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New funding for breast

cancer research

Health, nutrition and evolution The cost of being born small



#### On our cover: cancer researchers celebrate in style

Members of the 36-strong cancer research team at the Liggins Institute took time out of the laboratory to make a fashionable link between their research projects and a recent grant from The Breast Cancer Research Trust.

Long recognised for its expertise in the field of growth and development, the Liggins Institute includes a cancer research team with an impressive international reputation. The group focuses on the abnormal aspects of growth that lead to the development and progression of some hormonally driven cancers, in particular breast cancer.

The Breast Cancer Research Trust raises funds towards its ultimate goal of finding a cure for breast cancer – in our lifetime. Its campaign is supported in part by a unique partnership with nationwide fashion retailer Glassons and some of New Zealand's leading fashion houses.

The 2007 Glassons' Breast Cancer Research Trust t-shirts have been designed by Trelisse Cooper, Karen Walker, Kate Sylvester, Zambesi, Ruby and Cybele. \$10 from the sale of each t-shirt is donated to the Trust.

Pictured in the t-shirts are Liggins research staff and students: left to right, back: Irene Liang, Teresa Wen-Shan Yang; centre: Severine Brunet-Dunand, Nic Bougen, Prudence Grandison; front: Lillian Kuan, Yewon Jung, Swetha Gaddipati.



## Dialogue



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The Liggins Institute is the leading partner in the National Research Centre for Growth and Development, one of New Zealand's Centres of Research Excellence.

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## Breast cancer group wins major grant

The Liggins' breast cancer research group has been awarded a significant grant from New Zealand's Breast Cancer Research Trust



Technician Prudence Grandison and PhD student Nagarajan Kannan, key members of the project team set to benefit from the new grant.

The funding will be used to search for the cell surface receptors for two molecules, called trefoil factors, believed to play a key role in the development and progression of breast cancer.

"Cancer is a growth problem," says Professor Peter Lobie who joined the Liggins in 2003 and now leads the largest group of breast cancer researchers in New Zealand. "While there are many different types of cancer, breast cancer tends to affect women at the most productive time of their lives in terms of motherhood or career, which is why it's so important to pursue new leads in the search for effective treatments. This grant will enable us to explore new therapeutic strategies that target specific molecules found in cancer cells."

The identification of the trefoil factors as potential therapeutic targets followed years of research conducted by Professor

Lobie's team, in Auckland and previously in Singapore, involving the role of locally produced human growth hormone in breast cancer. 'Growth hormone' is a naturally occurring hormone that stimulates cell division and is produced by normal cells during growth and development. In a proportion of breast cancers, growth hormone can be abnormally produced causing prolonged cell life and excessive cell growth. As well as mediating many of the cancer causing effects of growth hormone, the two trefoil factors that the group has identified appear to be regulated by a number of other molecules known to be involved in human cancer. They may therefore act as a common mediator of a variety of stimuli that promote cancer.

Alison Taylor, Chair of The Breast Cancer Research Trust, says the Trust is excited about the Liggins Institute research. "Breast cancer claims the lives of more than 600 New Zealand women every year and statistics reveal that one in eight New Zealand women develops breast cancer. Our objective is to find a cure for breast cancer in our lifetime.

"The research conducted by the Liggins Institute could potentially lead to a major breakthrough in treating breast cancer."

"Our lab has developed a novel set of tools and an experimental strategy that looks very promising," says Professor Lobie. "I am delighted that The Breast Cancer Research Trust has demonstrated their confidence in our approach by funding the next stage of this programme."

The incidence of breast cancer has doubled in the last 30 years; the grant is the first to be awarded to the Liggins by the Trust.

## Cutting-edge technology comes to Liggins

The arrival of a new genetic analysis tool promises scientific and commercial benefits to the Institute and to research in New Zealand



Making the most of the Sequenom's capabilities: (from left) Dr Farhad Shafiei, Sue Copeland and Dr Fahimeh Rahnama.

One of only eight in Australasia, the Sequenom is a sophisticated instrument capable of performing rapid, high throughput genetic analyses to support the Institute's research in the emerging field of epigenetics.

Assistant business development manager at the Liggins, Dr Farhad Shafiei, says the Sequenom has enormous capabilities: "It's state-of-the-art equipment which has the ability to run and analyse in a day what would otherwise take two or three researchers months to complete. Previously our scientists would have sent samples offshore for analysis or conducted time-consuming experiments locally. The Sequenom will change all this by dramatically increasing the pace at which research can be conducted."

