

Queensland

Griffith University

DP0987045 A/Prof SR Burrows

Approved Project Title **Noncanonical epitope recognition by CD8+ T lymphocytes**

2009 : \$ 171,000

2010 : \$ 160,000

2011 : \$ 118,000

Primary RFCD 2703 MICROBIOLOGY

Administering Organisation Griffith University

Project Summary

This proposed research program will provide significant fundamental insight in the areas of immunology and vaccine design. Vaccines for many diseases remain elusive, and this project aims to improve our understanding of the precise regions within pathogens that are the targets for the killer T cells of the immune system. These regions, called epitopes, are likely to be key ingredients in many future vaccines. Although immunologists have gathered much information about such epitopes, recent studies have shown that some unexpected regions of pathogens are targets for killer T cells. This project will break new ground by utilising unbiased procedures to assess the relative contribution of these noncanonical epitopes to immunity.

DP0984863 Mr EG Cavalcanti

Approved Project Title **Quantum steering, nonlocality and foundations**

2009 : \$ 90,000

2010 : \$ 85,000

2011 : \$ 85,000

Primary RFCD 2402 THEORETICAL AND CONDENSED MATTER PHYSICS

APD Mr EG Cavalcanti

Administering Organisation Griffith University

Project Summary

This project aims at answering foundational questions that will help further our understanding of quantum mechanics---a scientific discipline with proven track record of technological output of great impact in modern society and a huge potential for future developments such as quantum computation and communication. There is a global trend towards interest in quantum foundations, and Australia is already a world leader in the closely related fields of quantum information and quantum-atom optics. Funding of this project will help strengthen and consolidate Australia's position as a world leader in the foundations of quantum mechanics.

DP0988473 Prof LI Chenoweth; Dr D McAuliffe; Dr B O'Connor; Dr PD Jervis-Tracey; Prof DA Stehlik

Approved Project Title **Managing tensions in professional statutory practice: Living and working in rural and remote communities.**

2009 : \$ 40,000

2010 : \$ 50,000

2011 : \$ 45,000

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

Administering Organisation Griffith University

Project Summary

Delivering essential health, education and human services in rural and remote communities remains a critical problem for Australia . When professionals have mandatory responsibilities (in child protection, law enforcement or mental health matters), tensions can arise between workers and the community in which they live. The study will offer solutions to the complex medical, legal and social issues that arise for different professional groups in the discharge of their duties. It will increase current knowledge about the nature of their roles and responsibilities in small communities, and about improving professional practice and retention, leading to improved service delivery and outcomes for individuals, families and communities.

Summary of Discovery Projects Proposals for Funding to Commence in 2009

DP0986795 Dr MJ Coster; A/Prof AV Biankin
Approved Project Title **Molecular probes for pancreatic cancer**
2009 : \$ 180,000
2010 : \$ 160,000
2011 : \$ 160,000
2012 : \$ 140,000
2013 : \$ 140,000
Primary RFCD 2503 ORGANIC CHEMISTRY
ARF Dr MJ Coster
Administering Organisation Griffith University

Project Summary

Cancer has overtaken heart disease as the main cause of premature death in Australia. Currently one in two men and one in three women are diagnosed with cancer during their lifetime. Pancreatic cancer is the fourth leading cause of cancer death in Australia, and the current lack of effective therapies results in a 1 year survival of just over 10%, and a 5 year survival of less than 5%. This project aims to identify and produce new compounds with novel mechanisms of action that will facilitate our understanding of pancreatic carcinogenesis and provide the basis for the development of new therapeutic strategies. Australians diagnosed with pancreatic cancer in the future may directly benefit from the results of this work.

DP0987051 Prof N Dempster; A/Prof AJ Lizzio; Dr JL Skinner; A/Prof DC Andrews; Dr MB Keeffe
Approved Project Title **Understanding adolescent leadership for civic engagement in secondary schools and community groups**
2009 : \$ 60,000
2010 : \$ 40,000
2011 : \$ 40,000
Primary RFCD 3301 EDUCATION STUDIES
Administering Organisation Griffith University

Project Summary

Using the 'research voice' of adolescents as an investigation technique, this project will develop new conceptual knowledge to inform youth-centric leadership interventions aimed at engaging young people in civic action in schools and community groups. The key benefit is the discovery of new understandings about youth leadership and its connection to enhanced civic engagement, both prerequisites for responsible citizenship in workplaces and the wider community.

DP0986294 Dr JA Ekberg
Approved Project Title **Understanding how the multiple roles of olfactory ensheathing cells guide the growth and regeneration of olfactory axons**
2009 : \$ 84,000
2010 : \$ 84,000
2011 : \$ 84,000
Primary RFCD 2701 BIOCHEMISTRY AND CELL BIOLOGY
APD Dr JA Ekberg
Administering Organisation Griffith University

Project Summary

The outcomes of this project will increase the understanding of how nerve cells develop and regenerate after injury. The research outcomes and the development of new innovative methodologies as part of the project will be of high significance for the neuroscience research community both within Australia and overseas. The findings will also pave the way for the development of novel therapies that promote neuronal regeneration relevant for disorders such as spinal cord injury and Alzheimer's disease, which constitute a large socio-economic burden in Australia. Currently, 400 people contract spinal cord injury every year, corresponding to an annual cost of \$1 billion, and more than 500 000 aging people suffer from Alzheimer's disease.

