

# Summary of Linkage Projects Proposals for Funding to Commence in 2007

## New South Wales

### The University of Sydney

**LP0776814** Dr M Cavanagh; Dr PW Atkins; Dr AM Grant; Mr GB Spence

**Approved Project Title** **Developing leadership for high stress workplaces: Improving well-being, engagement, productivity and staff retention**

**2007 :** \$ 130,937

**2008 :** \$ 218,587

**2009 :** \$ 193,100

**2010 :** \$ 105,450

**Primary RFCD** 3502 BUSINESS AND MANAGEMENT

APA(I) Award(s): 2

APDI Mr GB Spence

#### **Collaborating/Partner Organisation(s)**

Blake Dawson Waldron, Lawyers

Northern Hospital Network of the South Eastern Sydney and Illawarra Area Health Service

**Administering Organisation** The University of Sydney

#### **Project Summary**

Workplaces today are increasingly complex. The ageing of the workforce, growing economic pressure and increasing employee mobility make the ability of organisations to attract, develop and retain talented staff critical issues for Australian industry. Staff stress costs the economy tens of billions of dollars a year. This project focuses on the measurement and development of leader's ability to take sophisticated perspectives on complex events, and in so doing open new possibilities for effective action. By developing models, tools and training methods to enhance this ability in managers, we aim to make an important contribution economic sustainability and employee well-being in Australia and internationally.

**LP0776380** Prof SC Fleming; Dr J Canning; Dr SH Law; Dr B Hodder

**Approved Project Title** **Interferometric Distributed Feedback Fibre Laser Sensors**

**2007 :** \$ 56,920

**2008 :** \$ 117,017

**2009 :** \$ 118,086

**2010 :** \$ 57,989

**Primary RFCD** 2917 COMMUNICATIONS TECHNOLOGIES

APA(I) Award(s): 1

#### **Collaborating/Partner Organisation(s)**

Thales Australia

**Administering Organisation** The University of Sydney

#### **Project Summary**

This project will solve important problems in realising next generation underwater optical fibre sensor systems for defence and marine exploration. OFTC's expertise in specialty optical fibre and devices will be combined with Thales' expertise in underwater sensor systems to give Australia a global lead. The benefits are commercial, national security and research standing. Domestic manufacture of a major optical system will assist maturation of the sector which is dominated by component companies. This system for underwater surveillance is obviously important to a country with a large coastline to defend. This project will build Australia's global reputation renowned for research excellence in fibre and fibre devices.

## Summary of Linkage Projects Proposals for Funding to Commence in 2007

**LP0776860** A/Prof VG Gomes; Mr AF Kirby

**Approved Project Title** **New dispersants for improved agrochemical and allied formulations**

**2007 :** \$ 53,869

**2008 :** \$ 110,773

**2009 :** \$ 117,023

**2010 :** \$ 60,119

**Primary RFCD** 2906 CHEMICAL ENGINEERING

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**

Huntsman Corporation Australia Pty Ltd

**Administering Organisation** The University of Sydney

**Project Summary**

This project will deliver substantial benefits for national regional communities and the environment through improved agrochemical dispersion, and reduced pesticide and water use. This project will deliver improved products for agrochemicals and animal food, bringing significant agricultural advantages to Australia. This will help Huntsman with cutting-edge technologies in manufacturing agrochemical and related products for the national and global markets. We will provide advanced training for postgraduate and research personnel that will be sought-after by the agrochemical and allied industries.

**LP0776254** Dr IR Johnson; Dr SM Robertson; Prof P Reimann; Asst Prof R Mostern

**Approved Project Title** **Rethinking timelines: a new methodology for describing and communicating history**

**2007 :** \$ 43,515

**2008 :** \$ 88,692

**2009 :** \$ 96,252

**2010 :** \$ 93,551

**2011 :** \$ 42,476

**Primary RFCD** 4301 HISTORICAL STUDIES

APA(I) Award(s): 2

**Collaborating/Partner Organisation(s)**

Macquarie Library P/L

Australian National Maritime Museum

**Administering Organisation** The University of Sydney

**Project Summary**

The project will lead to better ways of understanding historical events in context through active engagement of learners in the construction of timeline visualisations. It will contribute to the development of better strategies for collaborative content creation and quality control in web-based community resources, and facilitate creation of significant online collaborative databases by communities of interest, without the technical requirements and costs of one-off programming. It will add value to Australian online resources such as MacquarieNet, contribute to new methods of information visualisation in Australian museums and visitor centres, and generate national and international consultancies for the project partners.

