

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

## Western Australia

### The University of Western Australia

**LP100100793** Dr Peter G Arthur, Dr Richard J Lipscombe, Prof Miranda D Grounds

**Approved Project Title** **Proteomic techniques to assess oxidative stress in muscle wasting diseases**

2010 \$26,669.00

2011 \$26,669.00

2012 \$26,669.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

APAI 1

#### Partner Organisations

Proteomics International Pty Ltd

**Administering Organisation** The University of Western Australia

#### Project Summary

Australia will experience a significant increase in the proportion of its population that is over 65 years of age over the next 50 years. There will be an increased demand for health services related to injury from falls unless effective preventive strategies are put in place. Loss of muscle mass contributes to falls, so development of preventative strategies has the potential for considerable benefits. Oxidative stress is a key intermediary in muscle wasting. This PhD project examines a possible mechanism by which oxidative stress causes muscle wasting. An appropriately tailored therapy to minimise oxidative stress has the potential to ameliorate loss of muscle mass.

**LP100100438** Dr Boris C Baer, Prof Andrew H Millar, Prof Leigh W Simmons, Mr John C Davies

**Approved Project Title** **Better bees for tomorrow: A proteomic and physiological characterization of male fertility in managed versus feral honeybees in Western Australia**

2010 \$160,000.00

2011 \$160,000.00

2012 \$160,000.00

2013 \$160,000.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

#### Partner Organisations

Better Bees of Western Australia

**Administering Organisation** The University of Western Australia

#### Project Summary

The importance of honeybees for food production is often undervalued as they pollinate more than 80 crops of economic interest. However, honeybee populations are on a worldwide decline and the beekeepers struggle to survive economically. Australia has so far been spared of major collapses but this seems merely a question of time. The work proposed initiates a close collaboration between the only honeybee-breeding organization in Western Australia and the University of Western Australia. Scientific research to ensure a future supply of managed and healthy honeybees is initiated to understand honeybee reproduction, diseases and immunity in more detail. The results are expected to be of interest for the entire Australian honeybee industry.

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**LP100100647** Prof Mark E Barley, Prof Thompson C McCuaig, A/Prof Klaus Gessner, Dr John M Miller, Dr Eric Tohver, Dr Michael P Doublier, Dr Sandra S Romano, Mr Stephen Wyche  
**Approved Project Title** **Tectonic evolution and lode gold mineralisation in the Southern Cross district, Yilgarn Craton (Western Australia): a study of the meso- to Neoarchean missing link**

2010 \$70,000.00  
2011 \$90,000.00  
Primary FoR 0403 GEOLOGY

### Partner Organisations

Geological Survey of Western Australia

**Administering Organisation** The University of Western Australia

### Project Summary

In the December quarter 2008, Gold export earnings increased by 2 per cent to \$3.9 billion. Over the past 20 years and despite an increase in exploration expenditure to around \$50 million per year, the discovery rates have been declining. Although the easy targets have been found, there remains considerable potential for future major discoveries. This project addresses the pressing need for new data and improved exploration techniques to enable industry to target new discoveries. As the Southern Cross district is located in remote communities such discoveries also have major benefits for regional Australia.

**LP100100640** Prof David G Blair, Prof Grady J Venville, Dr Nancy E Longnecker, A/Prof Marjan G Zadnik, A/Prof David M Coward  
**Approved Project Title** **Measuring the effectiveness of specialist science enrichment programs**

2010 \$250,000.00  
2011 \$190,000.00  
2012 \$300,000.00  
Primary FoR 1301 EDUCATION SYSTEMS

APAI 3

### Partner Organisations

Graham (Polly) Farmer Foundation, Gravity Discovery Centre Foundation

**Administering Organisation** The University of Western Australia

### Project Summary

Australia faces critical problems in science education with student attitudes to science in decline and a shortage of science teachers. We also face significant problems in indigenous education. This project will determine the ability of science enrichment centres to change student attitudes and to motivate them towards science using exciting and innovative new education facilities. Results will provide valuable data to allow future funding priorities to be optimised.

