

Newsletter

www.adelaide.edu.au/hda

Upcoming Events...

- 6-10 December**
The ComBio meeting will be held in Christchurch, New Zealand.
- 8-11 December**
The Nutrition Society of Australia annual meeting will be held in NSW, Australia.
- 21-26 February**
The 4th Asia-Pacific Nutrigenomics conference 'genes, diet and gut health' will be held in Auckland, New Zealand.
- 24-27 March**
The 57th Society for Gynecologic Investigation (SGI) annual meeting will be held in Orlando, Florida, USA.
- 28-31 March**
The 14th Perinatal Society of Australia and New Zealand (PSANZ) annual congress will be held in Wellington, New Zealand.
- 17-20 May**
The 30th American Society for Reproductive Immunology annual meeting will be held in Pittsburgh, PA.

Further information at
www.adelaide.edu.au/hda/events

LATEST NEWS



HDA Co-Convenor, Professor Robert Norman wins Health and Sciences awards

The University of Adelaide's Professor Robert Norman has become a dual winner in the 2009 South Australian of the Year Awards presented by the Right Honourable Lord Mayor of Adelaide, Mr Michael Harbison, at a black-tie ceremony at the Adelaide Town Hall.

Professor Norman, a world-renowned reproductive health expert who is the Director of the Robinson Institute at the University, was named the winner in both the Health and Science categories of the prestigious awards.

Rob Norman is a Professor in Obstetrics and Gynaecology at the University of Adelaide. He specialises in clinical management of infertility and reproductive endocrinology conditions such as Polycystic Ovary Syndrome (PCOS), lack of ovulation, hormonally caused menstrual period problems and menopause. Professor Norman is one of the world's experts on the management of infertility using innovative IVF techniques.

Earlier this year, he was named the 2009 South Australian Science Excellence Awards Scientist of the Year, and in 2007 he was named one of 10 of the Best Minds in Australian Research.

The citation for Professor Norman's South Australian of the Year Health and Science Awards said he was recognised for his "outstanding contribution to reproductive health and regenerative medicine". "Professor Norman promotes internationally competitive research in reproduction that is equal to any research currently being conducted around the world."

The University's Vice-Chancellor and President, Professor James McWha, said Professor Norman was a worthy recipient of both awards. "Rob is a scientist and clinician of the highest order, and the work he and his colleagues are doing at the Robinson Institute is among the best of its kind anywhere in the world," Professor McWha said. "The fact that Rob has won both the Science and Health categories in these awards is testament to the truly outstanding work he is doing, and to his leadership as Director of the Robinson Institute.

Media release 20 November - University of Adelaide



HDA wishes you All a Merry Christmas
and a Happy and Healthy New Year.

Thank you to everyone who has participated
and supported HDA throughout the year.

We look forward to seeing you next year.



An initiative of the University of Adelaide
since 2004



HDA Partners



Women's & Children's
Health Research Institute Inc.
Research for the future health of our children



Government of South Australia
Department of Education and
Children's Services

RECENT HDA EVENTS

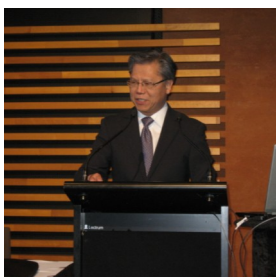
Refugee Trauma Across the Lifespan Symposium

On 29 October, HDA co-hosted the 'Refugee Trauma Across the Lifespan' symposium with the University of Adelaide and UniSA's Peace, Defence and Security Research Cluster. The event was held at the National Wine Centre with ~250 people attending from a diverse range of disciplines and areas.

The event was chaired by Prof Nicholas Procter (UniSA) and co-chair Ms Bernadette McGrath (STTARS). The symposium focused specifically on mental health related to refugee trauma and identified issues in law, service delivery, public policy, education, geopolitical upheaval, clinical assessment and considered a range of practical steps that can be taken by individuals and communities to improve the assessment, treatment and care for people in need. The day also highlighted specific issues that intersect with the mental health of children, young people and families of refugee background and successful settlement in Australia in the sequelae of trauma.

Keynote Speakers included Mr Hieu Van Le (Lieutenant Governor General of South Australia/Chairman of SA Multicultural and Ethnic Affairs Commission) and Dr Ida Kaplan (Victorian Foundation for Survivors of Torture). Our other speakers included Prof Graeme Hugo (University of Adelaide), A/Prof Wendy Lacey (UniSA), Dr Jon Jureidini (WCH), Ms Jill Brodie-Tyrrell (DECS), Ms Nicola Trenorden (STTARS), Prof Alexander McFarlane (University of Adelaide), Dr Julie Robinson (Flinders University), Mr Tindaro Fallo (Migrant Resource Centre) and Dr Fiona Arney (UniSA).

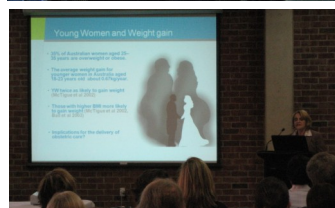
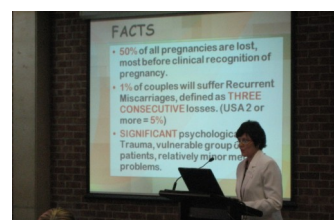
Our sponsors for the event included the Government of South Australia (DECS, DFC, Mental Health Unit - SA Health, Social Inclusion Unit - Department of the Premier and Cabinet), and STTARS. *All of the speaker 'audio files' and some of the speaker 'powerpoint talks' can be found at www.adelaide.edu.au/hda/news.*



