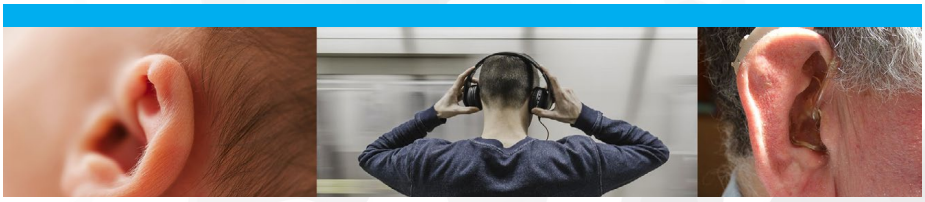
Auckland Medical Research Foundation
est. 1955

Spring Issue 2017
For information about the AMRF
T: 09 923 1701
E: amrf@medicalresearch.org.nz
www.medicalresearch.org.nz

SUPPORTING MEDICAL RESEARCH FOR OVER 60 years

Hearing Loss and Brain Health



We recently hosted over 350 interested members of the public at the AMRF Lecture Theatre to hear from Prof Peter Thorne in his free lecture on "Hearing loss, tinnitus and brain health."

Attendees said: "This is the clearest explanation I've heard in over 20 years."

Prof Thorne says:
"Hearing and balance together provide us with a sense of self within our world, allowing us to connect with and navigate through our environment and to interact and socially connect with people. Disruption of these sensory systems affects our ability to perform these critical functions, which can have profound effects on physical and mental wellness.

"Hearing loss and tinnitus affects over 18 percent of the NZ population. Similarly, disorders of balance are more common than we often imagine, affecting 4 out of 10 people in some way. Maintaining good brain health as we age continues to be important as hearing and balance deficits are increasingly being shown to be risk factors for developing dementia.

Prof Peter Thorne

"In my lecture, I describe new approaches to diagnose, treat or prevent these conditions, to understand more about how these conditions affect brain health as we age. We explore their impact on people, families and whanau, and potential to develop policy for better service delivery, early detection and interventions."

"He's an eloquent and thought-provoking speaker," said another attendee

The presentation from this lecture is now available for viewing on our website.

News to Note

- The 2018 free public lectures will be announced soon! Become a member to hear the news first.
- Our newsletter format has changed to include a larger, more readable font, and an additional page to share more content.
- Tell us what you think! Email us at **amrf@medicalresearch.org.nz**

Welcome to Spring 2017

My first official communication as incoming Executive Director begins with recognition of Kim McWilliams and her outstanding contribution to Auckland Medical Research Foundation (AMRF) over the past seven years. I know you will all join me in extending a heart-felt thank you to Kim and wishing her all the very best in her new endeavours.

I feel very honoured to be joining an organisation that has remained steadfast to its 1955 founding principles. Reading back through the rich history of AMRF, it is evident that the Foundation has been the very fortunate recipient of the support of so many. As an organisation that ensures 100% of every dollar donated goes directly into its charitable purpose, AMRF is one of a handful of the 27,821 charities registered in New Zealand that can make this unique claim.

Our level of credibility and sustainability is testimony to the strategic foresight and incredible generosity of past and present AMRF supporters, as is the over $63,000,000 that AMRF has been able to invest into medical research.

During my first few weeks, I have had the privilege of thanking some of you personally and I very much look forward to introducing myself further. In the interim, I hope you enjoy our Spring newsletter and reading the stories that are at the heart of what your support enables – helping extraordinary people achieve first-class results in the world of medical research.

Warmest Regards Sue Brewster

GRANTS AWARDED FROM RECENT GRANT ROUNDS

$1,354,697 in funding was awarded for the first 3 grant rounds of 2017

The Auckland Medical Research Foundation's Medical Committee reviewed a high number of grant applications in the first half of the year. The successful grants included 9 research projects, 1 Gavin and Ann Kellaway Medical Research Fellowship, 1 Sir Harcourt Caughey Award, 2 Kelliher Charitable Trust Emerging Researcher Start-up Awards and 28 travel grants for researchers to present their research at international conferences.

A selection of grants is summarised below:

GAVIN AND ANN KELLAWAY MEDICAL RESEARCH FELLOWSHIP

VALIDITY TESTING OF THE FINDINGS OF THE LANCET COMMISSION ON OBESITY ($34,895)

Professor Boyd Swinburn School of Population Health, University of Auckland

Professor Boyd Swinburn will travel the world, particularly to low and middle income countries, to undertake validity testing of the findings of the Lancet Commission on Obesity, which met in Auckland in July 2017.