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**LP100100436** Prof Thomas Braunl, Prof John H Taplin, Prof David N Harries, Mr/s Karl D Mischewski, Mr Terrence J Mader, Mr Luke A O'Donoghue

**Approved Project Title** **Analysis and modeling of driving patterns for limited-range electric vehicles**

2010	\$101,000.00
2011	\$64,000.00
2012	\$64,000.00
Primary FoR	0902 AUTOMOTIVE ENGINEERING
APAI	2

### Partner Organisations

AEVA - Perth Branch, CO2Smart, Gull Petroleum WA, WA Department for Planning and Infrastructure

**Administering Organisation** The University of Western Australia

### Project Summary

The electrification of the personal transport sector seems to be only a matter of time. It is important to study and model the effects of this sector now, in order to recommend decision makers on issues like standardization and infrastructure planning. Understanding and being able to predict EV driving and charging patterns will allow us to provide planning assistance for:

- Effects of day-time dependent energy pricing structure on EV charging behavior
- Optimal energy pricing to encourage off-peak charging
- Optimal number and location of EV charging stations
- Expected uptake of PHEV/EVs depending on petrol, electricity and conversion cost
- Expected additional energy demand for EVs and PHEVs with day-time energy usage pattern

**LP100100620** Prof Richard J Hobbs, Dr Kingsley W Dixon, Dr Siegfried L Krauss

**Approved Project Title** **Managing evolutionary-ecological process in restoring Banksia woodland resilient to global environmental changes**

2010	\$155,000.00
2011	\$135,000.00
2012	\$118,000.00
2013	\$53,000.00
Primary FoR	0502 ENVIRONMENTAL SCIENCE AND MANAGEMENT

### Partner Organisations

Botanic Gardens and Parks Authority, Rocla Quarry Products

**Administering Organisation** The University of Western Australia

### Project Summary

By manipulating genetic diversity, local selection and gene flow in restored plant communities, this project will establish suitable regimes to manage evolutionary processes in large-scale restoration, thereby improving success and resilience to future changes. It will significantly advance our understanding of evolutionary processes operating in restoration efforts, and lead to improved restoration success, better long-term ecological functioning in restored ecosystems, better investment of resources, and maintenance of Australia's biodiversity in the face of rapid environmental change. These findings should be of relevance to broader restoration initiatives managed by the government, community, and industry nationally and internationally.

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**LP100100812** Prof Colin L Raston, Prof Charles S Bond, Prof Sarah A Dunlop, Dr Killugudi L Swaminatha-Iyer, Prof Fiona M Wood

**Approved Project Title** **Processing Pearl Nacre for Bio-Nanotechnology**

2010 \$158,000.00

2011 \$159,000.00

2012 \$162,000.00

Primary FoR 0303 MACROMOLECULAR AND MATERIALS CHEMISTRY

APAI 3

### Partner Organisations

Pearl Technology Pty Ltd

**Administering Organisation** The University of Western Australia

### Project Summary

Nanotechnology has exciting potential to solve major health challenges of the 21st century. The proposed research focuses on developing health care products, derived from a renewable waste stream resource from the pearling industry, en route to establishing products to benefit the rural community, and beyond. The processed pearl nacre provides the possibility of alleviating problems associated with neurotrauma following injury, and for skin regeneration following burns. The recently established powerful multidisciplinary research team in partnership with Pearl Technology combines expertise in chemical processing, nanotechnology, biochemistry, neuroscience and tissue engineering, also providing a basis for quality research training.

**LP100100150** Dr Michael Rosenberg, Dr Kathryn E Smith, Dr Rebecca Braham, Dr James Dimmock, Prof Timothy R Ackland

**Approved Project Title** **Improving health and lifestyle of indigenous Australians in the Western Desert**

2010 \$120,000.00

2011 \$100,000.00

2012 \$200,000.00

2013 \$160,000.00

Primary FoR 1117 PUBLIC HEALTH AND HEALTH SERVICES

APAI 2

### Partner Organisations

BHP Billiton Ltd, Newcrest Mining Ltd, Office of Aboriginal Health

**Administering Organisation** The University of Western Australia

### Project Summary

This program aims to develop knowledge, skills and attitudes, whilst providing a supportive environment, to better the health of the Martu people through the provision of activities and services and strengthening of partnerships between service agencies and the local community. By developing the Indigenous workforce and building the community capacity to self-manage health, a reduction in the discrepancy in health indicators between Indigenous and other Australians can be achieved. The findings from this research will provide important information regarding methods to provide for better health for Indigenous Australians and develop a template for intervention design in other remote communities.