



Auckland Medical
Research Foundation
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For information about the AMRF
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AMRF Auditorium Opening

Official Opening of The University of Auckland Grafton Redevelopment including Auckland Medical Research Foundation Auditorium Opening

The official opening of The University of Auckland Grafton Campus Redevelopment which included the opening of the AMRF Auditorium was held Tuesday, 3 July with the Prime Minister, the Rt Hon John Key officiating.



L-R - Mr Roger France, Chancellor, UOA; Prof Iain Martin, Deputy Vice Chancellor (Strategic Engagement) UOA; Prof John Fraser, Dean Medical & Health Sciences, UOA; Prime Minister Rt Hon John Key; Mr Jeff Todd, President, AMRF

Life Members and special guests of the Auckland Medical Research Foundation who attended were taken on a personal tour of the new Auckland Medical Research Foundation Auditorium, new facilities and labs in the redevelopment, and a visit to the AMRF Medical Sciences Learning Centre, which was opened by the then Prime Minister in 2005 to celebrate the 50th Anniversary of the Foundation.

HealthX Award 2012

Each year the Auckland Medical Research Foundation sponsors the overall HealthX supreme award for the most outstanding emerging researcher for the HealthX Conference. The award is a travel grant of up to \$5,000 to allow the recipient to present their research at an international conference. This is a student-led initiative organised by both students and staff where students present their research findings to a wide ranging audience of students, faculty staff, clinicians and sponsors.

Our congratulations to this year's winner Dr Alexandra Wallace from the Liggins Institute on her winning project: *"Cardiovascular Risk in Adulthood after Intrauterine Transfusion for Fetal Anaemia"* - Events before birth can change the risk of developing cardiovascular disease in adulthood. Animals made anaemic and treated with blood transfusions before birth have altered heart function as adults. Alexandra's aim was to investigate whether similar changes occur in humans. We have studied adults who suffered fetal anaemia due to Rhesus Disease and received intrauterine transfusion, a technique pioneered in New Zealand in 1963 by Sir William Liley. The findings provide the first evidence of heart changes in adulthood following intrauterine events.



Dr Alexandra Wallace receiving AMRF HealthX Prize from Paul Keeling, Vice President AMRF

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Or visit our website www.medicalresearch.org.nz



Spring greetings from the AMRF Team

A highlight since our last newsletter has been the official opening of both the University of Auckland Grafton Campus, and the new AMRF Auditorium, which was made possible through a generous donation from an AMRF benefactor.

Our inaugural lecture will take place there later this month, Wednesday 24 October at 7pm. Professor John Fraser, Dean of the Medical School will present on Infectious Disease – past lessons and future strategies. Please mark your diaries. This lecture is in memory of Paul Stevenson, whose wider family is a very significant supporter of the healthcare sector in New Zealand through the Paul Stevenson Memorial Trust and the Stevenson Foundation.

It was with sadness that in July we farewelled one of our key supporters, Mr Hugh Green, a highly successful businessman and philanthropist. Through the Hugh Green Foundation Hugh established a named fund with us, The Hugh Green Diabetes and Breast Cancer Research Fund. To mark this generosity we established a designated node of learning in the AMRF Medical Sciences Learning Centre at the School of Medicine. Do contact us if you would like a tour through the Centre.

Thank you for your continued support and interest.

Regards,

Kim McWilliams - Executive Director

DONOR PROFILE

When I reached 12 years old somehow I had it in my bones so to speak, that I wanted to become a nurse. At the tender age of 17 years I commenced my training with Auckland School of Nursing in 1957, and continued nursing until I was 69 years. The training was professional and practical. After graduation the N.Z.R.N. medal was like a passport to the world if one should wish to travel.



As nurses we spend a great deal of time, and emotional effort with people and we don't shake off skills and approaches we learn, but use them on a daily basis with a professional approach.

