

# St Vincent's Clinic Foundation

## 2002 Research Grant Recipients

A total of 10 research grants were awarded in 2002 amounting to \$310,000. The Scientific Council awarded an additional grant as no travelling fellowship and medical student applications were submitted.

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### **Ladies' Committee Sr Mary Bernice Research Grant 1 - \$100,000**

*Assoc Prof Robyn Ward - Principal Investigator*

#### **"Identification of a new hereditary colorectal and breast cancer syndrome - the methylator phenotype"**

Cancer can develop because of an inherited predisposition, but few of the genes responsible for this problem have been found. We have recently identified a subset of bowel cancers that occur because of gene methylation, and that appear to be related to a familial genetic defect. In the current study, we will confirm these findings, and further investigate the cause of this predisposition to cancer. If successful, this work will find a new cause for familial cancer. This knowledge will allow us to identify individuals at risk of cancer, and to better treat or prevent cancers in their families.

*Research undertaken at St Vincent's Clinic, Family Cancer Clinic & St Vincent's Hospital Department of Medical Oncology*

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### **Ladies' Committee Sr Mary Bernice Research Grant 2 - \$25,000**

*Dr Helen Tao & Prof David Ma - Principal Investigators*

#### **"Multilineage potential of human bone marrow cells"**

Bone marrow (BM) stem cells normally differentiate into blood cells. However, recent observations show that BM stem cells can also differentiate into non-blood cells (e.g. nerve and heart cells). This raises the possibility of using BM stem cells to treat non-haematological diseases. The methods to induce BM cells into non-blood cells remains poorly defined. The aim of this project is to optimise conditions for differentiation of BM cells into nerve and heart cells and to investigate the mechanisms responsible for controlling BM cell differentiation.

*Research undertaken at St Vincent's Hospital Haematology Research Laboratory*

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### **Kathleen & Ann Collins Cancer Research Grant - \$50,000**

*Dr Alan Meagher - Principal Investigator*

#### **"Serrated polyps - defining their role in the development of colorectal cancer"**

There are two common types of polyps found in the colon, adenomatous and hyperplastic, with a similar prevalence of 20-40%. Adenomatous polyps are benign lesions that can progress to cancer, but hyperplastic polyps have traditionally been thought to have no malignant potential. Recent evidence has linked hyperplastic polyps to cancer throwing this assumption into doubt. We aim to estimate the frequency of genetic alterations in hyperplastic polyps predisposing them to malignant change. Secondly, we will reassess the incidence, genetic characteristics and cancer risk of serrated adenomas from a large hospital databank.

*Research undertaken at St Vincent's Clinic, St Vincent's Hospital Molecular & Cellular Oncology Department*

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### **Di Boyd Cancer Research Grant - \$20,000**

*Dr Robyn Lukeis - Principal Investigator*

#### **"Whole genomic DNA analysis of colorectal tumours - detection of whole genomic gains and losses by comparative genomic hybridisation"**

We propose to establish the technique of comparative genomic hybridisation (CGH) in our laboratory for the purpose of providing comprehensive molecular cytogenetic analyses of colorectal tumour specimens. In approximately 50% of these tumours, conventional cytogenetic analysis is unsuccessful, due to problems of tissue culture.

CGH overcomes the obstacles of tissue culture and the necessity to accumulate sufficient mitoses for analysis and has the capacity to provide important prognostic data applicable to patient management. Once established, the technique of CGH could be applied to the analysis of other tumour specimens currently presenting difficulties of analysis, (e.g. sarcomas, lipomas, renal cell carcinomas, lung carcinomas).

*Research undertaken at St Vincent's Hospital Cryogenetics Laboratory*

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### **St Vincent's Clinic Foundation Annual Grant I - \$20,000**

*Prof Reginald Lord - Principal Investigator*

#### **"Investigation of structural and functional characteristics of vascular dendritic cells in situ and in vitro"**

This study should provide novel information on antigen-presenting dendritic cells and their role in atherosclerotic lesion formation. The project will seek to examine the structural and functional characteristics of vascular dendritic cells in atherosclerotic lesions concentrating on the mechanisms of antigen-processing and antigen-presentation. The results of this study will offer new insight on immune mechanisms of atherogenesis.

