

## From the Directorate

Welcome to the relaunch of the National Research Centre for Growth and Development's periodical newsletter, previously known as CoRE of the Matter. The newsletter is timely because it coincides with the second term of the NRCGD, which officially began on 1/7/08 with the signing of the Centre's foundation documents by Partners The University of Auckland, AgResearch, Massey University, Landcorp, University of Canterbury and the University of Otago. Welcome to all and a special welcome to new partners Landcorp and the University of Canterbury.

With the formalities out of the way, the Directorate and science investigators are now working towards the Centre's new Science Plan for implementation at the beginning of 2009. Besides high scientific merit and strategic 'fit' with the objectives of the Centre, the Board and Directorate are working towards a science plan that fully leverages synergies and capabilities across

the Centre to further build on the momentum and cutting edge science from the first term of the Centre.

Finally this newsletter is intended to be 'people oriented', to increase profile and to form part of a broader communication strategy for the NRCGD going forward including a major revamp of the Centre's website. This activity will be managed by new Communications Officer Dr Felicia Low, who produced this newsletter, and we welcome contributions from you as an important part of the NRCGD's broader community of stakeholders.

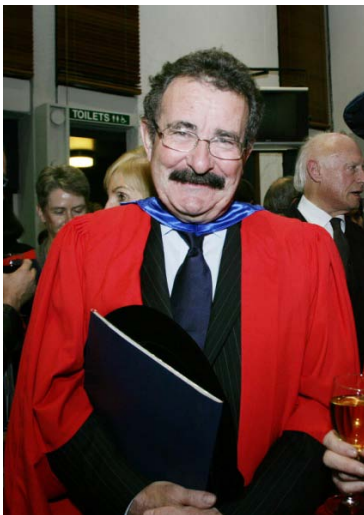
Best wishes



Dr Steve Hodgkinson  
Executive Officer

## Recent Events

### Robert Winston receives honorary doctorate



Professor Lord Robert Winston celebrates after the ceremony

Professor Lord Robert Winston, a member of the NRCGD Science Advisory Board, received an honorary Doctor of Science from The University of Auckland on June 24. While you would be familiar with Lord Winston as a popular presenter of television series such as *Child of our Time* and *The Human Body*, he is also a distinguished reproductive biologist, and is a leading figure in the fields of *in vitro* fertilisation and reproductive genetics.

During his recent visit, Lord Winston showed great interest in the Liggins Education Network for Science (LENS) programme, a project that is cofunded by NRCGD. The initiative provides secondary school teachers and students with access to hands-on practical work and mentoring by research scientists, and has spurred a high degree of interest among students, teachers and other organisations. He now has plans to create school programmes at Imperial College based on the LENS model.



Robert Winston delivering his acceptance speech

More information on the doctoral ceremony can be found [here](#).

## NRCGD Director delivers prestigious lecture

Prof Peter Gluckman, NRCGD Director, was invited to deliver the prestigious Nuffield Lecture at the Royal Society of Medicine Conference in London on May 15. The conference drew together leading researchers in the field of developmental origins of health and disease, and concluded with Peter's lecture on *Developmental Plasticity, its role in Human Health*. A rare accolade, the lectureship was established by William Morris (later Lord Nuffield) in 1959 as a means of disseminating medical knowledge on any topic of current interest.

## The cost of a poor start to life

A landmark international meeting co-sponsored by the NRCGD was held in Wellington on April 17–18. The International Healthy Start to Life Project brought together medical scientists, economists and policy advisors from developed and developing countries. The aim of the meeting was to devise an economic model to assess the social and financial costs of children having a poor start to life. Impaired growth *in utero*, often indicated by measures such as low birth weight and preterm birth, is known to subsequently impact on cognitive development and physical growth. It is also associated with the adult onset of obesity and heart disease. The Project will use global data to calculate the dollar benefit of preventing a high-risk birth classification. In doing so, the



The Project was also featured in the May 10–16 2008 issue of the NZ Listener

cost of early biomedical interventions in reducing the longer term burden of poor health can be justified. It is hoped that public policy will focus on preventive, rather than curative, strategies to improve life course outcomes and lead to economic benefits for a country.