Everybody's health is their wealth, and we tend to take our wealth for granted. Our bodies with its operational skills are just amazing and in 2005 my body needed surgical intervention. This was an awakening for me. Research professionals in a laboratory (and managing on limited funding) had previously been researching the problem I had, and with this knowledge available, I was able to be treated. I have the greatest respect for our dedicated people who are giving and sharing in their studies. My gratitude is eternal.

The public lecture and meetings that the Auckland Medical Research Foundation holds are free and held during the year are keeping us informed with research findings. They are well worthwhile attending. Knowledge is power and knowledge cannot be taken away from oneself.

Auckland Medical Research Foundation deserves support from all of us out there in every form that we know how to further the studies of our nation. Be rest assured your entire donation is committed to a research project and has been so for the past 56 years.

Natalie

The challenge of helping preterm babies – Professor Laura Bennet

Fetal Physiology and Neuroscience Group, The Department of Physiology, The University of Auckland.

Shock is often the first emotion you have when you see a preterm newborn in the neonatal intensive care unit (NICU). These babies are so small and so fragile to look at that it amazes us that they can survive. Most do survive, thanks to advances in medical practices over the years, but often with debilitating injury and illness. Currently we have few treatments to help protect the preterm baby.



Prof Laura Bennet (left) and team.

This in part is because we understand very little about how adverse events such as oxygen deprivation and infection cause injury, and how the preterm handles the transition from being a fetus to neonatal life. This is the focus of my research work at the University of Auckland, which has been generously supported by the AMRF through several grants since my return to New Zealand in 1996 from post-doctoral studies in the United Kingdom.

Initial AMRF grants provided essential funds to help me establish a perinatal research programme with Dr Alistair Jan Gunn and to foster my specific research interests in the preterm fetus. Subsequent funding has enabled us to make key discoveries about the causes of injury to the preterm brain and other organs, the development of potential treatments, and to establishing a potential biomarkers for early detection of evolving brain injury to help identify babies at risk. We are now in a position to start clinical assessment of many of these discoveries. Our research group arguably now leads the world in this type of research, as acknowledged by our research successes and by awards of personal professorial chairs in perinatal physiology to both myself and Alistair in recent years.

AMRF funding was vital for establishing and developing our research work, for nurturing our careers and those of future generations of perinatal research scientists, and for making visits to NICU that little bit more hopeful.

Congratulations to AMRF grant holders - past and present:

Prof Andrew Hill, Head of our South Auckland Clinical School and **Prof Bruce Smail**, Deputy Director of the Auckland Bioengineering Institute on their promotion to Professor.

Prof Keith Petrie, has been named as the inaugural recipient of the Distinguished International Scholar Award 2012 from the Health Psychology Division of the American Psychological Association.

Dr Maurice Curtis, Anatomy with Radiology, **Dr Graeme Finlay**, Molecular Medicine & Pathology and **A/Prof Cameron Grant** all received the Butland Award for teaching excellence.

Distinguished Prof William Denny and Prof William Wilson, from The Auckland Cancer Society Research Centre (ACSRC) who were inaugural recipients of Commercialisation Medals to reward and recognise the commercialisation of research at The University of Auckland.

TOP GRANTS FROM LAST GRANT ROUND

JUNE 2012 GRANT ROUND
AWARDS \$893,835

The Auckland Medical Research Foundation's June grant round continued to see a record number of grants received by the Medical Committee for consideration where \$893,835 in funding was distributed over a wide range of medical research - breast cancer, vision, kidney stem cells, pre-term brain injury in babies, gout, and the effects of pre-natal methamphetamine exposure in children. Awards included eight full projects grants. There were 19 travel grants for researchers to present their research overseas; two Sir Douglas Robb Memorial Fund Awards for publication assistance, and to fund a communication and outreach initiative; and one Sir Harcourt Caughey Fund Award for a visiting academic to address the primary healthcare sector throughout New Zealand. A selection of project grants are summarised below:

KIDNEY STEM CELLS

A/Prof Alan Davidson, Dr Teresa Holm

Dept of Molecular Medicine & Pathology,
The University of Auckland

New Zealand has an alarmingly high rate of kidney disease and there is an urgent need to find better therapies. Regenerative medicine utilising tissue-specific stem cells offers the potential to treat a wide range of chronic illnesses. In this study we plan to isolate and characterise renal stem cells from the mouse with the ultimate goal of testing their ability to regenerate the kidney.

