

In 2013, 19 Research grants were awarded totalling \$730,000

Ladies' Committee Sr Mary Bernice Research Grant - \$100,000

"Genetic determinants of electrocardiographic parameters"

Principal Investigator – A/Prof Rajesh Subbiah

How does an individual's genetic code affect the characteristics of their heart tracing and their risk of dangerous heart rhythms?

Within the population, there are variations in people's heart tracings (ECG) that we propose reflect how the body uses its genetic code (DNA). The aim of this study is to assess the relationship between features on the 24-hour ECG monitor and this DNA code. The outcomes of the work will help doctors better understand, and predict, who is at risk of heart rhythm problems.

Victor Chang Cardiac Research Institute

Adult Stem Cell Research Grant - \$100,000

"Use of fibroblast derived stem cells to define the role of GATA1 and p53 in normal haematopoietic and leukaemic stem cells with trisomy 21"

Principal Investigator - Dr Sam Milliken

Use of adult stem cells to study GATA1 and p53 in blood cell development and Down syndrome leukaemia.

GATA1 and p53 are genes critical for blood stem cell development and when mutated, are thought to cause leukaemia, especially in children with Down syndrome (DS), who are at high risk of this potentially fatal blood cancer. Adult stem cells created from DS skin cells will be used for the first time to study GATA1 and p53 in normal stem cell maturation and in leukaemia. Understanding how these genes work may provide new insights into stem cell based therapy.

St Vincent's Centre for Applied Medical Research

Tancred Research Grant - \$67,000

"Insulin signalling pathway in cancer tissue of insulin-resistant, insulin-sensitive and type 2 diabetic humans"

Principal Investigator – Dr Ann McCormack

Insulin resistance, diabetes and cancer

The prevalence of type 2 diabetes is increasing worldwide with the International Diabetes Federation predicting 435 million will have the disease in 2030. The major driver of the diabetes epidemic is obesity. There is strong evidence linking type 2 diabetes and obesity to an increased risk of cancer. However the exact mechanism promoting cancer development in obese and diabetic individuals is not clear. This project will examine the effects of high insulin levels on cancer development and progression.

Garvan Institute of Medical Research / St Vincent's Clinic

K&A Collins Cancer Research Grant - \$50,000

"Reducing unnecessary biopsies and missing less prostate cancers on biopsy through the use of MRI, PCA-3 & PHI in men with an elevated PSA"

Principal Investigator – A/Prof Phillip Stricker

Assessment of the accuracy of MRI (magnetic resonance imaging - a type of scan), PCA (a new urine test) and PHI (a new blood test) in the diagnosis of prostate cancer in men having a prostate biopsy for an abnormal PSA (blood test) result on screening.

In this study, 400 men with high PSA found on screening, will undergo MRI then biopsy to assess the accuracy of MRI. In a second study, 50 men needing repeat biopsy for PSA that remains high after a negative biopsy, will undergo MRI, urine and blood tests then biopsy, to assess the accuracy of these tests in diagnosis. In men with high PSA results on screening, these tests may reduce unnecessary prostate biopsies AND improve the accuracy of biopsies.

St Vincent's Prostate Cancer Centre

Thelma Greig Cancer Grant - \$50,000

"MicroRNA-155: A regulator of cell survival and maturation in Acute Myeloid Leukaemia"

Principal Investigator – A/Prof Anthony Dodds

A small regulatory gene (microRNA-155) can induce the maturation and death of leukaemia cells.

Recent research in our department has discovered a small gene, microRNA-155, that may switch on the suicide pathway in cells of a common type of leukaemia in adults; acute myeloid leukaemia. This study will extend and confirm our preliminary work, allowing us to understand the mechanism that causes microRNA-155 to induce the death of cancer cells, which may lead to the identification of new therapeutic targets and treatment strategies for the treatment of acute myeloid leukaemia.

St Vincent's Hospital

Di Boyd Cancer Grant - \$30,000

"Immune responses to HPV-16 E6 and E7 and correlation with anal cellular abnormalities in homosexual men: Study of the prevention of anal cancer (SPAN) Immunology Substudy"

Principal Investigator – Prof Andrew Carr

Using new blood tests to understand how the immune system helps clear or control pre-cancerous diseases of the anus in gay men.

Infection with human papillomavirus (HPV) causes cervical cancer in women and anal cancer in men and women. Using a new blood test invented by scientists and doctors at St Vincent's Hospital, we will study the body's immune responses to HPV infection. We then hope to be able to predict which pre-cancerous lesions are more likely to become cancer. A better understanding of immune responses to HPV will also help to design new cancer treatments (such as vaccines) in the future.

