

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by State and Organisation

New South Wales

The University of Newcastle

LE100100155 Prof Geoffrey M Evans, Dr Elham Doroodchi, Prof Kevin P Galvin, Prof Graeme J Jameson, Prof Mark G Jones, Dr Paul Stevenson, Prof Anh V Nguyen, Prof Victor Rudolph, Dr Liguang Wang, Dr Zhi Ping Xu, A/Prof Vishnu K Pareek, Dr Chi M Phan, Prof Moses O Tade, Dr Ranjeet Utikar, Prof Aibing B Yu, Dr Run Y Yang, Prof John Ralston, Prof Stephen R Grano

Approved Project Title **High-Speed Particle Image Velocimetry and Laser-Induced Fluorescence Facility**

2010 \$495,000.00

Primary FoR 0904 CHEMICAL ENGINEERING

Partner/Collaborating Organisation(s)

Curtin University of Technology, The University of New South Wales, The University of Queensland, University of South Australia

Administering Organisation The University of Newcastle

Project Summary

This state-of-the-art laser facility will increase our scientific understanding of industrial processes by providing valuable information on velocity, temperature and concentration profiles for rapidly changing flow fields. Previously it was not possible to do this, and the knowledge gained will be applied to develop more efficient and environmentally sustainable operations. For example, many current processes have high energy input but scientific evidence suggests that it can be reduced if the embodied energy of the flow is properly utilised. Importantly, this utilisation often leads to increased yields and product quality. The facility will greatly assist researchers and industry collaborators in developing processes for the 21st century.

LE100100142 Prof Adam McCluskey, Prof Robert J Aitken, Prof Paul C Dastoor, Prof Phillip J Robinson, A/Prof Eileen A McLaughlin, Prof Geoffrey A Lawrance, A/Prof Marcel Maeder, A/Prof Richard H Dunstan, Dr Shaun D Roman, Dr Rob Atkin, Dr Clovia I Holdsworth, Dr Mark A Baker, Dr Nicole M Verrills, Prof Gottfried Otting, Dr Brett Nixon, Dr Xiaojing Zhou, Dr Megan Chircop, Dr Warwick J Belcher

Approved Project Title **An integrated liquid chromatography mass spectrometry nuclear magnetic resonance (LC-MS-NMR) facility for applications in proteomics and organic chemistry**

2010 \$500,000.00

Primary FoR 0304 MEDICINAL AND BIOMOLECULAR CHEMISTRY

Partner/Collaborating Organisation(s)

Children's Medical Research Institute
The Australian National University

Administering Organisation The University of Newcastle

Project Summary

This application completes the requested liquid chromatography mass spectrometry nuclear magnetic resonance (LCMS-NMR) facility and will allow the training of over 150 researchers, significantly enhancing their research productivity and translation of outcomes in areas of national importance. New breakthroughs in drug development, smart materials, organic electronic materials and biomedical research require routine access to cutting edge technology. The LCMS-NMR augments the capabilities of our research teams at the forefront of these efforts. These include understanding the impact of the environment on plant and animal development, pest animal control, development of new biotechnology tools, new drugs and new methods for the detection of narcotics and explosives.

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LE100100008 A/Prof Eileen A McLaughlin, Prof Keith T Jones, Prof Robert J Aitken, Dr Brett Nixon, Dr Shaun D Roman, A/Prof Alan M Brichta, Dr Rick F Thorne, Dr Douglas W Smith, A/Prof David W McCurdy, Prof Raymond J Rose, Prof Christopher P Grof, Prof Leonie K Ashman, Prof Gordon F Burns, Dr Brett A Graham, Dr Paul A Tooney, Prof Roger Smith, Prof Paul S Foster, Prof Trevor A Day, Prof Robert J Callister

Approved Project Title **Laser microdissection microscopy system for cell and development biology**

2010 \$350,000.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

Partner/Collaborating Organisation(s)

Hunter Medical Research Institute

Administering Organisation The University of Newcastle

Project Summary

The University of Newcastle has invested heavily in its biological and life sciences to create a research nexus focusing on national research priorities in biotechnology and environmental protection. The live cell laser microdissection platform will be utilised by scientists researching such strategically important areas as developmental biology, intracellular signalling cascades, cell cycle dynamics, plant development and microbiology. Moreover, this component of the University's research portfolio plays a major role in the postgraduate training of young Australian scientists who will, in turn, fuel future developments in both the life sciences and biotechnology industries.