HDA Thematic Evening

Fertility and infertility: trials and tribulations

On 5 November, HDA held its fourth and final Thematic Evening for the year on 'Fertility and infertility: trials and tribulations'. Over 70 people attended the event chaired by Dr Janna Morrison from UniSA. Speakers included Prof Robert Norman (Robinson Institute, University of Adelaide) on *Are we heading to reproductive extinction?*; A/Prof Manny Noakes (CSIRO Food and Nutritional Services) on *Nutrition, obesity and pregnancy - opportunities or risks in weight management*; Dr Dee McCormack (Women's and Children's Hospital) on *Recurrent miscarriages and predicting the risk in 2009*; and A/Prof Claire Roberts (University of Adelaide) on *It takes two and much more for successful pregnancy*. *The talks can be found at www.adelaide.edu.au/hda/news.*

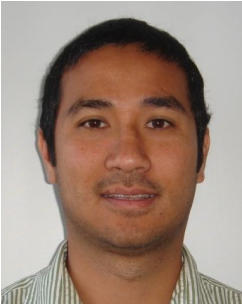


HDA Career Development Event

Broaden your Communication Horizons

On 17 November, HDA held its third and final Career Development Event for the year on 'Broaden your communication horizons'. ~80 people attended the event chaired by Dr Anne Sharp from UniSA. Speakers included Dr Rob Morrison (Flinders Uni) on *Your research in the media*; Prof Barry Brook (University of Adelaide) on *Using blogs to expand your audience and try out new research ideas*; Dr Denise Wood (UniSA) on *Avatars, health and education in virtual worlds*; Dr Susannah Elliott (AusSMC) on *Science-media-policy triangle: how to make it work for you*; and Ms Linda Cooper (Bragg Initiative / RiAUS) on *Science and engaging communities*. *Some of the talks can be found at www.adelaide.edu.au/hda/news.*





Dr Cuong Tran is a Research Fellow within Gastroenterology Unit of Women's and Children's Hospital (WCH); an Affiliate Lecturer within the Discipline of Physiology, University of Adelaide; Scientific member of the WCH Animal Ethics Committee

Cuong heads his research program on "Zinc in gut health" at WCH. The program focuses on efficacy of zinc as a potential therapy for gastrointestinal dis-

eases and infections in animal models and applying to human conditions such as Coeliac Disease, Inflammatory Bowel Diseases and Helicobacter-induced peptic ulcer disease.

Prior to completing his PhD degree in 2001, Cuong's research achievement was recognised in 2000 when he was named as a finalist in the Young Australian of the Year in Science and Technology. In addition, in 2000 Cuong had been working for an Industry Company, Numico Research Australia Pty Ltd. investigating novel therapies for eradicating Helicobacter pylori. In 2002, Cuong was awarded the Inaugural American-Australian Association Sir Keith Murdoch Fellow-

ship. This enables him to further his postdoctoral training at the University of Colorado Health Sciences Centre, Colorado, USA, investigating the application of zinc stable isotopes to assess zinc homeostasis in humans. Upon his return to Australia NHMRC awarded Cuong a four year Industry Fellowship in 2004, which resulted in an international patent being filed on "Method for Inhibiting Bacterial Colonisation".

Since completing his Industry Fellowship Cuong is now focusing on establishing the first "Trace Element Research Centre" in Australia within the WCH utilising state-of-the-art inductive coupled plasma mass spectrometry to assess zinc (and

other micronutrients) homeostasis and metabolism, with an aim to improve zinc nutrition in paediatric patients with gut diseases. Cuong has been successful in obtaining funds to support his research program from Channel 7 and the WCH Foundation in past few years. In 2008, Cuong's research was further recognised by being awarded a MS McLeod Medal for Research Excellence and Early Career Researcher Award from WCH Foundation. In 2009 Cuong was recipient of a prestigious three year MS McLeod Post-doctoral Fellowship from WCH Foundation enabling him to continue his research.

Dr Cuong Tran

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HDA TRAVEL GRANTS FOR 2010 CONFERENCE TRAVEL

HDA will provide financial support for final year PhD students and Early Career Researchers (up to 5 years post PhD) to further their research career by attending and presenting at an international conference (held outside Australia) in 2010. Travel Grants of \$1,000 each will be awarded to up to ten successful applicants. Applications will close at **5.00pm Thursday 10 December 2009**.

Eligibility

- ◆ PhD students must be currently enrolled, and HDA members or supervised by current HDA member
- ◆ Early Career Researchers must be current HDA members
- ◆ Applicants must be presenting either a research poster or oral research presentation at conference
- ◆ Applicants will need to have made a past contribution or involvement to HDA (ie: presented at a HDA event, attending HDA events on a regular basis, member of a HDA committee)

Funding Conditions

- ◆ The HDA Research Training Program (RTP) Working Group will evaluate the applications
- ◆ Travel Grants of \$1,000 each will be awarded to up to ten successful applicants
- ◆ The HDA logo must be displayed on posters or slides presented by the applicant at the conference
- ◆ Payments will be made to the successful applicants on receipt of the travel expenses, conference abstract and a brief report (~500 words) outlining the benefits of the conference and how it related to healthy development to be submitted to HDA within four weeks of return from the conference.

