



SCHEDULE OF MEDICAL RESEARCH GRANTS AND SCHOLARSHIPS AWARDED FOR 2014

Kidney Health Australia's vision
To save and improve the lives of Australians affected by kidney disease.

SUPPORT FOR KIDNEY RESEARCH

Kidney Health Australia is one of the main non-government supporter of kidney and urinary tract biomedical research in Australia. In 2010 the Board of Directors determined that in the future there should be a shift in the focus of our research support program towards project grants in the public health area of CKD.

A total of fifty-four applications were received by Kidney Health Australia for funding support in the calendar year 2014. Our Medical and Scientific Advisory Committee awarded twenty separate grants and scholarships to the value of \$480,000 into kidney related research projects in University departments, medical research institutes and hospitals throughout Australia. Support to investigator driven research totalled \$394,500, plus an additional \$75,000 funding for strategic targeted research.

In 2014 our Nursing Scholarship program entered its seventh year. This program aims to support Renal Nurses pursuing a Masters Degree, to encourage nurses to pursue a career in renal nursing, in any of its components - clinical practice, education or research - across the continuum of CKD, from prevention to early detection to renal replacement.

Dr Tim Mathew
Medical Director

Investigator Driven Research Grants and Scholars

BIOMEDICAL SCHOLARSHIPS

The new direction of KHA research funding aimed at a public health agenda included a reduction in the number of new scholarship offers. The nephrologists are in general well supported in post-graduate study by funds specifically targeted at medical graduates and scientists have access to a variety of sources for PhD support.

These scholarships permit talented researchers to pursue full-time research for up to three years, qualifying them to obtain a doctoral degree or equivalent at the end of this period. Individual scholarships are valued at \$27,000 for scientists and \$35,000 for medical graduates, per annum. These scholarships are tax free to the holder and are an investment in the future of Australian medicine.

In 2014, one new Medical Research Scholarship and two new Science Research Scholarships were newly awarded. Three Science Research Scholarships were awarded continued funding. Funding allocated was valued at \$156,500.

We actively encourage students receiving KHA funding, to apply for NHMRC scholarships each year, to make the most of our research dollar.

Sponsored Scholarships: Kidney Health Australia encourages groups and individuals to consider supporting research in this manner. Funding biomedical scholarships is a most valued and meaningful way to ultimately promote better health outcomes in kidney patients. We are always interested in hearing from individuals wishing to donate funds for scholarships or grants. All offers are valued and presented to the Medical and Scientific Advisory Committee for consideration. If you wish to find out more, contact the Medical Director's Office and we would be delighted to discuss this with you.

Continuing PhD scholars for 2014

Mr Thomas Rogerson supervised by Dr Angela Webster (Science)
The Centre for Kidney Research - The Children's Hospital Westmead NSW
[Evidence based testing and outcomes in renal transplantation](#)

In transplant medicine clinicians rely on diagnostic tests to identify disease and guide treatment. In particular, diagnostic tests play an important role in pre-treatment assessment to determine the compatibility of potential donors and

recipients, and detect infectious diseases. Continuing on from previous research, the first three projects of this PhD will focus on diagnosis test evaluation. These projects include a pilot stage of larger primary study to determine accuracy of test for latent tuberculosis and their cost-effectiveness in Australia, and a review of new technologies for donor-recipient tissue matching. The second theme of this PhD will focus on the issue of organ scarcity in Australia and the potential for so called 'high risk' donor organs to be utilised in select groups of patients. This theme will encompass two projects, the first of which is a study of kidney transplant in patients with chronic infectious diseases (hepatitis C/B and HIV) using pre-existing registry data. The second project is a review of the literature of kidney transplant recipients that have received an organ from a 'high risk' donor.