Summary of Discovery Projects Proposals for Funding to Commence in 2009

DP0984378 Prof RS Guest; Dr N Parr

Approved Project Title **An econometric analysis of the effects of family benefit policies on fertility, saving and labour force participation in Australia.**

2009 : \$ 50,000

2010 : \$ 30,000

2011 : \$ 25,000

Primary RFCD 3705 DEMOGRAPHY

Administering Organisation Griffith University

Project Summary

This project will help to 'strengthen Australia's economic fabric' by improving our understanding of the effect of family benefit policies on fertility, saving and labour force participation. This is important because boosting fertility and labour force participation are both seen as ways of mitigating the economic burden of population ageing, thereby helping Australia to 'age well, age productively' in a national sense. Also, achieving a desired level of national saving is a medium term goal of government economic policy. Hence it is important to understand the interaction of saving, fertility and labour force participation in order to develop compatible and effective economic policies.

DP0986201 Dr RA Hindmarsh

Approved Project Title **Meeting 2020 Targets: Effective Transitions for Renewable Energy & Beyond**

2009 : \$ 40,000

2010 : \$ 30,000

2011 : \$ 30,000

Primary RFCD 3602 POLICY AND ADMINISTRATION

Administering Organisation Griffith University

Project Summary

This research offers significant benefits in developing new transition approaches to address key socio-political challenges of climate change adaptation. It will provide fundamental knowledge on how Australian governments, businesses and civil society groups can improve windfarm planning procedures that meaningfully engage affected communities across Australia. It addresses 2 national research priorities in developing appropriate and adaptive responses for better utilising renewable energy, and supportive structures and processes for a culture of innovation. The project will also contribute useful resources for researchers/practitioners seeking community input from geographically dispersed populations, and a new e-democracy technique.

DP0984675 Prof RJ Homel

Approved Project Title **Finding the pathways to crime prevention for socially disadvantaged communities: theory, evidence and practice**

2009 : \$ 150,000

2010 : \$ 150,000

2011 : \$ 100,000

2012 : \$ 30,000

2013 : \$ 150,000

Primary RFCD 3904 LAW ENFORCEMENT

Administering Organisation Griffith University

Project Summary

Long-term scientific evaluations of interventions that 'get in early' before crime problems emerge or become entrenched have consistently shown that such approaches work. However, governments and community agencies struggle to use this evidence to mount effective programs in areas of concentrated disadvantage because the evidence comes in the form of 'program packages' rather than models of practice that take account of local contexts and the challenges involved in achieving effective and sustainable engagement with local people and institutions. This project will show how models of effective crime prevention practice for disadvantaged communities can be developed, tested and implemented on a large scale in an economically efficient way.

Summary of Discovery Projects Proposals for Funding to Commence in 2009

DP0985065 Prof J Kane; Prof H Patapan
Approved Project Title **Democrats at War: Democratic Leadership in an International Context**
2009 : \$ 60,000
2010 : \$ 40,000
2011 : \$ 50,000
Primary RFCD 3601 POLITICAL SCIENCE
Administering Organisation Griffith University

Project Summary

A more profound appreciation of what democracies can reasonably expect from their leaders in times of conflict will have significant benefits in both domestic and international arenas. In giving us greater clarity regarding what is, and is not, possible in democratic politics, especially in times of international instability, the study will provide insight into how democratic institutions and practices can be sustained and enhanced. Australia's interest in regional stability, and its consequent encouragement of greater democratisation in the Pacific area, will find support in research that helps leaders in transitional states better understand and adapt to their vital role.

DP0985987 Dr EM Marchetti; Prof K Daly; Dr J Huggins
Approved Project Title **Sentencing Indigenous offenders of partner violence: A fundamental comparative analysis of Indigenous sentencing courts and specialist family violence courts**
2009 : \$ 100,000
2010 : \$ 120,000
2011 : \$ 120,000
2012 : \$ 50,000
2013 : \$ 130,000
Primary RFCD 3903 JUSTICE AND LEGAL STUDIES
ARF Dr EM Marchetti
Administering Organisation Griffith University

Project Summary

Courts are often used for rehabilitating offenders, however, there is usually little thought and planning put into the development of court processes so that they can achieve their goals. Since specialist courts are being used to sentence Indigenous offenders of partner violence it is important to make the court experience more meaningful for such offenders so that a reduction of violence in Indigenous communities can begin to occur. The economic and social benefits of reducing violence have direct effects on the individuals affected, and wider, long-term effects on generating more harmonious and cohesive Indigenous families and communities.