For the application form and process go to www.adelaide.edu.au/hda/support

NEW HDA MEMBERS

Dr Linda Wu

Postdoctoral Research Officer
Discipline of Obstetrics & Gynaecology, University of Adelaide
Ovarian cell biology - obesity, female infertility and women's health

Dr Kylie Dunning

Postdoctoral Researcher
Discipline of Obstetrics & Gynaecology, University of Adelaide
Oocyte biology - oocyte developmental competence, and lipid metabolism

Dr Rachel Roberts

School of Psychology, University of Adelaide
Neuropsychology - child clinical, stressors, health, well-being, craniofacial anomalies

Dr Mark Kohler

Postdoctoral Research Fellow
Children's Research Centre, Discipline of Paediatrics, University of Adelaide
Child sleep - apnea, cognition/cognitive performance, behaviour, developmental psychology

HDA TRAVEL GRANT

RECIPIENT CONFERENCE REPORTS 2009



Ms Anne Raimondo
HDA Scholar (PhD candidate)
Discipline of Biochemistry
University of Adelaide

The International Society of Developmental Biologists holds a conference in a different city around the world every four years, and the 2009 meeting was held in the Scottish capital of Edinburgh. This premier international conference brings together scientists from all over the world with a shared interest in high-quality science and the biochemical, genetic and molecular control of animal and plant development, with sessions covering every aspect of development of the organism including Non-Coding RNAs In Development, Chromatin And

Epigenetics, Morphogenesis And Birth Defects, Cell Migration, Signalling In Development and Stem Cells And Pluripotency. This year also marked 150 years since the publication of Charles Darwin's "On The Origin Of Species", and as such there was also a corresponding focus on many aspects of evolutionary biology.

My research focuses on understanding the molecular role of the brain-expressed transcription factor Single-Minded 1 (SIM1) in regulation of the feeding response in adults, more specifically the gene expression profile that is initiated in response to increased SIM1 activity. SIM1 has been associated with several documented cases of early onset obesity in both mice and humans, and it is believed to be critical for the correct development of secretory cells in the hypothalamus, which sense and respond to peripheral hormonal signals released in response to feeding. An increased understand-

ing of the direct targets of SIM1 activity would aid in our understanding of the molecular mechanisms that underpin monogenic early onset obesity phenotypes. My poster focused on my progress thus far in identifying the direct transcriptional targets of the SIM1 DNA binding complex and attracted interest from several parties.

The ISDB conference offered many insights into the techniques and experimental approaches that are available to study various complex aspects of hypothalamic development, including neuronal migration and settling, as well as the signalling cascades that control cell differentiation and identity and how these signalling events are disturbed in disease states. The plenary sessions were a particular highlight, where we were fortunate to be lectured by some of the most notable developmental scientists of the last few decades, including several

Nobel Laureates who pioneered numerous techniques that underpin developmental biology research today.

The conference also held workshops of practical benefit to students and principal investigators alike. A particularly useful session, which was chaired by the Editors-In-Chief of many extremely high profile research journals including Nature Cell Biology and Developmental Cell, covered the numerous aspects of getting one's data published, and provided many valuable and insightful recommendations on how to achieve this goal.

I am grateful to HDA for supporting my trip to what was a very interesting, insightful and enjoyable conference. It gave me invaluable experience in presenting my data to the international science community as well as the opportunity to network with numerous eminent scientists both within and surrounding my field of research.



Mr Leigh Guerin
HDA Scholar (PhD candidate)
Discipline of Obstetrics and Gynaecology, University of Adelaide / School of Pharmacy & Medical Science, UniSA

In September this year I travelled to beautiful Berlin, Germany to attend the 2nd European Congress in Immunology (ECI). Located in the beautiful suburb of Charlottenburg in the west of Berlin, ECI brought together almost 5000 of Europe's and the World's best

immunologists and a dynamic mix of both senior and early career researchers.

The conference was the largest one that I have attended. As a consequence of its size it covered a hugely diverse range of immunology related topics from my field of reproductive immunology, through to the role of the immune system in allergies, autoimmune diseases as well as the responses to virus infections such as the influenza virus. The diversity and quality of the science presented allowed me to not just expand my knowledge in immunology, but also allowed me to learn about new techniques and cross-foster ideas with fields of research that I would have never otherwise been exposed to.

Following the conference I took the opportunity to visit labs overseas to present my work and discuss possible post-doctorate opportunities for next year. These labs included Sandra Blois in Charite University in Berlin, Adrian Erelebacher at New York University, Vikki Abrahams and the Reproductive Immunology Department at Yale University and Jack Strominger at Harvard University.

These lab visits lead to some very interesting discussions about my project as well as some of the cutting-edge work being done in the labs and the departments that I visited. It also reinforced that the work done in our lab and our department, as well as our facilities

and attitude toward research, are amongst some of the best in the world.

Overall my work, as well as that done by our lab, was extremely well received both at the conference as well as in all of the individual labs that I visited. The whole experience was very enjoyable and extremely rewarding and has put me in a great position to move forward into a post-doctorate position next year once I have completed my PhD at the end of this year.

I would like to thank Healthy Development Adelaide for providing funding to allow for me to undertake this travel.



In April 2008, one of HDA's working groups organised a well-attended thematic evening on children's wellbeing, including a presentation by Dr Natalie Sinn on 'Nutritional and dietary influences on children's learning and behaviour'. Patrick Cooper, an educational psychologist who works with indigenous children in remote Northern Territory schools, saw this talk and started wondering if something could be done for the children that he works with given their poor levels of nourishment from food and concurrently poor academic outcomes. Nearly a year later he approached Natalie about this and a quick succession of events, including the recent appointment of Prof Kerin O'Dea as Director of UniSA's Sansom Institute, led to a successful application for internal Linkage Project Incentive Scheme funding to develop an ARC-Linkage grant. With the assistance of initial community and school consultation and successful ethics approval to collect pilot

data, the ARC application with chief investigators Dr Natalie Sinn, Prof Kerin O'Dea and Prof Peter Howe; Vifor Pharma as Industry Partner and Patrick Cooper / Northern Territory Department of Education and Training as Partner Investigator - was successful. Hats off once again to HDA for creating an optimal and inspirational environment for networking and collaboration!

Project Title

Effects of omega-3 fatty acids on learning and behaviour of Indigenous Australian children from a remote community school.