Dr Qi Cao supervised by Prof David Harris (Science)*Westmead Millennium Institute – University of Sydney NSW*[Defining the role of the major subsets of renal mononuclear phagocytes](#)

Renal mononuclear phagocytes (rMP), conventionally comprising macrophage and dendritic cells, play a central role in health and disease of the kidney. We have identified four subsets of rMP in mouse kidney. However, the role of subsets of rMP in chronic kidney disease (CKD) is unclear. We will assess the phenotype and function of rMP subsets in different mouse models of CKD, including adriamycin nephropathy and anti-glomerular basement membrane nephritis. The studies will provide therapeutic potential by using regulatory type of rMP subsets or targeting pro-inflammatory type of rMP subsets to treat CKD.

Miss Brooke Huuskes supervised by A/Prof Sharon Ricardo (Science)*Monash immunology and Stem Cell Laboratories - Monash University VIC*[Investigating the use of stem cells in conjunction with anti-fibrotic treatment to reverse scarring of the kidney](#)

The incidence of kidney disease is increasing at a rate approximately 7% per year worldwide. Kidney transplantation remains the preferred method of treatment for patients with end-stage renal disease. However due to the significant cost associated with this treatment and that fact that there is a severe shortage of available organs, it is imperative that cellular based therapies aimed at restoring kidney function are offered as alternatives. Mesenchymal stem cell (MSC) therapy has been reported to relieve kidney injury and promote structural repair, however their viability is thought to be hampered by scar formation. The use of anti-fibrotic factors, such as the hormone relaxin, reverses scar formation in many fibrotic disease, including renal pathologies. Background studies demonstrate that the combination of MSC and relaxin was more effective in preventing renal fibrosis than either treatment alone.

Newly awarded scholars for 2014**Mr Aowen Zhuang supervised by Prof Josephine Forbes (Science)***Mater Research QLD*[Problems with protein folding and trafficking are novel mediators of kidney disease](#)

Kidney disease leading to heart attacks and strokes affects up to one third of Australian individuals with diabetes (~400,000 persons) and is one of the most deadly and poorly understood chronic complications, with current therapies only slowing the progression. When proteins are manufactured in cells they receive a number of tags which direct them to fold correctly and traffic to the right location. Oligosaccharyltransferase-48 (OST-49) facilitates the addition of one of these protein tags, via a process called N-glycosylation which is essential for cell survival. There are many important proteins which need N-glycosylation for their normal function in the kidney including the protein receptor for the hormone insulin and cell transporters which help kidney cells to take up sugars for energy production such as GLUT1 and GLUT4. This project aims to investigate if changing the amount or location of OST-48 in kidney cells contributes to the development of kidney disease in diabetes and ultimately if this can be targeted to improve kidney health. We will use a number of approaches including mouse models of diabetes where OST-48 has been altered in specific kidney cells, as well as human cells lines and kidney tissues taken from diabetic patients.

Dr John Whitlam supervised by Prof David Power (Medical)*Austin Health VIC*[A simpler, less invasive test for monitoring kidney transplant rejection](#)

Kidney transplantation is a treatment for kidney failure. 20% of transplanted kidneys undergo rejection. This can damage or destroy the transplant. Presently, rejection is identified when the kidney function deteriorates. This can occur late after rejection has started. To confirm the diagnosis, an invasive biopsy associated with discomfort and risks is required. This

study will evaluate the use of a simpler blood test to monitor for rejection, allowing earlier and safer identification and treatment.

Miss Camilla Hanson supervised by Dr Allison Tong (*Science*)

University of Sydney NSW

[Disparities in access to living donor kidney transplantation](#)

Kidney transplantation improves life expectancy and quality of life in patients with end-stage kidney disease, compared with being on dialysis. However, the wide variation in living kidney donation rates across Australia remain unexplained. This study will identify patient, clinician, and structural barriers to living kidney donation, and describe both patient and clinician perspectives on barriers and disparities in Australia. Interviews and surveys will be used to collect data, and the results will provide evidence-based recommendations for changes to policy and clinical practice to increase access to living kidney donation.