## Summary of Linkage Projects Proposals for Funding to Commence in 2007

**LP0776649** A/Prof CA Lumby; Prof EC Probyn; Ms KM Albury; Dr CW Evers

**Approved Project Title** **Peer Based Mentoring in Sport: Strategies for Best Practice**

**2007 :** \$ 38,524

**2008 :** \$ 77,049

**2009 :** \$ 77,049

**2010 :** \$ 38,524

**Primary RFCD** 4203 CULTURAL STUDIES

APDI Ms KM Albury

**Collaborating/Partner Organisation(s)**

National Rugby League

NSW Rape Crisis Centre

**Administering Organisation** The University of Sydney

**Project Summary**

Federal and state governments and agencies have acknowledged the need to increase participation in sport. This project will support this important aim because it will generate empirical data about the value and best practice design of mentoring programs in elite and community or school based sport. Such programs are designed to ensure that sport is a forum for promoting positive social behaviours on and off the field and to increase participation in sport by reducing any negative behaviours associated with sporting cultures.

**LP0776843** A/Prof AJ Martin; Dr JM Bobis; Dr JA Anderson; Dr JA Way; Mr A Fraser

**Approved Project Title** **Middle Years Transition, Engagement and Achievement in Mathematics - The MYTEAM Project**

**2007 :** \$ 22,000

**2008 :** \$ 43,500

**2009 :** \$ 46,000

**2010 :** \$ 24,500

**Primary RFCD** 3302 CURRICULUM STUDIES

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**

Catholic Education Office, Sydney

**Administering Organisation** The University of Sydney

**Project Summary**

It is a Commonwealth policy objective that all students attain essential numeracy skills. In reality, 30% of 15 year olds do not attain these skills. Alongside this are declining enrolments in mathematics, a trend away from advanced mathematics courses, and an emerging 'skills shortage' in mathematics-related pathways. The MYTEAM project provides new solutions to national problems associated with disengagement, under-participation and underperformance in mathematics and empowers more individuals to aspire to and realise mathematics-related employment opportunities. Addressing such a shortfall in the labour market will have a positive impact on the future economy, the nation's social well-being, and individuals' pathways beyond school.

## Summary of Linkage Projects Proposals for Funding to Commence in 2007

**LP0776813** Prof DR McKenzie; Dr NL James

**Approved Project Title** **Hermetic bonding of biomedical polymers for cardiac-assist devices**

**2007 :** \$ 80,000

**2008 :** \$ 165,000

**2009 :** \$ 170,000

**2010 :** \$ 85,000

**Primary RFCD** 2915 BIOMEDICAL ENGINEERING

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**

Ventracor Ltd

Raymax Applications Pty Ltd

**Administering Organisation** The University of Sydney

**Project Summary**

The use of a polymeric ventricular assist device will bring a much better quality of life to patients with end-stage heart failure. The project will address the remaining challenge, the creation of a hermetic polymer seal, enabling the development of a small, light and highly efficient heart pump. The project has the potential to improve the lives of many Australians as our demographic profile shifts towards older people. Patients with advanced heart failure will live longer, with a higher quality of life. It will assist heart failure sufferers to remain productive members of our community, because many people who use the device will be fit to return to work.

**LP0776802** A/Prof C O'Neill

**Approved Project Title** **Development of a non-invasive diagnostic test of Embryo Viability**

**2007 :** \$ 20,000

**2008 :** \$ 40,000

**2009 :** \$ 40,000

**2010 :** \$ 20,000

**Primary RFCD** 3203 MEDICAL BIOCHEMISTRY AND CLINICAL CHEMISTRY

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**

COOK Australia Pty Ltd

**Administering Organisation** The University of Sydney

**Project Summary**

A successful outcome will:

