



THE HON NICOLA ROXON MP
Minister for Health and Ageing

MEDIA RELEASE

NHMRC 2010 Program Grant recipients

Professor Derek Hart, Mater Medical Research Institute Ltd (Qld), \$3.36m
The Translation of Dendritic Cell Biology into Clinical Practice

This Program combines world recognised expertise in the science of immunology and the blood system, with top Australian expertise in the practice of bone marrow transplantation and the treatment of hematological malignancies. Its vision is to study the biology of dendritic cells, which are the specialised white cells that initiate the immune response, and then to apply this knowledge to the design and introduction of novel diagnostic and therapeutic immune strategies, to improve the survival of patients with leukemia, lymphoma and multiple myeloma.

Professor Henry Krum, Monash University (Vic), \$5.39m
Prevention and Treatment of Chronic Heart and Kidney Disease via Epidemiological, Pharmacological Device and Cell-based Approaches

Heart failure describes where the heart cannot pump adequately to meet the needs of the body. This condition has a high mortality despite recent advances in therapy, therefore there is an urgent need for new approaches to this condition. The present grant aims to:

1. identify patients at high risk for future development of this condition where early intervention with drugs may reduce or prevent the development of new heart failure
2. use novel drugs, devices and stem cell therapies to identify ways to better treat patients with existing disease
3. focus on the effect of heart failure on the kidney and vice versa via early diagnosis and treatment strategies.

Professor Andrew Sinclair, Murdoch Childrens Research Institute (Vic), \$5m
Disorders of Human Sexual Development

Disorders of sexual development (DSDs) are surprisingly common and often result in infertility, genital abnormalities, gender mis-assignment and long-term psychological trauma. In this Program we will pool our expertise in human molecular genetics, mouse developmental biology and protein chemistry to identify genes important for sex determination and development of the gonads, and discover how they contribute to DSD, in order to improve clinical care to patients with DSD.

Professor Angel Lopez, Institute of Medical and Veterinary Science (SA), \$3.71m
Structural Biology of Cytokine Receptor Signalling

This Program will be focused on a group of protein hormones and their receptors implicated in blood cell cancers and inflammatory diseases and for which current treatments are inadequate. We will determine the mechanism of receptor activation and in particular will seek to link different forms of receptor assembly to different functions. This information will help us develop new drugs with more specificity for certain hormone functions and thus less side-effects.

Professor James Paton, University of Adelaide (SA), \$9.07m

Pathogenesis, Treatment and Prevention of Bacterial Infectious Diseases

Bacterial infectious diseases remain a serious threat to human health, accounting for over 10 million deaths each year. This is a broad-based collaborative proposal, building on our previous achievements. Its aim is to better understand the dynamic interactions between major disease-causing bacteria and their human hosts, and to directly apply this new knowledge to the development of improved vaccines and novel treatment strategies. These are urgently needed to combat bacterial infectious diseases in the 21st century.

Laureate Professor Peter Doherty, University of Melbourne (Vic), \$10.4m

Understanding and Controlling Influenza

While current influenza vaccines blunt winter epidemics, they must be updated frequently to keep up with virus mutation and they do not protect against pandemics caused by new flu viruses (such as bird flu). This program will define how flu virus interacts with the immune system to generate immunity mediated particularly by 'killer' T cells. We will use this knowledge to develop and evaluate vaccines that induce long-lasting T-cell immunity that can protect against both seasonal and pandemic flu.

Professor Richard Bryant, University of New South Wales (NSW), \$7.06m

Post-traumatic Mental Health: Advancing Understanding of Diagnosis, Treatment and Mechanisms

Psychological disorders following exposure to trauma account for a significant proportion of the burden of disease in terms of personal suffering, decreased productivity, occupational dysfunction and demands on health services. This project will enhance the nation's capacity to reduce psychological problems after trauma. It will consolidate a critical mass of Australia's leading trauma researchers, ensuring that Australia retains its leading edge in post-traumatic research.

