

Summary of Linkage Infrastructure, Equipment and Facilities Proposals

Queensland

The University of Queensland

LE0775613 Prof DJ Adams; A/Prof JW Lynch; Prof B Martinac; Prof RF Minchin; Prof P Sah; Prof PF Bartlett; A/Prof AJ Hoey

Approved Project Title **Automated Patch Clamp System**

2007 : \$ 467,000

Primary RFCD 2499 OTHER PHYSICAL SCIENCES

Partner Organisations & Collaborating Organisations

University of Southern Queensland

Administering Organisation The University of Queensland

Project Summary

Ion channels are membrane proteins that underlie cell function and are therefore important drug targets. The patch clamp technique is the most powerful tool available to study the function of single ion channels. The recent automation of this technology represents a quantum leap in our ability to perform high throughput screening of novel natural and synthetic compounds as drug leads. This will lead to an urgently needed increase in capacity, increasing the volume of research and its outcomes, which will benefit the Australian pharmaceutical industry and biosciences research community.

LE0775676 A/Prof PV Bernhardt; Prof GA Lawrance; Dr P Burn; Prof DP Fairlie; Dr JJ De Voss; A/Prof LR Gahan; Prof MJ Garson; Prof I Toth; Prof C Wentrup; Dr CM Williams

Approved Project Title **An X-ray Diffraction Facility for Molecular Structure Determination**

2007 : \$ 290,000

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Partner Organisations & Collaborating Organisations

The University of Newcastle

Administering Organisation The University of Queensland

Project Summary

Characterisation of new chemical compounds demands proof of molecular structure. Whether for the identification of a new drug candidate, a material with novel properties or in the exploration of previously unknown types of compounds, X-ray crystallography is the definitive technique for this purpose. This proposal is for an X-ray diffractometer that will significantly enhance the capabilities of all synthetic and natural products chemistry research programs undertaken at the Universities of Queensland and Newcastle, all currently in receipt of ARC funding. This research is aligned with the ARC National Research Priorities, of Promoting and Maintaining Good Health and Frontier Technologies for Building and Transforming Australian Industries.

LE0775592 Prof J Drennan; Dr J Zou; A/Prof JJ Cooper-White; Dr BW Cribb; Prof BM Degnan; Prof HB Harrison; Prof S Dimitrijevic; A/Prof EM Gray

Approved Project Title **A High Resolution Analytical Scanning Electron Microscope for South-East Queensland**

2007 : \$ 388,000

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Partner Organisations & Collaborating Organisations

Griffith University

Administering Organisation The University of Queensland

Project Summary

Scanning electron microscopy is the major visualization tool for a diverse range of research disciplines. This new generation of instrument will be able to image features close to atomic resolution and obtain quantitative analytical information from regions only a few atoms across. Because of the nature of the way the electron beam is produced, the new instrument will be able to examine particularly sensitive materials, such as soft bio-materials, without any loss in resolving power. This machine will be unique in Australia and be available to researchers from diverse fields of study working towards building and transforming Australian Industries and underpinning scientific discovery in nanotechnology, materials science and bioengineering.

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LE0775619 Prof JA Hay; A/Prof RA Fotheringham; Prof DJ Carter; Prof RW Dixon; Ms KM Kilner; Dr L Dale; Prof BH Bennett; Prof PR Eggert; Prof EA Webby; Mr RH Coleman; Mr JF Arnold; A/Prof W Ommundsen; Ms AH Horn; Prof CM Bradford; Dr CM Taylor; Dr P Mead; Prof GR Worby; Dr RA Phiddian; Prof DJ Haskell; Ms DM Bird; Dr TN Burrows

Approved Project Title **AustLit: Phase Two - humanities research infrastructure development, augmentation and expansion**

2007 : \$ 350,000

Primary RFCD 4202 LITERATURE STUDIES

Partner Organisations & Collaborating Organisations

The University of New South Wales

The University of Sydney

Monash University

Deakin University

James Cook University

University of Tasmania

The Flinders University of South Australia

The University of Western Australia

University of Wollongong

Administering Organisation The University of Queensland

Project Summary

With ARC support, the university and library collaborators will deliver a unique national information service revealing the wealth of Australian's literary and cultural endeavours over time. Enquirers from across the research, education and library sectors will be able to access the results of decades of scholarship in Australian literary, theatre, critical and Indigenous culture. Senior and emerging researchers will be able to continue building AustLit over time, using the infrastructure as a source of existing information to interrogate, and as a repository for new data that can be analysed and enhanced as research in new areas is pursued.

LE0775726 Prof JS Mattick; Prof MA Ragan; Prof BM Degnan; Prof V Brusic; Dr MJ Pheasant; Dr CA Wells; Prof LR Griffiths; Dr JM Hogan; A/Prof P Roe; Prof P Timms; Dr BP Dalrymple

Approved Project Title **Australian Mirror of the UCSC Genome Database and Browser**

2007 : \$ 306,270

Primary RFCD 2708 BIOTECHNOLOGY

Partner Organisations & Collaborating Organisations

Queensland University of Technology

Griffith University

CSIRO - Livestock Industries

Administering Organisation The University of Queensland

Project Summary

Modern medical, biological, agricultural, and environmental research and industries are being transformed by access to genomic information that details the DNA sequence of various species, as well as of different strains and individuals within populations. This information is being generated at an exponentially increasing speed, and requires large computational resources. This facility will provide Australian researchers, R&D organizations and industry with state-of-the-art genomic data storage and analysis capability, which will permit both public and proprietary access, and accelerate Australian research and development in genetic medicine, pharmaceuticals, animal breeding and biodiversity.

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LE0775716 Prof RJ Stimson; Prof MC Western; Prof JL Hunter; Prof BA Pailthorpe; Prof GJ Hugo; Prof AM Harding; Prof WF Mitchell

Approved Project Title **Infrastructure for a Spatially Integrated Social Science e-Research Facility**

2007 : \$ 150,000

Primary RFCD 3704 HUMAN GEOGRAPHY

Partner Organisations & Collaborating Organisations

The University of Adelaide

University of Canberra

The University of Newcastle

Australian Bureau of Statistics

Administering Organisation The University of Queensland

Project Summary

The requested facility with its Nationally Distributed Socio-Spatial Data System and On-Line Analysis, Modeling and Visualisation Research Facility will enhance Australia's national research capacity for secondary data analysis and modeling of socio-spatial information with visualisation, substantially reducing the cost of innovative research conducted at various levels of spatial scale to investigate both local and nationally significant demographic, social, economic and behavioural issues. It will deliver national/community benefits through enabling hundreds of researchers and graduate students across the university system to investigate demographic, economic and social issues at various levels of spatial scale.

LE0775684 Prof AK Whittaker; A/Prof PJ Halley; Dr I Blakey; Prof GP Simon; A/Prof WD Cook; A/Prof GH Edward; Dr JS Forsythe

Approved Project Title **The polymer pharmaceutical/drug characterization and processing facility**

2007 : \$ 230,000

Primary RFCD 2505 MACROMOLECULAR CHEMISTRY

Partner Organisations & Collaborating Organisations

Monash University

Administering Organisation The University of Queensland

Project Summary

The Australian population is ageing, and this is leading to ever increasing burdens upon our health system. In addition new understanding of disease states has lead to a demand for improved materials for drug delivery and for tissue regeneration. This proposal will lead to novel biomaterials designed to meet these demands. Polymers are seen as essential elements for construction of such biomedical devices due to the myriad forms in which they can be made, and the large number of different materials to choose from. This proposal will lead to the formation of the PolyPharma network which will produce polymeric biomaterials to benefit our health industries.