- . improve the cost effectiveness of assisted reproductive technologies resulting in reduced health care costs and allowing greater use of ART in animal production
- . by greater cost-effectiveness, facilitate greater access to these advanced technologies in less well developed economies
- . build the national capacity in development and validation of biotech diagnostics
- . build collaborative relationship between the CI, University of Sydney and a leading industry partner (Cook Australia)
- . lead to significant new fundamental knowledge in embryology that will be of major International significance

## Summary of Linkage Projects Proposals for Funding to Commence in 2007

**LP0776938** A/Prof AJ Ruys; Dr Q Li; Dr W Li; Dr P Carter; A/Prof SK Warfield

**Approved Project Title** Cochlear Implants: Identifying Current Paths through Computational Modelling of MRI Data

**2007 :** \$ 19,555

**2008 :** \$ 35,364

**2009 :** \$ 31,618

**2010 :** \$ 15,809

**Primary RFCD** 2915 BIOMEDICAL ENGINEERING

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**

Cochlear Ltd.

**Administering Organisation** The University of Sydney

**Project Summary**

The Cochlear implant is an Australian invention (first prototype 1978), leading to the formation of Cochlear Ltd. to commercialise it. Cochlear Ltd. has now delivered implants to over 60,000 people in 70 nations across the world. Copycat companies have arisen overseas, but Cochlear Ltd. remains the market leader, due to their commitment to ongoing R&D. The present project involves magnetic resonance imaging and finite element analysis to study the current leakage pathways in the cranial cavity for the purpose of optimizing the design and placement of the return electrode. The obvious benefit of this is longer battery life. Better understanding of current leakage over other intracranial nerves is the other anticipated benefit.

**LP0776647** Prof R Shine

**Approved Project Title** Understanding and reversing the habitat shifts that have endangered the broad-headed snake

**2007 :** \$ 91,530

**2008 :** \$ 182,530

**2009 :** \$ 187,000

**2010 :** \$ 204,000

**2011 :** \$ 108,000

**Primary RFCD** 2707 ECOLOGY AND EVOLUTION

**Collaborating/Partner Organisation(s)**

NSW Dept Environment & Conservation

Australian Reptile Park

Zoos Victoria

Forests NSW

**Administering Organisation** The University of Sydney

**Project Summary**

Extinction rates for vertebrate species are higher in southern Australia than almost anywhere else in the world, and saving endangered taxa is critical to biodiversity conservation. To do this effectively, researchers need to understand the processes that threaten wild populations, and to develop novel solutions to those problems in close collaboration with wildlife management authorities and other stakeholders. This project will build such an understanding and collaboration, focusing on an endangered snake species. We propose ambitious landscape-scale field experiments that will simultaneously test hypotheses on threatening processes, and restore habitat quality to reverse population declines.

## Summary of Linkage Projects Proposals for Funding to Commence in 2007

**LP0776308** Prof MR Stevenson; Prof R Norton; Dr R Ivers; Prof RR Grunstein; A/Prof AM Williamson; Prof NL Haworth; Dr L Meuleners

**Approved Project Title** **Safety in the Heavy Vehicle Industry: A Collaborative Response**

**2007 :** \$ 67,155

**2008 :** \$ 134,310

**2009 :** \$ 149,310

**2010 :** \$ 82,155

**Primary RFCD** 3504 TRANSPORTATION

APA(I) Award(s): 1

### **Collaborating/Partner Organisation(s)**

National Transport Corporation

Australian Transport Safety Bureau

Queensland Transport

DiagnoseIT Pty Ltd

NSW Police Traffic Services

**Administering Organisation** The University of Sydney

### **Project Summary**

The management and regulation of heavy vehicles, particularly in relation to safety, is recognised as an urgent issue at all levels of government across Australia. In the absence of research that identifies the key determinants of heavy vehicle crashes, countermeasures will continue to be based on anecdote. The proposed study will determine the role key risk factors, namely scheduling and sleep-related factors, play in heavy vehicle crashes and will identify cost-effective strategies to reduce the growing economic burden associated with these crashes.