Professor John Kaldor, University of New South Wales (NSW), \$9.1m

Sexually Transmitted Infections: Causes, Consequences and Interventions

Sexually transmitted infections are important causes of serious illness and death in Australia and overseas, with high or rising rates of treatable or preventable diseases in a number of populations. Particularly affected in Australia are young people, Aboriginal and Torres Strait

Islander communities and homosexual men. We will bring together a new team of researchers to discover new information about how to prevent and manage these infections.

Professor Perminder Sachdev, University of New South Wales (NSW), \$6.09m

Prevention, Early Detection and Effective Management of Neurocognitive Disorders in the Elderly

The Program comprises a number of longitudinal studies of ageing individuals to develop methods of diagnosing dementia before symptoms become prominent. We are also examining factors that increase the risk of developing dementia. We wish to translate this research into early and better diagnosis, and the development of new treatments and strategies for dementia care. We expect that this research will make a major impact on health policy in Australia for cognitive disorders in the elderly.

Professor Neville Owen, University of Queensland (Qld), \$5.39m

Sitting Less and Moving More: Population Health Research to Understand and Influence Sedentary Behaviour

The majority of Australian adults spend most of their waking hours sitting: at home, at work and in their cars; most do not participate in exercise or sport. This leads to weight gain and to diseases of inactivity (particularly diabetes, heart disease, cancer and depression). New research will measure sitting time and the physical activity in people's daily lives, what factors encourage inactivity, and how to increase activity levels, especially among the ageing 'baby boomer' population.

Associate Professor Richard Lewis, University of Queensland (Qld), \$6.36m

Venom Peptide Modulators of Pain Pathways

The goal of the proposed Program is to improve treatments for pain, especially persistent pain, which remains a poorly managed global health burden. Our pre-eminent team integrates a unique set of complementary research skills in using peptides derived from venomous invertebrates to dissect the pharmacology of pain pathways in persistent pain states, and develop these novel peptides to the point where they can be considered for pre-clinical development in collaboration with commercial partners.

Professor Ranjeny Thomas, University of Queensland (Qld), \$10.13m

Immunological Therapies for Cancer, Chronic Infection and Autoimmunity

The team comprises five leading scientists with a history of successful investigation into the role of the immune system in cancers, chronic viral infections and autoimmune diseases. There is a large unmet need for effective solutions with fewer side effects in these diseases, which cause a high disease burden in our society. In this program, we particularly seek to develop novel vaccines for chronic infections and autoimmune diseases and to improve the safety of bone marrow transplantation.

Professor Mathew Vadas, University of Sydney (NSW), \$8.02m
Inflammation, Angiogenesis and Cancer

Inflammation and cancer are at the heart of many human diseases. This particularly applies to the major global problem of liver fibrosis and liver cancer affecting almost half a billion of the world's population. This Program brings together researchers with expertise in basic science and the clinic, with the aim of exploring these issues at the cellular and molecular level. The synergistic and combinatorial use of basic and clinical skills gives a high likelihood of discoveries leading to new therapies.

Professor Fiona Stanley, University of Western Australia (WA), \$9.71m
Early Developmental Pathways Linking Health, Disability, Education, Welfare and Justice

This research will use information from birth, death and medical records for all births in WA from 1980 linked to records of disability, education, justice and welfare, to map, for the first time in Australia, the pathways to good and poor outcomes over a child's lifetime. This will bring a new focus on to how early development affects health and participation in society and will identify new ways to improve the lives of all children, regardless of their social circumstances.

Professor Robert Graham, Victor Chang Cardiac Research Institute (NSW), \$9.35m
Molecular Mechanisms of Cardiac Function and Disease

Adult-onset heart disease remains the leading cause of death and disability in our society, with almost two million Australians affected. Furthermore, structural heart malformations are the most common type of abnormality at birth and the leading cause of deaths in infants dying from non-infectious causes. Many of these problems are due to defects in the development, repair and/or function of heart muscle cells or cardiomyocytes. Thus, we propose to understand, in fine detail, cardiomyocyte as well as integrated heart development, biology, physiology and function as a prerequisite for the development of major advances in the prevention and treatment of these disorders.