Delegates at the International Healthy Start to Life Project conference

## Closer collaboration between Liggins and AgResearch

Collaboration between NRCGD partners, the Liggins Institute and AgResearch, has the potential to bring about major improvements in agriculture, such as lamb growth, disease resistance and milk production, and human health. The two organisations have recently signed a new Memorandum of Understanding to further integrate their research at the human/animal interface.

This may lead to colocation of staff. The collaboration was demonstrated in June at the National Fielddays at Mystery Creek, Hamilton, with an innovative display at the AgResearch stand. In addition, the LENS education programme and its accompanying curriculum will be adopted at the AgResearch Ruakura site.

## Ngapouri snippets



Ngapouri is situated on a Landcorp Farming Ltd property (starred), and is located 20 min south of Rotorua

- The last year has been a busy time for workers at Ngapouri, the Liggins Institute's sheep research farm laboratory. A large feeding trial involving 1,600 ewes was recently conducted, and it examined the effect of earlier than normal improvement of maternal pre-mating body condition on pregnancy outcome.
- Ngapouri recently hosted Prof John Challis (right), a Toronto-based member of the NRCGD Scientific Advisory Board. John and his PhD student have been studying the effect of reduced maternal nutrition at conception on placental, adrenal and central factors involved in the regulation of cortisol. Animals used in these studies were generated at Ngapouri.



Prof John Challis

## Our research in the headlines

- Work presented by NRCGD investigator Dr Deborah Sloboda (Liggins) at The Endocrine Society's annual conference in San Francisco in June received enormous interest from many news outlets, including the New Zealand Herald. It resulted in ~200 hits on the NRCGD website, and is likely to be profiled by Science. Together with Dr Mark Vickers (Liggins), she found that rats born to mothers fed a high-fat diet went through puberty earlier, had higher levels of total body fat, and altered levels of sex hormones. However, the early onset of puberty was not affected by post-weaning diet. This suggested that pubertal onset is more likely to be influenced by the fetal environment resulting from high-fat maternal diet, rather than childhood nutrition. You can view the [abstract](#) and the [NZ Herald article](#) for further information. Deb's research has now been developed into a resource for Year 13 Biology classes at the LENS programme. More information on the resource can be obtained from [Jacquie Bay](#).



A commentary by NRCGD investigator Assoc Prof Tony Kettle (Otago, Chch) was published in the Christchurch Press on March 17 (left). In it, he argues for the need to increase funding of basic science in NZ. Poor investment in blue skies research, he contends, has led to the poor performance of our economy in relation to productivity and added value.

The April 19–25 issue of the NZ Listener (right) featured an interview with NRCGD project leader Dr Peter Dearden (Otago). Peter discusses how the accelerating evolution of humans is more likely a result of sexual selection, rather than natural selection. You can read the [full article](#) on the Listener website.



## Congratulations to our investigators...

- NRCGD researchers have been successful in recent funding rounds.
  - Prof Wayne Cutfield (Liggins), HRC: *Assessment of pituitary function following traumatic brain injury in infancy.*
  - Dr Mark Vickers (Liggins), HRC: *Developmental programming of disease: critical windows for intervention.*
  - Prof Christine Winterbourn (Otago, Chch), HRC: *Neutrophil oxidants in infection and inflammation.*
  - Dr Mark Hampton (Otago, Chch), HRC: *Peroxiredoxins in antioxidant defence and cell signalling; Cancer Society: Probing the molecular targets of isothiocyanates.*
  - Dr Peter Dearden (Otago), Marsden: The molecular basis of royalty. Peter has also won the 2007 Queenstown Molecular Biology Society Invitrogen Award and the 2007 Rowheath Trust Award and Carl Smith Medal for Research. He is currently a finalist in the Bayer Innovators Awards.
- Notable papers & reviews from [Peter](#), Mark Hampton ([1](#), [2](#)) and Christine ([1](#), [2](#), [3](#)) were recently published.
- Prof Hugh Blair (Massey) was appointed Visiting Principal Investigator to the Chinese Academy of Science in Beijing in April. The purpose of this appointment is to promote the use of genomic tools for the genetic improvement of Chinese sheep breeds.
- Prof Murray Mitchell (Liggins) was awarded a 2007 James Cook Research Fellowship which commenced in April this year. He is undertaking research on the role of feto-placental epigenetics in determining future health.
- Prof Jane Harding (Liggins) was appointed Deputy Vice Chancellor (Research) for The University of Auckland in April.