Purchased jointly with partners the National Research Centre for Growth and Development, AgResearch and Landcorp, the Sequenom is also available for use by external commercial and scientific organisations. "We already have a number of companies that are interested in using the technology," says Farhad, one of three people involved in the operation of the Sequenom. The team, including development scientist Dr Fahimeh Rahnama and technician Sue Copeland, will focus on helping scientists and commercial clients make best use of the new technology.

One of the first scientists to test the speed and accuracy of the Sequenom's genetic analysis is Liggins researcher, Dr Mark Vickers. Mark, a developmental programming specialist with a particular interest in fetal nutrition, says the possibilities offered by the Sequenom are very exciting.

"The Sequenom has given us a real international advantage in an increasingly competitive field. Given the large scale of our trials, it could take a year or more to analyse our samples using the methods that were previously available or waiting for the results to come back from overseas laboratories. The Sequenom can manage hundreds of samples at once, produce accurate, uncontaminated data and, importantly, is very cost effective.

"It can detect subtle changes in gene expression that arise from interactions with the environment and will allow us to explore the mechanisms behind our observations in both animal models and clinical trials."

For more information on the contractual use of the Sequenom, contact Dr Farhad Shafiei on (09) 373 7599 ext. 86653 or f.shafiei@auckland.ac.nz.

## Origins of reproductive health

A new research fellow with expertise in the unfolding area of developmental programming and reproductive ageing has joined the Liggins team

It was serendipity that brought Canadian researcher Dr Deborah Sloboda to the Southern Hemisphere. As a student at the University of Toronto in the late 1990s, Deborah had problems replicating a procedure used by researchers at the University of Western Australia. The result of this experimental hiccup was a mammoth commute between Perth and Canada which would eventually lead to her emigration.

"I never imagined in those days that I would end up in New Zealand, or that I would have two Australian children," laughs Deborah, who joined the Liggins team last November as a research fellow funded by the National Research Centre for Growth and Development.

But that elusive experiment and the chance sharing of a Toronto office with Liggins researcher Dr Frank Bloomfield, pointed to a career that would eventually lead down under, first to a postdoctoral fellowship at the University of Western Australia and then to Auckland.

"Since my student days I was very aware of the reputation of the researchers here in Auckland," says Deborah who will be working on two areas of developmental programming at the Liggins: the effect of a poor prenatal environment on fetal metabolism and the future fertility of girls with low birth-weights.

"Both arms of my research focus on the developmental origins of disease," says Deborah. "I'll be working on the impact of low birth-weight on the development of metabolic conditions such as diabetes while pursuing a new area of investigation - the influence of the prenatal and postnatal environments on reproductive ageing."

This new area of fertility research, in



"The thing I love about science is that it's about figuring out the unknown, piecing together a jigsaw puzzle without a picture," says new Liggins research fellow, Dr Deborah Sloboda, explaining her research to students in the Sir John Logan Campbell Classroom.

particular the development of polycystic ovarian syndrome, recently gained international attention after Deborah's findings were published in the Journal of Clinical Endocrinology & Metabolism. "Our results provide further evidence that birth weight and being over-weight in childhood, might potentially compromise women's reproductive health," says Deborah. "These

findings have opened up a new avenue of investigation around the early origins of reproductive health."

Deborah will extend her groundbreaking work on reproductive ageing with Drs Mark Vickers and Mark Green, while continuing her collaborations with colleagues from the University of Western Australia.

#### Liggins gains Maurice Paykel Fellow

A researcher with a background in blood disorders has joined the Liggins as the Institute's second Maurice Paykel Postdoctoral Fellow.

Dr Michael Steiner, who last year completed a PhD in the biochemistry of leukaemia at Ben Gurion University of the Nagev in Israel, began work in the Liggins newly formed epigenetics group in January. Epigenetics is the science of how our DNA and the way it is expressed, is influenced by our environment.

"The focus of my Fellowship is to investigate factors which may alter the way certain genes are expressed during placental implantation, during pregnancy and in early development," says Michael, who will be working with the Institute's Research Director and expert in the biology of preterm labour, Professor Murray Mitchell.

"The Institute has a prestigious reputation internationally, so I am delighted to have been awarded this Fellowship." The

Maurice Paykel Postdoctoral

Fellowship, which is awarded for educational excellence in medical and engineering research, is aimed at attracting researchers of international standing.

Having completed his two year Fellowship, the Institute's previous Maurice Paykel Postdoctoral Fellow, Dr Mark Green, has remained in New Zealand to work on a joint project between the Liggins Institute and AgResearch.

## Celebrating student success

#### It's been a year of achievement for students at the Institute, with the first group of PhD candidates graduating in May

The Liggins "family" had cause for celebration when five PhD students received their degrees alongside one postgraduate diploma and twelve bachelors (honours) students who had undertaken the research portion of their degrees within the Institute.

