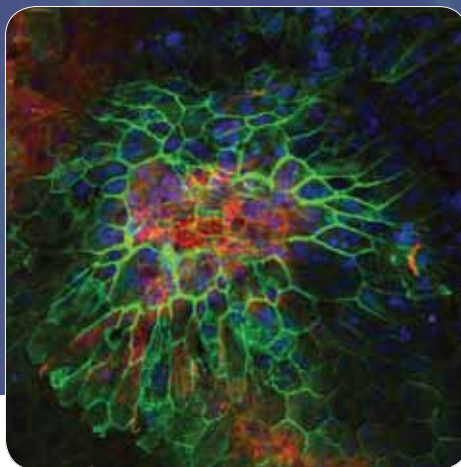
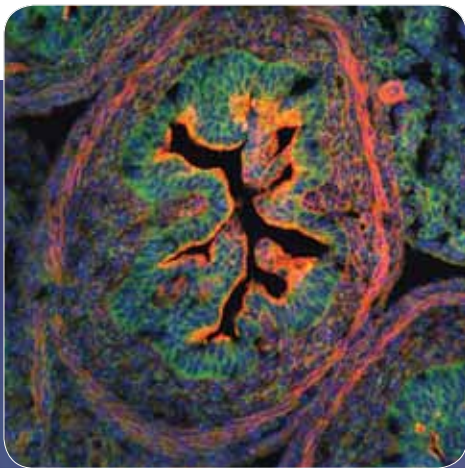


# Faculty of Health Sciences

## RESEARCH REPORT



# FACULTY AT A GLANCE

Professional Staff	149
Academic Staff	269
Research Only Staff	431
Titleholders	1,696
Higher Degree by Research Students	570
International Higher Degree by Research Students	88
Bachelor of Health Sciences — Honours Students	95
Bachelor of Medical Science — Honours Students	9

December 2010

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# OUR MISSION AND VISION

## Our Mission



To be internationally recognised for excellence in student-centred learning, innovative research and scholarship and to lead the translation of teaching and research outcomes to serve the health and care needs of all communities in South Australia, nationally and internationally.



## Our Vision



Our graduates are distinguished by scholarship, a commitment to lifelong learning, dedication to high quality evidence-based health care, and innovative and collaborative research.

Our learning and teaching programs are developing highly skilled professionals who display compassion and competence in their chosen careers and the highest standards of integrity and ethical behaviour.

Our research programs are held in high regard, their quality and impact are respected by peers and the community, and reflect more than a century of excellence. We aim to enhance the international recognition for our research and the impact we create.

Our Schools and Disciplines and staff connect the University and the Faculty with the community and promote health and wellbeing for all people.



## Message from the Executive Dean



**Professor Justin Beilby**  
Executive Dean

It has been an excellent year for the Faculty, which has recently been recognised with outstanding ratings for research quality at well above world standard in the Australian Research Council's Excellence in Research for Australia report. The highest levels were achieved by Paediatrics and Reproductive Medicine, Oncology and Carcinogenesis, Nutrition and Dietetics. These results are well in line with our investment in our research strengths by establishing dedicated research Institutes and Centres. These focused research areas already set new standards for health care and treatment of patients and are leading to a better understanding of critical diseases. A key to our success is our ability to attract the best researchers from Australia and overseas and provide them with the infrastructure and support to achieve great research outcomes. Our success also reflects the variety of skills in assembled teams focused on particular research areas.

The University of Adelaide is ranked in the top 1% of universities in the world based on the Times Higher Education, QS and Jiao Tong Rankings. Rankings act as one measure for our success in research and education. For us it is of greatest importance that we improve the health and wellbeing of women, men and children in Australia and around the world.

Another exciting highlight was our 125th Medical Program Anniversary. The University's 125 years of teaching, learning, research and achievements that transformed health care in Adelaide and worldwide were celebrated with special events and activities, culminating in festivities in September 2010. We are extremely proud of 125 years of history and our outstanding medical talent.

As you can see, the last year was successful, exciting, innovative and celebratory. I am proud of the significant advances made by our staff and affiliates for the clinical care, therapy, treatment and prevention of diseases that will continue to build a better future for health care in South Australia. I am grateful to all of those who are directly involved in our day-to-day activities to make our Faculty successful and thriving.

I would like to emphasise that our research achievements are only possible because of our partnerships with Federal and State governments and the numerous organisations, industry and individuals who generously support the Faculty. They are making a difference to the Faculty, to the University and to medical and health research for the benefit of future generations. I am thankful for your continuing support and contributions.

We will maintain our efforts to achieve our vision: to enhance the international recognition for our research and the impact we create.

## Message from the Associate Dean (Research)



**Professor Julie Owens**  
Associate Dean (Research)

The Faculty of Health Sciences has contributed substantially to groundbreaking health research in Australia and worldwide throughout the past years. Our goals continue to be the delivery of quality, internationally competitive research, the promotion of innovative postgraduate educational programs and effective liaison with our key stakeholders and the general community.

The University of Adelaide's position as a leader in health and medical research has been confirmed with the release of the outcomes of the first Excellence in Research for Australia (ERA). This rates Faculty research in most fields at above the national average and at or above world standard (ERA 2010 National Report).

Notably, Cardiovascular Medicine and Haematology, Medical Microbiology, Medical Physiology, Nursing, Nutrition and Dietetics, Oncology and Carcinogenesis, and Paediatrics and Reproductive Health ranked well above world standard (5); Clinical Sciences, Dentistry, Immunology, Pharmacology and Pharmaceutical Sciences above world standard (4); and Neurosciences, Psychology and Cognitive Sciences and Public Health and Health Services at world standard (3). These rankings reflect our national pre-eminence and leadership in our Research Institute and our various Research Centres.

These outstanding results have been generated by our academics, particularly those who are externally funded, our students, and our affiliate collaborators within the Royal Adelaide Hospital, SA Pathology, The Queen Elizabeth Hospital, the Women's and Children's Hospital, the Lyell McEwin Hospital, the Children, Youth and Women's Health Service, the Women's and Children's Health Research Institute and other health institutions.

We have continued to achieve great success in each of the key research

performance indicators — publications and world benchmarked citation rates, research grant income, and research student completions — generating an outstanding research record. Our research has been published in leading general, scientific, clinical and public health journals internationally, and in the top international specialist journals in each discipline area. In 2010, competitive funding of approximately \$40.8 million was awarded by the National Health and Medical Research Council and the Australian Research Council. This was supplemented by extensive research funding from a range of public and private sources and represents an increase of 18% compared to 2009. Our shift to a more collaborative and interdisciplinary approach is reflected in this growth.

On behalf of the Faculty Research Committee, I wish to congratulate all our researchers across the Faculty on another year of outstanding research achievement!

We continue to work to strengthen our University Research Centres and Research Institute and their partnerships with Schools and to support emerging research areas with a clear focus on improving health through excellence in research. Essential to the Faculty's success in research is the recruitment and retention of top quality staff. We have been fortunate in continuing to attract both established and emerging researchers and research students of great potential.

Looking to the future, we are confident that the Faculty of Health Sciences will continue its successful path grounded on the commitment, creativity and excellence of our researchers and research students. The landscape of research in the Faculty is evolving rapidly and must continue to do so, to strengthen our position in and contributions to health and medical research worldwide.

### FACT:

**The University of Adelaide is ranked in the top 1% of universities in the world.**

### FACT:

**The result of the first Excellence in Research for Australia (ERA) process verified that the Faculty of Health Sciences received above world standard ratings in six areas of health and medical research.**

# FOCUSING ON OUR RESEARCH STRENGTHS

The University of Adelaide's Strategic Plan 2008–2012 focuses on building a great research University and consolidation of research strengths. Consequently, the University substantially increased investment in research by supporting the venture to establish the University Institutes and University Research Centres.

Building and supporting research of the highest quality enhances the University's national and international profile and promotes strategic linkages with external partners. It assists both in attracting outstanding researchers and external research funding, fosters renowned research teams, attracts higher degree by research students, and boosts high quality research output.

The Faculty of Health Sciences is determined to support the University to reach this goal and now hosts the Robinson Institute including four University Research Centres and an additional eight Research Centres and two cross-faculty Research Centres. This long-term future strategy will further increase our research performance and strengthen our international reputation.

The multidisciplinary focus of our Institutes and Centres provides a collaborative platform for research partnerships across the University and with other research organisations.

## Robinson Institute

The Faculty of Health Sciences is hosting the Robinson Institute, named after renowned obstetrician Professor Jeffrey Robinson who promoted the strong research culture in reproductive medicine at the University of Adelaide. The Robinson Institute combines South Australia's expertise in reproductive health, intergenerational health and stem cells through four University Research Centres in a collaborative venture with the Adelaide hospitals and SA Pathology. This outstanding Institute brings together world-leading researchers supported by modern infrastructure and an innovative culture. The Robinson Institute's driving focus is giving and sustaining life for existing and future generations — that is, creating life and making sure it is as healthy as possible throughout by finding cures and treatments for a range of health issues and illnesses.

The Institute was officially launched in 2009 to bring together four of the University's leading health Research Centres. The Institute's research covers the whole life spectrum:

- Conception and fertility, with a focus on helping people realise their hopes of starting a family
- Healthy start to life, where the focus is on healthy pregnancies and infants' early years
- Regenerative medicine, where we are looking at the use of stem cells to cure a number of illnesses and disabilities, including stroke and cystic fibrosis.

The Institute's unique blend of more than 350 dedicated, world-class researchers have wide-ranging expertise and work tirelessly on a variety of relevant and ground-breaking programs. Some have been named among the nation's best and their international research discoveries have covered everything from IVF and fertility to national guidelines for pregnancy health, and we are now also a step closer to preventing cerebral palsy.