SCHOLARSHIPS FOR NURSES PURSUING MASTERS DEGREE

Kidney Health Australia provides grants for Registered Nurses wishing to study for a Masters Degree in Nursing or Public Health. The aim of the program is to encourage nurses to pursue a career in renal nursing in any of its components - clinical practice, education or research - across the continuum of chronic kidney disease from prevention to early detection to renal replacement.

Seven renal nurses were awarded scholarships valued at \$3,000 each, for a maximum of three years – total of \$21,000 for calendar year 2014.

Continuing Nursing scholars for 2014

Mrs Wendi Bradshaw - Master in Nursing Practice - Deakin University, VIC

Ms Toni East - Master of Nursing - Nurse Practitioner - Flinders University, SA

Ms Anthony Perkins - Master of Nursing - Advanced Practice – University of Newcastle, NSW

Newly awarded scholars for 2014

Mrs Tania Burns - Master of Nursing (Research) - University of Wollongong, NSW

Mr Grant Ramke - Master of Nursing (Clinical Education) - James Cook University, QLD

Mrs Debra Turner - Master of Nursing (Leadership and Management) - University of South Australia, SA

Mrs Gethsy Jayaseelan - Master in Clinical Practice (Renal Stream) - Australia Catholic University, VIC

SPECIAL PROJECT FUNDING

Ms Sheree Eberby supervised Professor Ian Wright and Dr Josephine Gwynn

University of Newcastle NSW.

[The Kids' Kidney Project](#)

As we know, the epidemic of renal disease has an incredible burden on our Indigenous population. Our project examines both conventional and new research markers of renal function in Aboriginal and Non-Aboriginal adolescents, in the form of renal ultrasound and blood/ urinary markers. Our aim is to determine if there are early signs of a decline in renal function in our Aboriginal participants in comparison to our Non-Aboriginal participants.

Prof Melissa Little

University of Queensland QLD

[Kidney mesenchymal stem cells in tubular development, repair and turnover](#)

The objective of the research is to generate induced pluripotent stem (iPS) cell lines from renal patients identified as carrying a disease causing mutation responsible for their renal disease. Funding will initially support the whole exome sequencing of patients identified by Dr. Andrew Mallett. It will then support the derivation of an iPS cell line from such a patient for further characterisation in comparison to normal iPS cells.

Targeted or Strategic Research

This year \$75,000 was awarded by the Medical and Scientific Advisory Committee to targeted areas deserving support and assisting Kidney Health Australia in its mission to free Australia of kidney disease.

ANZDATA REGISTRY

The internationally acclaimed ANZDATA Registry has been funded substantially by Kidney Health Australia since its formation. It is one of the major accomplishments of the Australian and New Zealand nephrology community and has contributed importantly to knowledge, planning and best practice in clinical care over many years. For calendar year 2007, MSAC awarded ANZDATA Registry \$75,000 annually towards its general operating costs. Learn more at www.anzdata.org.au

PROJECT GRANTS

Project grants worth \$43,200 each for use over 1-2 years were a new addition to the KHA program. The competition was strong and most applications were considered suitable for support should more funds be available.

Previous Project Grants 2013

Chief Investigator: A/Prof Martin Gallagher

Co-Investigators: A/Prof Josette Eris & Dr Bruce Cooper

Associate Investigators: A/Prof Stephen McDonald, Prof Alan Cass, Dr Sradha Kotwal & Dr Paul Snelling

Renal & Metabolic Division - The George Institute for Global Health NSW

[Using novel health service data to improve the outcomes of dialysis patients](#)

Increasing numbers of Australian patients and families are bearing the burden of dialysis. The EXT-ANZ project will allow us to better understand how health services impact upon the outcomes of these patients and their families. The project has built a collaborative team that has completed the study design and is progressing through numerous ethics approvals in NSW, WA and with the Australian Government. We anticipate that we will begin consenting patients early in 2014, receive study data around mid-2014 and begin producing results by the end of 2014, in keeping with our planned timelines.