Project Summary

Indigenous Australian children have disproportionate health problems that are largely related to malnutrition, which affects physical health and may also impact on their emotional health, learning and behaviour. Indigenous Australian children in remote rural communities are performing well below national benchmarks, and the government has earmarked improved education in this population as a top national priority. To date research has not addressed the impact of nutrition on learning in this population. Improving the nutritional status of these children could assist them to derive greater benefit from educational opportunities, and in turn greater equality of access to occupational opportunities later in life.



STUDY LINKS FOLIC ACID SUPPLEMENTS TO ASTHMA

BY HDA MEMBER, A/PROFESSOR MICHAEL DAVIES

Media release 4 November - University of Adelaide

A University of Adelaide study may have shed light on the rise in childhood asthma in developed countries like Australia in recent decades. Researchers from the University of Adelaide's Robinson Institute have identified a link between folic acid supplements taken in late pregnancy and allergic asthma in children aged between 3 and 5 years, suggesting that the timing of supplementation in pregnancy is important.

A/Professor Michael Davies says that folic acid supplements recommended for pregnant women to prevent birth defects appear to have "additional and unexpected" consequences in recent studies in mice and infants. "In our study, supplemental folic acid in late pregnancy was associated with an increased risk of asthma in children, but there was no evidence to suggest any adverse effects if supplements were taken in early pregnancy." The University of Adelaide findings have been published in the *American Journal of Epidemiology*.

The study involved more than 500 women whose maternal diet and supplements were assessed twice during their pregnancy, with follow-up on their child's asthma status at 3.5 years and 5.5 years. Asthma was reported in 11.6% of children at 3.5 years and

11.8% of children at 5.5 years. Nearly a third of these children reported persistent asthma.

Current public health guidelines recommend that women consume a supplemental dose of 400 micrograms of folic acid per day in the month preceding and during the first trimester of pregnancy to reduce the risk of neural tube defects in children.

"Our study supports these guidelines, as we found no increased risk of asthma if folic acid supplements were taken in pre or early pregnancy," Associate Professor Davies says. However, these guidelines may need to be expanded to include recommendations about avoiding use of high dose supplemental folic acid in late pregnancy."

He says their study found no evidence to link asthma with dietary folate, which is found in green, leafy vegetables, certain fruits and nuts. Nearly half of all mothers in the study took a folic acid supplement pre-pregnancy and 56% met the required daily dosage of 400 micrograms in early pregnancy. "These findings show there is a potentially important critical period during which folic acid supplement dosages may be manipulated to optimise their neuro-protective effects while not increasing the risk of asthma," A/ Professor Davies says.

Dr Cuong TRAN - Children, Youth & Women's Health Service. **Zinc supplementation as an adjuvant therapy for children with Coeliac Disease.** Purpose of this study is to learn if zinc supplementation together with gluten-free diet would more rapidly improve gut health and integrity in children with Coeliac Disease compared to children on gluten-free diet alone. It will also show whether zinc deficiency is factor in delayed clinical improvement in some children with Coeliac Disease.

Dr Parimala RAGHAVENDRA - Novita Children's Services. **Connective solutions: Facilitating social participation of children and adolescents with physical disabilities or acquired brain injury using the Web 2.0 social networking and 3D virtual environments.** Children with disabilities have reduced social networks resulting in social isolation and limited opportunities to participate in variety of activities. Project, first of its kind in Australia, aims to promote health and welfare of children and adolescents with physical disabilities or acquired brain injury by investigating viability of Internet to facilitate social networks providing access, training and support to use Web 2.0 and 3D virtual environments.

Dr Kathryn GATFORD - University of Adelaide. **Testing intervention to improve insulin secretion and prevent diabetes in individuals who grew poorly before birth.** Infants who grew poorly before birth are at increased risk of developing Type 2 diabetes as they grow up, because their pancreas does not make enough additional insulin to compensate for the insulin resistance they develop. Preliminary evidence from rats suggests that neonatal treatment with the hormone-like compound exendin-4 may be able to normalise insulin secretion in later life. In this project, we will directly test the effectiveness of neonatal exendin-4 on restoring later function and plasticity of the insulin-producing beta-cells after intrauterine growth-restriction.

Dr Melinda JASPER - University of Adelaide. **Macrophage-remodelling of the uterine epithelium for pregnancy success.** Infertility, miscarriage, and some other pathologies of pregnancy are known to have their origins at time of embryo implantation. However biological process of embryo implantation is not yet elucidated. Project will improve understanding of events of embryo implantation, by unravelling finely tuned communication networks existing between immune cells and cells lining uterus. Immune cell-secreted factors will be investigated for their ability to regulate uterine cell expression of receptivity-associated molecules.

Prof Jeffery ROBINSON - University of Adelaide. **Do maternal and infant obesity related genotypes influence efficacy of interventions to limit weight gain in obese pregnant women and obesity in their offspring?** Obesity, sixth most important risk factor contributing to overall burden of disease worldwide, is occurring at increasingly earlier age, and has reached epidemic proportions. Significant and consistently identified risk factor for childhood obesity is maternal overweight and obesity, both which are increasingly common. We are evaluating whether common obesity-related genetic variants in mothers and offspring influence efficacy of package of dietary and lifestyle advice to overweight and obese women during pregnancy to limit weight gain (currently evaluated in LIMIT randomised trial) in improving maternal health, perinatal outcomes and infant growth and adiposity.

Prof Michael SAWYER - University of Adelaide. **Does Nurse Home Visiting Improve Infant Development in Rural and Remote Regions?** Infancy and early childhood are critical periods for lifelong well-being, with increasing evidence that infants and young children exposed to poor quality parenting, poor attachment, and maltreatment are at heightened risk for a range of later developmental problems. This project seeks to evaluate whether the South Australian nurse home-visiting (SA-NHV) program improves the social, emotional, and communicative development of infants and young children living in rural and remote regions of SA.