One of the great strengths of the Robinson Institute is the way it links clinicians and researchers from a wide range of disciplines and organisations. This is further enhanced by the Institute's close association with South Australia's health system, which ensures the Institute is linking real data and research with meaningful outcomes for the benefit of the community.

The Robinson Institute is driven by the belief that our work has major life impacts, with medical research holding the key to improving the health of future generations.



**Professor Robert Norman**  
Director, Robinson Institute

### FACT:

**One in six Australian couples suffer infertility and for those who are able to conceive 20% will experience complications during pregnancy.**

## Robinson Institute (continued)

Embedded in the Robinson Institute are four University Research Centres:

- **Research Centre for Reproductive Health**

Directors: Professor Sarah Robertson & Associate Professor Jeremy Thompson.

The Centre was established in 2004 and is a world leader in the investigation and improvement of reproduction and reproductive health research spanning from oogenesis to post conception.

- **Research Centre for the Early Origins of Health and Disease**

Directors: Professor Julie Owens, Associate Professor Michael Davies & Associate Professor Michael Ridding.

The Centre is a leader in the investigation of the intergenerational and perinatal origins of metabolic, cardiovascular, neurological and reproductive health in postnatal life.

- **Centre for Stem Cell Research**

Directors: Associate Professor Mark Nottle and Professor Stan Gronthos.

The Centre undertakes research in bone marrow, neural, periodontal, ovarian and cord blood stem cells and their potential applications in stroke, cardiac and tissue repair, cystic fibrosis, lysosomal storage and other inherited disorders, transplantation medicine, developmental biology, immune diseases and leukaemia.

- **Australian Research Centre for Health of Women & Babies**

Director: Professor Caroline Crowther and Co-directors: Professor Jodie Dodd and Ms Philippa Middleton.

The Australian Research Centre for Health of Women and Babies generates research evidence of the highest quality and is a world leader in maternal and perinatal research and promotes the best health possible for all women and their babies. The Centre's major research importance lies in the field of maternal and perinatal health, across the spectrum from preconception, through pregnancy and childbirth, infancy and later life. In addition, ARCH ensures that research findings are incorporated into health care practice.

## RESEARCH STORIES

### Professor Sarah Robertson



Professor Sarah Robertson, achieved a major breakthrough in IVF technology that is expected to help millions of women who have suffered previous miscarriages after IVF treatment by improving IVF embryo implantation rates for some women by up to 40%.

In a clinical trial involving 1319 IVF patients, Professor Robertson and ORIGIO A/S — a European company specialising in assisted reproductive technologies — have shown that growth factor molecules are critical to ensuring optimal embryo development.

The resulting completely safe and natural product, EmbryoGen, to be released in 2011, contains a signalling molecule called GM-CSF found naturally in the mother's tissues. EmbryoGen protects the embryo from stress, making it stronger and more robust in the early implantation period and it may also result in IVF babies that are bigger and healthier at birth.

### Dr Kylie Dunning



Life-saving chemotherapy and radiation therapy often lead to infertility. Research undertaken by the Robinson Institute's Dr Kylie Dunning helps to preserve the fertility of female cancer survivors whose ovaries are cryopreserved for future use. Her research discovered that fats are a vital source for follicle and egg development and growth. Using this knowledge, the latest promising technology of growing ovarian tissue in a three-dimensional ball of gel significantly improves embryo development. In 2010, Kylie was awarded the South Australian Young Investigator Award for her research.

### Associate Professor Dr Simon Koblar



Stroke is the leading cause of disability in Australia, with more than 250,000 people estimated to be living with the aftermath of strokes. A significant challenge is how to repair the brain after damage from stroke and to improve function.

A current project of the Institute is the use of stem cells from the adult human tooth — called dental pulp stem cells. Professor Stan Gronthos, Co-director of the Institute's Centre for Stem Cell Research, was one of the first to isolate stem cells from the dental pulp of human teeth in the USA in 2000, and has brought this technology back to Adelaide. Associate Professor Simon Koblar, Director of the Institute's Stroke Research Program, is leading research on using dental pulp stem cells as a potential therapy for brain repair in stroke victims.

Research to date has indicated that dental pulp stem cells have an intrinsic ability to produce neurons and make a range of growth factors that are likely to help repair the brain. The Peter Couche Foundation has been established within the University to support this research.

# UNIVERSITY RESEARCH CENTRES

The aim of our Centres is to deliver the highest quality research through increased interdisciplinary and research cooperation. The Centres are designed to build bridges between laboratory research, experimental, clinical medicine and population health to achieve new ways of delivering health care to South Australia and training the new generation of health care providers. In Research Centres, we are streamlining our research and optimising our human and physical resources through the development of networks and new levels of communication, coordination and cooperation.

The Faculty of Health Sciences is currently hosting eleven established and two new Research Centres and in addition, two cross-faculty Research Centres to tackle some of the State and national research priorities.

## Centre for Orofacial Research and Learning (CORAL)

Established in 2008, CORAL is a multidisciplinary centre bringing together the University of Adelaide's nationally recognized research leaders, basic scientists, clinicians and translational researchers in oral health and disease. CORAL research activities represent clear national leadership, and they are internationally recognised. The Centre focuses on the prevention and treatment of oral diseases and disorders and their clinical consequences. The priority areas of research are: Periodontal Pathology; Craniofacial Biology; Dental Education; and Mucosal Research. CORAL is in the process of developing a fifth area around an existing nucleus of research strength in dental materials where there is the opportunity for development of new dental technologies and substantial commercial earnings from licensing.

CORAL's research programs will lead to significant developments in techniques for new and effective treatments of oral disease, as well as new insights into links between periodontal disease and systemic conditions such as pre-term low birth weight, coronary heart disease, myocardial infarction, stroke, Type 1 diabetes mellitus and rheumatoid arthritis, enabling early diagnosis and treatment.

The Centre's co-location within the School of Dentistry allows collegial, scientific and clinical interactions between all member groups. CORAL is also closely linked with two other major dental research centres — the Australian Research Centre for Population Oral Health and the NHMRC Clinical Centre for Research Excellence in Oral Health.



**Professor Mark Bartold**  
Director, CORAL

### FACT:

Periodontal disease is one of the most common forms of chronic disease affecting humans. Up to 90% of the population suffer from mild forms of gingivitis and up to 60% suffer from more advanced periodontal disease affecting the underlying bone and ligaments.

# Centre for Orofacial Research and Learning (CORAL) (continued)

## RESEARCH STORIES

### Professor Grant Townsend



Professor Grant Townsend and his team of researchers are entering an exciting new phase of their studies of dental development and oral health in twins and their families. Their studies of the teeth and faces of Australian twins have been continuing for nearly 30 years, with three major cohorts of twins recruited over that time.

Cross-sectional data and records relating to teeth and faces of twins are available for around 300 pairs of teenage twins, as well as longitudinal data for 300 pairs of twins examined at three different stages of development; once with primary teeth, once at the mixed dentition stage, and again when the permanent teeth emerged. The third cohort of twins comprises over 600 pairs of twins recruited at around birth, together with other family members.

The emphasis in this third group of twins has been to record the timing of emergence of the primary teeth and also to sample saliva and dental plaque to establish the timing of colonisation of decay-forming bacteria in the mouth. Analyses have confirmed that genetic factors strongly influence variation in timing of primary tooth emergence. The research team is now beginning to examine twins to see whether those who become colonised earlier with decay-forming bacteria develop dental decay at an earlier age.

By making comparisons within and between monozygotic and dizygotic twin pairs, the researchers are now investigating how genetic, epigenetic and environmental factors interact to influence dental development and also oral health. Expertise in defining new dental phenotypes in 2D and 3D scanning systems and modelling the complex process of dental development enriches the group through the contribution of Adjunct Professor Alan Brook who has recently joined the group from the United Kingdom.

### Professor Dorothy Keefe



Thousands of patients have to undergo chemotherapy and radiotherapy every year, and a large number of them suffer from mucositis. This condition is one of the most unpleasant side effects of cancer treatment and can be caused by chemotherapy, radiotherapy, targeted anti-cancer therapy or combinations of treatments. It results in ulceration in the mouth or gastrointestinal tract, and is accompanied by pain, bloating, diarrhoea and bleeding. It reduces quality of life significantly, and results in increased costs of cancer care due to increased drug costs and admissions to hospital. Mucositis occasionally can be fatal.

The Mucositis Research Group, under the leadership of Professor Dorothy Keefe studies the mechanisms behind mucosal injury and ways of preventing or treating it. It also investigates links between mucositis and other regimen-related toxicities.

The current research areas range from molecular pathways to the microbiome, as the gut toxicity is a product of interactions between gut wall, gut contents and cancer treatment. The group has national and international collaborations to produce evidence-based guidelines for the management of mucositis. Professor Keefe works with the pharmaceutical industry to advise on drug development; the scope of this work including both new anti-cancer agents and new anti-toxicity agents. A recent highlight of the group's activities has been the development of a model to study the toxicity of the small molecule tyrosine kinase inhibitors, in collaboration with GlaxoSmithKline. Tyrosine kinase inhibitors have been shown to be effective in a range of cancers, as they target molecular pathways that are abnormally active in cancer cells. However, they have a number of toxicities including severe diarrhoea and mouth ulceration. The mechanism of these toxicities is different from that of standard chemotherapy and needs to be fully understood if these new, targeted agents are to reach their full potential as cancer treatments.



