

Professor Nicki Packer  
Director, Biomolecular Frontiers Research Centre

# Chemical and biomolecular sciences

From research into anti-cancer drugs and photosynthetic bacteria to the rapid detection of disease pathogens and examining the effects on brain chemistry of chronic caffeine and sucrose consumption, researchers in chemical and biomolecular sciences at Macquarie are uniquely positioned to help shape the complex issues that define the future of humanity.

Macquarie researchers pioneered the study of proteomics and Macquarie is home to the world's first dedicated proteomics facility, the Australian Proteome Analysis Facility. We have also recently opened the ARC Training Centre for Molecular Technology in the Food Industry in partnership with Grain Growers Australia, the NSW Department of Primary Industries, Gratuk Technologies and Agritechnology.

Macquarie is driving major advances in basic and commercial research in analytical spectrometry, glycochemistry, quantitative proteomics, and separation science and instrumental methods. Our researchers are also pioneering new methods in laser spectroscopy, catalysis and organic geochemistry.

Macquarie enjoys enviable rankings – in the 2015 Excellence in Research for Australia evaluation, our chemical and biomolecular sciences research received ratings of ‘well above world standard’ in plant biology and agricultural and veterinary sciences, ‘above world standard’ in analytical chemistry and microbiology, and ‘at world standard’ in biochemistry and cell biology.

Several of our researchers sit on the editorial boards of international journals including *Current Opinion in Molecular Therapeutics*, *Frontiers in Plant Science*, *Journal of Nanotechnology*, *Journal of Proteome Research*, *Molecules* and *Proteomics*.

As a higher degree research candidate at Macquarie, you'll have the opportunity to engage in research alongside some of the best academics and researchers in not just Australia, but the world, and you'll also have access to outstanding facilities.

[mq.edu.au/research/chemical-and-biomolecular-sciences](http://mq.edu.au/research/chemical-and-biomolecular-sciences)



**MACQUARIE**  
University  
SYDNEY · AUSTRALIA



#### AREAS OF SPECIALISATION

- Analytical chemistry
- Atmospheric chemistry
- Biochemistry
- Biomedical proteomics
- Biotechnology
- Chemical biology
- Environmental proteomics
- Glycomics
- Medicinal chemistry
- Metagenomics
- Structural genomics
- Synthetic biology



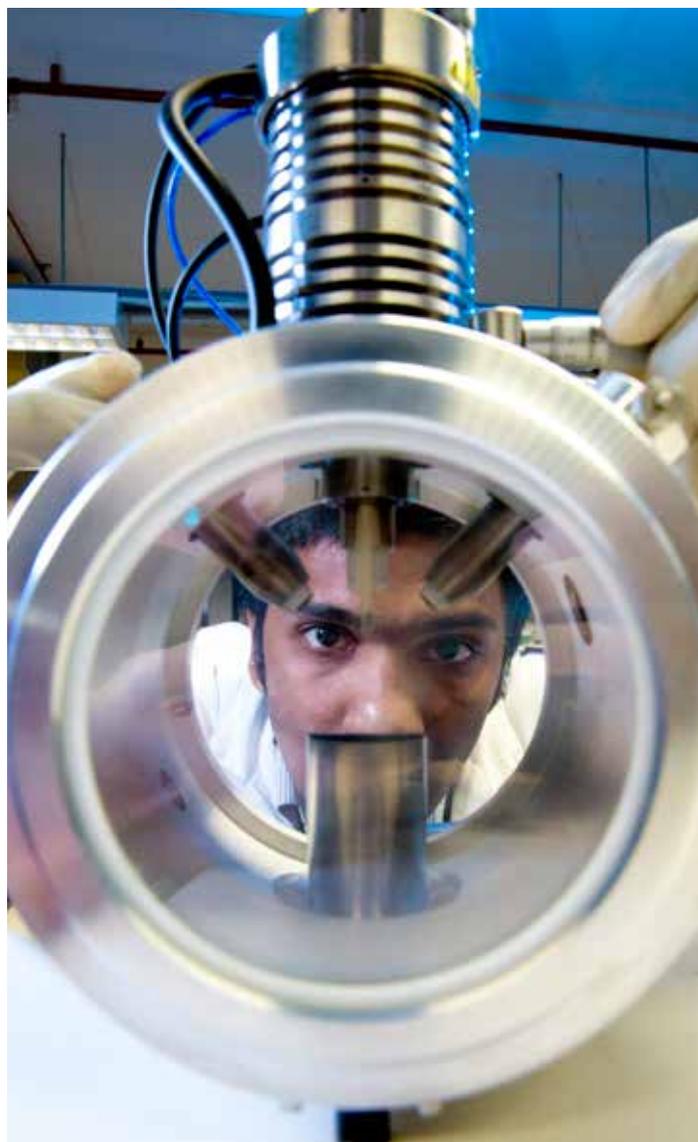
#### FACILITIES AND EQUIPMENT

- A wide range of mass spectrometers including quadrupole-TOF, triple quadrupole, triple quadrupole-TOF, quadrupole-Trap, linear ion trap, orbitrap and MALDI-TOF/TOF instruments
- 400 and 600 MHz NMR spectrometers, the latter equipped with a cryoProbe
- Two Leica SP2 fluorescence microscopes, fluorescence spectrometers and plate readers



#### RESEARCH CENTRES

- Australian Proteome Analysis Facility
- Australian Research Council Training Centre for Molecular Technology in the Food Industry
- Biomolecular Frontiers Research Centre
- Macquarie node of the Australian Research Council Centre of Excellence for Nanoscale BioPhotonics
- Macquarie University Centre for Analytical Biotechnology



#### OUR RESEARCH PRIORITIES

We pursue excellence in a broad range of research areas. Our five interdisciplinary strategic research priorities – Healthy People, Resilient Societies, Prosperous Economies, Secure Planet and Innovative Technologies – respond to globally significant challenges and opportunities to improve the lives of millions. Together, these research priorities provide a focal point for research, with discoveries made under these priorities translating into real improvements in the lives of local, national and global communities.

#### JOINTLY SUPERVISED PHD PROGRAMS

Macquarie actively encourages cotutelles and joint degrees – shared supervision arrangements with universities whose research activity strongly aligns with ours. Under each model, you are enrolled at two universities with a principal supervisor at each and may be eligible for additional scholarship support.

[mq.edu.au/cotutelle-and-joint-phd](http://mq.edu.au/cotutelle-and-joint-phd)

#### FIND OUT MORE

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