

## From the Directorate



Welcome to the final edition of the NRCGD newsletter for 2008, and my first column as Executive Officer. I've been with the CoRE for over a year now, but I feel I've only scratched the surface in terms of getting to know its people and coming to understand the excellent research that is being performed across all our Sites — a

situation I hope to rectify over the next year or so. I'm also immensely grateful for the efforts of Trisha and Felicia as they help me get to grips with my new role in the Directorate office.

These last two months have been a particularly busy time as we work toward finalisation of the budget for 2009 and of the new Major Research Projects that will begin in the New Year. The new projects are listed below; as befits the nature of the CoRE they represent a mix of career stages,

geographical sites, and research themes. There are also rather a lot of them! Getting all the projects off and running is a big job and I'm most grateful for the enthusiasm and positivity that is evident in all my meetings with project leaders to date.

Finally, as Steve has pointed out previously this newsletter is intended to be "people oriented" — so we need your help! We're especially interested in short blog-style pieces reflecting the experiences of our younger members, both in and out of the lab, so if you'd like to contribute please get in touch with Felicia.

Best wishes



Roger

## Recent Events

### Major research projects announced

The new NRCGD major research projects commencing in 2009 have been announced. The 16 projects collectively span all NRCGD sites and research themes.

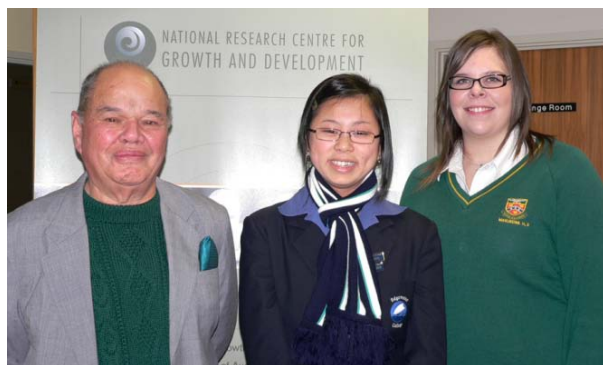
Project Leader(s)	Title
Prof Peter Gluckman	Evolutionary biology, developmental plasticity, health and disease
Dr Mark Vickers	Empirical evidence to support the DOHaD paradigm: Maternal high fat nutrition and the role of leptin in the etiology of programming-related metabolic disorders
Prof Mike Dragunow	Pharmacology of epigenetics
Dr Peter Dearden	How do epigenetic mechanisms control developmental polyphenisms?
Prof David Raubenheimer/Dr Peter Dearden	Functional genomics of ageing and reproduction in the honeybee
Dr Deborah Sloboda	Effects of nutrition and care on processes underlying the tempo of reproductive development and fecundity

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Project Leader(s)	Title
Prof Hugh Blair	Long-term consequences of a stressed uterine environment
Jacque Bay	A healthy start to life: Adolescent education for preparedness
Dr Susan Morton	International Healthy Start to Life Project (IHSLP) — Phase II
Prof Murray Mitchell	Epigenetic regulation of the activities of key genes required for parturition, fetal well-being and long-term health
Dr Mark Oliver/ Assoc Prof Frank Bloomfield	Long-term metabolic consequences of a stressed uterine environment
Prof Wayne Cutfield	Early pregnancy events and long-term growth and metabolism of children
Prof Ian Morison	Fundamentals of epigenetics in human and livestock development
Prof Murray Mitchell/Prof Ian Shaw	Exposure to environmental chemicals and developmental origins of health and disease
Dr Mark Hampton	Oxidative stress and the regulation of embryonic development
Kevin Dudley/Allan Sheppard	Epigenetic dynamics in developmental disease models

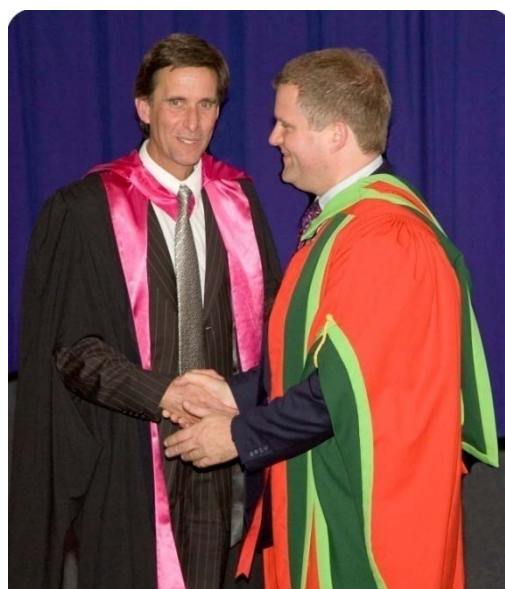
## NRCGD sponsors high school students

How many high school students get the opportunity to travel overseas on an all expenses paid trip? Edgewater College student Anne Yu and Manurewa High School student Megan Gildersleve can count themselves among the lucky few. The Year 13 students were the inaugural recipients of the NRCGD-Brown Student Travel Award, which enabled them to attend the Biofutures science conference in Brisbane in July.