The doctoral students were the first group to commence and complete their degrees under the Institute's supervision. All of the undergraduates received first class honours with eight now enrolled for PhDs at the Institute.

Academic Director of the Institute, Professor Jane Harding hosted a celebratory function for the graduands in May, presenting them with gifts and flowers. "We're delighted to see the first batch of PhD students through their degrees here at the Liggins," said Professor Harding. "We're also delighted that all of those graduating with honours degrees achieved first class honours and we're proud to share their success. The investment they, their families, friends, supervisors and mentors have made in their education is enormously important."

PhD graduate and student of Professor Harding, Dr Stuart Dalziel, completed a 30-year follow-up study on the first group of babies involved in Professor Sir Graham Liggins' landmark trial treating women at risk of preterm labour with antenatal steroids.

Dr Rita Krishnamurthi's PhD research investigated the neuro-protective effects of a promising new molecule in Parkinson's Disease. She is now continuing her research in this area as a part-time research fellow at the Institute, working with her PhD supervisor Dr Jian Guan.

Further success came when students Teresa Wen-Shan Yang and Bridget Thompson won awards for the best honours project presentations in the Faculty of Medical and Health Sciences; Bridget, Philip Logan and PhD student Jennifer Miles had their research results accepted for presentations at prestigious international meetings, with Philip also winning a coveted travel award.

Graeme Fielder and Lillian Kwan showed an entrepreneurial bent securing positions as CEO and secretary (respectively) of Chiasma, a student initiative aimed at creating links between students and the biotechnology industry.



Drs Rita Krishnamurthi and Stuart Dalziel share PhD congratulations.



First class honours awarded to: left to right, back: Graeme Fielder, Teresa Wen-Shan Yang, Philip Logan. Front row Amy Yip (in absentia), Jane Evans, Jian Kang (in absentia), Lillian Kuan.

#### Problem of low weight has high cost

Every year, six percent of New Zealand babies are born weighing less than 2.5 kilograms. For one Liggins student, the implications of low birth-weight are coming under economic scrutiny as she evaluates the social and financial costs of being born small



Kate O'Connor - research with an international perspective.

Being born small predisposes children to a range of health and developmental problems and increases their risk of adult diseases. While the physical costs of low birth-weight are now recognised, the socio-economic impact is less certain.

Liggins PhD student Kate O'Connor is working alongside the World Bank to help clarify the financial load communities face as the number of low-weight births increases worldwide.

"New Zealand itself doesn't compare badly," says Kate, "but OECD data suggest there is a general upward trend in the proportion of low birth-weight babies being born. If we can develop a specific dollar-per-head model for the individual cost to a nation, we might be able to persuade governments to put more money into the start of life, into health and nutrition education for mothers and into retargeting our health resource."

Around eight million low birth-weight

babies are born in India alone every year. This figure equates to over 30 percent of all Indian births – very different from the six percent shared by New Zealand, Australia and the United Kingdom – and the impact is felt worldwide.

"The World Bank estimates that the cost to the world economy is 500 US dollars per person for every low-weight birth in the developing world. This doesn't take into account the high cost of neonatal intensive care in the developed world, or the hidden costs to families and communities: lost work time and productivity, ongoing family stress and children's greater learning needs."

Six months into her PhD, Kate is making her way through a number of international databases to establish what factors might be involved in low-weight births. "So far it seems that diet, age, education and interesting things like contraceptive prevalence, geographical latitude and the social status of women, are indicators of the health and weight of infants," says Kate.

By looking at the birth-weight averages for individual countries, Kate hopes to map low birth-weight prevalence against the increasing incidence of diabetes and cardiovascular disease developing around the world.

"This research fits into a larger international research project with The University of Southampton and economist Harold Alderman at the World Bank," explains Kate, who is also working closely with the New Zealand Institute of Economic Research.

"A poor start to life is a start to a whole life, and the socio-economic costs of this start are felt over a lifetime, not just by the individual, but by all levels of society."

Kate's PhD is funded by the National Centre for Growth and Development and is being supervised by Professor Peter Gluckman and Dr Susan Morton.

## Institute hosts world forum

A new research centre devoted to the exploration of human evolution, adaptation and disease held its first international forum in February with contributions from some of the world's leading figures in evolutionary and developmental biology

The Centre for Human Evolution, Adaptation and Disease (CHEAD) has been established at the Liggins to focus on evolutionary medicine, in particular the application of contemporary concepts in developmental biology to our understanding of disease in the modern world.

The forum, "Forecasting in development" – a reference to increasingly compelling research which suggests that adult health can be forecast on the basis of environmental influences in early life – was chaired by eminent British biologist Sir Patrick Bateson.

Participants included national and international experts from disciplines as diverse as evolutionary biology, anthropology, agricultural science, nutrition and mathematics.