*Research undertaken at St Vincent's Hospital Surgical Professional Unit*

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### St Vincent's Clinic Foundation Annual Grant II - \$20,000

*Dr Laila Girgis - Principal Investigator*

#### **"Gene expression in mechanically loaded human osteoarthritic chondrocytes"**

Osteoarthritis is a major cause of pain and disability that originates in the cartilage of joints. Repeated compression from years of weight bearing and trauma leads to fragmentation and erosion of cartilage. Chondrocytes are cells within cartilage that maintain its integrity. In this study we will apply compressive forces to human chondrocytes grown in culture. Genes that are turned on or off in response to compressive forces will be identified with new gene chip technology, providing insight into how osteoarthritis develops.

*Research undertaken at Garvan Institute of Medical Research Arthritis and Information Research Program*

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### St Vincent's Clinic Foundation Annual Grant III - \$20,000

*Dr Joyce Low - Principal Investigator*

#### **"The value of combining sensitive d-dimer assay and clinical score as a negative predictor in the diagnosis of deep venous thrombosis"**

Patients that undergo ultrasound of the lower limbs at St Vincent's Clinic for a suspected clot in the leg (DVT) will be asked to participate in a study that may help facilitate the diagnosis of DVT. It is postulated that a negative blood test (d-dimer) combined with a low moderate probability of having a DVT by clinical examination, can safely exclude DVT. Ultrasound will be the reference method for determining the presence or absence of DVT.

*Research undertaken at St Vincent's Clinic Haemostasis Laboratory, Institute of Laboratory Medicine & Vascular Laboratory*

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### St Vincent's Clinic Foundation Annual Grant IV - \$20,000

*Dr Diane Fatkin - Principal Investigator*

#### **"Molecular pathogenesis in dilated cardiomyopathy"**

Our aim is to find the gene abnormalities that cause heart failure and sudden death in four large families at St Vincent's Hospital. Large families provide a unique opportunity to find genes that more commonly cause heart muscle disease in small families and in individuals in whom both genetic and environmental factors may be involved. Understanding the role of genes in heart muscle disease will ultimately lead to new approaches to the diagnosis and treatment of patients with heart failure.

*Research undertaken at St Vincent's Hospital & Victor Chang Cardiac Research Institute*

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### St Vincent's Clinic Foundation Annual Grant V - \$20,000

*Dr Andrew Biankin - Principal Investigator*

#### **"Novel gene discovery in the development and progression of pancreatic cancer"**

The major thrust of the group has been to assess the role of abnormal genes described in other cancers within pancreatic cancer. Part of the focus has been to examine very early abnormalities within the pancreas that progress to become cancers, in order to develop the basis for early diagnosis and screening strategies.

Although through our work and others, promising discoveries have been made, none are sufficiently accurate to begin use in a clinical setting. New genes need to be identified. Technological progress emanating from the Human Genome Project now gives us the capability to assess the state of activity of over 40,000 genes simultaneously on "DNA chips". We now plan to use this technique for the discovery of new genes of importance in pancreatic cancer and to assess their role using the large resource of pancreatic cancer specimens and precancerous lesions that we have available in our laboratory.

*Research undertaken at Garvan Institute of Medical Research Cancer Research Program*

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### Additional Award - \$15,000

*Dr Vince Lamaro - Principal Investigator*

#### **"Effect of inanimate laparoscopic training laboratory on patient management and staff training"**

The aim of this project is to quantify the effect of an inanimate laparoscopic training laboratory on the developing skills of both medical and nursing staff at an institution that does not currently have a high exposure to endoscopic surgery across its surgical services.

The potential significance includes developing the level of training and competency of medical and nursing staff in applying the new available technologies to patients undergoing treatment at the St Vincent's Hospitals. The impact of minimally invasive surgery on patient recovery time and economic benefit to the health system are well recognised.

The third goal is to combine the advances made by the participating surgeons and nursing staff to establish a team approach to the surgery specifically addressing the needs of a particular surgical specialty.

*Research undertaken at Garvan Institute of Medical Research St Vincent's Campus*