## Australian Research Centre for Population Oral Health (ARCPOH)



**A/Professor Kaye Roberts-Thomson**  
Director, ARCPOH

The Australian Research Centre for Population Oral Health reflects the combined resources of the previous Chair in Social and Preventive Dentistry, other academic areas including oral epidemiology, geriatric dentistry and Indigenous oral health as well as the Australian Institute of Health and Welfare's Dental Statistics and Research Unit, the Colgate Oral Care-supported Dental Practice Education Research Unit and the National Oral Health Promotion Clearinghouse.

Staff within the Centre are primarily committed to research and research training. However, they also have a substantial involvement in undergraduate teaching.

ARCPOH is pursuing a broad strategy of coordinating the relevant research activities of the contributing organisations and units so as to enhance progress in the following main areas:

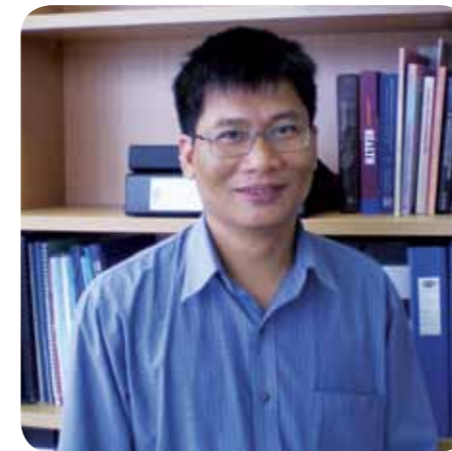
- Distribution and determinants of oral health
- Burden and impact of oral disease
- Effectiveness of population oral health interventions
- Oral health services and labour force research
- Oral health policy analysis
- Oral health promotion data warehouse and information clearinghouse
- Indigenous oral health
- Geriatric oral health

### FACT:

**Less than half the Australian population has access to timely and appropriate dental care and better oral health.**

## RESEARCH STORIES

### Dr Loc Do



The natural history and long-term impact of dental fluorosis has not been studied. Exposure to fluoride in early childhood has a balance of early protection from dental caries and risk of having dental fluorosis on permanent teeth, as shown in our baseline research in 2003–04. Dental fluorosis ranging from very mild to mild was found not to have negative impact on oral health-related quality of life reported by the children and their parents. Dr Loc Do's research aims to study the natural history of dental fluorosis and reevaluate the balance of risk and benefit of early fluoride exposure. The follow-up round has been completed, achieving good response rate. This longitudinal cohort study is expected to contribute comprehensive evidence to evaluate effectiveness and safety of fluoride use.

### Dr Haiping Tan



Dr Haiping Tan's research aims to test the best oral health practice models for preventing and controlling tooth decay in cognitively impaired and functionally dependent older adults in residential care facilities.

In this one-year study, residents with at least five teeth will receive dental examinations by a registered dentist and applications of one of three dental varnishes by a dental hygienist three-monthly throughout the study. The dental examinations will occur at the beginning and the end of the one-year study. There are three intervention groups: Group 1: receiving applications of placebo (Orabase) three-monthly; Group 2: receiving applications of sodium fluoride varnish and chlorhexidine varnish three-monthly; Group 3: receiving applications of silver diamine fluoride solution three-monthly.

The outcomes of this study will provide high-level evidence for dental professionals, health policy makers and the aged care sector to choose an appropriate oral health care model for preventing and controlling tooth decay among the elderly in residential aged care.

# The Freemasons Foundation Centre for Men's Health



**Professor Willis Marshall**  
Director, The Freemasons Foundation Centre for Men's Health

The Freemasons Foundation Centre for Men's Health is dedicated to improving the health and wellbeing of men. Established in late 2007 as a joint venture between The University of Adelaide and the Freemasons Foundation, the Centre is the first of its kind to take a comprehensive approach to men's health, addressing both physical and psychological health concerns across the lifespan.

This imperative to improve men's health is driven by the fact that men have poorer health and a lower uptake of preventive health care compared to women. Men's average lifespan of 78 years is five years less than that of women. The total burden of disease and injury (including premature death, ill health and disability) is 10% higher for men than for women in Australia. To address the many and complex underlying causes of these health discrepancies, the Centre is taking a multidisciplinary approach, led by a team of world renowned experts collaborating across clinical services, research programs and continuing education.

Key research programs include:

### The Florey Adelaide Male Ageing Study (FAMAS)

A multi-disciplinary population cohort study designed to provide new population-based evidence on the biological, psychological and social determinants of health and health-related behaviours among men. Over one thousand men aged 35–80 years living in the northern and western regions of Adelaide are participating in the study that involves yearly clinic visits and annual follow-up questionnaires.

### Men, Androgen, Inflammation, Lifestyle, Environment, Stress (MAILES) Study

A biomedical prospective study of over two thousand South Australian men investigating novel causes of obesity-mediated cardiovascular and metabolic disease. The study, which commenced in 2010, involves a multidisciplinary group of local, national and international researchers and combines South Australia's two largest cohort studies (FAMAS and the North West Adelaide Health Study). MAILES is using cutting edge technology to deliver greater understanding of the interaction of obesity, now at pandemic proportions, with other key variables in relation to cardiometabolic disease in men.

### Prostate Cancer Research

The Freemasons Foundation Centre for Men's Health is dedicated to improving the quality of life of those directly and indirectly affected by prostate cancer, via the pursuit of knowledge relating to tumour development and progression, by identifying biomarkers for predicting indolent versus aggressive disease and treatment response, understanding mechanisms of treatment resistance, developing new treatment strategies and translating research findings into clinical and general practice, health education and policy.

## FACT:

**40% of all infertility among Australian couples can be attributed to male reproductive function.**

## RESEARCH STORIES

### Mr Sean Martin



Lower urinary tract symptoms categorised as symptoms relating to storage and voiding, and sexual dysfunction (particularly erectile dysfunction) are common conditions of the ageing male that can have significant negative effects on quality of life. Unfortunately, current medical treatment for these conditions is often ineffective as well as expensive.

Mr Sean Martin, Project Manager of the Florey Adelaide Male Ageing Study and PhD candidate at the Centre, is working towards improved management and treatment strategies for these conditions by considering mechanisms common to both lower urinary tract symptoms and sexual dysfunction.

Already his innovative approach has identified many modifiable risk factors that need to be addressed for each patient prior to medical or surgical intervention. These include abdominal obesity, sleep apnoea, high plasma glucose and low HDL (high-density lipoprotein) levels.

Mr Martin's research has been published in internationally renowned sexual health and urological journals.

### Dr Lisa Butler



Dr Lisa Butler, a Senior Research Fellow, is making a considerable impact in the field of prostate cancer research. Dr Butler used a novel approach to develop patient-targeted pharmacological therapies to treat advanced, castrate-resistant prostate cancer. In this experimental 'explant model of prostate cancer', tissue samples from tumours removed during surgery are cultured in the laboratory and then exposed to a range of drug combinations.

Dr Butler and her Molecular Therapeutics Research Group have found that certain drugs have a synergistic effect when administered in combination, whereas the same agents have little or no effect when administered in isolation at similar concentrations.

Dr Butler's 'explant model' offers great advantages over standard cell line and animal models because it retains the human tumour microenvironment, making it more clinically relevant as a technique for the evaluation of potential therapeutic agents for prostate cancer. Importantly, the model also allows investigation of patient-specific tissue responses to new agents that cannot be replicated in cell lines.

Dr Butler is working closely with clinicians and pharmaceutical groups to investigate promising therapeutic options for castrate-resistant prostate cancer and to bring forward opportunities for early-phase clinical trials.

## Centre for Clinical Research Excellence in Nutritional Physiology



**Professor Michael Horowitz**  
Director, Centre for Clinical Research  
Excellence in Nutritional Physiology

The NHMRC-funded Centre for Clinical Research Excellence (CCRE) in Nutritional Physiology was established in 2007, with the intention to recognise and reward successful clinical researchers, and expand their ability to produce high quality research, provide high-quality clinical research training and translate their research funding into improved health outcomes. The CCRE in Nutritional Physiology enables the development of multidisciplinary, collaborative clinical research programs with a focus on translation of physiological concepts to interventional strategies. The bench-to- bedside approach and a strong clinical orientation of research within the Centre, involving animal models, human volunteers and patient groups will continue to generate outcomes of direct clinical and public health relevance. The Centre has an international reputation in the evaluation of gut function, with techniques that include manometry, scintigraphy, 3D ultrasound, intraluminal impedance, and an array of gut peptide assays. The CCRE in Nutritional Physiology is a joint collaboration between The University of Adelaide, CSIRO Human Nutrition, The Royal Adelaide Hospital and The Hanson Institute.

The four main focus areas are:

- Diabetes and gastrointestinal regulation of glycaemia
- Obesity
- Nutrition in the elderly
- Nutrition in critical illness

### FACT:

**60% of adult Australians are overweight or obese, and 20% either have diabetes, or are at imminent risk — figures that have doubled over the last 20 years.**

## RESEARCH STORIES

### Dr Stijn Soenen



Small daily changes in the balance between energy intake and energy expenditure have a significant impact on body weight and body composition throughout the lifespan. Dr Stijn Soenen's research focuses on optimising the macronutrient composition of the diet related to daily energy balance. For example, a minor daily positive-energy balance over a long period of time results in overweight and obesity.

Dr Soenen has shown that daily protein intake is highly relevant to energy balance and body weight development. Sustained absolute daily protein intake of 0.7–0.8 g/kg body weight irrespective of energy intake is effective for optimising body-weight loss and the important weight maintenance thereafter in obese subjects, while an absolute daily protein intake of 1.0–1.2 g/kg body weight is even more effective. Mechanisms underscoring these effects are limited reduction of fat-free mass, limited drop in energy expenditure, increased reduction of fat mass, increased stimulated fat oxidation, decreased hunger, and good compliance to the diet, without negatively affecting bone mass and kidney function.

