

Summary of Linkage Projects Applications for Funding to Commence in 2006

New South Wales

The University of Sydney

LP0669619 Ms KM Albury; Mr CW Evers; A/Prof CA Lumby

Approved Project Title **Safer Sex Beliefs and Practices in Multi-Partner Heterosexuals**

2006 : \$11,119

2007 : \$20,971

2008 : \$9,852

Primary RFCD 4203 CULTURAL STUDIES

Partner Organisation(s)

FPA Health NSW

Administering Institution The University of Sydney

Project Summary

Recent Australian research has indicated that heterosexuals with multiple or concurrent partners require targeted safer sex messages, and sexual health promotion resources. This is the first Australian study to address these groups, gaining community input into resource development. It is also the first local qualitative study to examine the attitudes, beliefs and safer sex practices of non-lesbian women seeking same-sex partners. The information gathered will assist researchers and educators nationally. Identification of media networks will also aid service provision in rural or regional areas.

LP0669572 Dr J Atai

Approved Project Title **A Novel Optical Network Security and Encryption Device**

2006 : \$18,000

2007 : \$33,000

2008 : \$31,500

2009 : \$16,500

Primary RFCD 2805 DATA FORMAT

APA(I) Award(s): 1

Partner Organisation(s)

Soliton Network Consulting

Administering Institution The University of Sydney

Project Summary

The project falls within two of the designated National Research Priorities, namely Frontier Technologies for Building and Transforming Australian Industries and Safeguarding Australia. The project will generate high quality graduates and will result in a novel photonic device. The outcome of this project would be an optical encryption device that will safeguard Australia through superior secure data communications. It will also create lucrative opportunity for expanding the export capabilities of Australian ICT industry.

LP0669210 Dr SA Balandin; Prof GM Llewellyn

Approved Project Title **The transition of care from ageing parents: achieving flexible relationships between adults with cerebral palsy, their siblings and service providers**

2006 : \$12,604

2007 : \$25,243

2008 : \$25,458

2009 : \$12,819

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Spastic Centre

Administering Institution The University of Sydney

Project Summary

The Australian community faces a significant challenge in providing life-long care for people with severe disability. We will develop a model that will assist families and service providers to make a smooth, effective transition of care and/or responsibility of adults with cerebral palsy from parents to siblings. Achieving this will increase the quality of life for disabled and nondisabled family members, and ensure a more efficient use of public funding. Our findings will serve as a model for managing the life-long care of people with cerebral palsy and other severe, chronic disabilities, throughout Australia and overseas.

Summary of Linkage Projects Applications for Funding to Commence in 2006

LP0669783 A/Prof GW Barton; Dr DR Ryan; Mr G Black

Approved Project Title **Electrocoagulation as a low-cost option for the continuous treatment of highly polluted wastewater**

2006 : \$21,371

2007 : \$41,009

2008 : \$37,213

2009 : \$17,575

Primary RFCD 2906 CHEMICAL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

AB Mauri Ltd

Administering Institution The University of Sydney

Project Summary

Water is a critically important 'raw material' with less than 0.01% of Earth's total supply being readily available. 'Once through' utilisation of this resource is no longer an acceptable industrial practise. Recycling/reuse of industrial wastewater must become the norm with economic pollutant recovery being seen as integral to the solution. The food/beverage industries are major water users. Detailed scoping work in 2005 has identified electrocoagulation as a technically simple and economically viable option for this industry sector. Our industry partner is part of a global multi-national corporation within which successful wastewater treatment technology will be rapidly exploited and exported.

LP0669137 Dr AF Clarke; Dr JP Philp; Dr R- Torrence

Approved Project Title **Producers and Collectors: Uncovering the Role of Indigenous Agency in the Formation of Museum Collections**

2006 : \$17,325

2007 : \$34,650

2008 : \$34,650

2009 : \$17,325

Primary RFCD 4003 CURATORIAL STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Australian Museum

Administering Institution The University of Sydney

Project Summary

The research will make a significant contribution to Australian and world scholarship, show the innovation and leadership of Australian scholars in the study of museum collections, and promote goodwill and better diplomacy with Australia's nearest neighbours in PNG. Through examining the history of social relations between Papua New Guineans and 'outsiders' in a region that has long been the focus of Australian interests, the project will contribute to the National Priority 'Understanding our region and the world'. By unlocking information about the origin and history of ethnographic collections from Australia's oldest museum, their cultural significance will be shared more widely.

