Successful Program Grants for funding in 2014

**Chief Investigator A:** Professor Stephen MacMahon  
**Chief Investigators:** Professor John Chalmers, Professor Bruce Neal, Professor Mark Woodward, Professor Craig Anderson, Professor Anushka Patel, Professor Anthony Rodgers, Professor Vlado Perkovic  
**Title:** Discovery and translation of evidence for new strategies to combat cardiovascular diseases  
**Application ID:** APP1052555  
**Location:** University of Sydney (The George Institute for Global Health)  
**Funding:** $17,802,750.00 over 5 years  

The Program brings together clinicians, epidemiologists and statisticians in a unique endeavour combating heart attack and stroke as well as diabetes and kidney disease, all of which are closely related, through “hardening of the arteries”. The Program will provide fresh evidence on innovative strategies for treating and preventing these disorders, as well as strategies for translating them into more effective health policy and improved clinical practice.

**Chief Investigator A:** Professor Grant McArthur  
**Chief Investigators:** Associate Professor Ross Hannan, Professor Rodney Hicks, Associate Professor Richard Pearson  
**Title:** Oncogenic signaling and cancer therapy  
**Application ID:** APP1053792  
**Location:** University of Melbourne (Peter MacCallum Cancer Centre)  
**Funding:** $7,595,840.00 over 5 years  

Central to improving the management of patients with cancer is an understanding of the molecular drivers of cancer. Based on their fundamental discoveries about the role of cell growth and perturbed cell signalling as drivers of cancer this team will use the integration of molecular and imaging biomarkers with targeted therapies to translate this knowledge into better outcomes for cancer patients with defined molecular drivers of their cancer.

**Chief Investigator A:** Professor Levon Khachigian  
**Chief Investigators:** Professor Roland Stocker, Professor Christopher Parish, Professor Beng Chong  
**Title:** Novel mechanisms, molecular targets and therapies in cardiovascular disease  
**Application ID:** APP1052616  
**Location:** University of New South Wales  
**Funding:** $8,360,700.00 over 5 years  

Cardiovascular disease (CVD) claims one person every ten in Australia and causes one in three deaths worldwide. The molecular and cellular processes underlying atherosclerosis, vascular injury and thrombosis are highly complex and not well understood. A multifaceted approach is needed to effectively address these key challenges. This Program brings together experts in these areas to interrogate gaps in basic understanding of CVD, and to develop novel therapies for CVD patients by exploiting new knowledge through integrated research.
There are considerable improvements to be made to the health system if a concerted effort is made to translate what is already known to be effective into routine practice. This research will further existing knowledge of how to translate evidence into practice more effectively and spread best practice throughout the health system.

Biomedical research now routinely generates massive, complex datasets using next generation sequencing platforms and other high throughput "omics" technologies. This unique program will develop powerful computational and statistical methods to analyse such data. This team will apply these methods to a range of human diseases including cancer, and infectious and genetics disease, contributing to deeper insight into pathological states.

Motor impairment results in physical disability in a wide range of debilitating diseases and health conditions. This team will conduct a research program that will include both experimental investigations and clinical trials to identify optimal strategies for maximising physical functioning for people with weakness and fatigue, impaired sensation and balance, and contracture. In doing so, the program offers great scope for improving the health and quality of life for millions of Australians and substantially reducing health care costs.
The development of cures, vaccines and better treatments for HIV/AIDS is an urgent global health priority. This team of seven groups in Sydney and Melbourne will study how HIV can lie dormant in some parts of the body, evading eradication by HIV therapy, as well as how the immune system responds to the virus. This will allow for design of novel vaccines and treatments. The researchers have skills in basic virology and immunology, and translating laboratory findings into human clinical trials.