St Vincent's Centre for Applied Medical Research

Froulop Research Grant - \$30,000

"Use of point of care coagulation testing to guide the haemostatic management of patients on Extracorporeal Membrane Oxygenation (ECMO)"

Principal Investigator - Dr Paul Jansz

A study of clotting and bleeding in patients treated with extracorporeal heart and lung assist (ECMO)

ECMO is life-saving technology used in patients with severe heart and lung failure and St Vincent's Hospital has pioneered this treatment in Australia. Bleeding and clotting complications are both major risks due to the complex device, the need for blood thinners and the underlying disease. Hence, we propose to use advanced, rapid bedside tests to assess the risk of bleeding and clotting to tailor our therapy to reduce the risk of bleeding, clotting and transfusion in these complex, critical patients.

St Vincent's Hospital

Annual Grant 1 - \$30,000

"Evaluation of using fine needle aspiration biopsies from peripheral lymph nodes for the quantitation of HIV reservoirs"

Principal Investigator – Dr Kersten Koelsch

Using fine needle aspiration biopsies from peripheral lymph nodes to measure persistent HIV to aid future approaches towards curing HIV infection.

Because HIV persists in long lived cells within the body despite therapy, and becomes reactivated soon after therapy is interrupted, there is yet no cure for HIV infection. New therapeutic approaches are urgently needed that target persistent HIV. These will also require optimal quantitation of persisting virus to determine success of any future intervention. We will test if fine needle aspiration biopsies from peripheral lymph nodes can be established as a useful tool to measure persistent HIV.

St Vincent's Centre for Applied Medical Research

Annual Grant 2 - \$30,000

"Pharmacological activation of the Nitric Oxide / soluble Guanylate Cyclase / Protein Kinase G Signalling Pathway as an approach to minimise Ischemia reperfusion damage to the donor heart"

Principal Investigator – Prof Peter McDonald

Helping the heart to help itself: Pharmacological activation of the soluble guanylate cyclase / cGMP / PKG survival signalling pathway with agents in clinical use as a means to improve donor heart function after cold storage.

A donor heart shortage has forced the consideration of hearts from marginal donors such as those where otherwise normal hearts have been exposed to an extended cold storage period between organ procurement and re-implantation. The aim of the current project is to maximise recovery of such a model of marginal hearts with agents that activate the heart's own protective signalling pathways. Positive results will suggest an approach that may significantly increase clinical usage of "marginal" hearts and other transplantable organs.

Victor Chang Cardiac Research Institute

Annual Grant 3 - \$28,000

"Time is of the essence: Rapid identification and speciation of staphylococci from blood cultures using a new polymerase chain reaction technique"

Principal Investigator – A/Prof Debbie Marriott

Rapid identification of bacteria in blood cultures; improving patient outcomes.

Blood cultures are obtained from a patient when the clinician suspects the presence of serious bacterial infection. The most common bacteria to grow from blood are staphylococci - the highly virulent and often fatal *Staphylococcus aureus* or Golden Staph, and coagulase negative staphylococci which rarely cause true infection. However it may take 2 days to differentiate these organisms. We plan to evaluate a new rapid diagnostic technique which can determine within an hour whether the bacteria are Golden Staph, and whether they contain genes for resistance to antibiotics. This has significant potential to improve patient care.

Sydney, St Vincent's Hospital

Annual Grant 4 - \$30,000

"MIC 1 in liver cachexia (MiLC) study - pilot study"

Principal Investigator - Dr Mark Danta

MIC-1 as a serum marker for malnutrition in liver disease (MiLC) study.

Malnutrition in liver disease is a major cause of mortality in these patients. This has been a poorly researched area. However, there is emerging evidence that a new serum marker MIC-1 is associated with weight loss, particularly in cancer. There are reasons why this may also be important in malnutrition in liver disease, which may then provide a new exciting potential mechanism for treatment.

St Vincent's Clinical School, UNSW

Annual Grant 5 - \$30,000

"Biomarkers of pancreatic cancer phenotypes: with emphasis on aberrant cell cycle regulation"

Principal Investigator - Dr Angela Chou

Assessment of useful molecular biomarkers in pancreatic cancer which confer sensitivity to novel molecular targeted therapies.

Pancreatic Cancer (PC) is the fourth leading cause of cancer death in Western societies with an overall 5 year survival rate of less than 5%. Recent data suggest that pancreatic cancer is a heterogeneous disease characterised by different molecular phenotypes. Many novel drugs targeting these phenotypes are being investigated in pancreatic cancer. Development of clinical biomarkers to detect phenotypes of pancreatic cancer is important to help future clinicians decide which drug to choose for a particular patient. This proposal aims to investigate useful biomarkers which confer sensitivity to novel drugs that target cell cycle aberration in pancreatic cancer.