Dr Katie Groom at her induction into the Royal Australian and New Zealand College of Obstetricians and Gynaecologists

SIR HARCOURT CAUGHEY AWARD

ROLE OF THE INTESTINAL MICROBIOME IN INFLAMMATION, OBESITY, AND BRAIN HEALTH IN PREMATURE INFANTS ($13,089)

Professor Frank Bloomfield Liggins Institute, University of Auckland

Professor Frank Bloomfield invited Professor Jacob (Jed) Friedman (Professor of Paediatrics, Biochemistry & Molecular Genetics, University of Colorado School of Medicine) to Auckland to speak in a workshop organised by the Liggins Institute, a symposium at Queenstown Research Week and local meetings in the Liggins Institute and National Women's hospital on the role of early microbial communities in the gut of vulnerable infants on immune and metabolic health. Jed spent time with Auckland researchers exploring collaborative opportunities in clinical trials in Auckland that will investigate how feeding practices in moderate-late preterm babies may impact upon their microbiome.

PROJECT GRANTS

STRIDER NZAUS CHILDHOOD OUTCOME STUDY ($75,061 - 2 years)

Dr Katie Groom, Prof Lesley McCowan, Prof Frank Bloomfield, Dr Christopher McKinlay Dept. of Obstetrics & Gynaecology, University of Auckland

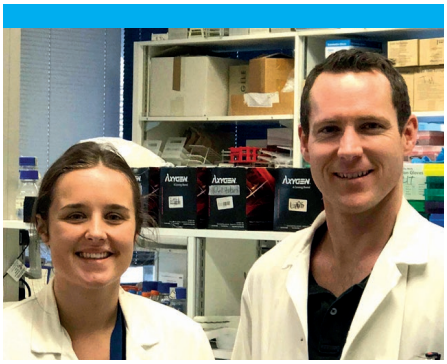
In this project, Dr Groom and her team will undertake The STRIDER NZAus Childhood Outcome Study, a clinical trial. They will assess the development and general health of children at 2-3 years of age who were born to mothers with pregnancies affected by severe fetal growth restriction, and who were given sildenafil (a.k.a. Viagra) or placebo in an earlier trial (STRIDER NZAus). This study will provide highly valuable information on benefit (and/or harm) as a consequence of antenatal sildenafil therapy for the treatment of fetal growth restriction.

Co-funded with the Neurological Foundation of New Zealand

UNDERSTANDING THE CREBRF VARIANT ($159,266 - 2 years)

Dr Troy Merry, Prof Peter Shepherd, Dr Rinki Murphy, A/Prof Lindsay Plank Dept. of Molecular Medicine & Pathology, University of Auckland

Dr Merry and his colleagues will investigate the role of a gene, called CREBRF, in the role of obesity and type 2 diabetes. Some Samoans have a small change in this gene, which has been linked to obesity, but may protect against the development of type 2 diabetes, a known complication of obesity. Understanding how genetic variation, particularly one that is unique to people of Polynesian descent, has the potential to determine what factors contribute to obesity and type 2 diabetes in our population. Such findings could lead to future novel therapeutic interventions in these specific populations.

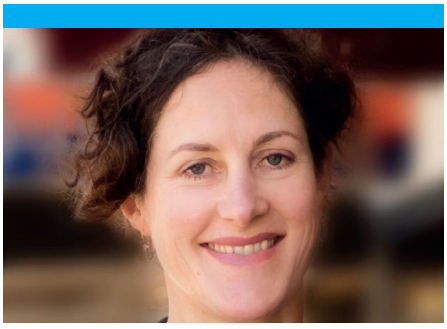


Shannon Adams and Dr Troy Merry

SPACE CLUSTER RCT IN GENERAL PRACTICE ($150,012 - 2 years)

Dr Katharine Wallis, Prof Ngaire Kerse, Dr Linda Bryant, A/Prof C. Raina Elley Dept. of General Practice & Primary Health Care, University of Auckland

Dr Wallis and her team will trial the effectiveness of an intervention designed to support safe prescribing decisions in everyday practice to help avoid adverse drug events or high-risk prescribing that puts patients at increased risk of harm. The intervention includes: a practice audit to identify patients with high-risk prescribing; education and patient-specific feedback to doctors; and a practice mail-out to patients identified as having high-risk prescribing encouraging them to discuss their medicines with their doctor. If proven effective, cost-effective, and practical, this simple intervention could be rolled out nationally to the benefit of all New Zealanders.