Dr Linda LINYAN WU - University of Adelaide. **Lipotoxicity mediated endoplasmic reticulum stress and apoptosis cause poor oocyte development during obesity.** Australia has one of the highest obesity rates in the world, with 52% of Australian women being overweight or obese. Infertility is more common in overweight and obese women and our recent research has found that this is due at least in part to alterations in the ability of the egg to form a healthy embryo. This study will determine whether obesity causes lipid accumulation and cellular damage within the egg and its surrounding cells.

Dr Janna MORRISON - UniSA. **Maternal Obesity and Pathway to Childhood Obesity.** Currently more than half of all adults in Australia, including women of reproductive age, are overweight or obese. Heavier mothers have heavier babies and these babies are at risk of developing childhood obesity and becoming obese adults. It is not clear, however, how maternal obesity causes later obesity in the offspring and initiates this intergenerational cycle of obesity. It is important to understand the effects of maternal over-nutrition on the embryo, placenta and fetus as this will influence recommendations on the timing and nature of nutritional interventions in pregnancy designed to limit the impact of maternal obesity on the intergenerational cycle of obesity.

Dr Beverly MÜHLHAÜSLER - UniSA. **Blocking Programming of Childhood Obesity by Maternal High Fat Feeding: Role for Omega-3 Fatty Acids?** Obesity, and in particular childhood obesity, is a major health problem in Australia. We will test novel strategy for intervention, which aims to reduce accumulation of body fat in offspring of obese mothers, by increasing availability of omega-3 polyunsaturated fatty acids (fish-oil); substance which is known to inhibit fat cell formation and fat storage in adults during period of fat development. We will determine whether providing pregnant rats a high-fat diet with high-dose fish-oil supplement during pregnancy and lactation will reduce body fat mass in their offspring.

A/Prof Cory XIAN - UniSA. **Nutrient therapies for preserving bone growth and preventing chemotherapy-induced bone loss in early development.** Childhood chemotherapy often causes growth arrest, osteoporosis, and fractures, and there are no preventative treatments. Since dietary omega-3 oil is known to be effective in inhibiting bone loss, in this project, we aim to investigate whether dietary omega-3 oil supplement is effective in preventing chemotherapy-induced bone erosion in an experimental model. This work will potentially lead to the development of a simple, safe and yet effective therapy for preventing bone defects caused by childhood chemotherapy. This therapy potentially will be useful for ensuring bone health and improving quality of life for children during and after cancer chemotherapy.

Dr Sarah Blunden, Prof Timothy Olds, *Dr James Dollman*, Dr Carol Maher, Mr John Petkov, Ms Michele Herriot
Partner Organisation - SA Health. Admin Organisation - UniSA.

A randomised controlled trial assessing the effects of a school-based sleep intervention in Year 6 and 7 students. Inadequate sleep is associated with wide range of health problems in children, including obesity and poor performance at school. Children are sleeping less than ever before, and there is an increasing pattern of "yo yo sleeping" (sleep deprivation on school days followed by catch up sleeps on weekends). This study will trial school-based program designed to improve sleeping habits of children. Better sleep is expected to result in improved alertness, better life satisfaction, improved weight status.

Dr Natalie Sinn, Prof Kerin O'Dea, *Prof Peter Howe*, Mr Patrick Cooper

Partner Organisations - NT Department of Education & Training, Vifor Pharma Vifor AG. Admin Organisation - UniSA.

Effects of omega-3 fatty acids on learning and behaviour of Indigenous Australian children from a remote community school. Indigenous Australian children have disproportionate health problems that largely related to malnutrition, which affects physical health and may also impact on their emotional health, learning and behaviour. Indigenous Australian children in remote rural communities are performing well below national benchmarks, and government has earmarked improved education in this population as top national priority. To date research has not addressed impact of nutrition on learning in this population. Improving nutritional status of these children could assist them to derive greater benefit from educational opportunities, and in turn greater equality of access to occupational opportunities later in life.

A/Prof Peng Bi, A/Prof Dino Pisaniello, Prof Alison Kitson, *Prof Jonathan Newbury*, Dr Monika Nitschke, Mr Brenton J Keen
Partner Organisation - SA Health, SA State Emergency Service
Admin Organisation - University of Adelaide.

Adaptive capabilities in the elderly during extreme heat events in South Australia. This study, using first hand accounts of experiences and perceptions of extreme heat event of 2009 in SA, will provide valuable insight into heat adaptive capability of ageing population, factors affecting susceptibility, and ways to curb predicted increase in often life-threatening heat exacerbated illnesses, many of which require extended hospital stays. It's envisaged that findings will help inform health policy and contribute to formulation of National Heatwave Response plan. Study findings will be disseminated widely at government (state and federal), non-government, and community levels and will help raise awareness of heat exacerbated illness in general.

Prof Robert Gibson, A/Prof Brian O'Neill

Partner Organisation - Dalriada Meat Pty Ltd. Admin Organisation - University of Adelaide.

Novel technologies for biodiesel production from meat processing waste streams. Deriving products from all levels of the agricultural production chain to achieve zero-waste, greatly increases profitability and optimises sustainability. In meat industry, new opportunities are opening to use by-products such as tallow for production of novel, cleaner energy-producing biodiesel fuel by way of cutting-edge technologies. Production by these technologies greatly enhances cost benefits, fuel properties and energy security. In this proposal we will partner with large SA regional abattoir and rendering facility to develop these technologies initially at laboratory scale, and up-scaling to pilot and full production.

