Melbourne Brain Centre Imaging Unit

The Melbourne Brain Centre Imaging Unit (MBCIU) at the University of Melbourne, Parkville. The team actively collaborates in research projects and services basic, preclinical, and clinical research investigations.

KEY INSTRUMENTATION

- Ultrahigh field Siemens Magnetom 7T MRI scanner
- Positron Emission Tomography – Computed Tomography

Projects span different disciplines including neurology, ophthalmology, anatomy, psychiatry, engineering, and pharmacology for both clinical trials and basic research

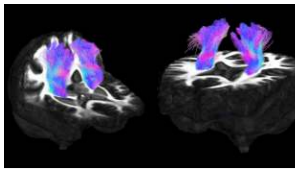
MBCIU Siemens Magnetom 7T MRI Scanner, one of the only two in Australia

7 Tesla Magnetic Resonance Imaging (7T MRI)

The 7T MRI scanner, is one of only two in Australia and facilitates the acquisition of high-quality images capturing structural, functional and molecular data at both spatial and temporal resolutions of tissues and systems within the body.

The 7T MRI scanner is equipped with:

- Dedicated
  - 32-channel head coil
  - 8-channel eye coil
  - 16-channel knee coil
- Peripheral equipment for advanced functional MRI (fMRI)
- A dual-tuned Sodium and Proton head coil
- A range of surface coils facilitating Proton, Fluorine, Phosphorous and Sodium imaging, and spectroscopy.



MR Image: White matter fibres running from the brain context and terminating in the spinal cord. The colour of the tracts indicates the local fibre orientation.

Extended Applications of 7TMRI:

- Anatomical Imaging Studies
- Functional MRI (fMRI)
- Quantitative Susceptibility Mapping
- Sodium MRI
- Neuro-Vascular Imaging (Time-of-flight and SWI)

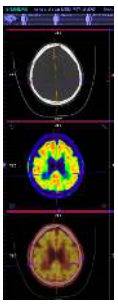
PET/CT Image: CT image Lymphatics of lower Limb

Positron Emission Tomography – Computed Tomography (PET/CT)

The PET/CT imaging system enables investigators to examine organ and tissue functions using small amounts of specific and targeted radioactive tracers or radiopharmaceuticals. This technology can highlight changes at the molecular level, perform time-of-flight measurements and has an extended field of view PET with 128 slice CT.

Applications of PET/CT:

- Disease detection, monitoring, diagnosis, and assessment of treatments
- Assessment of tissue metabolism, inflammation, and viability.
- Evaluate abnormalities, e.g. memory disorders, seizures, neurodegeneration, and other CNS disorders



PET/CT Image showing Amyloid plaque accumulation in the Human brain

Top to bottom: CT, PET & PT/CT overlay

Access to Neuroimaging Facilities

The imaging unit offers open access to academics and commercial investigators as well as undertaking service contracts for clinical imaging for short-and-long-term trials.

Contact us to discuss investigations, projects, collaborations, or postgraduate opportunities.

Node Director

A/Prof. Leigh Johnston

Enquiries for Facility Use

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