Judge Mick Brown with Anne (centre) and Megan (right)

The award was established by the NRCGD in recognition of the contribution that Judge Mick Brown (a former Board member of the NRCGD) has made to young people, education, and the support of scientific research in New Zealand. Anne and Megan presented on their week of lectures, discussion, and hands-on exploration of cutting edge technologies to Judge Brown and NRCGD Board members in August.



**Prof Wayne Cutfield (Liggins)**, who was awarded a personal chair in Paediatric Endocrinology last year, delivered his inaugural professorial lecture in August. Here, Wayne is being congratulated by Prof Iain Martin, Dean of the Faculty of Medical and Health Sciences, The University of Auckland.

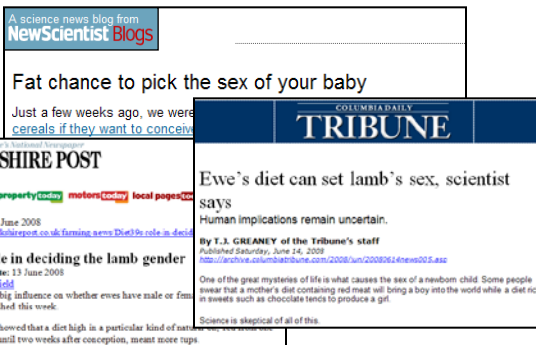
## Our research in the headlines

- In an October [Sunday Star Times feature article](#), **Prof Peter Gluckman** (Liggins) highlighted the challenges faced by today's adolescents. There is a trend towards undergoing puberty earlier in developed countries, yet this physical maturation is not being matched by development of brain structures that mediate judgement and impulse control.

Many studies have shown that children who undergo early puberty are at increased risk of engaging in antisocial or sexual activities. Peter argues for the need to develop a coherent and comprehensive life skills programme to help youngsters cope with their changing bodies and the accompanying societal expectation for them to act as fully mature adults.



An inset article profiled the results of a survey by Tamaki College students on the differences in emotional maturity between girls and boys. The students were mentored by Dr Deborah Sloboda (Liggins).



A [paper](#) published by **Dr Mark Green** (Liggins/AgResearch) in June has been featured in many news outlets. With colleagues in the University of Missouri, Mark found that in sheep, a maternal diet rich in polyunsaturated fatty acids resulted in significantly more male lambs being born. The paper has been downloaded more than 700 times in 30 days, and is among the most highly accessed articles from the journal.

## Grant successes

- Dr Mark Hampton & Prof Christine Winterbourn** (Otago) have been awarded a Marsden grant for investigating the role of peroxiredoxins in the cellular response to oxidative stress.
- Prof Murray Mitchell** (Liggins) has secured a FRST grant for investigating methods of improving cow fertility.
- Dr Allan Sheppard & Dr Steve Hodgkinson** (Liggins) have also been awarded a FRST grant for research on nutritional epigenomics.
- Dr Deborah Sloboda & Prof Peter Gluckman** (Liggins) are leading two projects funded through the HRC's International Investment Opportunities Fund (IIOF).

Deb is working with Prof Michael Meaney (McGill University, Canada) on the effects of nutrition and maternal care on subsequent risks of health and disease. Peter is collaborating with Prof Terrence Forrester (Tropical Metabolism Research Unit, Jamaica) on how developmental factors in humans influence adaptation to high energy environments.

## Editorship

- Prof Graeme Wake** (Massey) has accepted membership of the Royal Society's Editorial Board of Proceedings A (physical & mathematical sciences).

## Promotions

- Prof David Raubenheimer** (Massey) has been awarded full professorship by Massey University.
- Prof Ian Morison** (Otago) has been appointed Professor of Pathology by the University of Otago.

## Major papers

**Prof Mike Dragunow** (Auckland) has had two major articles recently published in *Nature* journals. The articles summarise the high content analysis platform and the human brain cell culture platform, both of which were developed by Mike with NRCGD funding. The two platforms will be used in future NRCGD studies.

For further information:

Dragunow M (2008) *Nature Reviews Neuroscience* 9: 779–788. [PubMed link](#)

Dragunow M (2008) *Nature Reviews Drug Discovery* 7: 659–666. [PubMed link](#)

## Professional achievements

🎯 **Prof Christine Winterbourn** (Otago) was presented with the 2008 Trevor Slater Award by the International Society for Free Radical Research in October. The award is the Society's highest accolade, and recognises exceptional contributions by a highly distinguished scientist to the field of free radical research. Significantly, this is the first time that someone from outside the USA/Europe, and indeed a woman, has won the award.

🎯 **Dr Mark Hampton** (Otago) won the 2008 Invitrogen Life Science Award for Emerging Excellence in Molecular Biology Research in New Zealand. Last year's winner was Dr Peter Dearden (Otago), making it two consecutive years that NRCGD researchers have won this award!

🎯 **Prof Elwyn Firth** (Massey) was awarded a DSc by Massey University in late 2007. His thesis, entitled *Development and responses of equine musculo-skeletal connective tissues*, consisted of research work conducted in the last 25 years and published in peer-reviewed journals.