Optimising the diet via adjusting daily protein intake therefore influences short- and long-term factors of successful treatment and prevention of overweight and obesity during the lifetime.

### Dr Richard Young



The detection of glucose in the gut is important in the control of blood glucose levels and energy intake, yet we know little of even the most basic aspects of this process. This knowledge is essential to improving the quality of life of patients with a spectrum of gut disorders, including those with diabetes, obesity or critical illness.

Dr Richard Young's research uses a broad range of sophisticated approaches to translate laboratory and clinical findings into new knowledge of nutrient sensing and signalling pathways within the gut. His research has revealed that sweet taste receptors in the tongue are found also within the gut wall in humans, where they detect carbohydrates and sweeteners and may influence gut motility, blood glucose levels and energy intake.

Dr Young has further shown that sweet-taste receptor levels in the gut are abnormally regulated by the presence of carbohydrates in patients with diabetes. This may lead to differences in signalling in diabetes and hamper effective control of blood glucose levels. It is well described that the ability of the gut to absorb carbohydrates during critical illness is markedly reduced, leading to poor clinical outcomes.

Dr Young's research has recently revealed that this defect may result from profound reduction in levels of gut sweet-taste receptors and carbohydrate transporters. The testing of novel therapies designed to preserve the levels of these targets in critical illness is currently underway.

## Children's Research Centre



**Professor Jennifer Couper**  
Director, Children's Research Centre

The Children's Research Centre is an interdisciplinary alliance of research leaders who have come together to reverse chronic childhood illness before it manifests as permanent adult disease.

The Centre is committed to pioneering new treatments and cures for ten of Australia's most common childhood conditions: diabetes; sleep disorders; obesity; infectious disease; allergy; autoimmunity; cystic fibrosis; neuromotor conditions; mental illness; and bone impairments.

The Centre's co-location at the Women's and Children's Hospital allows the rapid translation of research findings into clinical practice and policy. It is also the only clinical research centre in South Australia focused solely on child health and is responsible for the majority of all clinical-based health research for children in the State.

We draw on the expertise of researchers at the University of Adelaide, the University of South Australia, SA Pathology and the Women's and Children's Health Network. As a result of our alliances, the Children's Research Centre is uniquely placed to pool extensive knowledge in child health and influence the future health directions of South Australia and the nation.

### FACT:

Australia has one of the highest allergy rates in the world. About 40% of Australian children suffer from allergic diseases, including food allergies, eczema, asthma and hay fever.

## RESEARCH STORIES

### Associate Professor Declan Kennedy



Associate Professor Declan Kennedy and the sleep disorders team at the Children's Research Centre have shown that children who snore have a lower IQ than children who breathe normally during sleep. This research team has also proven for the first time that even the mildest form of sleep breathing disorder can affect the brain, heart, blood vessels and pancreas, and that it may also increase the risk of diabetes, obesity and poor cardiovascular health later in life.

These results have been derived by comparing large numbers of sleep-affected children with healthy "control" children, and following them over time to study the long-term impact of treatment for sleep breathing problems.

This type of longitudinal study in children's sleep has rarely been attempted, but is considered to be one of the most powerful forms of research.

As a result of this research, the Children's Research Centre has highlighted the importance of diagnosing and treating children with sleep breathing problems at the earliest possible opportunity, in order to prevent the development of chronic diseases in adulthood.

### Professor Tony Ferrante



Immunologist Professor Tony Ferrante's research team and collaborators at the University of Western Australia have refined the new marker for allergy risk, originally discovered in 2007, but now modified to a simple and manageable blood test at birth. A protein in the immune cells of newborns appears to hold the answer as to whether a baby will either be protected, or susceptible to the development of allergies later on. Amounts of the cell-signalling enzyme called Protein kinase C zeta are much lower in children at risk of allergies.

The researchers are also looking at whether fish oil supplements given both to pregnant women and those who have just given birth can reduce the risk of the children developing allergies.

# Adelaide Centre for Neuroscience Research



**Professor Robert Vink**  
Director, Adelaide Centre  
for Neuroscience Research

Established in late 2009, the Centre aims to facilitate world-class neuroscience research targeted at discovering and developing therapies, and translating results into the treatment and prevention of neurological diseases of the brain, spine or nervous system. The Centre currently comprises four research themes:

Neurological Disease focuses on investigating the causes, diagnosis, prevention and treatment of diseases or malfunction of the brain, spine or nervous system. Current research programs include traumatic brain and spinal cord injury, brain oedema formation, neural protection, pain research, stroke, nervous system plasticity and repair and movement control.

Neurogenetics & Development focuses on understanding the function of genes that cause neurodevelopmental disorders such as intellectual disability and epilepsy. Current research programs include molecular basis of intellectual disability, epilepsy, gene discovery and characterisation, developmental genetics and neurodevelopmental disorders.

Neuroengineering aims to further our understanding of biological computation and leads to innovative computational technologies. Current research programs include computational neuroscience, neural repair, neural tissue engineering, neural stem cells and neurogenesis.

Neuropsychiatry is a newly established research theme in the Centre, thanks to the recent appointment of Professor Bernhard Baune. Professor Baune's research integrates behaviour, cognitive function, genes and proteins in humans and animal models as demonstrated in various clinical and basic science models of inflammation relevant to cognitive performance and neuropsychiatric disorders.

## FACT:

**Pain is the third most costly health problem in Australia, at more than \$36 billion annually, and places significant pressure on health services, in addition to the suffering experienced by the afflicted individuals.**

## RESEARCH STORIES

### Dr Mark Hutchinson



ARC Research Fellow Dr Mark Hutchinson was awarded the South Australian Young Tall Poppies Award 2010 for delivering excellent science and sharing it with the scientists of tomorrow and a wider audience.

Dr Hutchinson leads a team of researchers investigating the role of the immune system within the brain, and how it contributes to disease such as chronic pain, drug addiction, spinal cord injury and epilepsy. The goals of his research are to discover new mechanisms of disease and to formulate new drugs or treatments that can regain control of brain immunology to prevent diseases. His research has resulted in a major shift in our understanding of how pain is created and how drugs like morphine work.

Dr Hutchinson's research and communication of these discoveries are translating into new treatment opportunities that may provide greater pain relief and faster recovery for patients, without the unwanted side effects.

### Professor Jozef Gecz



Professor Jozef Gecz is NHMRC Principal Research Fellow and head of Neurogenetics Research Program. The primary focus of his research is to unravel the underlying genetic architecture of neurological disease, intellectual disability and epilepsy in particular.

These groups of highly heterogeneous disorders individually affect about 1–2% of world populations. His team discovered or contributed to the discovery of more than 50 different disease genes, most of these on human chromosome X. Among these genes, the group is actively researching the PHF6 (implicated in a syndromic form of intellectual disability known as Börjeson-Forssman-Lehmann syndrome as well as in T-cell lymphoblastic leukaemia and acute myeloid leukaemia), UPF3B (a member of the non-sense mediated mRNA decay, NMD machinery) and PCDH19 (a protocadherin involved in variable severity epilepsy and intellectual disability syndrome limited to females known as EFMR and 'Dravet' syndromes) genes in particular.

The role of these genes in disease pathogenesis is being investigated not only using genetic means, but also using sophisticated cellular and molecular neuroscience techniques and animal models. The Neurogenetics Research Program has been among the first in

Australia and internationally to apply the next generation genomic technologies. This method of massively parallel sequencing leads to the discovery of genes related to human diseases (including epilepsy).

Many of the newly discovered genes point to new and unexpected biological pathways involved and consequently broadening the inquiry into the molecular determinants essential for normal brain function.

## Centre for Traumatic Stress Studies



**Professor Alexander McFarlane**  
Director, Centre for Traumatic Stress Studies

The Centre for Traumatic Stress Studies was established in April 2009 to address this significant community health issue. The Centre seeks to improve evidence-based practice by creating, applying and informing scientific knowledge in the field of traumatic stress, particularly the epidemiology and neurobiology of post-traumatic stress disorder.

The Centre for Traumatic Stress Studies embodies expertise in prevalence, longitudinal health, disaster, neurobiological and neurocognitive studies as well as occupational mental health. Beyond its core research agenda, the Centre offers consultancy, professional development and training, higher education supervision and assessment and referral services. The Centre's core research program is examining traumatic stress through the impact of disasters, motor vehicle accidents and military service.

A high priority research area lies in determining the prevalence of psychiatric disorders in members of the Australian Defence Force. This is a major responsibility that offers a unique opportunity to contribute to the health and wellbeing of future members of the Australian Defence Force. Given the intensity of exposures and risks in current arenas of conflict, particularly Afghanistan, there is a challenging need to identify emerging adverse health trends to implement early intervention and future preventive strategies.

### FACT:

**Traumatic stress is also a major cause of all psychiatric disorders and contributes to alcohol and drug abuse. Post-traumatic Stress Disorder is the most common psychiatric disorder in the Australian community affecting 6.4% of the population in the last 12 months.**

## RESEARCH STORIES

### Professor Alexander McFarlane



The Burns Outcome Study is being conducted in collaboration with Burns SA. This study aims to examine the long-term adult physical and psychological outcomes of experiencing a significant burn injury in childhood. The research group of Professor Alexander McFarlane and Dr Miranda van Hooff selected study participants randomly from a state-wide register of all childhood burn victims who were admitted to the Women's and Children's Hospital in South Australia between 1980 and 1990. These participants were aged 0–18 at the time of their burn. These people were interviewed again in 2010 and 2011. The goal is to identify the potential contributors who had an adverse psychological outcome after a childhood burn injury. This important study is unique in the way that potential contributors have been included that have never before been studied. It is hoped that this will provide new information for future therapeutic use. The participants of the study will provide valuable insights to assist in the design of future interventions, improving the outcomes for children who suffer a burn injury.