DP0988602 Dr AS Mellick; Prof LR Griffiths
Approved Project Title **THE ROLE OF SMALL NON CODING RNAs IN BONE MARROW MEDIATED TUMOR ANGIOGENESIS**
2009 : \$ 127,000
Primary RFCD 2708 BIOTECHNOLOGY
Administering Organisation Griffith University

Project Summary

Despite advances in treatment and diagnosis cancer remains the leading underlying cause of deaths, representing about a third of all deaths each year in Australia (ABS stats. www.abs.gov.au). The ability to understand the process of tumour vascularisation and spread has enormous economic and social outcomes. Indeed, the most effective anti-angiogenic therapy developed to date Avastin (aka Bevacizumab), although providing only a modest survival advantage (4-6 months) has annual sales of several billion dollars. microRNA represent a relatively newly discovered form of gene activity regulation. Taking a key leadership role in this area will put Australian science at the forefront of international research initiatives.

Summary of Discovery Projects Proposals for Funding to Commence in 2009

DP0986240 Prof DR Peetz; Prof AJ Wilkinson; Dr KJ Townsend

Approved Project Title **Emerging Workplaces and Employment Relations Innovation**

2009 : \$ 132,000
2010 : \$ 151,000
2011 : \$ 126,000

Primary RFCD 3502 BUSINESS AND MANAGEMENT

Administering Organisation Griffith University

Project Summary

Studying emerging workplaces enables us to anticipate important trends and problems in the future of employment relations (ER). We will be able to better understand ER innovation and innovation culture. Emerging workplaces are focal for translating innovation into productive outcomes, but many emerging workplaces (particularly in new businesses) fail due to poor management. This project will provide practical guidance for raising their success rate. It will create important advances in a neglected area, enhancing the knowledge base of the field. It has implications for the social and economic fabric through better understanding of the impact of industrial legislation, of key interest to policy makers aiming to improve equity.

DP0986961 Dr R Pelizzo

Approved Project Title **International Organizations and Legislative Oversight: Improving Governance in Asia and the Pacific**

2009 : \$ 25,000
2010 : \$ 25,000
2011 : \$ 20,000

Primary RFCD 3601 POLITICAL SCIENCE

Administering Organisation Griffith University

Project Summary

This project will provide a better understanding of what makes legislative oversight of government effective. It will study the success of specific oversight bodies, such as Public Account Committees and Audit Offices, to determine whether their success depends on how they are institutionalised, or rather, on the ethical standards of the individuals who are expected to perform the oversight tasks. This project will contribute to the strengthening of what are currently regarded as fragile states and create the conditions for the further consolidation of their democratic systems and for sustainable socio-economic development in the Asia-Pacific region.

DP0986503 Dr GJ Pryde; Dr AC Doherty; Dr SD Bartlett; Prof HM Wiseman

Approved Project Title **Quantum limits in measurement and communication**

2009 : \$ 150,000
2010 : \$ 130,000
2011 : \$ 130,000

Primary RFCD 2404 OPTICAL PHYSICS

Administering Organisation Griffith University

Project Summary

By manipulating atoms and single particles of light, quantum technologies promise a revolution in communications systems and high-precision measurements for scientific and engineering applications. The benefits of this revolution may be comparable with those of modern semiconductors. This project will bring these benefits closer by achieving the fundamental limits to measurement allowed by quantum physics, and harnessing the power of these measurements for communication. It will also identify ways to simplify potential quantum technologies, hastening their adoption. This research will place Australian theoretical and experimental researchers at the forefront of 21st century technology.

Summary of Discovery Projects Proposals for Funding to Commence in 2009

DP0985738 Dr SE Trevaskes

Approved Project Title **Chinese firewalls: the death penalty and the people's war on drugs along China's borders**

2009 : \$ 140,000
2010 : \$ 122,000
2011 : \$ 140,000
2012 : \$ 118,000
2013 : \$ 118,000

Primary RFCD 3999 OTHER LAW, JUSTICE AND LAW ENFORCEMENT
QEII Dr SE Trevaskes

Administering Organisation Griffith University

Project Summary

Drug trafficking in and out of China is now a major concern for Australia and the region. Moreover, the transnational nature of trafficking crimes means that international cooperation in law enforcement is increasingly common. Understanding how Chinese agencies deal with serious drug crime is important for agencies such as the Australian Federal Police. In addition to this, Australia has established a bi-lateral human rights dialogue with China. Understanding how Chinese courts punish drug crime using the death penalty will enhance Australia's ability to engage with and respond to key issues in law and human rights in the region.

DP0988825 Prof H Zhao

Approved Project Title **Fabrication of High Performance Nanocomposite Photoanodes with Built-in Electron Transport Superhighway for Photoelectrocatalysis Applications**

2009 : \$ 115,000
2010 : \$ 115,000
2011 : \$ 115,000

Primary RFCD 2914 MATERIALS ENGINEERING

Administering Organisation Griffith University

Project Summary

Worldwide, huge fresh water shortage problems force us to recycle/reuse water. For Australia, this is an urgent issue due to our limited fresh water resources. In recent years, rapidly diminishing fossil fuel supplies and dramatically accelerated global warming gives society no alternative but adopt renewable, clean energies. Globally, there is a united front calling for action to address these problems. However, a practical solution to the issues can only be found when economically viable alternative technologies are developed. This project aims to tackle the biggest obstacle - the low sunlight conversion efficiency. The success of the project will result in economically viable water treatment and solar energy conversion technologies.