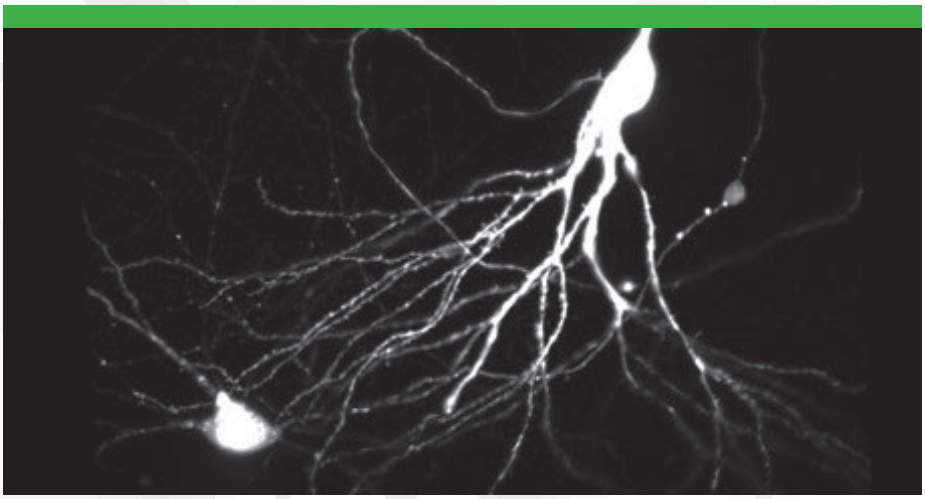


Dr Katharine Wallis

Valuable neurobiology skills returning to Auckland with Travel Grant Award

"Well equipped to be ambassador for study of the brain": Dr. Rashi Karunasinghe of the University of Auckland received an AMRF Travel Grant award to attend the prestigious 2017 Woods Hole Neurobiology Course

Dr Rashi Karunasinghe



3-dimensional image of morphology of a hippocampal neuron acquired using novel dual-view light sheet microscope.

I recently attended the Neurobiology Course at the Wood's Hole Marine Biological Laboratory, a respected, competitive training programme that provides comprehensive laboratory-oriented education in techniques for studying the brain. This eight-week course provided intensive training in the fields of genetics, electrophysiology, imaging, and cell biology. The Director of Education at the MBL, Dr. Rae Nishi, described this transdisciplinary programme as a means for alumni and the teaching faculty to return to our home institutions "well equipped to be ambassadors for the study of the brain." I certainly feel that the course has trained me to pursue the highest standards of research in the field of Neuroscience, and look forward to sharing that knowledge with colleagues in New Zealand.

This training programme is intended for young investigators who wish to pursue independent research careers in Neuroscience. I was one of the 15 students selected for the class of 2017, the only one from Oceania, and we were privileged to learn from a large faculty of international experts in neurobiology.

During the eight weeks, the "discovery"-based teaching style of the course involved 90-100 hours of lectures and 400-450 hours of relevant laboratory work. Although this was challenging, the ability to work alongside like-minded peers (both students and faculty) was a thoroughly enjoyable and captivating experience. Indeed, we were often in the laboratory, engaging in scientific discussions, or working until the early hours of the morning!

I was trained in several methods that will greatly improve the mechanistic studies of my postdoctoral work. My favourite was the microscopy section of the course. We were mostly exposed to two-photon in vivo microscopy, electron microscopy, and high resolution forms of light microscopy. I was able to work with the developer of a novel dual-view light sheet microscope, and acquired exciting data with high spatial and temporal resolution to study the morphological changes induced in hippocampal neurons during excitotoxin exposure.

Course directors, Drs. Villu Maricq and Diana Bautista invited me to submit a grant for "Post-Neurobiology" research at the MBL. I will now return for six weeks in January – February 2018 to work on a collaborative project using high resolution imaging techniques (dual-view light sheet microscopy and correlative electron microscopy with structured illumination super-resolution microscopy). I am very excited for this opportunity, and will use this research experience to advance my postdoctoral studies in neuronal development.

"I am very grateful for the Auckland Medical Research Foundation for supporting me. I was able to learn from, and work alongside really inspiring classmates and faculty, and these networks are likely to advance the capacity of medical research in Auckland. This amazing experience and "discovery"-based training would not have been possible without the generous contribution by the AMRF."

MBL 1888 Biological Discovery in Woods Hole

AMRF Celebrates Emerging Researchers

Highlights from Gavin and Ann Kellaway Medical Research Fellowship and Kelliher Emerging Researcher Start-up Award recipients

AMRF members spent an evening together celebrating the researchers they support, and two families who have chosen to give in their lifetimes to see the researchers they've supported flourish.