### Dr Miranda van Hooff



An NHMRC-funded Program Grant is held in conjunction with collaborators from the University of New South Wales, Flinders University, and the University of Melbourne. Internationally respected researchers in the field of traumatic stress are working on a multi-pronged research program focusing on the longitudinal outcomes from trauma exposure, the impact of trauma in a variety of cross-cultural settings, its neurobiological consequences, and methods of improving treatment.

Dr Miranda Hooff is contributing to this study and is leading a longitudinal follow-up research of a group of children exposed to the Ash Wednesday bushfires. The purpose of this study is to re-examine a cohort of 808 adults who were primary school children at the time of the 1983 Ash Wednesday bushfires in South Australia. Preliminary findings suggest that there has been minimal long-term psychological impact from the fire. Although adults who were exposed to the bushfire in childhood reported more lifetime emotional problems than those who were not exposed, these differences in rates were incidental. Post-traumatic Stress Disorder was more prevalent in the fire-exposed group (5.7% of participants) compared with adults of a control population (2.8%); however, Post-traumatic Stress Disorder cases

resulting directly from the bushfire were low. An unexpected finding of this study was the very high rates of other traumatic events that had been experienced by the disaster victims and the comparison population. The impact of these other events had a more direct impact on the health outcomes of the participants than the disaster. A particular marker of risk for the development of depression and anxiety disorders was the continued experience of distressing memories of these traumatic events that tended to last for many years. These results highlight the high levels of morbidity in a community sample that can be directly attributed to the experience of traumatic events such as motor vehicle accidents, interpersonal violence and sexual assault.

These traumatic events are important predictors of psychological disorders in adulthood as well as other health complaints. There are many individuals who have endured difficult circumstances but they have been able to overcome them without any apparent detrimental effect, and to lead stable and productive lives. This research has a potentially wide reaching application in helping to build resilience in individuals and communities and to improve responses to disaster.

## Fay Gale Centre for Research on Gender – A Cross-Faculty Research Centre



**Directors:**

**Professor Martha Augoustinos**  
Faculty of Health Sciences

**Associate Professor Christine Beasley**, Faculty of Humanities and Social Sciences

As a cross-disciplinary initiative involving researchers from the Humanities, Social Sciences, Health Sciences and Law, the Fay Gale Centre for Research on Gender aims to create productive dialogues across disciplinary boundaries. The Centre was launched in December 2009.

The Centre's research explores gender relations, drawing particularly on feminist, sexuality and masculinity studies, to produce research attending to men, women, and gender diversity. The Centre understands the concept of 'gender' to refer to an overarching sociocultural variable, which refers to both women and men, and to their social status relative to each other. It also refers to a permeable range of gender identities. Gender identities are highly variable across cultural and historical contexts, and elaborated through material, social, cultural and embodied practices. They invariably intersect with other discursive and material dimensions of identity such as race, ethnicity, class, religion, sexuality and disability. Gender relations are deeply embedded in all aspects of everyday life, and are constantly under negotiation and change. Understanding gender relations at an academic level is thus no simple task. It requires ongoing and complex theoretical and empirical engagement in cross-disciplinary, transnational and comparative contexts. The Centre aims to enhance the quality and impact of research on gender issues in both national and transnational contexts, by providing resources to researchers, fostering research networks and developing collaborative projects. Research will focus particularly on three major themes: Social Inclusion, Citizenship, and Health.

Despite reforms and advances in gender/sexuality equality, the impact of stereotypes, as well as systemic discrimination, marginalisation and social inequities associated with gender/sexuality remain significant in Australian life. The Fay Gale Centre for Research on Gender undertakes theoretical and applied research and policy development addressing this crucial arena in order to advance social justice.

**FACT:**

**Around one in three Australian women experience physical violence, and almost one in five women experience sexual violence over their lifetime.**

### RESEARCH STORIES

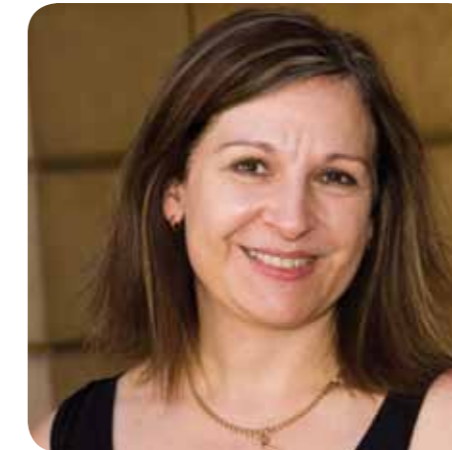
**Associate Professor Dr Shona Crabb**



Discrimination, marginalisation and social inequities associated with gender and sexuality continue to exist in research and practice around health and healthcare. For example, violence against women is a leading contributor to death, disability and illness in Australian women, with violence against women being responsible for more of the burden of disease than other risk factors such as smoking and high blood pressure.

Faculty of Health Sciences researchers Associate Professor Vivienne Moore and Dr Shona Crabb are the Convenors of the Fay Gale Centre's Sexualities, Health and Identity Cluster. The Cluster aims to promote cross-disciplinary dialogue and collaboration in order to engage with these complex areas, conducting theoretical and applied research which is socially relevant, empirically informed and conceptually sophisticated. Projects carried out by Cluster members relate to a broad range of topics and issues, including: mental health effects of infertility on men and women; menstrual suppression as a challenge to heteronormativity; gender dynamics in obesity prevention programs; experiences of Australian transmen, relevant to their health and identity; characteristics of men willing to act as sperm donors; queer youth suicide; health and wellbeing of international students in Adelaide; and the politics of reproductive policy.

**Professor Martha Augoustinos**



designed to elicit and analyse the views of Vocational Education and Training students through the use of a focus group methodology.

The study will identify the broad range of health and wellbeing issues faced by overseas students; identify what support services, strategies and resources students are currently utilising (or are familiar with); and identify what overseas students think could be done better regarding the provision of support services, strategies and resources in South Australia.

Professor Martha Augoustinos and Associate Professor Christine Beasley, together with Health in All Policies from the South Australia Department of Health will conduct research to understand the culturally specific issues faced by international students in South Australia's Vocational Education and Training sector, given that culture shock or cultural stress is one of the central health and wellbeing issues faced by international students.

Students' health and wellbeing is affected by their broader life circumstances – how they live, where they work, how they study and how they socialise.

The literature indicates that international students face difficulties in all areas of their life from accommodation, employment, travel and study. Thus, it is important to understand what barriers exist for international students when accessing support services. Unlike their domestic peers, international students simultaneously face adjusting to a new cultural setting, with new rules for social engagement and interaction.

Professor Augoustinos' study is part of a larger project examining the health and wellbeing of international Vocational Education and Training students and their knowledge of and ability to access health and social services in South Australia. The current study is specifically

## FOODplus Research Centre – A Cross-Faculty Research Centre



**Directors:**  
**Professor Maria Makrides**  
**Faculty of Health Sciences**  
**and Professor Robert Gibson**  
**Faculty of Sciences**

In recognition of the importance of linking agricultural sciences with health sciences, Women's and Children's Health Research Institute and the University of Adelaide have signed a five-year joint venture agreement called FOODplus Research Centre that involves staff from the Child Nutrition Research Centre at the Women's and Children's Health Research Institute and the Functional Food Group of the University. The Centre was officially launched in December 2010. The FOODplus Research Centre aims to connect agriculture to health. This is one of the most logical of concepts and yet has rarely been attempted in research terms. There is good evidence that if people consume nutrient-rich foods they will have better health outcomes than those consuming energy-rich but nutrient-poor foods. Today, the connection between agriculture and health is often bridged by the use of vitamin and mineral supplements. FOODplus will link health researchers with plant and animal scientists, growers and food producers for better outcomes for all.

### FACT:

**Each year in Australia around 8% of babies – 57 per day – are born prematurely. Advances in medical technology have meant that babies born 17 weeks early are often able to survive.**

## RESEARCH STORIES

**Dr Beverly Muhlhausler**



Dr Beverly Muhlhausler's research focuses on maternal overnutrition. Research has shown that mothers who are overweight, have diabetes and/or consume a high fat diet during pregnancy give birth to heavy infants who have a greater risk of obesity, and Type 2 diabetes in later life.

Why does this happen? There is good evidence that being exposed to an increased supply of sugar, saturated fats or total energy before birth alters the development of the systems which regulate fat deposition, appetite and metabolic rate and that this makes the offspring hungrier, more efficient at storing fat and, therefore, more likely to put on weight. Dr Muhlhausler has also found that the mother being exposed to a junk food diet before birth leads to an increased preference for fatty foods by the child.

More recently, this research group has started to focus attention on nutritional strategies that can be applied in pregnancy and infancy to improve metabolic outcomes in the offspring.

**Dr Carmel Collins**



Despite improved survival rates over the past decade, babies born pre-term remain at a higher risk for long-term cognitive and educational problems, and this is related to a large extent to a failure to meet their nutritional needs in the immediate postnatal period.

Dr Collins' research focuses on optimising pre-term infant nutrition for improved growth and development, and translating these findings into clinical practice. While it is important to avoid growth failure in early life, if these infants grow too fast then they are at increased risk of heart disease and obesity as adults. Therefore, when it comes to nutritional management, there is a need to get the balance right.