Prof Graeme Hugo - University of Adelaide. ***Circular Migration in Asia, the Pacific and Australia: Empirical, Theoretical and Policy Dimensions.*** Few issues have been more significant in Australia than international migration. It's of fundamental importance to Australia's future as it faces global economic downturn, ageing, climate change and ever changing relationship with Asia-Pacific neighbours. In past Australia's migration relationship with its region has been almost totally seen as source of skilled settlers. Migration will continue to be fundamental to nation's economy, society and security and study seeks to provide evidence for better policy and practice in immigration and development.

Prof Richard Ivell - University of Adelaide. ***Non-classical steroid signalling through SF-1 responsive genes: a key mechanism in environmental endocrine disruption, cancer, and aging.*** Endocrine disruption by pervasive manmade chemicals, which mimic natural hormones, and found in plastics, cosmetics, and fire retardants, known to cause developmental defects in model organisms and wildlife, with substantial risk to human health. This risk increases with increasing population density and dependence on water recycling. Current tests to assess such substances use oversimplified modes of hormone action and grossly underestimate risk of endocrine disruption. Study will yield new

knowledge about how substances act in body, or on wildlife, and form basis for new sensitive methods of environmental monitoring.

A/Prof Murray Whitelaw; Dr Dan Peet; Prof Poellinger - University of Adelaide. ***Approved Single minded 1 in neuron development and satiety signalling.*** An understanding of how Sim1 regulates target genes may allow new pharmaceutical approaches to be designed to combat obesity. As Sim1 belongs to family of closely related gene regulatory proteins which function in early development and homeostasis, deciphering molecular control mechanisms of Sim1 may understand how related factors function in processes such as angiogenesis, response to low oxygen stress, invasion of environmental pollutants, autism diseases.

Prof Derek Abbott; Dr SP Mickan - University of Adelaide. ***Approved Fibre sensors with subwavelength features in the Terahertz radiation (T-ray) regime.*** Australia will benefit from expertise in photonics that will develop new chemical biosensors based on optical fibre technology. Fibres will be used to guide Terahertz radiation (T-ray) frequencies able to detect very small samples of material or fluid. A fundamental step towards system that will impact on applications in medical, pharmaceutical, forensic, security industries. Australia will benefit from new cutting-edge technology and diagnostic biosensing technique.

CSIRO Human Nutrition

WILSON, Prof Carlene; FLIGHT, Ms Ingrid; **TURNBULL, Prof Deborah**; YOUNG, Prof Graeme; COLE, Mr Stephen - Population testing of an internet-based Personalised Decision Support system for Colorectal Cancer screening

Flinders University

MILLER, Dr Michelle; CROTTY, Prof Maria; FRASER, Prof Robert; **COBIAC, Prof Lynne** - A Trial Assessing N-3 as Treatment for Injury-induced Cachexia

University of Adelaide

MAKRIDES, Prof Maria; ZHOU, Dr Shao; SKEAFF, Dr Sheila; RYAN, Prof Philip - A randomised controlled trial of iodine supplementation in pregnancy to enhance neurodevelopment in children

MAKRIDES, Prof Maria; PRESCOTT, Prof Susan; PALMER, Dr Debra; GOLD, Dr Michael - Early regular egg exposure during infancy to prevent egg allergy: a randomised controlled trial

OMARI, Dr Taher; **DAVIDSON, Prof Geoffrey**; TOBIN, Dr Jacinta - A novel strategy for the early diagnosis of Cow's Milk Protein Allergy in infants

PARSONS, Dr David; SIU, Dr Karen; DONNELLEY, Dr Martin; SKINNER, A/Pr William - Synchrotron X-ray assessment of airway surface physiology for cystic fibrosis

ZANNETTINO, A/Pr Andrew; GRONTHOS, A/Pr Stan; LEVESQUE, A/Pr Jean-Pierre; **PEET, Dr Daniel**; TO, Prof Luen - Is Hypoxia Inducible Factor 2 the Trigger of the Angiogenic Switch and a Driver of Disease Progression in Myeloma?

JAMIESON, Dr Lisa; SKILTON, Dr Michael - Associations between periodontal disease and cardiovascular surrogate endpoints in an adult Indigenous population

JAMIESON, Dr Lisa; NASIR, Mr Rus; CHONG, Mr Alwin; ARKER, Dr Eleanor - An oral health literacy intervention among rural Indigenous adults

GATFORD, Dr Kathryn; **OWENS, Prof Julie**; DZIADEK, Prof Marie; SIMMONS, A/Pr Rebecca; DE BLASIO, Dr Miles - Preventing impaired beta-cell plasticity, insulin secretion and diabetes after IUGR

KARNON, A/Pr Jonathan; CASSON, A/Pr Robert; **HILLER, Prof Janet**; METCALFE, A/Pr Andrew - Integrating health technology assessment and service delivery and organisation to maximise health gains

CHAPMAN-SMITH, Dr Anne; **WHITELAW, A/Pr Murray**; SHEARWIN, Dr Keith; DODD, Dr Ian - Understanding and controlling PAS domain interactions in basic helix-loop-helix transcription factors

MOTTERSHEAD, Dr David; **GILCHRIST, Dr Robert**; HARRISON, Dr Craig; MCNATTY, Prof Kenneth - The role of growth differentiation factor 9 (GDF9) in human fertility

GIBSON, Prof Robert; ANDERSON, Dr Peter; **SMITHERS, Dr Lisa** - Does maternal supplementation with n-3 long-chain PUFA in pregnancy influence cognitive development in childhood?

