# Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

## South Australia

## The University of Adelaide

**LP100200494** Prof Andrew D Austin, Dr Steven J Cooper, Dr William F Humphreys, Dr Mark S Harvey, Dr Mark I Stevens

**Approved Project Title** **Biodiversity and population genetics of groundwater calcrete ecosystems of central Western Australia**

| | |
|---|---|
| 2010 | $55,000.00 |
| 2011 | $107,500.00 |
| 2012 | $105,000.00 |
| 2013 | $52,500.00 |
| 2014 | |
| 2015 | |

Primary FoR 0603 EVOLUTIONARY BIOLOGY

**Partner/Collaborating Organisation(s)**

Minara Resources Limited, South Australian Museum, Western Australian Museum

**Administering Organisation** The University of Adelaide

**Project Summary**

This project will lead to documentation of a unique subterranean ecosystem of world acclaim, representing a significant component of the biodiversity of the Australian arid zone. It will further contribute to sustainable management of groundwater ecosystems and provide information that can be used to predict and monitor how future water use and climate change may impact on these ecosystems. Results generated will provide the knowledge base required to improve the efficiency and scientific rigour of the environmental review process for major resource projects, leading to economic benefits to the mining and environmental consultancy industries, and to Australia in general.

**LP100200007** Prof Annette J Braunack-Mayer, A/Prof Maree F O'Keefe, Dr Rachel Skinner, Dr Kirsten J McCaffery, Ms Teresa Burgess, Dr Helen S Marshall, Mrs Maureen Watson

**Approved Project Title** **Optimising intersectoral collaboration between the health and education sectors**

| | |
|---|---|
| 2010 | $63,650.00 |
| 2011 | $127,940.00 |
| 2012 | $64,290.00 |
| 2013 | |
| 2014 | |
| 2015 | |

Primary FoR 1117 PUBLIC HEALTH AND HEALTH SERVICES

**Partner/Collaborating Organisation(s)**

Adelaide Women's and Children's Hospital, CSL Ltd, GlaxoSmithKline, SA Department of Education and Children's Services, SA Department of Health

**Administering Organisation** The University of Adelaide

**Project Summary**

The Australian Government has a clear commitment to improving the health of all Australians. In the face of rising rates of chronic illness and attendant unsustainable high medical costs, optimising outcomes for public health initiatives, such as school based immunisation programs, is of the utmost importance. The recent H1N1 (Swine Flu) epidemic school closures highlight the need for a more effective, efficient and flexible intersection between education and health. This project offers the opportunity for the public health and education sectors to work closely together to identify how they can best configure future collaborations to maximise outcomes for all Australians.

## Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

**LP100200800** A/Prof Frank S Gruetzner, Mr Robert M King, Dr Dean A Male

**Approved Project Title** **Development of a diagnostic microarray to detect aneuploidy in single cells**

| | |
|---|---|
| 2010 | $32,500.00 |
| 2011 | $65,000.00 |
| 2012 | $32,500.00 |
| 2013 | |
| 2014 | |
| 2015 | |

Primary FoR 1114 PAEDIATRICS AND REPRODUCTIVE MEDICINE

**Partner/Collaborating Organisation(s)**

GeneWorks Pty Ltd, Reproductive Health Science Pty Ltd

**Administering Organisation** The University of Adelaide

**Project Summary**

Chromosomal abnormalities account for about 10 per cent of all babies born with a defect. The risk of chromosomal abnormalities increases with maternal age and in patients with fertility problems. It has been estimated that 50 per cent of all embryos are aneuploid. Chromosomal aberrations also occur in the vast majority of tumours in humans. Accurate and rapid detection of chromosomal defects is an important health service delivered to the Australian public. This project aims to develop better tests for application in prenatal diagnostics including non-invasive testing of fetal cells from maternal circulation or cervical samples at 6-13 weeks gestation, IVF and cancer diagnostics.

**LP100200366** Dr Carl Q Howard, Prof Colin H Hansen, A/Prof Anthony C Zander, A/Prof Michael D Burch, Dr Peter P Hobson

**Approved Project Title** **Ultrasound for control of cyanobacteria**

| | |
|---|---|
| 2010 | $65,000.00 |
| 2011 | $125,000.00 |
| 2012 | $135,000.00 |
| 2013 | $75,000.00 |
| 2014 | |
| 2015 | |

Primary FoR 0904 CHEMICAL ENGINEERING

**Partner/Collaborating Organisation(s)**

Australian Water Quality Centre, Melbourne Water Corporation, United Water International Pty Ltd, Water Corporation of WA, Water Quality Research Australia Ltd

**Administering Organisation** The University of Adelaide

**Project Summary**

Blue-green algae, also known as cyanobacteria, forms in drinking water supplies in Australia and can cause water-quality problems. Current methods to treat blue-green algae involve the use of Copper Sulphate, which is not an environmentally friendly compound. A potential alternative environmentally friendly water-treatment method involves the use of ultrasound to disrupt the cyanobacteria. The aim of this project is to determine the physical properties of the cyanobacteria when excited with ultrasound for the purpose of finding an efficient method to treat large volumes of water.

# Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

**LP100200127** Dr David E Kelsey, Prof Martin P Hand, A/Prof Alan S Collins, Dr Fred Jourdan, Dr Robert H Smithies, Dr Christopher Kirkland

**Approved Project Title** **Constraining conditions and timing of orogeny and reworking in the west Musgrave Province**

| | |
|---|---|
| 2010 | $35,000.00 |
| 2011 | $63,000.00 |
| 2012 | $61,000.00 |
| 2013 | $33,000.00 |
| 2014 | |
| 2015 | |

Primary FoR 0403 GEOLOGY

**Partner/Collaborating Organisation(s)**

Geological Survey of Western Australia

**Administering Organisation** The University of Adelaide

**Project Summary**

The remote Musgrave Province is one of Australia's prime areas of mineral exploration interest, with about 30 companies holding more than 120 leases over the region. A major factor determining the economic prospectivity of a terrane is the availability of high quality geoscientific data. This project will produce pre-competitive structural, petrological, isotopic, geochemical and geophysical datasets for the west Musgrave Province that will rival or surpass that available for other regions of Australian crust. This project directly aligns with the National Research Priority goal, developing deep Earth resources, and will reduce the risk to mineral explorers and facilitate economic development within the Ngaanyatjarra Native Title Lands of Western Australia.

**LP100200616** Dr David M Lewis, Dr Stephen R Clarke, A/Prof Peter J Ashman

**Approved Project Title** **Energy from microalgae: industrial scale development and downstream processing of co-products**

| | |
|---|---|
| 2010 | $75,000.00 |
| 2011 | $150,000.00 |
| 2012 | $155,000.00 |
| 2013 | $80,000.00 |
| 2014 | |
| 2015 | |

Primary FoR 0904 CHEMICAL ENGINEERING

APAI 2

**Partner/Collaborating Organisation(s)**

SQC Pty Ltd

**Administering Organisation** The University of Adelaide

**Project Summary**

In this project Australian researchers will develop processes to produce renewable energy and commodity chemicals from microalgae grown in open saline ponds, enabling sustainable production of commercial quantities of clean biofuels and commodity products for the future. Renewable energy is an essential part of Australia's low greenhouse gas emissions energy target and is central to energy security. The development of microalgal energy will help Australia's determination to meet its Kyoto target. Additional benefits will include the development of value-added co-products from microalgal biomass, which is one route to commercial success of the novel technology.

## Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

**LP100200102** Dr Frank Reith, A/Prof Joel Brugger, Prof Joseph G Shapter, Dr Claire E Lenehan, Prof Allan Pring, Dr Nigel W Radford, Mr Simon Griffiths, Dr Steven A Wakelin, Asst Prof Gregor B Grass, Prof Dr Dietrich H Nies

**Approved Project Title** **Development of biosensors and bioindicators for gold exploration and processing in Australia**

| | |
|---|---|
| 2010 | $70,000.00 |
| 2011 | $140,000.00 |
| 2012 | $145,000.00 |
| 2013 | $75,000.00 |
| 2014 | |
| 2015 | |

Primary FoR 0402 GEOCHEMISTRY

**Partner/Collaborating Organisation(s)**

Barrick Gold of Australia Limited , Newmont Asia Pacific, South Australian Museum

**Administering Organisation** The University of Adelaide

**Project Summary**

In times of increasing demand for gold and shrinking rates of discovery in Australia, biosensor and bioindicator techniques deliver significant advantages to the Australian mining industry and allow it to retain its international competiveness. The new understanding of the biogeochemical behaviour of gold in soils and other weathered materials developed in a previous ARC Linkage Project enables the development of biosensor and bioindicator technology that will allow mineral explorers to differentiate mineralised from non-mineralised zones using specific (meta) genomic community responses. The new technology will provide cost-efficient and environmentally sustainable techniques for improving exploration success and optimising ore processing.

**LP100200493** A/Prof Matthew Roughan

**Approved Project Title** **Autoconfiguration of critical network infrastructure**

| | |
|---|---|
| 2010 | $20,000.00 |
| 2011 | $36,000.00 |
| 2012 | $32,000.00 |
| 2013 | $16,000.00 |
| 2014 | |
| 2015 | |

Primary FoR 1005 COMMUNICATIONS TECHNOLOGIES

APAI_IT 1

**Partner/Collaborating Organisation(s)**

CQR Consulting Pty Ltd

**Administering Organisation** The University of Adelaide

**Project Summary**

In 2000, Vitek Boden hacked into Maroochy Shire's sewerage system, causing hundreds of kilolitres of raw sewage to flow into a public area, causing financial and environmental damage, and the potential for the spread of life-threatening disease. The goal of this project is to improve the security of Australia's critical infrastructure, for instance, electricity and water supply. The project's approach is to simplify the critical bottlenecks in communication between plant equipment and company management, namely, the firewall that protects the critical plant equipment from viruses and hackers. Simplification will improve transparency and hence reduce the possibility that security holes allow an incident similar to that of this incident, or worse.

# Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

**LP100200114** Dr Michael Q Sheng, Dr Damith C Ranasinghe, Prof Peter H Cole

**Approved Project Title** **Managing uncertainty in RFID traceability networks**

| | |
|---|---|
| 2010 | $50,000.00 |
| 2011 | $100,000.00 |
| 2012 | $65,000.00 |
| 2013 | $15,000.00 |
| 2014 | |
| 2015 | |

Primary FoR 0806 INFORMATION SYSTEMS

APAI_IT 1

**Partner/Collaborating Organisation(s)**

International Linen Services

**Administering Organisation** The University of Adelaide

**Project Summary**

Australia suffers 5.4 million cases of food-borne illness every year, which leads to 2.1 million days of lost work, 1.2 million people visiting a doctor, and 120 deaths annually. This has revealed the urgent need for improved ways of locating and recalling problematic products that have been released into the community. The project will develop novel techniques driven by Radio Frequency Identification (RFID) technology for improving the efficiency and accuracy of product tracking in distribution networks. This project will place Australia at the forefront of RFID research. It will also be an excellent vehicle for educating young researchers and engineers in Australia.