One of the big problems in this field has been the lack of appropriate methods for measuring growth quality (i.e. lean tissue vs. fat tissue growth) in pre-term infants, which means that it is still unknown what feeding practices are best for promoting growth of muscle instead of fat. To address this, one of Dr Collins' current projects is to validate a rapid, portable, cot-side technique (Bioelectrical Impedance Spectroscopy) which will enable us to determine body composition in these infants.

This research program also undertakes clinical trials to ascertain which specific macro- and micronutrients are most important for growth. These studies include randomised controlled trials investigating the effect on growth and development later in life of increased intake of protein and omega-3 fatty acids in pre-term infants during the neonatal period, and are producing some exciting results.



# NEW CENTRES ESTABLISHED IN 2011

## Centre for Heart Rhythm Disorders

Professor Prash Sanders is a clinical and academic cardiologist who returned to South Australia in 2006. He undertook his PhD studies at the University of Melbourne and postdoctoral studies in Bordeaux, France. Professor Sanders established and leads a group of clinicians and researchers at the Centre for Heart Rhythm Disorders at the University of Adelaide and the Royal Adelaide Hospital. In a short time, this group has established itself as one of the major electrophysiology groups in Australia with national and international recognition. Professor Sanders' group is at the forefront of the management of atrial fibrillation.

The research from this group spans:

- Computer simulation
- Cellular electrophysiology
- Small and large animal research programs
- Clinical mechanistic and outcome based research
- Population studies.



**Professor Prash Sanders**  
Director, Centre for Heart  
Rhythm Disorders

## Centre for Personalised Cancer Medicine

The new Centre brings together world-class researchers with cross-disciplinary expertise in cutting-edge technologies involved in all aspects of cancer research, from basic sciences to clinical evaluation. The vision of this Centre is to drive research and developments in cancer medicine to achieve personalised cancer treatment that is optimised to reflect both patient genetic variation and cancer heterogeneity. The creation of the Centre for Personalised Cancer Medicine will provide a strategic positioning that is highly commensurate with the strategic directions of the South Australian Health and Medical Research Institute, which is due to open in 2012.

The new Centre includes research groups with particular expertise in leukaemia and myeloma, breast cancer, sarcomas, melanoma and lung cancer. The Centre has a strong focus on personalised clinical care, driven by advances in cancer diagnosis, symptom control and molecular based therapeutics. By incorporating cross-disciplinary cutting-edge basic science in chemistry, photonics, pharmacogenomics, pharmacokinetics, immunotherapy, and molecular and cell biology, the Centre will drive new advances in cancer diagnosis and therapeutics.



**Professor David Callen**  
Director, Centre for Personalised  
Cancer Medicine



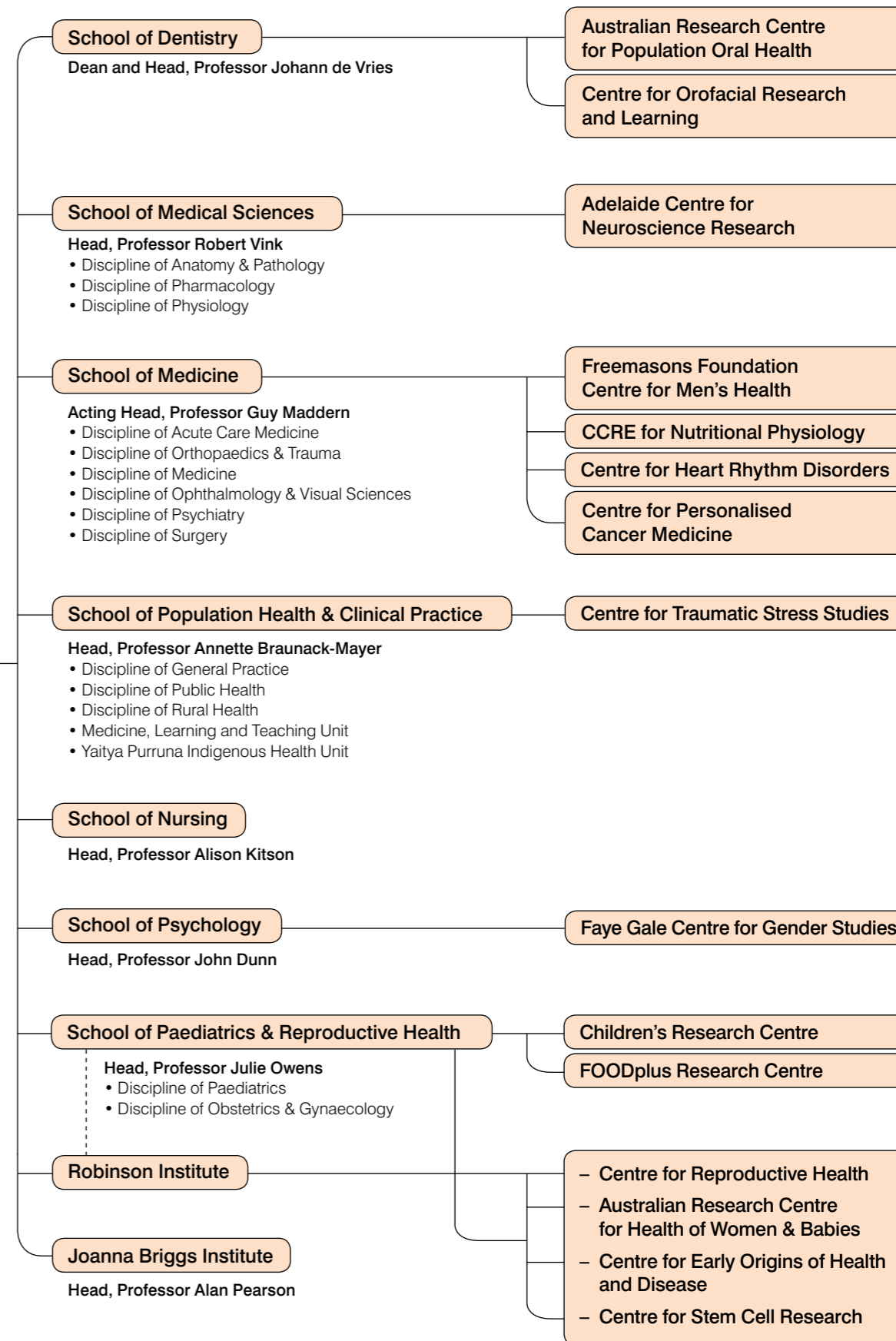
# STRUCTURE OF THE FACULTY OF HEALTH SCIENCES

The diverse nature of our research results from the successful collaboration between our Robinson Institute, Centres and Schools and Hospitals, allowing translation of laboratory research into effective patient treatments. The Faculty of Health Sciences consists of seven Schools, each comprising key discipline groups that reflect the research activity of the School.



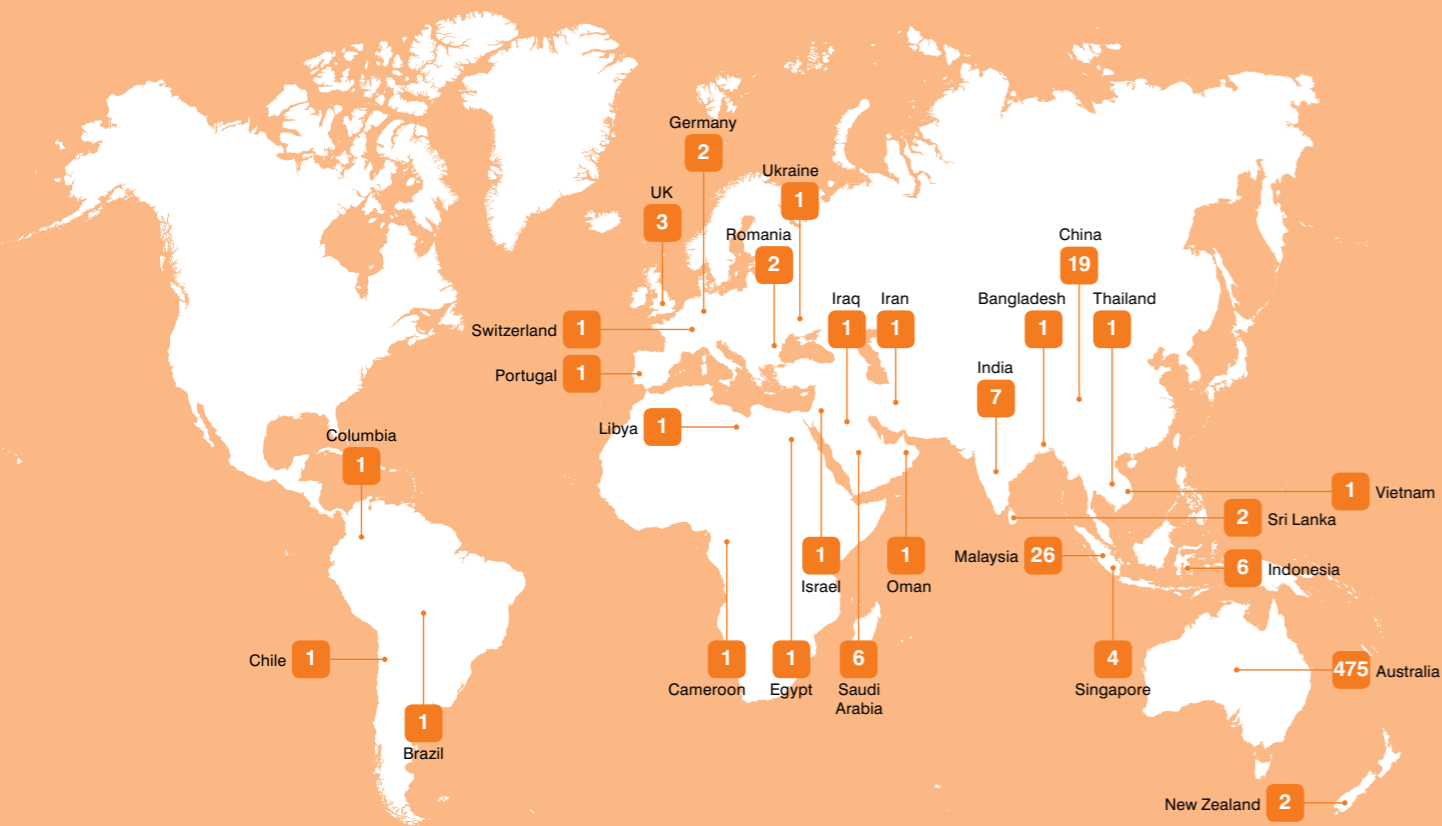
## Connection of Schools and Robinson Institute / Research Centres

FACULTY OF HEALTH SCIENCES



# HIGHER DEGREE BY RESEARCH STUDENTS

Our International Higher Degree by Research students are enrolling in Health Sciences from all over the world. Countries of origin are depicted in this world map.