"It is such a worthy thing because nothing is taken out" – Ann Kellaway on AMRF's policy of committing 100% of all donations to research, not administration.

Dr Lisa Pilkington and Dr Tim Angeli

Dr. Tim Angeli was the top 2016 AMRF Postdoctoral Fellowship recipient and received The Kelliher Trust Emerging Researcher start-up award of $30,000 to provide working expenses to kick start his research and progress his academic career to help diagnose and treat stomach disorders.

This investment creates a complete package for these researchers, enabling them to immediately start their research rather than spending time seeking further funding, which is the standard process for most researchers.

Dr. Lisa Pilkington described the benefits of receiving her Gavin and Ann Kellaway Medical Research Fellowship in 2015 to study for her Masters of Applied Statistics at the University of Oxford, after she had completed her PhD in medicinal chemistry in 2014.

Dr Pilkington says:
"Thanks to the funding from the AMRF and its supporters I've gained skills in statistical analysis and computer aided drug design to more quickly, accurately and efficiently predict and identify promising anti-cancer targets. In addition to my cancer drug studies, I've consulted on research projects analysing milk, wine, solar chemistry and micro-organism populations, which shows the applicability of statistics to various areas of chemistry. My research will always be motivated by trying to make sure that your investment in me was a worthwhile one."

Ann Kellaway, who together with her late husband Gavin established the fellowship, spoke to the AMRF members about their generous gift. "Gavin and I chose to do this in our lifetimes to feel the excitement of giving." She went on to say, "I encourage those of you thinking of giving to do so in your lifetime to be able to see what's happening, to see the research that you're hoping for."

Dr Angeli says:
"The device we're developing will lead to more rapid and efficient diagnosis of stomach disorders, and we hope will have a positive impact to the patient's lives and simplify the doctor's work to diagnose these problems. Also, these awards from AMRF have enabled me to start to supervise undergraduate, masters and PhD students to help train the next generation of bioengineers and medical researchers and enable us to carry this research forward in the long term."

Hear more from our researchers in videos on our website

HealtheX 2017 Celebrating Student Research

HealtheX is a student-led initiative at the University of Auckland's Faculty of Medical and Health Sciences where students present their research findings to a wide ranging audience of students, faculty staff, clinicians and sponsors. AMRF awards three travel grant prizes for the winners to present their research at an international conference.

Left to right: The 2017 HealtheX winners; Sarah Mitchell with AMRF President Jeff Todd; Melanie MacFarlane and Kenta Cho presenting their research.

Our congratulations to this year's overall HealtheX winner and recipient of the **AMRF Outstanding Emerging Researcher Award**, Kenta Cho, from the Department of Physiology. His presentation entitled "Neuroprotective effects of the TLR7 agonist Gardiquimod in preterm fetal sheep model of asphyxial injury" won him first prize of a $3000 travel grant.

Kenta says:
"Brain injury as a consequence of oxygen deprivation while in the womb or at birth is very common in premature babies. Typically, these babies present with a pattern of brain injury involving damage or loss of specialised cells, called oligodendrocytes, which produce a fatty substance called myelin that insulates neurons enabling efficient transmission of electrical brain waves. Injury to these cells can have devastating neurological consequences on these, such as cerebral palsy. Despite major improvements made in the care of high-risk preterm babies over the last two decades, we currently have no effective way of preventing this. My research suggests for the first time that we can protect and reduce damage to these cells and improve recovery of brain waves. Importantly, as part of my PhD studies, I will now seek to extend my findings to provide confirmation of whether this therapy will have a sustainable long-term effect on survival of these cells following injury and recovery of brain function.

I would like to express my deepest gratitude to the AMRF for this award. This award will provide me with the opportunity to present at high-profile international and national conferences, and meet with renowned perinatal neuroscientists for the development of future research opportunities."

The AMRF also congratulates:
Melanie MacFarlane, from the Department of Paediatrics, who was recipient of the **AMRF Doctoral Oral Presentation Runner Up Award**, with her presentation "Maori Sudden Unexpected Death in Infancy". She received a $2000 travel grant.

Sarah Mitchell, from the Liggins Institute, who received the **AMRF Best Poster Presentation Award** for her poster entitled "Increased protein consumption raises plasma TMAO concentrations in healthy older males: a 10 week RCT". She also received a $2000 travel grant.

Jeff Todd, President of AMRF says:
"This event showcases the outstanding talent and capabilities of the emerging generation of medical researchers. With support from our members and friends, we will continue to fund innovative, quality research to the benefit of all New Zealanders."

