



Early Career Development Fellowships

2006 – 2008

EARLY CAREER DEVELOPMENT FELLOWSHIP

Commencing January 2008

Grant Title: Development of Novel Anti-Cancer Active Iron Chelators; Combinatorial Chemotherapy and Pre-clinical Studies.

Description: Cancer cells have a high iron (Fe) requirement for DNA synthesis and cellular replication, and a wide variety of *in vitro*, *in vivo* and clinical trials have shown that Fe binding drugs (chelators) are effective anti-tumour agents. We have been developing novel potent anticancer chelators that target the essential nutrient iron (Fe) in tumour cells. Our studies show that our novel chelators **have marked & selective anti-cancer activity**. Importantly, our chelators overcome resistance to other cytotoxic agents used for cancer treatment. This fellowship will support an ongoing collaboration with clinical oncologists aimed at further developing our chelators for clinical trials.

The Fellowship Grant was awarded to:

- **Dr David Benn Lovejoy**

Administering Institute: The University of Sydney

Research Institute: The University of Sydney

Grant Reference: 07/ECF/1-19

\$587,637 over 3 year

Grant Title: Understanding the molecular mechanisms of abscission to complete cytokinesis

Description: Cytokinesis is the final stage of cell division that produces two daughter cells. Incorrect localisation and modification of proteins that regulate this process cause cell division errors potentially leading to cancer. This project will characterise how key cytokinesis proteins cooperatively function to complete cytokinesis. This research will increase our understanding of the cell division errors that contribute to cancer development, ultimately identifying new targets for cancer therapy.

The Fellowship Grant was awarded to:

- **Dr Megan Fabbro**

Administering Institute: Children's Medical Research Institute

Research Institute: Children's Medical Research Institute

Grant Reference: 07/ECF/1-12

\$328,500 over 3 year

Grant Title: Monoclonal domain antibodies against highly conserved cancer targets

Description: Antibodies are a relatively new class of cancer drugs that directly target cancer tissue. Antibody therapies, such as the breast cancer drug Herceptin, have significantly increased the arsenal of cancer therapeutics. However, antibodies against some of the most promising cancer targets such as hormone and cytokine receptors are difficult to generate by immunisation of animals. We will therefore use genetic engineering technology to generate fully human monoclonal antibodies, completely bypassing the use of animals. These antibodies represent new drug candidates, which will be tested in cancer models with the aim of developing them for clinical usage.

The Fellowship Grant was awarded to:

- **Dr Daniel Christ**

Administering Institute: Garvan Institute of Medical Research

Research Institute: Garvan Institute of Medical Research

Grant Reference: 07/ECF/1-07

\$575,721 over 3 year

Grant Title: Epigenetic Silencing of Large Chromosomal Regions in Prostate Cancer

Description: Epigenetics describes the modification of gene expression without a change to the DNA sequence. It is now well established that epigenetics plays a major role in cancer development. Our lab has recently discovered that such epigenetic changes in cancer are not always localised to individual genes, but can encompass large chromosomal regions resulting in silencing of neighbouring genes ("**Long Range Epigenetic Silencing**" or **LRES**). The expected results arising from this fellowship will uncover the genome-wide prevalence of LRES in prostate cancer, and will reveal insight into the mechanism of this phenomenon with the aim to develop novel targets for cancer detection and therapy.

The Fellowship Grant was awarded to:

- **Dr Marcellus Wilhelmus Coolen**

Administering Institute: Garvan Institute of Medical Research

Research Institute: Garvan Institute of Medical Research

Grant Reference: 07/ECF/1-08

\$592,472 over 3 year

Grant Title: Analysis of transcription-independent p53 apoptosis

Description: The tumour suppressor p53 plays a key role in prevention of tumour development and substantially influences success of cancer therapy. Central to its function is the activity to eliminate cancer cells by inducing a death program called apoptosis. The proposed research project aims to characterize a novel, recently discovered apoptosis-inducing activity of p53. Therapeutic utilisation of this death program has the potential to overcome therapy resistance and improve treatment of cancer patients.

The Fellowship Grant was awarded to:

- **Dr Daniel Speidel**

Administering Institute: Children's Medical Research Institute

Research Institute: Children's Medical Research Institute

Grant Reference: 07/ECF/1-25

\$591,187 over 3 year

Grant Title: Targeting the cytoskeleton in tumour angiogenesis to improve cancer treatments and develop new therapeutic strategies

Description: There is a tremendous need to develop more effective, more specific and less toxic therapeutic approaches to treat cancer and lessen patient suffering. This multi-faceted project, involving

cutting-edge technologies, will reveal how tumour blood vessels can be specifically targeted to prevent cancer growth and spread. By identifying new therapeutic targets and investigating the potential of frontier technologies such as medical nanoparticles, this project will significantly improve and facilitate the personalisation of cancer treatments. It should also provide the basis for Australian medical research to be at the forefront of the development of anti-vascular therapies to treat cancer.

