

St Vincent's Clinic Foundation

2008 Research Grant Recipients

16 grants were awarded totalling \$565,000 including an additional grant for Adult Stem Cell research and 4 travelling fellowships.

The Ladies Committee Sister Mary Bernice Grant - \$100,000

Chief Investigator - Professor Terence Campbell

"The investigation of how different drugs cause cardiac rhythm disturbance"

Disturbance of the normal rhythm of the heart beat is one of the commonest causes of death in our community. In a subset of these patients the heart rhythm disturbances are caused by mutations in genes that encode for special proteins called ion channels. However, even in patients without a mutation certain drugs can cause exactly the same problem. (Common available drugs include: sotalol, amiodarone, erythromycin and haloperidol; other drugs have been withdrawn from market or their use severely controlled: cisapride and terfenadine). Such drugs are dangerous and need to be identified early in their development. Unfortunately, current methods to do this are inaccurate. We hope that by better understanding why some drugs cause cardiac rhythm disturbance a more accurate test can be developed to identify them.

Using a technique called 'Voltage Patch Clamping' we will measure electrical currents in cells containing genetically mutated ion channels similar to those found in people who suffer from cardiac arrhythmias. We will apply different drugs to the cells - if the electrical current decreases, we will assume that the drug is 'blocking' the ion channel. This information will be used as the basis of a test to more easily identify drugs that block electrical currents in the heart.

Research undertaken at St Vincent's Clinical School

Adult Stem Cell Research Grant - \$100,000

Chief Investigator - Professor Robert Graham

"Adult Stem Cells and G-CSF for Chronic Ischaemic Heart Disease"

Patients with chronic ischaemic heart disease have insufficient blood flow and oxygen to the heart because of blockages in the heart arteries. Many suffer persistent angina (chest pain) despite being on optimal medications and despite exhausting all other options (such as heart bypass surgery) to improve blood supply to the heart. This research study will investigate the use of G-CSF (granulocyte-colony stimulating factor) in conjunction with exercise to treat angina. G-CSF is a man-made version of a naturally occurring chemical within the body. There is experimental evidence that G-CSF can stimulate the formation of new blood vessels in the heart either directly or by stimulating the formation of bone marrow stem cells. Cardiac magnetic resonance imaging (MRI scan) will be used to measure the effect of G-CSF on blood flow to the heart.

Research undertaken at Victor Chang Cardiac Research Institute

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

Chief Investigator - Dr Michael Buckland

"Mapping Gene Inactivation in Human Brain Tumours"

The project will examine DNA changes associated with gene silencing in specific chromosomal regions of human brain tumours (oligodendrogliomas). Using new technology we will produce a comprehensive 'map' of the regions commonly affected in oligodendrogliomas, which will identify genes which have been consistently 'switched off', and hence are likely important in tumour formation.

Research undertaken at St Vincent's Hospital

Tancred Trust Research Grant - \$50,000

Chief Investigator - Dr Jerry Greenfield

"Defining the Defects that Cause Diabetes"

Problems with the way insulin removes glucose from the circulation precede and contribute to the development of type 2 diabetes. Although key research groups have focussed on identifying the problems that define insulin resistance, controversy remains regarding the nature of these defects and their relevance to humans. We plan to measure different molecules involved in insulin action in muscle of people with insulin resistance. These studies will define the defects that cause insulin resistance and type 2 diabetes in humans.

Research undertaken at Garvan Institute of Medical Research

Froulop Vascular Research Grant - \$40,000

Chief Investigator - Dr Alan Farnsworth AM

"Left Atrial Reduction Surgery for Atrial Fibrillation: Long-term Results"

The left atrial reduction operation was pioneered at St Vincent's Hospital in an attempt to simplify the surgical treatment of atrial fibrillation (a common heart condition which results in an increased risk of heart failure, stroke and death). The aim of this study is to evaluate the long-term likelihood of cure after such an operation.

Research undertaken at St Vincent's Hospital

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Di Boyd Cancer Research Grant - \$25,000

Chief Investigator - Dr David Brown

"Macrophage inhibitory cytokine-1: a potential screening test for colonic polyps"

Macrophage inhibitory cytokine-1 (MIC-1) was discovered at St Vincent's Hospital. MIC-1 blood levels predict bowel cancer behaviour and are raised when precancerous bowel polyps are present. In a small number of patients, blood MIC-1 levels rose with the development of precancerous bowel polyps and returned to previous levels when they were removed, showing the polyp produced the MIC-1 rise. This research will determine whether blood MIC-1 levels can predict bowel polyps and be used to detect this precancerous condition.

Research undertaken at St Vincent's Hospital

Annual Grant 1 - \$35,000

Chief Investigator - Associate Professor Debbie Marriott

"The prospective surveillance of invasive fungal infections in Australian Intensive Care Units"

The aim is to derive and validate a simple, robust and prospective risk predictive model for invasive candidiasis that incorporates the serial assessment of a patient's clinical risk factors and fungal microflora.

