwell plates, in either upright or invert format.

**Confocal and multiphoton microscopy**

A large suite of invert and upright microscopes is available for confocal and multiphoton imaging, providing 3D optical sectioning and high resolution 2D multichannel imaging. Both modalities are applicable to fixed, and live or intravitral applications.

**Live cell and functional imaging**

Most of our instruments are equipped with live cell incubators or cell chambers to support live and long term imaging experiments. Instruments include widefield, confocal, spinning disk, resonant scanning and multiphoton microscopes.

**Electron microscopy**

The BioEM Facility has a range of high end Scanning and Transmission EM instruments, and a full range of specimen preparation. Cryo techniques are supported for both cellular and molecular applications, and for both morphology and immunodetection.

**Special methods**

Special methods requiring extensive MMI staff support are provided through collaboration: this includes Fluorescence Lifetime Imaging Microscopy (FLIM), Lightsheet Microscopy, single particle localisation microscopy (eg STORM), Correlative Light and Electron Microscopy (CLEM) and image analysis and quantitation.

**Image analytics and data handling**

Extracting and understanding image data through image processing, analysis and visualisation is a crucial aspect of modern microscopy. Dedicated staff are available to train scientists and students in using software analysis tools, and in facilitating the flow of data from instrument to workspace and then to publication.

**Contact**

**Director**

Associate Professor Ian Harper

Ian is the founder and director of Monash Micro Imaging, which he has expanded from a small Confocal Imaging Facility to one of the premier imaging centres in Australia. Through successful research and infrastructure grant applications (>-$10m) and liaisons with microscope manufacturers over the past decade, the facility now provides expertise, instrumentation and collaborative research in optical and fluorescence microscopy/confocal microscopy, live cell imaging, transmission and scanning electron microscopy, digital imaging and image analysis.

Phone: +61 (3) 9905 5635
Email: ian.harper@monash.edu

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**Facility contact details**

**Advanced optical Imaging**

Stephen Firth
stephen.firth@monash.edu

**BioEM**

Dr Georg Ramm
georg.ramm@monash.edu

**MMI-MHTP**

Dr Camden Lo
camden.lo@monash.edu

**MMI-AMREP**

Stephen Cody
stephen.cody@monash.edu