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## BIOMEDICAL MAGNETIC RESONANCE FACILITY

RESEARCH ENGAGEMENT | DEVELOPMENT | INNOVATION

The internationally renowned Western Sydney University, Biomedical Magnetic Resonance Facility (BMRF) specialises in assisting researchers, students and industry with a variety of magnetic resonance-based biological, chemical and medical analyses.

### Service

- The facility offers fee for service work or training on the instruments for external users.
- The BMRF is capable of conducting all standard contemporary nuclear magnetic resonance (NMR) experiments including High Resolution Magic Angle Spinning (HRMAS).
- Magnetic resonance imaging (MRI) and NMR diffusion measurements are particular specialties.
- The BMRF also has high-level expertise for analysing the resulting data.
- The BMRF is a node of the National Imaging Facility (NIF; [www.anif.org.au](http://www.anif.org.au)).

**Western Sydney University has a suite of state-of-the-art instruments available:**

### **BRUKER AVANCE III 600 MHz Wide Bore NMR/MRI Spectrometer (14.1 T)**

Equipped with high field XYZ gradient amplifiers capable of generating up to 3000

G/cm. It has various probes and accessories that enable it to be used for a wide range of proton and heteronuclear NMR experiments such as diffusion of extremely slowly diffusing species, microimaging, and high-resolution protein structure determination.

### **BRUKER AVANCE II 500 MHz Wide Bore NMR/MRI Spectrometer (11.7 T)**

Equipped with high field XYZ gradient amplifiers capable of generating up to 3000 G/cm. It has various probes and accessories that enable it to be used for a wide range of proton and heteronuclear NMR experiments such as diffusion, micro-imaging, high-resolution MAS, and high-resolution protein structure determination.

### **BRUKER AVANCE 400 MHz NMR Spectrometer (9.4 T)**

Equipped with high resolution gradients (i.e., up to ~55 G/cm). Suited for heteronuclear NMR studies and for diffusion studies of small molecules to moderately sized polymers.

### **VARIAN MERCURY 300 MHz NMR Spectrometer (7.0 T)**

Equipped with 4-nuclei inverse probe with z-axis gradients. The probe was specially modified to simultaneously tune to four nuclei namely <sup>1</sup>H, <sup>19</sup>F, <sup>13</sup>C and <sup>31</sup>P. Suited for routine 1D and 2D NMR experiments.

### **MAGRITEK EARTH FIELD NMR (58 μT / 0.58 gauss)**

Simple instrument which can be used for NMR, diffusion and imaging experiments. Can also be used for some 'off the wall' experiments.

### **PERKINELMER QUANTUM GX microCT**

This imaging system provides high-resolution images at an X-ray dose low enough to enable true longitudinal imaging capability. The Quantum GX offers the highest resolution among all the microCT scanners for pre-clinical imaging (4.5 micrometre voxels). The wide field of view (FOV) scanning at 36 mm and 72 mm allows for high resolution imaging of mice, rats and rabbits.



FOR FURTHER INFORMATION ON  
HOW TO ACCESS THE BMRF  
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