The significance of this project is that critically ill ICU patients at high risk of invasive candidiasis can be identified through the prospective assessment of clinical risk factors and colonising fungal flora.

Research undertaken at St Vincent's Clinic School

Annual Grant 2 - \$25,000

Chief Investigator - Professor Bruce Brew

"Tryptophan Metabolism in Adult Stem Cells"

The use of stem cells isolated from adult tissues holds promise as a novel therapeutic approach in multiple sclerosis (MS). This project seeks to optimise adult stem cell proliferation and differentiation to facilitate therapeutic transplantation for MS. Our preliminary data allow us to hypothesize that activation of tryptophan metabolism is a key factor explaining the limited ability of adult stem cells to proliferate and differentiate. We will use inhibitors of tryptophan metabolism in cell cultures and animal models to test this hypothesis. If correct, the results will considerably advance the therapeutic use of stem cells.

Research undertaken at St Vincent's Hospital

Annual Grant 3 - \$25,000

Chief Investigators - Professor David Ma

"MicroRNA Expression Profiling of Normal Karyotype AML"

Acute myeloid leukaemia (AML) is a rapidly fatal cancer. There is much room for improvement in the current diagnostic tools and treatment. MicroRNAs are newly discovered small nucleic acid molecules that control cell functions by suppressing gene expression. Importantly, altered expression of microRNAs in several cancers has recently been identified. These changes are shown to be linked with the development of some cancers. Microarrays (gene chips) allow simultaneous detection of thousands of genes expression in cancer cells. This research project plans to study the global change in microRNAs in AML using a new generation of microarrays. We have the required expertise in this research field to apply the new generation of microRNA microarrays to divide AML into prognostic subgroups to aid their treatment, and to discover new cancer genes for targeted drug therapy.

Research undertaken at St Vincent's Hospital

Annual Grant 4 - \$25,000

Chief Investigator - Dr John Moore

"The Role of Protein Kinase C Epsilon in Philadelphia positive leukaemia cells and its influence on Glivec Therapy"

Philadelphia positive leukaemia is a fatal condition if untreated and accounts for 20% of all leukaemia's. Although therapy with the drug Glivec is highly successful in treating chronic forms of this leukaemia, it is ineffective against advanced cases. We aim to test whether high expression of the cellular enzyme Protein Kinase C epsilon plays a key role in eliciting reduced sensitivity of leukemic cells to Glivec treatment. Dissecting the processes involved in disease progression and treatment will enable the design of new drugs to combat potentially fatal advanced cases.

Research undertaken at St Vincent's Hospital

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Annual Grant 5 - \$25,000

Chief Investigator - Associate Professor Nicholas Pocock
"Delayed PET Imaging in Suspected Cancer Patients"

The aim of this study is firstly to determine if dual-time point PET/CT (early and delayed imaging) versus standard single-time PET/CT (early imaging alone) improves the evaluation of suspected malignancy. The hypothesis is that malignant lesions will exhibit a greater than 10% increase in a tracer uptake on the delayed images while benign lesions will not.

A second aim of the study is to determine if different malignancies exhibit different degrees of increase in uptake between initial images at 1 hour and delayed images at 2.5 hours. This will allow a refinement in the imaging protocols to better suit particular tumour types.

Research undertaken at St Vincent's Hospital

Annual Grant 6 - \$25,000

Chief Investigator - Dr Catherine Suter
"Small RNAs and Cancer Development"

Cancer is related to a breakdown in gene regulation (that is which genes are on and which are off). One of the systems that turns genes on or off involves tiny RNA molecules. In this proposal we will investigate a new class of these small RNA molecules, called piwi RNAs, and determine their role in cancer formation. These experiments may identify a fundamental pathway in cancer development that could be targeted for therapy in many types of cancers.

Research undertaken at Victor Chang Cardiac Research Institute

Travelling Scholarship 1 - \$10,000

Department of Otolaryngology - Head & Neck Surgery

Dr Richard Harvey - Rhinology / Endoscopic skull base fellowship at the Medical University of South Carolina, USA.

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Travelling Scholarship 2 - \$10,000

Department of Colorectal Surgery

Dr Rohan Gett - Clinical Observer Mount Sinai Hospital Toronto and clinical Observer Leeds General Infirmary

Travelling Scholarship 3 - \$10,000

Department of Cardiology

Dr Joseph Suttie - DPhil in Cardiovascular Medicine at Oxford University - "Cardiac Magnetic Resonance Imaging in Hypertrophic Cardiomyopathy"

Travelling Scholarship 4 - \$10,000

Heart Transplant Program

Dr Andrew Jabbour - Collaborative research at Zensun Science and Technology Laboratory and Fudan-Zensun Cellular Signalling Research laboratory, School of Life Science, Fudan University, Shanghai, China