The Faculty of Health Sciences has a strong record of research, which is essential in facilitating quality postgraduate research programs. The Faculty offers an exciting and vibrant environment for graduate students. At present, 570 postgraduate students are carrying out research towards a PhD. Our higher degree by research students are a key asset for the Faculty, and we recognise and value their important and vital research contribution as well as their contribution to our Faculty life by enhancing cultural and social diversity.

International higher degree by research students in the Faculty of Health Sciences are awarded scholarships for their research study from various sources including their home governments. In addition, the University of Adelaide provides scholarships for international research students to enhance the international student cohort and diversification. In 2010, 91 international PhD and Master by research students are enrolled in the Faculty of Health Sciences.

## RESEARCH STORY

Kathleen Pishas, an academically brilliant PhD student has been awarded the inaugural Australasian Sarcoma Study Group Research Award funded through the Rainbows for Kate Foundation in memory of Tom Wood. This award of \$25,000 per annum for three years will fund Kathleen's PhD project that is primarily focused on the treatment of Ewing's Sarcoma, the second most common primary malignant tumour of bone diagnosed in children and young adults.

pathway in sarcomas through the use of novel compounds. This is an exceptional achievement and an unusual result for a PhD candidate to obtain her own funding for research consumables. Kathleen has already published two first-author papers in high profile journals in her first year of candidature and was also recently awarded a Florey Medical Research Foundation Postgraduate Top Up Cancer Research Scholarship.

Kathleen aims to investigate ways to activate the p53 tumour suppressor

Kathleen is undertaking her PhD within the Sarcoma Research Group, under the supervision of Dr Paul Neilsen and Professor David Callen.



**Kathleen Pishas**  
PhD Student, Medicine



Undertaking my PhD at the University of Adelaide has provided me with the opportunity to build strong foundations for both my personal and professional development as a scientist. I find it fulfilling knowing that results from my research will benefit the wider community and will lead to novel discoveries that will improve the outcomes for patients diagnosed with sarcoma and related tumours.





# FACULTY EVENTS



## Northern Communities Health Foundation Visiting Professors 2009 and 2010

The Annual Visiting Professorship is funded by the Northern Communities Health Foundation (NCHF). Distinguished international clinicians or biomedical scientists are invited to spend two weeks in the Faculty of Health Sciences. During the visit, the NCHF Visiting Professor participates in relevant undergraduate teaching programs, meets with researchers, postgraduate research students and with health professionals in the northern districts of Adelaide to discuss health concerns. A highlight of the Professorship is the NCHF Public Lecture.

Professor Stephan Roessner, a Swedish obesity expert visited the Faculty of Health Sciences in 2009 for two weeks. Professor Roessner is a researcher at the Karolinska Institute in Sweden. In his public lecture, Professor Roessner questioned the increased use of gastric banding in Australia, which according to his research will do little to stop the obesity epidemic. In gastric banding, an adjustable band is used and placed around the upper end of the stomach. Gastric bypass is widely believed to be a much more effective alternative to gastric banding because it leads to long-term weight loss.

Professor Sir Ian Gilmore, immediate past president of the Royal College of Physicians and gastroenterologist at the Royal Liverpool University Hospital, visited the Faculty of Health Sciences in September 2010. Sir Gilmore's topic for the public lecture was 'Alcohol — The UK's increasingly problematic relationship with its favourite drug'.

Professor Gilmore tries to ensure that the wider population understands what it means to drink at harmful levels. Many of those who exceed recommended daily guidelines associate alcohol misuse with teenage binge drinkers, and do not realise that their own behaviour is putting their health at risk. Part of our challenge is to make sure that people realise what they are consuming and what the effects could be, so that they can make informed decisions.



**Professor Stephan Roessner**  
Visiting Professor, 2009



**Professor Sir Ian Gilmore**  
Visiting Professor, 2010

## Poster Presentations and Prize-winners

Prizes for outstanding poster presentations and research results were awarded to our research students. Most of the prizes were sponsored by Foundations or companies.

### \$1000 was awarded to each of the following students:

- Lam Son Nguyen, Discipline of Paediatrics, research title: 'Understanding the role of UPF3B and nonsense-mediated mRNA decay surveillance in pathology of intellectual disability.'  
*Supervisors:* Professor Jozef Gecz and Dr Mark Corbett  
*Sponsor:* Florey Medical Research Foundation
- Carine Tang, Discipline of Medicine, Resistance of CML cell lines to TKI therapy may be the result of various mechanism and their complex interplay.  
*Supervisors:* Associate Professor Timothy Hughes, Dr Deborah White  
*Sponsor:* IMVS
- Frances Corrigan, Discipline of Anatomy & Pathology, research title: 'Endogenous amyloid precursor protein is neuroprotective following mild traumatic brain injury.'  
*Supervisor:* Dr Corinna van den Heuvel  
*Sponsor:* Freemasons Foundation
- Melissa Cantley, Discipline of Anatomy & Pathology, research title: 'Novel treatments of pathological bone loss.'  
*Supervisors:* Associate Professor David Haynes and Professor Mark Bartold  
*Sponsor:* Commonwealth Bank
- Peter Foo, School of Dentistry, research title: 'General & oral health-related quality of life among Australians with cleft compared with population norms.'  
*Supervisors:* Professor Wayne Sampson, Dr Rachel Roberts, Dr Lisa Jamieson  
*Sponsor:* Faculty of Health Sciences
- Ryan Balzan, School of Psychology, research title: 'How hypothesis-confirming and hypothesis-disconfirming information is treated across the psychosis continuum.'  
*Supervisors:* Associate Professor Paul Delfabbro and Professor Cherrie Galletly  
*Sponsor:* Faculty of Health Sciences



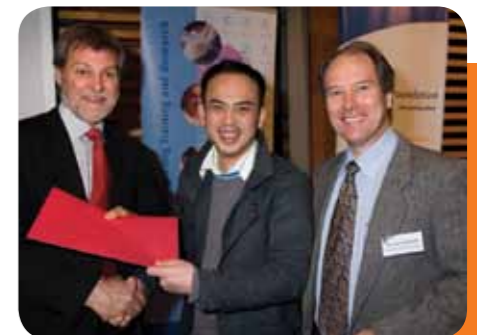
Left to right: Carine Tang, Melissa Cantley, Frances Corrigan, Baroness Susan Greenfield, Peter Foo, Ryan Balzan, Lam Son Nguyen

### \$500 was awarded to each of the following students:

- Emma Gordon, Discipline of Medicine, research title: 'Defining the Role of Macrophages in Embryonic and Tumour-Stimulated Lymphangiogenesis.'  
*Supervisor:* Dr Natasha Harvey  
*Sponsor:* Macquarie Private Wealth
- Tongzhi Wu, Discipline of Medicine, research title: 'Effects of sweet preloads on gastric emptying and postprandial glycaemia in healthy subjects.'  
*Supervisors:* Associate Professor Chris Rayner, Professor Michael Horowitz, Professor Karen Jones  
*Sponsor:* SAPMEA
- Irene Zinonos, Discipline of Orthopaedics & Trauma, research title: 'Anticancer efficacy of Apo2L/TRAIL is retained in the presence of high and biologically active concentrations of osteoprotegerin in vivo.'  
*Supervisor:* Professor Andreas Evdokiou  
*Sponsor:* Faculty of Health Sciences
- Wai Yan Sun, Discipline of Medicine, research title: 'A novel mechanism regulating leukocyte recruitment during acute inflammation.'  
*Supervisor:* Dr Claudine Bonder  
*Sponsor:* Faculty of Health Sciences
- Chan-Eng Chong, Discipline of Medicine, research title: 'Functional characterisation of a novel cancer gene in familial leukaemia.'  
*Supervisors:* Professor Hamish Scott and Dr Chris Hahn  
*Sponsor:* Faculty of Health Sciences
- Diana Dorstyn, School of Psychology, research title: 'Psychological intervention in spinal rehabilitation.'  
*Supervisors:* Professor Jane Mathias, Dr Linley Denson  
*Sponsor:* Faculty of Health Sciences
- Nhan Thanh Truong, Discipline of Medicine, research title: 'Novel fibroblast growth factor phosphoserine signalling pathways regulate survival and proliferation of glioblastoma.'  
*Supervisor:* Dr Mark Guthridge  
*Sponsor:* Adelaide Research & Innovation Pty Ltd



Left to right: Tongzhi Wu, Emma Gordon, Chan-Eng Chong, Sir Ian Gilmore, Diana Dorstyn, Wai Yan Sun, Irene Zinonos



Left to right: Professor Justin Beilby, Nhan Thanh Truong, Greg Macpherson

## Postgraduate Research Expo 2010

The Postgraduate Research Expo is an annual event that serves to showcase the breadth of current research at the Faculty of Health Sciences and to provide an important opportunity for the Faculty's postgraduate students and researchers to interact. During the morning, 74 posters were presented and judged by teams of reviewers.