St Vincent's Hospital

Annual Grant 6 - \$30,000

"Genetic engineering of cancer-resistant human cells by altering the CpG content of the TP53 tumour suppressor gene"

Principal Investigator - Prof Richard J Epstein MD PhD

Why do human genes contain mutation-prone sequences? An attempt to create cancer-resistant cells by improving anti-cancer gene stability using genetic engineering.

More than 50% of human cancers contain errors affecting the TP53 tumour suppressor gene. These errors mainly occur in DNA sequences called CpG sites which are prone to mutation. Alterations at these sites cause cancers to become refractory to treatment. This project aims to explain why genes have evolved to contain these weaknesses. If our hypothesis is correct, it should become possible to create stem cells with reduced CpG content, permitting strategic grafting of cancer-resistant cell lineages into selected patients.

St Vincent's Hospital – The Kinghorn Cancer Centre

Annual Grant 7 - \$15,000

"Rosuvastatin versus protease inhibitor switching for Hypercholesterolaemia in HIV-infected adults"

Principal Investigator - Prof Andrew Carr

Comparing two different treatments for high cholesterol in HIV-infected adults: rosuvastatin versus switching protease inhibitors.

HIV-infected patients are at increased risk of heart attacks. Protease inhibitors, an important class of anti-HIV drug, cause elevated levels of cholesterol. There are two proven methods of treating high cholesterol in patients receiving protease inhibitors: add a statin (cholesterol-lowering drug) OR switch the protease inhibitor to a different anti-HIV drug. Both methods work, but it's not knowing which is superior.

This study compares a statin (rosuvastatin) with protease inhibitor switching and looks at the effect on cholesterol levels.

St Vincent's Centre for Applied Medical Research

Multidisciplinary Patient Focused Grant 1 - \$25,000

"Nurse co-ordinated multidisciplinary hepatocellular cancer (HCC) screening program"

Principal Investigator - Ms Dianne How-Chow

This study will evaluate the impact of nurse coordinated multidisciplinary HCC screening at St Vincent's Hospital. The hypothesis is that through a nurse specialist coordinated multidisciplinary approach individuals with liver tumours will be better managed and have appropriate evidence-based management.

The three outcome measure will be:

1. Appropriate screening of high-risk population for HCC.
 2. Interdepartmental coordination of liver lesion management.
 3. Quality assurance measurement of the management of HCC.
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A nursing coordinated HCC service aimed at appropriate screening and management of HCC would have clear benefits for both the hospital and institution. First, the intervention should lead to improved clinical outcomes in the individual patients with early detection of lesions. Second, St Vincent's Hospital should benefit through improved outpatient care and reduced late hospital inpatient presentations.

IBAC Clinic (SVH) / St Vincent's Clinical School (UNSW)

Multidisciplinary Patient Focused Grant 2 - \$25,000

"Quality of life post Extracorporeal Membrane Oxygenation (ECMO)"

Principal Investigator – Ms Claire Reynolds

The aim of this study is to examine quality of life of patients treated at St Vincent's Hospital one year after Extracorporeal Membrane Oxygenation (ECMO) treatment.

St Vincent's Hospital

Multidisciplinary Patient Focused Grant 3 - \$25,000

"Psycho educational intervention designed for post allogeneic bone marrow transplant patients and their care givers aimed at improving quality of life in the year post transplant"

Principal Investigator – Ms Annette Polizois

To explore the efficacy of a psycho educational intervention designed for post Allogeneic BMT patients and their caregivers. Aimed at improving quality of life in the first year post transplant.

St Vincent's Hospital

Multidisciplinary Patient Focused Grant 4 - \$25,000

"Multidisciplinary care of people with Parkinson's Disease across the stages"

Principal Investigator - Ms Elizabeth Taylor

1. To develop a multidisciplinary care model for people with Parkinson's Disease in western Sydney.
2. Provide multidisciplinary services (speech pathology, occupational therapy, physiotherapy) to people with both newly diagnosed PD and those with advanced PD to promote wellbeing through improvement in physical, functional and communication abilities.
3. Provide education to people with PD and their carers.

St Vincent's Hospital

Travelling Fellowship Grant - \$10,000

"Orthopaedic Fellowship with Dr Andrew Williams - Chelsea & Westminster Hospital, London, UK & Orthopaedic Fellowship with Dr Willem Van Der Merwe - Groote Schuur Hospital, Cape Town, South Africa"

Fellow - Dr Tim Small

St Vincent's Hospital