RICHARDS, Prof Robert; O'KEEFE, Dr Louise - Double stranded RNA - the common pathogenic agent in expanded repeat genetically inherited neurodegenerative diseases

CROWTHER, Prof Caroline; DODD, Dr Jodie; MCPHEE, Dr Andrew; FLENADY, A/Pr Vicki - Vaginal progesterone for the prevention of neonatal respiratory distress syndrome

WITTEG, Prof Gary; WILSON, Prof David; TRAVISON, Dr Thomas; ADAMS, A/Pr Robert; TAYLOR, A/Pr Anne; MCKINLAY, Prof John; JENKINS, A/Pr Alicia; MILNE, A/Pr Robert; **HUGO, Prof Graeme**; ATLANTIS, Dr Evan - Effect of sex steroids, inflammation, environmental and biopsychosocial factors on cardiometabolic disease risk in men

CROWTHER, Prof Caroline; DOYLE, Prof Lex; MIDDLETON, Mrs Philippa; OAKEY, Dr Helena; ASKIE, Dr Lisa - Magnesium sulphate in women at risk of preterm birth for fetal neuroprotection - an individual patient data review

JAMROZIK, Prof Konrad; **NEWBURY, Prof Jonathan**; KITSON, Prof Alison; WHITFORD, A/Pr Deirdre; WILSON, Dr Anne; BEILBY, Prof Justin - The Physiology of Health Systems: Port Lincoln as a case study

University of South Australia

DANIEL, Prof Mark; **HUGO, Prof Graeme**; PAQUET, Dr Catherine; TAYLOR, A/Pr Anne; ADAMS, A/Pr Robert - Testing the behavioural and psychosocial mechanisms underlying geographic variation in metabolic syndrome

MCMILLEN, Prof Caroline, **MORRISON, Dr Janna**; **MUHLHAUSLER, Dr Beverly**; OZANNE, Dr Susan - Periconceptional nutrition and the programming of obesity

GRIESSER, Prof Hans; SHORT, Prof Robert; VASILEV, Dr Krassimir; BROWN, Prof Michael; **HAYBALL, Dr John**; MCFARLAND, A/Pr Clive - Chemokine gradients for directed migration of captured cells and guidance of tissue engineering

NHMRC RESEARCH FELLOWSHIPS SUCCESS FOR 2010

HDA MEMBERS

A/Professor Jeremy Thompson

Co-Director: Research Centre for Reproductive Health
Discipline of Obstetrics and Gynaecology, Robinson Institute,
University of Adelaide.

A/Prof Thompson's overall research interest lies in the relationship between micro-environmental, especially nutritional factors, surrounding the cumulus-oocyte complex and during early embryo development, in both the in vivo (follicular/oviduct/uterine) or in vitro environment, and developmental competence of the oocyte.

A/Professor Sarah Robertson

Co-Director: Research Centre for Reproductive Health
Discipline of Obstetrics and Gynaecology, Robinson Institute,
University of Adelaide.

A/Prof Robertson's research centres on the roles of cytokines and leukocytes in events of embryo development during early pregnancy; impact of maternal immune response on success and quality of embryo implantation, placental development and reproductive outcome; male seminal fluid signalling in female reproductive tract and significance for reproductive events and immunity to sexually transmitted infection.

Media release 30 October - University of South Australia

UniSA and SA Health have announced the appointment of a Chair in Mental Health Nursing to lead teaching, research and community engagement in mental health nursing in South Australia.

Professor Nicholas Procter, a senior academic from UniSA's School of Nursing and Midwifery, said he was honoured to take up the exciting new position. "Mental illness affects one in five Australians. This is a great opportunity for UniSA and SA Health to work in partnership to contribute to the health and wellbeing of South Australians," he said.

"I'm looking forward to working with as many clinicians as possible to support their research and practice development, while also generating momentum directed specifically towards practice and research that leads to consumer and carer benefit. "I also hope to bring renewed focus to the importance of mental health nursing as a career option for nurses in South Australia. Mental health nursing is an exciting and dynamic area to work in as it offers a broad range of care practices across the lifespan and is also an area where nurses can make a real difference."

Prof Procter has long standing interests in practitioner mentoring, social inclusion research, policy development and community engagement between mental health services and higher education sector. He is former Hawke Fellow and previous winner of the

Excellence Award for Nursing Education from State Government.

Dr Tony Sherbon, Chief Executive of SA Health, said Professor Procter will play an important role in enhancing the delivery of mental health nursing by leading research, attracting research funding and increasing the numbers of postgraduate students studying mental health nursing. "SA Health is pleased to support this new position as part of our ongoing reform to mental health services in SA," he said.

UniSA Pro Vice Chancellor: Health Sciences Prof Allan Evans said UniSA was delighted to work in partnership with SA Health to enhance delivery of mental health nursing in SA through Prof Procter's appointment as Chair in Mental Health. "Mental health issues affect millions of Australians every day. Preparing a workforce to help care for people with mental illness is a significant challenge."

"Through this position, UniSA's teaching and research in mental health will connect strongly with the issues of our local industry partners and be communicated at local, national and international settings. "The appointment brings great value to advancing South Australia's mental health reform agenda through research and teaching that aims to improve the quality of life of people with mental illness, as well as support the mental health nursing workforce. "The appointment is also closely linked to UniSA's strong community engagement and participation agenda."

*Media release 16 October - University of Adelaide***Why immune cells count in early pregnancy**

A University of Adelaide researcher has been named the 2009 Young Investigator Award winner for shedding new light on why some women are infertile, and why some pregnancies end in miscarriage.

PhD student Alison Care's research has examined the role of a type of immune cells known as macrophages (white blood cells) within the ovary, which are found in abundance around developing eggs and in hormone-producing structures within the ovary.

Her research, conducted in mice, shows that when these cells are depleted there is a significant reduction in the amount of progesterone the ovary produces. Progesterone is hormone produced by the ovary which is essential for maintenance of early pregnancy.