Chief Investigator: Dr Allison Tong

Co-Investigators: Prof Jeremy Chapman, Prof Jonathan Craig

Associate Investigators: A/Prof John Kanellis, Prof Steve Chadban, Dr Scott Campbell, Dr Grant Luxton & Dr Wai Lim

Sydney School of Public Health – The University of Sydney NSW

[Investigating barriers and disparities in kidney transplantation](#)

This projects aims to understand the barriers and disparities in access to living donor kidney transplantation. Interviews and surveys will be conducted with clinicians and patients. More than 40 interviews have been conducted with nephrologists from New South Wales, Victoria and New Zealand. We expect to complete a minimum of 50 interviews by October 2013. The Western Sydney Local Health District (Westmead) Ethics Committee has granted ethics approval for conducting interviews and surveys with patients however we will commence once site-specific approvals are obtained.

Chief Investigator: Dr Meg Jardine

Co-Investigators: Prof Bruce Neal, Prof Vlado Perkovic, Dr Jicheng Lv, Dr Lijing Yan, A/Prof Martin Gallagher

Renal Division – The George Institute for Global Health NSW

[Impact of Salt Reduction on Proteinuria](#)

Reducing dietary salt may reduce albuminuria, a risk factor for both heart and kidney disease, although this has not been proven. The largest randomised trial of salt reduction worldwide is near completion and will establish the impact of dietary salt reduction on high blood pressure in 3,000 people from rural China. With KHA support, the impact of salt reduction on important kidney outcomes is being assessed.

Newly awarded Project Grants for 2014

Twenty-eight applications were received with five awarded funding by the Medical and Scientific Advisory Committee with a total funding of \$216,000.

Chief Investigator: A/Prof Josephine Clayton

Co-Investigators: Prof Carol Pollock, Dr Tim Luckett, Dr Rachael Morton, A/Prof William Silvester, Dr Karen Detering, Ms Lucy Spencer

Northern Clinical School, Sydney Medical School – The University of Sydney NSW

[Investigating barriers and facilitators to advance care planning for dialysis and pre-dialysis patients](#)

Recent guidelines have emphasised the importance for providing better support for communication and decision-making about end-of-life (EOL) issues for people with end-stage kidney disease (ESKD) and their families. Advance care planning (ACP) provides a potential solution by promoting discussion between patients, families and healthcare teams regarding values, goals for care, prognosis and EOL issues, as well as facilitating documentation of the patient's wishes for EOL care. International research, however, suggests that ACP may not be widely implemented in renal units due to various barriers. The proposed project will document Australian current practice in, and attitudes to, ACP for people with ESKD and building an understanding of barriers, and facilitators to ACP implementation, as well as patient, family and health professional preferences for content, timing and mode of delivery of ACP. The results of this study will be used to refine our established ACP program (Respecting Patient Choices) to ensure its relevance to people with chronic kidney disease, who are receiving or considering dialysis, as well as inform the optimal design and implementation of ACP programs in renal units across Australia, including for people from Aboriginal and Torres Strait Islander and culturally and linguistically diverse backgrounds.

Chief Investigator: Dr Jeff Coombes

Co-Investigators: Miss Kassia Weston, A/Prof Nicole Isbel, Prof Rob Fassett,

School of Human Movement Studies – The University of Queensland QLD

[Exercise training in chronic kidney disease](#)

The optimal exercise prescription for patients with chronic kidney disease (CKD) has not been established. Current guidelines suggest that patients perform moderate intensity continuous exercise, however this is not based on high quality evidence. High intensity interval training has been shown to be superior to moderate intensity continuous training in improving cardiorespiratory fitness, improving cardiovascular risk factors, increasing muscle function and is more enjoyable. This has been shown in healthy individuals and patients with heart disease, obesity and diabetes. This type of exercise is yet to be studied in CKD patients. There, the aims of this study are to investigate the effects of high intensity interval training on cardiorespiratory fitness, muscle function, muscle wasting and exercise adherence in CKD patients. Thirty patients with CKD will be allocated to either high intensity interval or moderate intensity continuous. At baseline and at the end of 12 weeks of supervised training the outcome measures will be assessed. They will then be educated on continuing the exercise at home and followed-up one year later to evaluate longer-term adherence. The findings from this study will have important implications for exercise prescription and understanding the effects of exercise training on muscle wasting in the CKD population.