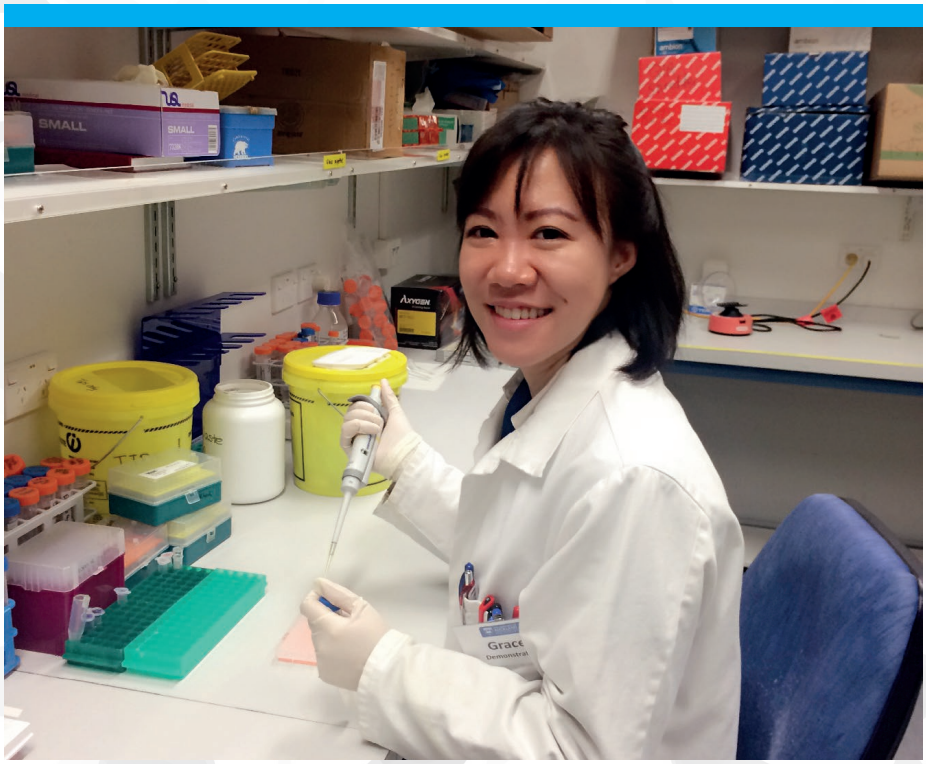
The AMRF is grateful to the Wellington Sisters Trust who provide the funds for the Award.

Thanks from last year's HealtheX AMRF Outstanding Researcher Prize winner

Grace Gong says, "When I heard my name announced I did not realise at that time what a life changing experience I was about to have."

The award allowed me to travel to Cambridge and Oxford, and visit some of the best laboratories in the world. This in itself was a privilege, that I was able to talk to these world leading scientists about their research, listen to their ideas, learn from them not just in the academic setting, but also as a person. Their ways of doing things, their humbleness and their attitude towards both their work and the people around them - it was so impressive and inspiring. I also came to realise that having this award on my CV worked so much in my favour, I received a lot of compliments about it, and was even invited to give a talk at University College London.

"Supporters of AMRF have made a positive impact on my research and career."



Grace Gong in the laboratory

Furthermore, I attended a prestigious Keystone Symposia conference in New Mexico, meeting the leaders and big names in my field, I was like a little girl who finally gets to see her superstars. Through this conference I was able to learn and expand my understanding of the topics covered, build relationships and potential collaborations with these top scientists, and most importantly, I had the opportunity to present some of the work I did during my PhD. The research was well received and sparked interest from scientists all around the world, including those from Cambridge, Harvard, and big pharmaceutical companies. This shows that although we are a small country, the quality of our research, and what we are capable of doing is definitely up there with these leading scientists. I was very proud.

This trip was invaluable to me, it helped me grow so much both as a scientist and as a person. It gave me mind opening experiences that have shaped my path going forward, and all of this would not have been possible without the AMRF Emerging Researcher Award. I have been very fortunate, and can't express my gratitude enough.

100%

ALL DONATIONS SUPPORT RESEARCH
Every dollar donated is invested into medical research because our administration costs are funded through a specific endowment. This means your donation directly enables the best possible advances in the world of medical care and health outcomes.

33%

COST SAVINGS
2-in-1, reusable envelopes cost only 5.7¢ each versus our previous use of 2 separate envelopes, costing 8.5¢.

43%

PAPER SAVINGS
A 2-in-1, reusable envelope uses only 5.5g of paper while a mailing + return envelope uses 9.9g.

The AMRF are very grateful to:

print and design supplied by
bluestar works