The Fellowship Grant was awarded to:

- **Dr Eddy Pasquier**

Administering Institute: University of New South Wales
Research Institute: Children's Cancer Institute Australia

Grant Reference: 07/ECF/1-21

\$552,366 over 3 year

Grant Title: The role of cortactin over-expression in tumour growth and metastasis.

Description: High expression of a particular protein, cortactin, commonly occurs in breast and head/neck cancers, but the reason for this has been unclear. Recently, it was discovered that high cortactin expression can increase tumour growth and metastasis by amplifying proliferative signals and preventing cells from dying once they have escaped the primary tumour. The aim of this project is to determine how cortactin achieves these effects. This will provide important new information regarding regulation of breast and head/neck cancer growth and metastasis that may lead to novel treatment strategies for these diseases.

The Fellowship Grant was awarded to:

- **Dr David Robert Croucher**

Administering Institute: Garvan Institute of Medical Research
Research Institute: Garvan Institute of Medical Research

Grant Reference: 07/ECF/1-09

\$535,321 over 3 year

Grant Title: Mechanisms of telomere length maintenance in glioblastoma multiforme brain Tumours

Description: Glioblastoma multiforme (GBM) is the most common primary brain tumour in adults. Patients with GBMs have a very poor prognosis, and there is a critical need for an increased understanding of the biology of these tumours. The aim of this project will be to investigate how GBM tumour cells can escape senescence and to identify targets for therapies. Understanding the mechanisms involved in this process is expected to result in improved cancer therapy and patient outcomes.

The Fellowship Grant was awarded to:

- **Dr Yoke Mooi (Amy) Au**

Administering Institute: Children's Medical Research Institute
Research Institute: Children's Medical Research Institute

Grant Reference: 07/ECF/1-01

\$493,750 over 3 year

Grant Title: Improving treatment decision making in ovarian cancer: The role of decision aids

Description: Ovarian cancer is a challenging disease with poor prognosis, often requiring repeated aggressive treatments. Studies have shown that women feel they need more information and support when making decisions about when to have chemotherapy. When making treatment decisions, women report feeling overwhelmed by being unexpectedly diagnosed with cancer, the severity of the illness, the effects of concurrent drugs, and the pressure to make a quick decision. The current research program proposes to develop and evaluate decision aids designed to assist women with ovarian cancer and their doctors to make informed and valuesensitive decisions regarding treatment.

The Fellowship Grant was awarded to:

- **Dr Ilona Juraskova**

Administering Institute: The University of Sydney

Research Institute: The University of Sydney

Grant Reference: 07/ECF/1-16

\$592,733 over 3 year

Grant Title: Epigenetic Deregulation of miRNAs in Cancer

Description: miRNAs have been described as 'the string theory of biology' with their ability to regulate a huge number of genes. One area in which miRNAs may play a key role is in the control of epigenetics – the heritable modification of DNA without a change in sequence. This project aims to uncover the link between them by analysing the regulation of miRNAs in prostate cancer cells.

The Fellowship Grant was awarded to:

- **Dr Toby Oliver McRae Hulf**

Administering Institute: Garvan Institute of Medical Research

Research Institute: Garvan Institute of Medical Research

Grant Reference: 07/ECF/1-15

\$572,515 over 3 year

Grant Title: Identification of new molecular targets for treatment of breast cancer

Description: While many breast cancer patients benefit from endocrine therapy, the efficacy is unfortunately limited by the onset of resistance. Sphingosine kinase 1 (SK1) is an important signalling molecule that regulates cell survival and prevents cells from dying. Our ongoing research suggests that the activation of the SK1 signalling pathway is responsible for the development of anti-estrogen (eg, tamoxifen) resistance in breast cancer. This study will test if SK1 inhibition might be a smart adjunct to anti-estrogen treatment and explore the underlying mechanisms by which SK1 activity overcomes the beneficial effects of current endocrine therapy.

The Fellowship Grant was awarded to:

- **Dr Eileen Mary McGowan**

Administering Institute: The University of Sydney

Research Institute: Centenary Institute of Cancer Medicines and Cell Biology

Grant Reference: 07/ECF/1-20

\$598,704 over 3 year

Commencing December 2006

Grant: Murine models to determine the role of the tetraspanin CD151 in epithelial tumour initiation and progression.