Chief Investigator: Prof Peter Ebeling

Co-Investigators: A/Prof Craig Nelson, Dr Mahesan Anpalahan

Department of Medicine – The University of Melbourne NSW

[Nitrates for bone protection in Chronic Kidney Disease](#)

Studies have consistently shown that low trauma fractures are widely prevalent among patients with chronic kidney disease (CKD). However, the management of this condition remains controversial because the safety and efficacy of most currently available treatments for the prevention of fractures have not been adequately tested in patients with CKD. Further, many of these treatments are potentially toxic to kidneys and may also have deleterious effects in certain types renal bone disease. Therefore, there is a need for investigating new therapies for bone protection in CKD, using drugs that are safe and effective in patients with CKD. Recent evidence suggests that nitrates have all the necessary attributes to be a postmenopausal women, although not specifically in patients with CKD, and their safety in CKD, including in patients with advanced CKD, is well established. The current study is designed to assess the efficacy of isosorbide dinitrate, a commonly available oral nitrate preparation in Australia, in the prevention of bone loss in patients with moderately severe kidney disease.

Chief Investigator: Prof Josephine Forbes

Co-Investigators: Prof Anthony Russell, A/Prof Nicki Isbel, Prof Carmel Hawley, Prof Arnold Ng, Prof Andrew Cotterill, Prof Mark Harris, Prof Kim Donohue, Dr Michael Ward, Horst Joachim Schirra

Glycation and Diabetes – Mater Research QLD

[Can disturbances in energy production provide biomarkers for kidney disease in diabetes?](#)

Diabetic individuals with kidney disease make up the greatest proportion of person requiring a kidney transplant or dialysis in Australia. We therefore need to find early detection markers as well as develop a better understand of why diabetic kidney disease occurs to design more effective treatments. It is understood, however, that maintaining the function of our cell power stations, the mitochondria, is important for kidney function, since kidneys have a very high demand for energy production from fuel sources such as sugars, lactate and simple facts. In diabetes, this fuel balance is through to be interrupted which may cause damage to kidneys. Hence within this proposal, we will examine fuels and fuel production waste products in the urine giving us a "finger print" of kidney energy metabolites at that time. Here we aim to assess if we can detect differences between individuals with and without diabetes, as well as those with impaired kidney function. Secondly, we will use medical imaging to look at the fuel "content" of the kidney and see how this relates to urine profiles in these individuals. Overall, we aim to understand if certain fingerprints of fuel metabolites in urine and associated with kidney disease in diabetes and therefore may be worth testing as predictors of disease in larger populations.

Chief Investigator: A/Prof Nicole Isbel

Co-Investigators: Dr Michael Burke, Dr Christine Staatz, Dr Katherine Barraclough, Prof Adele Green, Dr Scott Campbell

Department of Nephrology – Princess Alexandra Hospital QLD

[Identifying genetic and pharmacological predictors for non-melanoma skin cancer in kidney transplant recipients](#)

Australian kidney transplant recipients have a twenty times greater risk of developing skin cancer compared with general populations and may suffer from hundreds of cancerous lesions during their lifetime. Surgical removal of skin cancers can be disfiguring, and if they are not detected early, the cancers can be fatal. Skin cancers in transplant patients develop secondary to both past sun exposure and the unwanted side effects of immune suppressing medications that are used after the transplant to protect the kidney. This study aims to identify how genetic differences between transplant patients influence the risk of skin cancer following treatment with immunosuppressant medications. The proposed study has the potential to guide long-term treatment choices in at risk individuals and to identify patients who might benefit from more intensive skin cancer checks. This has the potential to enhance the duration of quality of life for thousands of Australians who have received a kidney transplant.