"We know that the ovary requires a vascular network in order to deliver the high levels of progesterone the body requires to maintain early pregnancy. The formation of this network occurs very quickly following ovulation, and macrophages may be involved in establishing that blood supply," Ms Care says.

"It appears that the ovary has its own specialist pathway to achieve this, and that macrophages have an essential role in building the blood supply that we hadn't previously appreciated.

"This research identifies immune system cells as critical determinants of normal ovarian activity and the maintenance of early pregnancy. This might be a key to helping prevent early preg-

nancy loss, such as recurrent miscarriage."

Ms Care says a number of factors - such as smoking, obesity, poor nutrition and stress - could all alter the way macrophages behave and may provide reasons for infertility or miscarriage in some women. Ms Care won the Young Investigator Award after presenting her research to a general audience and media panel at the final event, held last night at the Royal Institution of Australia. She was one of three finalists.

As the winner of the Award, Ms Care receives The Hon Carolyn Pickles Award of \$10,000. Prizes of \$3,000 each were awarded to the two runners up, Kathryn Gebhardt and Roger Yazbek.

Alison Care is a PhD student in the University of Adelaide's Discipline of Obstetrics and Gynaecology.

The Young Investigator Award, now in its 10th year, is a highly successful event rewarding excellence in South Australia's young researchers in both science and their ability to communicate and 'sell' that science. The Award is an initiative of the Children, Youth and Women's Health Service and the Faculty of Health Sciences, University of Adelaide. The University of South Australia and Flinders University are also partners in the Award together with the Women's and Children's Health Research Institute, the Royal Institution of Australia, Medvet and the Women's and Children's Hospital Foundation.

For more info visit the website at www.cywhs.sa.gov.au/yia/

STUDY INVESTIGATES NUTRITIONAL SUPPLEMENTATION FOR AUTISM

BY HDA MEMBER, DR MANYA ANGLE

Media release 11 November - University of South Australia

South Australian scientists have embarked on a new research program looking at whether DNA damage is greater in children with autism than in children without autism.

The University of South Australia's Sansom Institute for Health Research, together with CSIRO Food and Nutritional Sciences and Flinders University, will also investigate whether certain vitamins and other nutrients can help treat some aspects of autism.

Dr Manya Angley from the Sansom Institute's Autism Research Group says United States researchers have shown that the folate/methionine metabolic pathway, which involves key chemical reactions in the body, is significantly different in many children with autism compared to non-autistic children. "This pathway is involved in many key biochemical functions, especially maintenance of healthy DNA," she said.

Prof Michael Fenech from CSIRO and UniSA says study will be carried out in two parts. "The first part aims to establish whether Australian children with autism have an abnormal folate-methionine pathway by looking at levels of certain chemicals in their blood and determining if there is a relationship with autism behaviour," he said.

"The second part looks at whether giving supplements to correct the blood profile improves autism behaviours. "Specific combina-

tions of vitamins and other nutrients can potentially reverse DNA damage associated with normal ageing and neurological disorders such as Alzheimer's disease, Parkinson's disease and Down syndrome. "We want to see whether DNA damage is elevated in autism and whether supplements are effective in treating some aspects of autism." Dr Philip Thomas at CSIRO will be supervising the DNA damage aspects of the study.

The researchers are hopeful that the study may lead to better outcomes for individuals with autism. The ultimate aim is to develop personalised nutrition based on an individual's own genetic makeup. UniSA PhD student Penelope Main is currently seeking participants for the study.

Ms Main says participating in the study has many benefits including free blood testing for nutrient status and psychological assessment with carers being given a comprehensive report. "It is also an opportunity to help move Australian autism research forward," said Ms Main.

Children and adolescents with a diagnosis of Autistic Disorder, their siblings and controls (without a family history of autism) are currently being recruited. Interested individuals should be aged under 15 years and not currently taking folate or sodium valproate (Epilim). If you are interested in learning more about the study, contact Penelope Main on penelope.main@postgrads.unisa.edu.au

The University of Adelaide expands the frontiers of knowledge more frequently, and in more disciplines, than any other institution in South Australia. Our leading researchers, many globally recognised, relentlessly seek answers that will positively impact life on earth.

The Research Tuesdays monthly presentation series is your chance to share in some of their most fascinating discoveries.

Research
Tuesdays

SHARING GREAT RESEARCH
WITH THE COMMUNITY

Generating Hope

with research showing stem cells can generate brain repair, could stroke damage soon be reversed?

Dr Simon Koblar

Tuesday 8 December, 5:30pm - 6:30pm

Level 3 Ligertwood Building,

Law Lecture Theatre 2 (room 333)

North Terrace Campus, University of Adelaide

Synopsis

As the greatest cause of disability in Australia, stroke takes an enormous toll on thousands of patients and their families every year. Consequently, discovering how to repair the debilitating neural damage they cause is considered one of our greatest health challenges.

It's a daunting task, but one the University of Adelaide's Stroke Research Programme (a collaboration with The Queen Elizabeth Hospital) is tackling head-on. And progress is being made.

The team's recent data shows stem cells obtained from adult teeth can be used to generate new brain cells and change the wiring of the brain. Could this be a path to recovery?

In this important presentation, programme leader Dr Simon Koblar discusses the exciting possibilities.

About the Speaker

Simon Koblar is a clinical Neurologist, neuroscientist and teacher in both. He is Patron for Stroke SA and for the last 10 years has built the Stroke Research Programme as a collaboration between the University of Adelaide and The Queen Elizabeth Hospital.

For further info go to www.adelaide.edu.au/researchtuesdays

Registrations are essential. To book your seat email research.tuesdays@adelaide.edu.au or phone 8303 3692, and leave your full name and a contact phone number.