LP0669394 Prof D Feng; Dr Z Wang; Dr M Takatsuka; Dr S Li

Approved Project Title **Semantic Image Access with Intelligent User Interaction**

2006 : \$70,000

2007 : \$135,000

2008 : \$125,000

2009 : \$60,000

Primary RFCD 2801 INFORMATION SYSTEMS

Partner Organisation(s)

Microsoft Australia Pty Ltd

Administering Institution The University of Sydney

Project Summary

Collaborating with the world class Microsoft Research lab on this project will put Australia in the leading position in the field of visual information access, foster new applications to enhance and accelerate visually enabled e-Research, and strengthen Australian ICT. This project will achieve significant advances in image access ranging from the personal level to the professional level, which will power Microsoft search technologies and bring enormous economic benefits to Australia. The advances will encourage Australians to widely use visual information. The benefits of this project can also reach the area of Safeguarding Australia by intelligently and automatically collecting and analyzing massive images.

Summary of Linkage Projects Applications for Funding to Commence in 2006

LP0669785 Prof J Götz

Approved Project Title **Pathogenesis of Alzheimer's disease: Dissecting synaptosomal dysfunction in transgenic animal models**

2006 : \$40,000

2007 : \$80,000

2008 : \$40,000

Primary RFCD 2701 BIOCHEMISTRY AND CELL BIOLOGY

Partner Organisation(s)

Hoffmann-LaRoche

Administering Institution The University of Sydney

Project Summary

There is no cure for Alzheimer's disease (AD). This project will dissect pathogenic mechanisms, identify new drug targets, and develop treatment strategies, all of which will be patented and eventually lead to a decrease in health costs in Australia. This research clearly falls under the national research priority of promoting and maintaining good health. Our findings are expected to benefit patients in addition to those suffering from AD, as pathocascades and pathogenic mechanisms are shared between a range of neurodegenerative disorders.

LP0669658 Dr JM Guss; Dr CA Collyer; Dr IA McDonald

Approved Project Title **Structure-based inhibitor design of VAP-1/SSAO for the treatment of respiratory disorders and other major inflammatory diseases**

2006 : \$45,000

2007 : \$90,000

2008 : \$100,000

2009 : \$55,000

Primary RFCD 3203 MEDICAL BIOCHEMISTRY AND CLINICAL CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

Pharmaxis Ltd

Administering Institution The University of Sydney

Project Summary

Inflammatory diseases, such as asthma, rheumatoid arthritis and multiple sclerosis, are widespread and often poorly treated in Australia and elsewhere. Inhibitors of the recently studied VAP-1/SSAO protein are predicted to effectively treat the inflammation symptoms of one or more of these diseases. A structure-based approach to discover these new medicines should provide a means to identify patentable compounds, with high potency, efficacy and safety. If this approach is successful, an Australian pharmaceutical company will be one of the first to the market with this new medicine to treat these chronic diseases.

LP0669261 Dr DS Jarvis; Dr T O'Callaghan

Approved Project Title **Assessing the Role of Political and Regulatory Risks for Foreign Investors: A Multi-Country Study of Four Industry Sectors**

2006 : \$60,000

2007 : \$122,500

2008 : \$102,500

2009 : \$50,000

2010 : \$10,000

Primary RFCD 3601 POLITICAL SCIENCE

Partner Organisation(s)

Nomura Australia Limited

Gold Fields Australasia

South Australian Chamber of Mines and Energy

Administering Institution The University of Sydney

Project Summary

This project will benefit Australian enterprise engaged in investment activities in Asia by providing them with the necessary methodological and analytical systems to identify, measure and assess political and regulatory risks to their investment interests. By doing so, the project will increase the investment transparency of Asia's emerging economies and thus the ability of Australian enterprise to operate efficiently in institutionally complex and competitive offshore environments. This will benefit Australia's economy by strengthening Australia's national economic security and the safety of Australia's national

Summary of Linkage Projects Applications for Funding to Commence in 2006

savings invested in the region.