## ... and students

- René Corner (Massey) completed her PhD last year. Her thesis was titled *Exposure of ewes to stressors in mid and late pregnancy: Postnatal effects on the ewe and lamb*, and has resulted in at least 5 publications in farming and production journals.
- Jo Lim (Auckland) submitted her PhD thesis, titled *In vitro modelling of human reactive gliosis*, this year.
- Tim Harwood (Otago, Chch) submitted his PhD thesis this year. Tim has been investigating *glutathione sulfonamide as a biomarker of oxidative stress in inflammation*.
- Amanda Earl (Massey) completed her BSc(Hons) last year. Amanda looked at the *effect of plane of nutrition during pregnancy on maternal constraint in sheep breeds with diverse birth weights*.
- Karina O'Connor (Otago, Chch) was awarded an outstanding oral presentation at the Queenstown Molecular Biology conference last August.
- Praneeti Pathipati (Liggins) won the best poster award at the NZBio conference in April. She also won the best oral presentation award at the Fetal & Neonatal Physiological Society conference in June. Well done Praneeti on a stellar year to date!

## Travel Reports

With help from the NRCGD, PhD student Graham Howie (Liggins) attended the annual conference of the Fetal & Neonatal Physiological Society at Maastricht, the Netherlands in June. He gave a presentation entitled "A maternal high fat diet either preconceptionally and/or throughout pregnancy and lactation leads to obesity independent of postnatal diet". Here is an abridged report of what he gained from the conference.

I met a number of key people whose papers I have read and admired. From such people I gained a sense of history and continuity about the Fetal & Neonatal Physiological Society, and the international community of scientists who work in this field. There was also opportunity to spend time with NZ colleagues, to share ideas and to get to know them better.

At a personal level, I realised that I could readily follow the science that was being presented at the conference. I discerned that we at the Liggins are up to standard in the work we are doing within the field of Developmental Origins of Health and Disease.



Graham Howie

This was my first scientific conference and the first time I have ever presented to such an audience. From that perspective I gained an appreciation of the expected standard and quality of how these things are done. I was pleased with the way I spoke, the way I had prepared myself, and I received plenty of positive feedback. I also received some constructive critique and suggestions as to how my research could be improved — I thought this was a very beneficial aspect of the conference.

I learnt quite a lot from the material presented by others at the conference — the sort of questions being asked, and the approaches being undertaken to answer those questions. I gained insight into the professional life of a scientist, such as the international fraternity and network that exists, the need to participate in conferences, and the skills required to present and defend methods of enquiry and results and conclusions.

I came away from the conference encouraged and motivated. I feel more focussed as to our work, and I have a desire to hone in on some of the questions that personally attract me, and to make sure those questions are not drowned out in the more general flow and data generation of this project.

NRCGD funding enabled PhD student Erin Daly (Otago) to travel to England in June. She reports on her experience here.

This past June, I was very fortunate to receive NRCGD funding to visit the Babraham Institute in Cambridge, England. I met with a strong group of researchers who are using the latest tools to investigate epigenetic regulation during embryonic development — an area very relevant to my PhD project which aims to explore potential epigenetic mechanisms that may contribute to the invasive phenotype of the placenta during its development. I enjoyed discussing my project with experts such as Myriam Hemberger, Wolf Reik, and Ashley Moffett, in addition to learning about their current work.