🎯 **Prof Hugh Blair** (Massey) has been invited to lecture on *Fetal Programming in Animal Agriculture* at the 2009 Joint ADSA-CSAS-ASAS Annual Meeting. He has also been invited to speak at the 2009 International Congress on Developmental Origins of Health and Disease (DOHaD) meeting.

🎯 **Tony Pleasants** and **Dr Tanya Soboleva** (AgResearch) won the Agricultural Science section of the Waikato KuDo<sup>®</sup> awards for science excellence in September. The award was for work on probabilistic population dynamics applied to microorganism growth on perishable products. This has led to the development of a software tool which underpins the management of New Zealand's chilled meat trade.

The need to deal rigorously with probabilistic issues is essential to understanding growth and development in a variable and uncertain environment. Therefore, the tools developed with this work will assist other programs, especially the practical implementation of NRCGD science.



Watch Tony explain his work in a video clip on the [Kudo<sup>®</sup> website](#).

## Travel Report

PhD student **Danitsja van der Linden** (Massey) recently returned from an NRCGD-funded trip to Europe. She made the most of her two-month trip by attending several meetings and workshops, and visiting a number of universities. Here, she reflects on her experiences and knowledge gained.

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## Meetings:

I am glad I had the opportunity to attend the Nutrition Society Annual Summer Meeting at Nottingham University, UK, as it had some interesting presentations. The meeting discussed multidisciplinary approaches to nutritional problems including talks on performance, exercise and health, diabetes and health, and nutrition and health.

The Nutrition Society meeting was a nice introduction to the Developmental Origins of Adult Health and Disease (DOHaD) nutritional workshop that I attended later that week at Nottingham University. The workshop discussed the models that were used to try to understand DOHaD and how research in this area should proceed further.

Also some data was shown of studies using an overnourished animal model during pregnancy, rather than the norm of the undernourished animal model. This linked back to the Nutrition Society meeting that obesity and eating too much during pregnancy could adversely affect postnatal health and performance of offspring.

The Annual Meeting of the European Association for Animal Production in Vilnius, Lithuania, was more related to the animal production side of my PhD. It was interesting to learn about different animal production systems all throughout Europe. I presented a paper entitled *Effects of dam size and nutrition during pregnancy on the milking ability of offspring* during the session on genetics and physiology of female fertility in ruminants, and received positive feedback after my presentation.



A Lithuanian street (photo by Dannie)



Dannie measuring a new-born lamb back in Palmerston North

## University visits:

At Nottingham University I met Dr David Gardner. He uses the ovine model as well to study the effects of DOHaD. It was interesting to hear about the studies they are conducting in Nottingham, to see all the different animal facilities and nice to hear his perspective on my work.

I met Dr Lucy Green at Southampton University. She organized for me to meet with Prof Mark Hanson and several researchers at the DOHaD group, who all showed some of their research. At the end of the afternoon I gave a seminar and received positive feedback and new ideas of how to analyse some of my data.

At Copenhagen University I met Dr Malin Plumhoff Tygeson who organized for me to meet with Dr Mette Nielsen and Prof Chriss Knight. I was also invited to join a meeting about future research projects in the DOHaD area, in which there would be space for Post doctoral fellowships.

I met Prof Bas Kemp at Wageningen University and Research Centre. He was my Prof during my Masters, so it was nice to catch up with him. We had good a discussion about my work and he gave me some good ideas for further data analyses.

Next to all the knowledge I gained during my trip in Europe, it was great to be able to visit all these different places too. I found Lithuania the most outstanding of all the countries I visited, because of its quite recent and rough history and the will to get itself on the map!

Overall, attending these conferences and visiting the different institutes was a great opportunity to meet and interact with some leading and emerging scientists in these particular areas of research. It also gave me some clear ideas of what possibilities are “out there” for when I am finished with my PhD.

## Website update

We have a new website address! Bookmark [www.nrcgd.org.nz](http://www.nrcgd.org.nz) and inform your website editors of the change. You will find that for the moment, this website address redirects to [www.growthcentre.ac.nz](http://www.growthcentre.ac.nz). Content for the revamped website is being developed and finalised, and of course you will be the first to know when it goes live.

## Upcoming events

What: Science Advisory Board review  
When: 23–26 March 09  
Where: Auckland, The Liggins Institute  
Who: NRCGD project leaders & investigators

## Coffee Break

[LabMeeting.com](http://LabMeeting.com): Web-based tool to help you organise your PDFs, find new papers and even share journal club papers, lab data and protocols with your lab colleagues.

[Mendeley.com](http://Mendeley.com): Free software for creating and maintaining an online, shared database of papers.

[Science Media Centre](http://Science Media Centre): RSNZ initiative for unbiased reporting on science & technology issues. Subscribe to their weekly newsletter.

[ResearchBlogging.org](http://ResearchBlogging.org): Discuss peer-reviewed science in this online version of a journal club.

[SciLink.com](http://SciLink.com): Network with other scientists.



*Down memory lane: NRCGD investigators gather at the Liggins Institute in early 2003*

Questions, comments, suggestions or contributions?  
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