LP0668979 Dr DS Jeng; Dr A Vila Concejo; Prof AD Short; Dr MG Hughes; Dr RJ Ranasinghe

Approved Project Title **Port Stephens Flood Tide Delta: Shoreline Management Issues**

2006 : \$61,820

2007 : \$123,640

2008 : \$123,640

2009 : \$61,820

Primary RFCD 2912 MARITIME ENGINEERING

APA(I) Award(s): 2

APDI Dr A Vila Concejo

Partner Organisation(s)

NSW Department of Natural Resources

Great Lake Council

Post Stephens Council

DHI Water & Environment Pty Ltd

Jimmys Beach Association

Administering Institution The University of Sydney

Project Summary

The results of this project will contribute substantially to the knowledge of flood tide delta morphodynamics and specifically to those deltas exposed to ocean waves which are most typical throughout eastern and southern Australia. The model generated by the project will be used to test solutions to the problems in Port Stephens and more generally to similar systems elsewhere in Australia. The model will permit the assessment of the responses of the deltas and shoreline to climate change, changing wave climate and reinvigorated sediment budgets, thereby addressing National Research priority-Responding to climate change and variability. The project will provide training for one APDI and two APAs in a range of skills.

LP0669336 Prof Dr T Maschmeyer; Prof BS Haynes

Approved Project Title **Supercritical Highly-Integrated and Modular, Continuous Solid-Catalysed Biodiesel Production from Plant and Animal Feedstocks**

2006 : \$77,500

2007 : \$190,000

2008 : \$225,000

2009 : \$112,500

Primary RFCD 2906 CHEMICAL ENGINEERING

Partner Organisation(s)

Australian Biodiesel Group

Administering Institution The University of Sydney

Project Summary

We propose to revolutionise biodiesel production by creating a new reactor type and associated process that allows the production of 160,000 tonnes of biodiesel a year in a supercritical reactor volume of one cubic metre after scale-up. In this project, we propose to design the appropriate catalysts and pilot plant to study our ideas which should lead to a highly efficient and sustainable system that offers a real alternative to current mineral oil-based technologies.

LP0669908 Dr PD McGreevy; Dr AN Wilton

Approved Project Title **The Functional Significance of Motor Laterality**

2006 : \$12,325

2007 : \$24,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 3004 ANIMAL PRODUCTION

APA(I) Award(s): 1

Partner Organisation(s)

Guide Dogs NSW/ACT

NSW Police Service - State Protection Group - DOG UNIT

Administering Institution The University of Sydney

Summary of Linkage Projects Applications for Funding to Commence in 2006

Project Summary

Just as humans are left- or right-handed, dogs are left-and right-pawed and, most importantly, left-pawed individuals tend towards innate fearfulness. Using dogs as a model, this project will explore lateralisation in general.

Guide dogs and police dogs are required to work only on one side of their handlers. This convention is likely to affect the work of individual dogs. This project will examine the extent to which pawedness predicts success in working dog training. It has the potential to reduce wastage that comes from recruitment of unsuitable dogs and will also improve our understanding of family pets.

LP0668879 Dr AJ Munn; Prof CR Dickman; A/Prof MB Thompson

Approved Project Title **Avoiding Environmental Bankruptcy: the grazing impacts of red kangaroos and sheep**

2006 : \$50,000
2007 : \$92,500
2008 : \$79,670
2009 : \$37,170

Primary RFCD 2707 ECOLOGY AND EVOLUTION
APDI Dr AJ Munn

Partner Organisation(s)

Department of Environment and Conservation NSW
Department of Environment and Heritage SA
Department of Conservation and Land Management WA
Department of Primary Industries NSW

Administering Institution The University of Sydney

Project Summary

Overgrazing is one of the most serious environmental and economic problems in Australia. By mitigating overgrazing, our project has three major benefits. Firstly, quantification of the foraging requirements for free-ranging sheep and kangaroos will, for the first time, allow us to identify sustainable practices that prevent overgrazing and contribute to significant land recovery. Secondly, a new mechanistic model for predicting herbivore dynamics will allow us to evaluate potential impacts of climate change on future grazing pressures. Thirdly, our results will inform management plans to sustain Australia's arid rangelands as productive, bio-diverse environments, which currently provide economic returns in excess of \$20 billion p.a.

