MONASH University

MONASH TECHNOLOGY RESEARCH PLATFORMS

MONASH BIOMEDICAL IMAGING

IMAGING TO SUPPORT RESEARCH

Imaging technologies enable researchers to non-invasively investigate our greatest health challenges and make scientific discoveries.

At Monash Biomedical Imaging (MBI), our multimodal and simultaneous imaging technologies alongside human testing facilities and animal support services allow researchers from various disciplines to conduct their preclinical and clinical studies. We provide a complete research service spanning ethics, radiochemistry, imaging and data analysis.

Researchers from Monash University, other Australian and international institutions, and industry benefit from our imaging technologies and experts across three coordinated Melbourne locations.

EXPERTISE

Our team of experienced professionals can support and train researchers to enhance their project and experiment outcomes.

Our on-site team includes nuclear medicine technologists, radiochemists, radiographers, biomedical engineers, MR and PET physicists, AI data scientists, biologists and administrative support staff.

LOCATIONS

The Monash Clayton campus houses our most extensive range of preclinical and human imaging and testing equipment. We are located within the Monash Technology Precinct, opposite the Victorian Heart Hospital, and adjacent to the Australian Synchrotron.

We also operate preclinical facilities at the Alfred Research Alliance – Monash Biomedical Imaging (ARA-MBI) site in Prahran and at the Monash Institute of Pharmaceutical Sciences in Parkville.

TECHNOLOGIES

As a node of the Australian National Imaging Facility and the Victorian Biomedical Imaging Capability, we offer access to:

- 3T MRI and simultaneous MR-PET scanners with a wide range of MR-compatible technologies
- EEG and TMS-EEG
- BrainPark for the study of lifestyle and technological interventions
- 9.4T MRI scanners
- Magnetic Particle Imaging
- CT imaging
- PET, SPECT and FLECT imaging
- Ultrasound and MRI guided focused ultrasound

WORK WITH US

As a full service imaging facility, we offer on-site technical support and training, and consult on research projects. Our fee-for-service covers assisted scanning, radiochemistry, ethics, task programming and data analysis.

CLINICAL IMAGING

Simultaneous MR-PET
MBI operates Victoria's only research-dedicated simultaneous magnetic resonance (MR) and positron emission tomography (PET) scanner. This advanced technology enables researchers to obtain concurrent information about anatomy, function and metabolic processes, and is supported by on-site radiochemistry services. Research applications include neuroimaging, cardiac studies, structural MRI, water mapping and soft tissue for oncology and organ imaging.

Magnetic Resonance Imaging (MRI)
Our 3T MRI scanner delivers exceptional quality and speed for regional and full body imaging. MRI research applications include neuroimaging, cardiac studies, respiratory imaging, and soft tissue for oncology and organ imaging.

Compatible technologies
Our technologies for use inside or outside of the MRI and MR-PET scanners enable acquisition of more informative data than conducting separate studies, and also saves time and resources. Equipment includes EEG, TMS, ocular motor / eye tracking, auxiliary sensors and technologies to provide audio and visual stimuli, and to record subject responses.

EEG and TMS-EEG
EEG can be performed independently or in conjunction with TMS for cognitive neuroscience, neuropsychology and clinical psychology studies.

BrainPark
BrainPark is a world-first neuroscience research facility dedicated to improving the physical, mental and brain health of Australians. BrainPark houses a gym, exercise physiology lab, spin studio, virtual reality studios, brain training pods, clinical assessment rooms, and a meditation / yoga studio.

PRECLINICAL IMAGING

Magnetic Resonance Imaging (MRI)
Our MRI and MR-PET scanners provide structural and functional imaging for small and large animals. MRI research applications include stroke, oncology, neural tracing, oedema and fibrosis.

Magnetic Particle Imaging (MPI)
MPI is a new non-invasive imaging method that is more sensitive and significantly faster than MRI and PET. We operate the world's first MPI instrument that is paired with a localised hyperthermia system and CT scanner.

Computer Tomography (CT)
Our high-resolution small animal 3D X-ray imaging CT is ideal for in-vivo imaging of live small animal bones, lungs and implanted medical devices. Our large and small-bore CT scanners can map contrast enhanced soft tissue and investigate 3D structures.

PET, SPECT and FLECT
Our non-invasive in-vivo 3D imaging technologies using radioactive tracers (PET and SPECT) and fluorescence tracers (FLECT) can image metabolic disease, tumour progression and neurodegenerative conditions.

Radiochemistry services
Our on-site radiochemistry and hot cell laboratory support PET and SPECT research. We source radioactive tracers, assist with radiolabelling peptides and antibodies, and provide advice on designing radiotracers for imaging and radiotherapy.

Ultrasound and MRI guided focused ultrasound
Our small animal ultrasound provides imaging and measurement of cardiac parameters, blood vessel function, and organ and tumour pathology. Our dual frequent focused ultrasound targets tissues for ablation and non-invasively opens the blood-brain barrier.

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