**LP0776672** Dr M Sunde; Dr AH Kwan; Dr JP Mackay

**Approved Project Title** **Manipulating the self-assembly properties of fungal hydrophobin proteins for the design of novel biological polymers.**

**2007 :** \$ 22,500

**2008 :** \$ 40,000

**2009 :** \$ 32,500

**2010 :** \$ 15,000

**Primary RFCD** 2505 MACROMOLECULAR CHEMISTRY

APA(I) Award(s): 1

### **Collaborating/Partner Organisation(s)**

BASF Aktiengesellschaft

**Administering Organisation** The University of Sydney

### **Project Summary**

Hydrophobin-based products will be novel biocompatible and biodegradable products with applications in the fields of medical implants, biosensors, detergents, coatings and pharmaceutical and industrial emulsions. They have the potential to directly improve the lives of all Australians and to be of benefit to the Australian economy and environment. This collaborative research project will enable Australian scientists to gain from working with a multinational company and to acquire skills in the rapidly expanding fields of structural and molecular biology. The University of Sydney will own any intellectual property arising from this work and will benefit from the commercialisation of hydrophobin-based products.

## Summary of Linkage Projects Proposals for Funding to Commence in 2007

**LP0776994** Prof RM Trethowan  
**Approved Project Title** **Improved Indian Mustard for sustainable biodiesel production**  
**2007 :** \$ 20,000  
**2008 :** \$ 40,000  
**2009 :** \$ 40,000  
**2010 :** \$ 20,000  
**Primary RFCD** 3002 CROP AND PASTURE PRODUCTION

### Collaborating/Partner Organisation(s)

AACT

**Administering Organisation** The University of Sydney

### Project Summary

There is an urgent need to reduce Australia's dependency on fossil fuels and to improve the sustainability of the Australian farming sector. The on-farm production of biodiesel will reduce farm input costs, reduce farmer dependency on fluctuations in fossil fuel costs and reduce greenhouse gas emissions. Indian mustard is drought tolerant and produces inedible oil suitable for biodiesel production. The genetic improvement of Indian mustard will provide farmers with a viable crop for biodiesel production and its bio-fumigation properties make it an effective addition to the crop rotation. Useful by-products include a natural insecticide and, once the glucosinolates are removed, meal suitable for animal feed.

**LP0777027** Dr X Wang; A/Prof M Fulham  
**Approved Project Title** **Automated 3-Dimensional Biomedical Registration for Whole-body Images from Combined PET/CT Scanners**  
**2007 :** \$ 13,813  
**2008 :** \$ 27,627  
**2009 :** \$ 27,627  
**2010 :** \$ 13,813  
**Primary RFCD** 2801 INFORMATION SYSTEMS

APA(I) Award(s): 1

### Collaborating/Partner Organisation(s)

Royal Prince Alfred Hospital

**Administering Organisation** The University of Sydney

### Project Summary

This project will aid rapid assimilation of very large medical imaging datasets from different imaging devices, and will have clinical applications in diagnosis and treatment and improve patient care. The research, when extended to protein registration, will facilitate analysis of DNA and advance research in bioinformatics and biotechnology. The research could also be used for target recognition, mosaic construction, content-based retrieval, in remote sensing and multimedia. Benefits to Australia include the provision of a readily adaptable image registration program for patient care (e.g., early detection of cancers, dementia), cutting-edge research, high-quality training for students, and encouraging international research collaboration.

## Summary of Linkage Projects Proposals for Funding to Commence in 2007

**LP0776892** Dr PM Young; A/Prof H Chan; Dr D Traini; A/Prof DF Fletcher

**Approved Project Title** **Engineering a delivery device and development of a novel formulation for chronic obstructive pulmonary disease and cystic fibrosis**

**2007 :** \$ 70,000

**2008 :** \$ 118,500

**2009 :** \$ 96,500

**2010 :** \$ 48,000

**Primary RFCD** 3205 PHARMACOLOGY AND PHARMACEUTICAL SCIENCES

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**

Pharmaxis

**Administering Organisation** The University of Sydney

### **Project Summary**

This project will position Australia to become one of the world leaders in the treatment of chronic obstructive pulmonary disease (COPD), cystic fibrosis (CF) and other chronic respiratory diseases. The financial burdens of COPD and CF come to at least \$900 million a year in Australia alone. These diseases have significant impact on patients and the health system through regular clinical visits, hospitalisation and employment downtime. The global market for the treatment of COPD is currently more than \$8 billion and is expected to increase substantially. The positioning of an Australian pharmaceutical company at the forefront of COPD/CF treatment will have significant national benefits for patients, the health system, and research infrastructure in the field.