LP0669286 A/Prof BP Oldroyd

Approved Project Title **Marker assisted selection of honey bees**

2006 : \$17,500
2007 : \$32,500
2008 : \$35,000
2009 : \$20,000

Primary RFCD 3004 ANIMAL PRODUCTION
APA(I) Award(s): 1

Partner Organisation(s)

Australian Queen Bee Breeding Group

Administering Institution The University of Sydney

Project Summary

The project will develop new molecular markers for commercially relevant trait of honey bees and ways of using these to implement marker-assisted selection for honey bee genetic improvement. Beekeepers need to use genetically improved stock to remain competitive. Honey production needs to be improved, and new ways of identifying disease resistant bees are needed. Unfortunately, breeding bees is very difficult. This project will use modern molecular genetic techniques to help find new efficient ways to breed better bees. The benefits will be a more viable beekeeping sector, a keystone industry that provides pollination services essential to many horticultural industries

LP0669685 Dr U Roehm

Approved Project Title **Implementing Bioinformatics Algorithms using .NET-based Stored Procedures in a Database Cluster**

2006 : \$13,325
2007 : \$25,650
2008 : \$24,650
2009 : \$12,325

Summary of Linkage Projects Applications for Funding to Commence in 2006

Primary RFCD 2801 INFORMATION SYSTEMS
APA(I) Award(s): 1

Partner Organisation(s)

Microsoft Research

Administering Institution The University of Sydney

Project Summary

We will create the technology for significantly improving the management, processing and sharing of biological data. Areas in which Australia has a large stake, including the development of new drugs, disease research, and agricultural genetic engineering, stand to benefit considerably from these advances. This contribution by Australian researchers to a global problem will have a positive impact on our own health industry, and will provide the foundation for improvements in agriculture and financial services.

LP0669653 Prof PN Sambrook

Approved Project Title **Genetics of Postmenopausal Bone Loss**

2006 : \$20,921

2007 : \$45,112

2008 : \$24,191

Primary RFCD 2702 GENETICS

Partner Organisation(s)

Lincoln Centre

Roche Pharmaceuticals

Administering Institution The University of Sydney

Project Summary

The major consequence of bone loss in our ageing society is fracture. At 50 years for women, the lifetime risk of sustaining an osteoporotic fracture is 50%. The consequences of these fractures, which can include reduced life expectancy, prolonged medical care, and loss of independence, have a profound socioeconomic impact in an ageing population. The proposed study offers a unique opportunity to examine the contribution of genetic factors to postmenopausal osteoporosis.

LP0669266 Dr E Schonstein; A/Prof ID Cameron; Dr U Bultmann

Approved Project Title **Collaborative approaches to the prevention of work related injuries in railway workers**

2006 : \$60,000

2007 : \$110,000

2008 : \$100,000

2009 : \$50,000

Primary RFCD 3210 CLINICAL SCIENCES
APDI Dr E Schonstein

Partner Organisation(s)

RailCorp

Administering Institution The University of Sydney

Project Summary

RailCorp NSW is a large employer within the NSW transport industry sector and as such has a high potential exposure to occupational injury. RailCorp has committed to the safety of its employees through its efforts towards a systematic identification of injury risk factors to create a safer workplace as well as creating a 'risk aware safety culture'. Interventions which are effective in reducing the incidence and severity of work related injuries have not only immediate benefits both in terms of human (workforce retention, job satisfaction, job performance, etc) and financial factors for RailCorp management and its employees but has wider applications to other comparable complex high risk industries.

LP0669080 Prof SJ Simpson; Dr GA Sword; Mr L McCulloch; Ms M Chapuis; Dr MJ Steinbauer

Approved Project Title **Australian plague locust population genetics and migratory behaviour**

2006 : \$80,000

2007 : \$137,000

2008 : \$119,500

2009 : \$62,500

Primary RFCD 2702 GENETICS
APA(I) Award(s): 1

Summary of Linkage Projects Applications for Funding to Commence in 2006

APDI

Ms M Chapuis

Partner Organisation(s)

Department of Agriculture, Fisheries & Forestry

Administering Institution The University of Sydney

Project Summary

The project will allow improved monitoring and forecasting of locusts in Australia and thereby help prevent locust outbreaks. Benefits will arise directly through greater effectiveness in reducing locust damage to crops, and indirectly to Australian rural industry generally through the economic benefits of reduced losses and locust control costs. Environmental and social benefits will also arise from reduced, better targeted use of chemical insecticides. This in turn can produce secondary economic benefits, e.g. through enhanced growth and profitability of the organic beef industry within the main locust-outbreak area.