TARGETING EXTRACELLULAR MATRIX IN PRETERM BRAIN INJURY

Dr Justin Dean Dept of Physiology,
The University of Auckland

Improved hospital care has increased the survival rates of babies born very premature. However, these infants have a high rate of injury to structures in the brain important for movement, which can result in cerebral palsy. Infection of the mother or baby is an important cause of preterm delivery and preterm brain injury. However, at present we do not understand how infection works to cause injury, and treatments such as antibiotics do not improve outcomes. We have recently identified a new enzyme in the brain, PH20, which is important in controlling brain inflammation induced by infection. Further, we propose that this enzyme plays a key role in preterm brain injury, and that it may be useful as a therapeutic target. This study will examine

the role of PH20 in regulating brain injury following infection, and determine whether treatments that block its activity may ultimately reduce injury.

PEPTIDE TECHNOLOGY TO COMBAT BREAST CANCER

A/Prof Geoffrey Krissansen, Glenn Bell, (PhD Student) Yi Yang (Technician)

Dept of Molecular Medicine & Pathology,
The University of Auckland

Novel protein technologies developed in-house will be employed to combat breast cancer, which is the most common cause of cancer-related death in women. Each year in New Zealand more than 2,000 women are diagnosed with breast cancer. Breast cancer growth is driven by the female sex hormone estrogen, and is blocked by anti-hormone drugs like tamoxifen. Unfortunately, some cancers don't respond to tamoxifen and others become resistant to its effects. The novel protein technology we have developed has the potential to overcome these problems, and will be tested for its ability to combat breast cancer.

EXECUTIVE FUNCTION IN METHAMPHETAMINE EXPOSED CHILDREN

Dr Trecia Wouldes, A/Prof Linda LaGasse, Prof Barry Lester Dept of
Psychological Medicine, The University
of Auckland

P and Crystal Meth are street names associated with potent forms of methamphetamine that have become increasingly problematic in New Zealand and worldwide. Notable is the number of women using this drug during pregnancy. Yet, scant evidence is available regarding the effect it has on child development and school readiness at 4.5 years of age. This study will investigate whether prenatal exposure to methamphetamine is associated with deficits in higher order thought processes that may interfere with behavior and learning. We will follow up children currently enrolled in our longitudinal study of 107 children born to mothers who used methamphetamine during pregnancy and 115 children born to mothers who did not to determine whether children exposed to methamphetamine have poorer developmental outcomes than non-exposed children. Early evidence has found behavioural effects of methamphetamine exposure during infancy. In addition, our early results show that mothers who used methamphetamine during pregnancy were at higher risk of mental health problems,

ongoing substance abuse problems and lower financial resources. This research will help us to determine whether the early effects of methamphetamine persist and what additional contribution a poor home environment may have for any observed learning or behavioural problems.

CYSTEINE DELIVERY TO THE LENS

Dr Julie Lim, Dr Angus Grey, Prof Paul Donaldson Dept of Optometry & Vision
Science, The University of Auckland

Age related nuclear (ARN) cataract is the leading cause of blindness in the world. Despite effective procedures to restore sight, the number of people afflicted by cataracts is estimated to reach 30 million as the world's population ages. Faced with a looming cataract epidemic, research efforts have focused on developing novel anti-cataract therapies to prevent or delay the onset of cataract. Since ARN cataract is associated with oxidative damage to cells in the centre or nucleus of the lens, our research efforts have concentrated on enhancing the delivery of antioxidants to this region. While glutathione (GSH) is the principal antioxidant in the lens, our work in rat, human and more recently bovine lenses, suggests that the small amino acid cysteine may also be a key antioxidant in the lens nucleus. Furthermore, our identification of cysteine uptake pathways in the lens nucleus indicates that this region is capable of accumulating this antioxidant. In this research proposal, we will expose bovine lenses to high pressure oxygen to mimic the formation of a nuclear cataract. We will then use this model to trial the delivery of cysteine formulations to see if they are effective in preventing or slowing down the progression of cataracts. This rational design and testing of targeted anti-cataract strategies has the potential to delay the onset of ARN cataract thereby reducing the need for expensive surgical intervention.