## Three-minute Thesis Competition



Left to right:  
Victoria Wade, Sir Ian Gilmore,  
Jacqueline Noll, Sarah Thompson

In the afternoon, presentations for the novel and exciting 'Three-minute Thesis Competition' took place.

The Competition supports the development of research students' capacity to communicate ideas effectively to a range of non-specialist audiences and to the wider community. The Three-minute Thesis Competition challenges participants to present a compelling oration on their thesis topic and its significance within three minutes and in language appropriate to an intelligent but non-specialist audience.

Presentations were given by eleven finalists from the Faculty of Health Sciences who took part in the heats of the university-wide competition. These eleven presentations were judged by Sir Ian Gilmore, Baroness Susan Greenfield and Professor Justin Beilby. A reception followed the Postgraduate Research Expo allowing Sir Ian Gilmore, Baroness Susan Greenfield, students, researchers and guests to mingle.

Prize-winners of the 'Three-minute Thesis Competition' were:

- Victoria Wade, Discipline of Public Health was awarded \$1000 for her presentation: 'More of the same will not fix the health care system'.  
*Sponsor:* Faculty of Health Sciences
- Jacqueline Noll, Discipline of Medicine was awarded \$500 for her presentation: 'p53: a licence to kill'.  
*Sponsor:* Mutual Community
- Sarah Thompson, Discipline of Surgery was awarded \$200 and the People's Choice Award of \$500 for her presentation: 'How long do I have to live?'  
*Sponsor:* MDA National (\$500) and Adelaide City Council (\$200)

In addition, Faculty of Health Sciences PhD student Jacqueline Miller, Discipline of Paediatrics presented her work. Jacqueline was the winner of the inaugural University-wide 'Three-minute Thesis Competition' with her presented work on "Protein for Premies". She also represented the University of Adelaide in the Australian and New Zealand Three-minute Thesis finals at the University of Queensland.

The Three-minute Thesis Competition received a lot of positive feedback from participating students as well as from the audience.



Jacqueline Miller, University  
Winner of the Three-minute Thesis  
Competition 2010

## PARTICIPANT FEEDBACK ABOUT THE THREE-MINUTE THESIS COMPETITION:

“

I believe being a part of the three-minute thesis competition was a very valuable experience and helped me to focus on my research and its impact on society. It was a great way to help develop my communication skills in presenting my research in a clear straightforward manner that could be understood by non-experts as this can often be quite a difficult task. It also enabled me to interact with other postgraduate students and an opportunity to receive feedback on my research was very useful. I really think the skills I have obtained from presenting my PhD project in three minutes will be very helpful in my research career.

”



Melissa Cantley,  
Anatomy & Pathology

“

Capturing the essence of my PhD topic in three minutes was fun, rewarding and helped connect me with other students. The latter is rare in highly specialised research. Finding everyday equivalents of the research question was not as difficult as it first appeared — a benefit of the information session.

During the heats, it was an intriguing and delightful experience to be drawn in and connect with other presenters. I found myself offering encouraging comments and was the recipient of the same.

I am sure the long-term benefit for all presenters will be more relaxed, confident presentations during which we will not just deliver our findings, but will relate and connect with those listening — resulting in real communication of our research.

”



Jenny Myers, Surgery

# CONGRATULATIONS & ACKNOWLEDGMENTS

## Congratulations

Recognition of notable achievements, discoveries and developments by past and present students and staff is part of our proud history. Numerous students, graduates and staff members of the Faculty of Health Sciences make notable positive impacts in the course of their work and some are identified and rewarded publicly for their outstanding achievement, ingenuity and dedication. Congratulations to all successful recipients of fellowships, awards and scholarships. We wish you all the best for your future research endeavours.

## Acknowledgments

The Faculty of Health Sciences wholeheartedly thanks all our staff, affiliates and titleholders and the members of the Faculty's committees for a successful year.

We value the relationship and support of Research Branch, Adelaide Graduate Centre, International Office, Marketing & Strategic Communication, Office of the Deputy Vice-Chancellor and Vice-President (Research) Office, Prospective Students Centre, and Adelaide Research & Innovation Pty Ltd and we thank them for their contribution to our success.

The Faculty of Health Sciences gratefully acknowledges the generosity, support and spirit of alumni, partners and friends. Your philanthropic giving is helping the Faculty to evolve and strive for new research dimensions.





# FLOREY MEDICAL RESEARCH FOUNDATION

## Florey Medical Research Foundation

Research is necessary and important in finding solutions for the treatment of life-threatening diseases. But research is expensive and without sufficient funding, therapies will never be found.

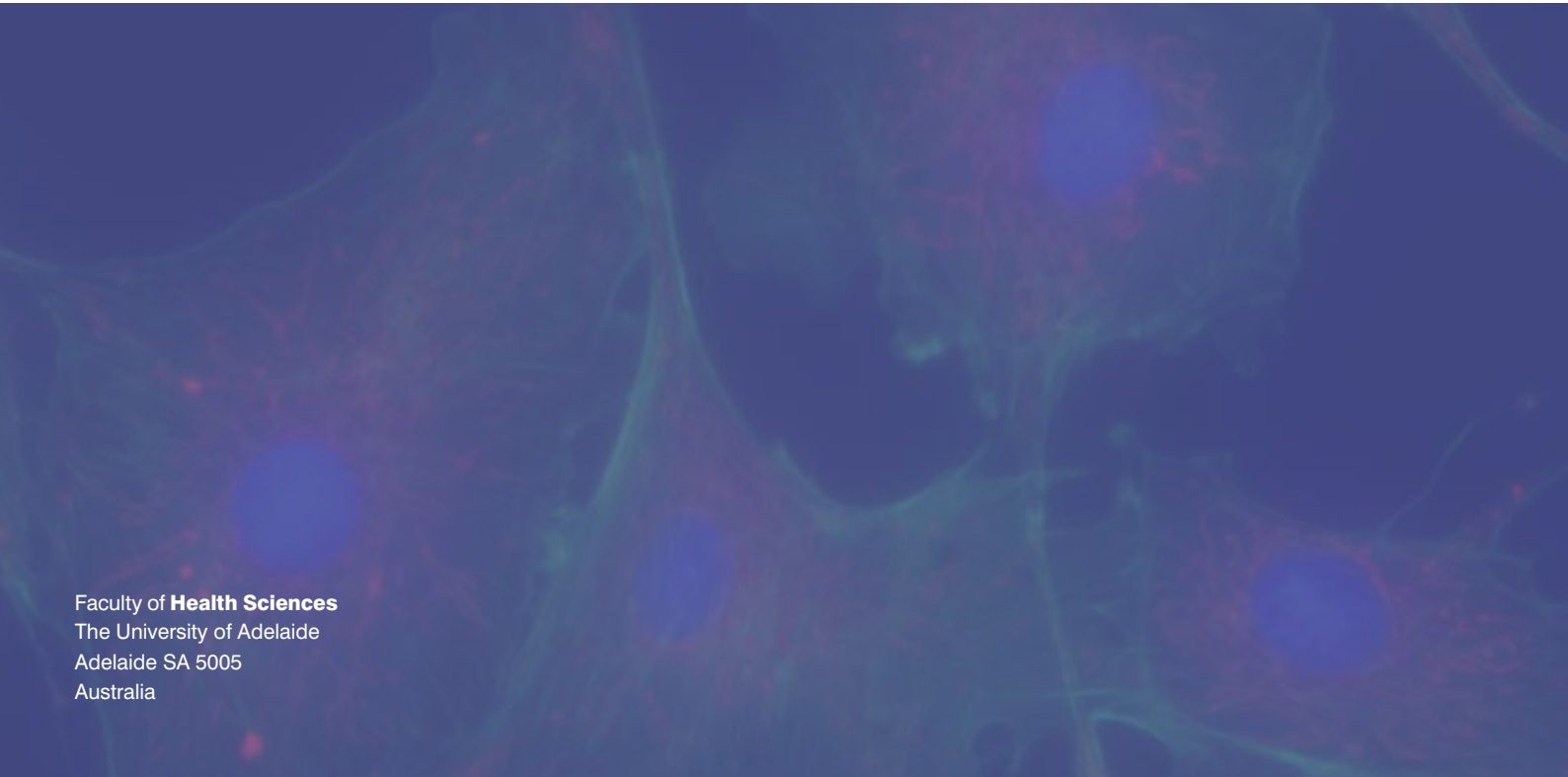
Therefore, we need your generous support. Your donation will play a vital role in enabling us to understand serious illnesses and pass on our knowledge to clinicians and students; and will be a constant motivation for our entire research team.

In 2011, the Florey Medical Research Foundation set itself a goal – to fund five early career post doctoral fellowships. And in early 2012, the first of these will commence – the focus of which will be research into better health outcomes in the Northern areas of Adelaide.

Help us to continue our endeavours — together we can make a difference to the health and wellbeing of Australians and of people worldwide!

For more information or to make a donation please contact Ms Catriona Neil-Dwyer, email: [catriona.neil-dwyer@adelaide.edu.au](mailto:catriona.neil-dwyer@adelaide.edu.au)





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