LP0669329 Prof GG Warr; Dr BS Hawkett; Prof RI Tanner; Dr J Gore

Approved Project Title **Bubble Stabilization and Density Control in Self-Supporting Explosive Emulsions**

2006 : \$82,500

2007 : \$165,000

2008 : \$187,500

2009 : \$105,000

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Partner Organisation(s)

Dyno Nobel (Asia Pacific) Ltd

Administering Institution The University of Sydney

Project Summary

The mining industry in Australia employs about 70,000 people and has a total sales and service income of about \$55B. Most mining outputs are commodities and a reduction in cost is the primary method of increasing market share. DNAP is a major supplier of explosive services to mines that produce coal, iron ore and gold for export. The work in this project will lead to more efficient explosives emulsions and allow mining to lower total cost per unit sold. Such improvements in mining efficiencies will have a direct impact of the selling price of the product. Increased export earnings and a greater number of people employed in the industry would be direct results of the successful completion of the work proposed.

LP0668895 Prof EA Webby; Dr CM Cole

Approved Project Title **Australian Poetry: Production, Distribution and Reception**

2006 : \$114,600

2007 : \$195,720

2008 : \$176,610

2009 : \$95,489

Primary RFCD 4202 LITERATURE STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Copyright Agency Limited

Administering Institution The University of Sydney

Project Summary

This project will promote a greater appreciation and understanding of Australian poetry by providing electronic access to a wide and reliable range of poetic texts as well as to extensive critical and other material relating to them. It will encourage teachers to use more Australian material in their English classes as well as making Australian poetry much more available to readers in remote and regional areas and overseas. It will also help Australian poets by increasing awareness of their work; involvement of the collaborating organisation CAL will ensure that writers receive payment for use of copyright material.

LP0669552 Prof RE Wood; Dr JF Beckmann; Dr DP Birney; Dr S Gary; Dr N Beckmann; Mr DB Bowman

Approved Project Title **Flexible Expertise in Senior Executives**

2006 : \$325,000

2007 : \$467,164

2008 : \$452,283

2009 : \$475,635

Summary of Linkage Projects Applications for Funding to Commence in 2006

2010 : \$265,517
2011 : \$100,000
Primary RFCD 3801 PSYCHOLOGY
APA(I) Award(s): 3
APDI Dr N Beckmann
APDI Mr DB Bowman

Partner Organisation(s)

Macquarie Bank
Brambles
Booz Allen Hamilton
Qantas
IAG Insurance Australia Group
Egon Zehnder International
ANZ Australia and New Zealand Banking Group

Administering Institution The University of Sydney

Project Summary

The prosperity of Australian society requires effective management in the face of accelerating economic, technological, social, and environmental changes. Leaders of Australian organizations must display flexibility in responding to the increasingly fluid and complex problems that confront them if they are to succeed in the global economy. An innovative model of flexible expertise that links synergisms of knowledge, self-regulatory processes, transfer and learning will be developed in studies of managers from leading Australian organizations. The results will be used to inform programs to accelerate the development of flexible expertise and leadership skills and address the current lack of human capital to fill executive leadership roles.

LP0669848 Prof L Zhang

Approved Project Title **Novel Cutting Picks for Mining Industry and an Australian Standard**

2006 : \$45,000
2007 : \$95,000
2008 : \$105,000
2009 : \$55,000
Primary RFCD 2907 RESOURCES ENGINEERING
APA(I) Award(s): 1

Partner Organisation(s)

Age Mining Services Pty Ltd

Administering Institution The University of Sydney

Project Summary

This research will enable the development of highly efficient and robust mining picks and establish the methodology and techniques for setting up an Australian standard for mining picks which does not exist at present but is imperatively needed by the mining industry. The novel technology will provide effective solutions to improving mine environment and safety, and reducing nation's power consumption, green house gas emission, and environmental pollution. These will in turn reduce the probability of black lung which has been the biggest killer of underground workers in mines.