I was lucky to meet with Graham Burton, the director of the newly-established Centre for Trophoblast Research, which is an exciting initiative that aims to promote the study of placental biology around the world. I also made time to chat with current PhD students and post-docs about their work and experience at the Babraham Institute. I spent my last few days in London meeting with Vardhman Rakyen and Rebecca Oakey, who were great to talk with about experimental design and future plans for my project.



Erin in England

I must thank NRCGD for funding my visit to England as well as my supervisor, NRCGD investigator Dr Ian Morison, who has been on sabbatical at the Babraham Institute this past year and initiated my contact with all of these people. Not only did I learn new experimental techniques and methods for data analysis, but I also established working relationships and future collaborations with important people in my field of study. It was a very valuable trip!

## Comings & Goings

### Management & Directorate

- The NRCGD Board of Governance has seen several changes over the past year. Judge Mick Brown, Prof Bob Williamson and DVC Research at The University of Auckland, Prof Tom Barnes, have stepped down. Rob Cooper, Dr Dwayne Crombie and Trudie McNaughton (substituting the new DVC Research, Prof Jane Harding) have joined the Board. We would like to thank the past members for their commitment and steerage of NRCGD and formally welcome the new members.
- Prof John Funder (*right*), Professor of Medicine at Monash University, replaces Prof Bob Williamson as Chair of the NRCGD Scientific Advisory Board.



Prof John Funder (photo courtesy of the University of Melbourne)



Dr Roger Lins

- The Directorate farewelled Karen Goldstone, NRCGD Secretary, at the end of 2007 after she resigned to spend more time with her grandchildren in Christchurch.

We now welcome Dr Roger Lins, on secondment from the Liggins Institute as Project Officer. Roger has a background in research and its management, and he has joined the Directorate to help with project planning and contracting.



Dr Felicia Low

Dr [Felicia Low](#) has also joined the Directorate as Communications Officer. She will be handling internal and external communications, and is the point of contact for any NRCGD-related news.

## Students and Postdoctoral Fellows

NRCGD PhD student Jo Lim (*right*), who submitted her PhD under the supervision of Prof Mike Draganow (Auckland), has joined the Liggins as a Fonterra Postdoctoral Fellow. With Dr Mark Vickers, she will be investigating the activity of putative infant formula components on brain development and function. Jo was one of our first PhD students and it's great to see her continuing with an NRCGD project!



Sarah Morgan (*left*) has embarked on a PhD with Dr Peter Dearden at the University of Otago. She has generated *Drosophila* raised on differing protein to carbohydrate ratios, and will be determining the patterns of gene expression associated with longevity and reproduction in these flies and the honey bee.



Rosannah McCartney (*right*), also a PhD student with Peter, is investigating the genetic basis of a polyphenism which occurs in the honeybee.

## Watch This Space

### Upcoming events

What: Science Planning workshop  
When: 23–24 July  
Where: Auckland  
Who: NRCGD Project leaders

### What's happening with our website?

Since the departure of Rowena Knight-Brown from the NRCGD in 2006, we have not had the resources for updating our website. An organisation's website is often the first point of contact for people interested in its activities, and requires more than sporadic updates. With that in mind, plans are now advanced for a major overhaul of the NRCGD website. In addition to regular content updates, we plan to establish an intranet facility in the longer term. This could be a one-stop shop to access NRCGD templates, contact lists and links.

## Coffee Break

### [SciTechDaily.com](http://SciTechDaily.com)

More science and technology links than you'll ever have time for, as well as a daily newsletter of links catered to your interests.

### [OpenWetWare.org](http://OpenWetWare.org)

A wiki-style website started by MIT. Organises and shares information related to biological research.

### [Scholar.google.co.nz](http://Scholar.google.co.nz)

A quick way to find seminal papers by specific authors. Articles are ranked based on citations, publication, authors and full text.

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