Chief Investigator A: Professor Nicholas Buckley
Chief Investigators: Associate Professor Geoffrey Isbister, Professor Andrew Dawson, Professor Michael Roberts
Title: An integrated research program in human toxicology to ensure rapid translation of results into practice and regulation
Application ID: APP1055176
Location: University of New South Wales
Funding: $6,846,800.00 over 5 years

Drug-related deaths in Australia account for 6.6% of all deaths (ABS 2009). In much of the rural Asia-Pacific, pesticide poisoning and snakebite are major problems. This team proposes an integrated and international human toxicology research program covering medicine and chemical poisoning, serious adverse drug reactions, snake and spider bite. The program’s focus is on the applied research needed to detect new problems and rapidly translate early findings into better treatment, regulations & policy.

Chief Investigator A: Professor Patrick Sexton
Chief Investigators: Professor Arthur Christopoulos, Professor Nigel Bunnett, Professor Roger Summers
Title: Understanding the major class of cell surface drug targets
Application ID: APP1055134
Location: Monash University
Funding: $7,595,840.00 over 5 years

G Protein-Coupled Receptors (GPCRs) form the largest family of receptors and drug targets in living organisms. Currently, the major reason that new drugs fail to reach the clinic is lack of appropriate drug effect (approx. 30%). Thus, we need a better understanding of how GPCRs work and how this relates to disease. This Program addresses this knowledge gap, using GPCR models that are relevant to treatment of metabolic, inflammatory, cardiovascular and central nervous system disease.

Chief Investigator A: Professor Philip Hodgkin
Chief Investigators: Associate Professor Lynn Corcoran, Associate Professor David Tarlinton, Doctor Gabrielle Belz, Doctor Stephen Nutt
Title: A systems approach to the adaptive immune response
Application ID: APP1054925
Location: The Walter and Eliza Hall Institute of Medical Research
Funding: $9,030,605.00 over 5 years

The lymphocyte plays a vital role in our immune defence. When lymphocytes encounter a foreign invader, such as a virus, they make a series of decisions that influence the strength, type, and longevity of the immunity created. This program aims to understand how lymphocytes make decisions at the molecular level that affect cell and whole of system level behaviour. The program aims to improve vaccines and understand diseases such as allergy, lupus, arthritis and leukaemia to develop novel therapies.
Chief Investigator A: Professor Andrew Lloyd
Chief Investigators: Professor Gregory Dore, Professor Jacob George, Associate Professor Michael Beard
Title: Hepatitis C infection: epidemiology, pathogenesis, and treatment
Application ID: APP1053206
Location: University of New South Wales
Funding: $5,427,855.00 over 5 years

Hepatitis C affects a quarter of a million Australians, causing insidious but progressive liver disease which culminates in liver failure or cancer. There is no vaccine and prevention programs have limited effectiveness, but new antiviral therapies now offer high rates of cure. This Program will evaluate strategies to improve the health of those affected and prevent new infections by better understanding of the virus and the body’s immune response, including scarring and liver cancer formation.

Chief Investigator A: Associate Professor Steven Stacker
Chief Investigators: Associate Professor Marc Achen, Professor Stephen Fox
Title: The Lymphatic Vasculature: Biology, Diagnostics & Therapeutics
Application ID: APP1053535
Location: University of Melbourne (Peter MacCallum Cancer Centre)
Funding: $6,176,895.00 over 5 years

This proposal is for a team of researchers and clinicians to explore the molecular control of the lymphatic vasculature. This network of lymphatic vessels, located in organs throughout the body, is critical for regulation of tissue fluid and immune function. It will identify new molecular pathways controlling lymphatic vessels and their interactions with other cells in the body and identify new diagnostic approaches and molecular targets for medicines to treat human diseases including cancer.

Chief Investigator A: Professor Simon Stewart
Chief Investigators: Professor David Thompson, Professor Paul Scuffham
Title: Optimising heart disease prevention and management
Application ID: APP1055214
Location: Baker IDI Heart and Diabetes Institute
Funding: $4,647,175.00 over 5 years

As we become older and risk factors such as obesity become more common, our biggest contributor to death and disability, cardiovascular disease (including heart disease), will continue to exert an enormous burden on our health care system and society. Multidisciplinary teams will extend their research to create new and innovative health care programs to optimise the prevention and management of new heart disease and chronic forms of heart disease.