

## Key Instrumentation

- 3 Tesla MRI – Siemens widebore
- 9.4 Tesla small animal MRI – Agilent/Varian 20 cm bore
- PET-SPECT-CT small animal scanner – Siemens Inveon
- Bioscan NanoPET-CT small animal imaging system (AMREP Site)
- Bioscan FLECT-CT small animal imaging system (MIPS Site)



The Monash Biomedical Imaging (MBI) facilities are a Monash University led consortium of hospitals and research organisations that facilitate and accommodate interdisciplinary and multi-modal (PET, SPECT, x-ray, CT and MRI) imaging research. This includes pre-clinical and clinical collaborations among world-class experts in medicine, science and engineering, in concert with industry and government, to create innovative solutions to clinical health challenges.

## Specialist Services

### 3 Tesla MRI – Siemens widebore

[204x64] XQ Gradients

Coils:

- Head Neck 20;
- Spine 32 Coil;
- Body 18 Coil;
- 4 Ch Flex Coil Kit; and
- 32-channel Head Coil.

Advanced Software:

- Flow Quantification;
- Argus Flow;
- Neuro Perfusion Package;
- Neuro fMRI/DTI includes: Inline BOLD, 3D PACE, 3D BOLD Evaluation, fMRI Trigger Converter, DTI, DTI Tractography and DTI Evaluation; and
- 1 x Spectroscopy Package.

### 9.4 Tesla small animal MRI – Agilent/Varian 20 cm bore

Horizontal Bore Magnet with 205/120 Gradient Coil

- 1H 63/108 mm coil designed as a standard 16-element coil with 6 cm sample diameter, which is suitable for small animals imaging;
- 20 mm surface coil kit includes:
  - \* A 20 mm surface coil 1H-19F (370-420 MHz) \* A 20 mm surface coil 31P-13C (75-170MHz) \* A 20 mm surface coil 2H-15N (39-82MHz). The coil design is a single-loop or multiple-loop with 20 mm diameter, suitable for small animal MRI/MRS applications;
- 1H 72/119 mm volume Coil; and
- 1H phased array coil for rat heart with integrated low noise and high input impedance preamplifiers.



## PET-SPECT-CT small animal scanner – Siemens Inveon

Dedicated PET System 120  
Gantry-LG CT Camera  
Variable Focus x-ray Source

- Isoflurane Rodent Anesthesia System;
- Physiological Monitoring and Heating with Laptop;
- 3D Visualisation and Analysis; and
- Pharmacokinetic Modelling.

## PET-CT Scanner at the Alfred Medical Research and Education Precinct (AMREP) – Bioscan NanoPET-CT small animal imaging system

- Open access system with a one-step animal loading procedure and single-motion PET and CT acquisition to enable automatic fusion of PET and CT images;
- Integrated preclinical animal handling system including plug-in animal beds with remote transfer of gas anesthesia, temperature controlled environment, repeatable positioning of the animal model; and
- Ability to image animals in pathogen-free imaging chambers and to prepare the animal in a biosafety cabinet.

## FLECT-CT Scanner at the Monash Institute for Pharmaceutical Sciences (Parkville) – Bioscan FLECT-CT small animal imaging system

- FLECT system capable of imaging in the range of ~500-870 nm;
- Individualised animal tissue heterogeneity map for compensation/correction of attenuation of photons based on CT image;
- Deep tissue algorithms for fluorescence recovery based on individualised geometry of each animal; and
- Ability to use plug-in imaging cells compatible with MRI, and to fuse FLECT, CT and MRI images.



## Biomedical image analysis laboratories

Please refer to Monash e-Research – MASSIVE.

## Access Details

- Collaborative Research
- Fee for Service

## Installation Schedule

The Monash Biomedical Imaging facilities will be fully operational from the start of 2012.

## Contact Details

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## Professor Gary Egan Director

Gary Egan is an NHMRC Principal Research Fellow and the Professor and Director of Monash Biomedical Imaging, a platform that encompasses the biomedical imaging research facilities being established at Monash University. Gary has published over 150 papers and over 250 abstracts in peer reviewed journals. Gary undertakes high resolution structural and functional brain mapping research and clinical neuroimaging research in basic neuroscience studies and clinical neuroscience studies. Gary is also a chief investigator of the Victorian Biomedical Imaging Capability and Deputy Director of the Australian National Imaging Facility.

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## Funding Bodies