The Fellowship Grant was awarded to:

- **Dr Severine Roselli**

Administering Institute: University of Newcastle

Research Institute: University of Newcastle

Grant Reference: 06/ECF/1-22

\$554,578 over 3 year

Grant: Improving breast cancer survival rates in the Chinese-Australian community: using culturally sensitive and appropriate cancer education and support services.

The Fellowship Grant was awarded to:

- **Dr Tai Kwok**

Administering Institute: University of Sydney

Research Institute: University of Sydney

Grant Reference: 06/ECF/1-14

\$497,792 over 3 year

Grant: Light-dependent Notch signalling and its regulation in cancer.

The Fellowship Grant was awarded to:

- **Dr Gavin Chapman**

Administering Institute: The Victor Chang Cardiac Research Institute

Research Institute: The Victor Chang Cardiac Research Institute

Grant Reference: 06/ECF/1-03

\$532,380 over 3 year

Grant: Tumour immunotherapy using tailored membrane vesicles derived from antigen- presenting cells.

The Fellowship Grant was awarded to:

- **Dr Rachel Kohler**

Administering Institute: Garvan Institute of Medical Research
Research Institute: Garvan Institute of Medical Research

Grant Reference: 06/ECF/1-13

\$472,388 over 3 year

Grant: Extracellular matrix-integrin function in prostate carcinogenesis and metastasis.

The Fellowship Grant was awarded to:

- **Dr Mathew Naylor**

Administering Institute: Garvan Institute of Medical Research
Research Institute: Garvan Institute of Medical Research

Grant Reference: 06/ECF/1-20

\$565,328 over 3 year

Grant: CXCR7 is a novel angiogenic receptor and a drug target to prevent cancer progression.

The Fellowship Grant was awarded to:

- **Dr Frederic Sierro**

Administering Institute: Garvan Institute of Medical Research
Research Institute: Garvan Institute of Medical Research

Grant Reference: 06/ECF/1-25

\$492,656 over 3 year

Grant: Identification of Biomarkers of Therapeutic Responsiveness in Hormone-Refractory Prostate Cancer.

The Fellowship Grant was awarded to:

- **Dr Liangli Zhao**

Administering Institute: Garvan Institute of Medical Research
Research Institute: Garvan Institute of Medical Research

Grant Reference: 06/ECF/1-35

\$507,250 over 3 year

Grant: Overcoming retinoid resistance in human cancer cells.

The Fellowship Grant was awarded to:

- **Dr Belamy Cheung**

Administering Institute: University of New South Wales
Research Institute: Children's Cancer Institute Australia

Grant Reference: 06/ECF/1-04

\$570,080 over 3 year

Grant: Dissecting the role of cancer/testis antigen transcription factors in neoplasia.

The Fellowship Grant was awarded to:

- **Dr Jeffrey Holst**

Administering Institute: University of Sydney
Research Institute: Centenary Institute

Grant Reference: 06/ECF/1-11

\$564,843 over 3 year

Grant: Novel functional mechanisms of IGFBP-3 in breast cancer.

The Fellowship Grant was awarded to:

- **Dr Steve Grkovic**

Administering Institute: University of Sydney
Research Institute: Royal North Shore Hospital and the Kolling Institute of Medical Research

Grant Reference: 06/ECF/1-08

\$581,052 over 3 year

Grant: Adult Haematopoietic Stem Cells in The Evolution of Pancreatic Cancer.

The Fellowship Grant was awarded to:

- **Mr Christopher Scarlett**

Administering Institute: Garvan Institute of Medical Research
Research Institute: Garvan Institute of Medical Research

Grant Reference: 06/ECF/1-24

\$521,439 over 3 year

Grant: The Role of Androgens in Prostate Physiology and Pathology.

The Fellowship Grant was awarded to:

- **Dr Ulla Simanainen**

Administering Institute: Anzac Research Institute
Research Institute: Anzac Research Institute

Grant Reference: 06/ECF/1-26

\$279,579 over 3 year

Grant: Using proteomic approaches to identify novel biomarkers in tear and serum to improve diagnosis and monitor progression in prostate cancer.

The Fellowship Grant was awarded to:

- **Dr Yong Li**

Administering Institute: University of New South Wales
Research Institute: St. George Clinical School, UNSW

Grant Reference: 06/ECF/1-17

\$543,189 over 3 year