TRIPLE NEGATIVE BREAST CANCER

Dr Euphemia Leung, Prof Bruce Baguley Auckland Cancer Society
Research Centre, The University of Auckland

Breast cancer is the major malignancy in women and one of the main treatments, apart from surgery, is to block the action of the hormone estrogen. One form of breast cancer, called "triple negative", is particularly difficult to treat. We are developing cultures of human breast cancer cells which have this triple negative characteristic and our goals are to use them to understand the mechanisms involved in their resistance to therapy and to develop new strategies for their treatment.

Your donation to AMRF goes directly to fund research – not administration

The Auckland Medical Research Foundation (AMRF) is the largest independent funder of medical research outside government. Established in 1955, we distribute over \$3 million annually to a wide range of research projects. A generous endowment to the AMRF funds all of our administrative overheads and running costs. This means that 100% of every donation made by individuals, companies and organisations goes directly to support research and not administration. Visit www.medicalresearch.org.nz for more information.

Meet our Medical Committee

Associate Professor Cameron Grant

Paediatrician, Starship Children's Hospital

A/Prof Cameron Grant became a member of the AMRF Medical Committee in 2011 and is currently Associate Professor, Department of Paediatrics and also the Associate Director of Growing Up in New Zealand <http://www.growingup.co.nz/> and the Centre for Longitudinal Research He Ara ki Mua.



Cameron completed his medical degree at the University of Otago, and then went on to do paediatric training in Auckland. Following his initial paediatric training he then continued his training in the USA at Duke University Medical Center and the Johns Hopkins University. On returning to New Zealand Cameron completed his PhD at the University of Auckland and in 2008 was a Fulbright Senior Scholar at the Johns Hopkins Bloomberg School of Public Health.

The research that Cameron does is focussed on common child health problems that affect New Zealand children disproportionately and his publications have focussed on infectious diseases in the preschool age group and the potential for disease caused by infections to be prevented by immunisation or improved nutrition. Cameron has maintained a strong emphasis on teaching throughout his career and believes that teaching adds value to all professional activities in medicine. He has received several teaching awards most notably the University of Auckland Teaching Excellence Award in 2006 for sustained excellence in teaching and has twice been the recipient of the Faculty of Medical and Health Sciences Butland Foundation Distinguished Teaching Awards most recently in 2012.

AMRF Lecture

The Auckland Medical Research Foundation invite you to attend our free public lecture

Professor John Fraser

Dean, Medical & Health Sciences
Infectious Disease – past lessons and future strategies

AMRF Auditorium

The University of Auckland,
Faculty Medical & Health Sciences,
85 Park Road, Grafton, Auckland
Wednesday 24 October, 7:00pm

Enquiries: Kathleen 09 923 1701
Or visit our website

www.medicalresearch.org.nz
proudly supported by:
The Paul Stevenson Memorial Trust

Professor John Fraser

From the early days in 1992, Professor Fraser's research group has grown to become a large international collaborative research programme that focuses on many aspects of microbial virulence and pathogenicity, but ultimately seeks to develop treatments for staphylococcal and streptococcal infections that do not rely on increasingly ineffective antibiotics. Professor Fraser is currently a co-applicant of an Auckland Medical Research Foundation grant.

The AMRF are very grateful to:

GEON for their design and print of the AMRF Newsletter and AMRF Annual Report.
Douwe Egbert for supplying coffee plungers and ongoing sponsorship for ground coffee.

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Donation Form - Spring 2012

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- Include/ Do not include me on your mailing list (delete one option)
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Every dollar donated goes to medical research

Donations of \$5 or more are receipted and tax deductible

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