CHEAD leader, Associate Professor David Raubenheimer said the forum was a wonderful opportunity for interdisciplinary discussion on the evolutionary basis of modern disease, while colleague Professor Mark Hanson, British Heart Foundation Professor of Cardiovascular Science at The University of Southampton, emphasised the importance of international debate: "In biomedical research there is no substitute for small workshops where experts from a range of related disciplines get together to define ongoing problems and devise strategies to solve them. Nowhere is this more important than in the rapidly emerging field of forecasting and the mismatch concept applied to chronic disease. As one of the world's premier research centres, the Liggins provides a perfect setting and a stimulating atmosphere for such workshops."



Forum participants, from left to right. Back row: Dr Tony Pleasants (AgResearch), Prof. Mark Hanson (Southampton), Prof. Steve Simpson (Sydney), Dr Peter Dearden (Otago), Prof. Keith Godfrey (Southampton). Second row: Prof. John Funder (Melbourne), Prof. Nabeel Affara (Cambridge), Prof. Dennis Bier (Houston), Dr Alan Beedle (Liggins), Prof. Patrick Bateson (Cambridge). Third row: Dr Allan Sheppard (AgResearch), A/Prof David Raubenheimer (Liggins), Tiffany Morris (Cambridge), Dr Deborah Sloboda (Liggins), Prof. Graeme Wake (Massey). Fourth row: Dr Chris Kuzawa (Northwestern University), Dr Cinda-Lee Cupido (Liggins), Prof. Hugh Blair (Massey). Front row: Prof. Hamish Spencer (Otago) and Prof. Peter Gluckman (Liggins).

#### Change in diet might improve kakapo libido

The link between good food and libido might not be a surprise where human reproduction is concerned, but scientists at the Liggins Institute and the Department of Conservation (DOC) are now applying this theory to one of the world's most endangered birds, the kakapo.

A trial is now underway with the kakapos of Codfish Island to see if a change in their diet might improve their reproductive ability. Using nutritional models developed by Liggins scientist, Associate Professor David Raubenheimer and his University of Sydney colleague Professor Steve Simpson, a special recipe based on the rimu fruit is being developed to replace supplemental feeds introduced in 1989 in the hope of improving kakapo fertility.

"Kakapos will nest and reproduce if the rimu has a good fruiting season, but what is it about the rimu that triggers this?" asks David. "Clearly, rimu fruits are nutritionally well-balanced for kakapo, but the difficult question is exactly what is it that constitutes nutritional balance?"

In 2005, DOC asked David to help with their supplementary feeding programme after a disappointing breeding season. "The programme had no marked effect on the numbers of kakapo born, but more males

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## An evolutionary tale

A comparative nutritional ecologist who began his scientific career pursuing butterflies is bringing a new approach to research at the Liggins

You might wonder what would bring one of the world's leading nutritional ecologists to Auckland; for Associate Professor David Raubenheimer, who joined the Institute in January to lead the newly formed Centre for Human Evolution, Adaptation and Disease (CHEAD), the answer is easy: excellence in research.

"The University of Auckland is impressive," says David, who joined the Institute after three years with the University's School of Biological Sciences (SBS) and 12 years at The University of Oxford.

"I started out with a parttime association with the Liggins doing some work on human nutrition. It was the Institute's combination of cutting-edge analytical science and broad thinking which attracted me here full-time. I was particularly impressed by the way that problems in human health and development are viewed at Liggins within the powerful framework of ecology and evolution."



Associate Professor David Raubenheimer applying principles of nutritional ecology to human health and saving the kakapo.

As a nutritional evolutionary biologist, David is a specialist in how the nutritional needs of animals have adapted to their environment over time.

"Nutrition is an important area in biology," says David, who followed his undergraduate degree in zoology from the University of Cape Town, with a PhD at Oxford. "What an animal eats affects just about every aspect of its biology, including its behaviour, physiology, reproduction and development. It's easy to simplify nutrition as an act of feeding, but when you consider that a typical food is the carrier - we'll start to be able to shed new light on modern nutrition and its relationship to diseases such as diabetes, some cancers and heart disease."

Among the projects that David will lead at the Liggins are a study of how gut physiology adapts to developmental changes in nutrition, the effects of calorie restriction on longevity, and the effects of maternal nutrition on sex ratios. He is also continuing with some projects begun with SBS, including one on the nutritional needs of New Zealand's most endangered bird, the kakapo.

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were born than females – the opposite of what was needed to save the kakapo from extinction," explains David. "I compared the composition of the bird feed to the rimu fruit and found the supplementary feed had more protein and fat than the rimu fruit, and was lower in calcium – a significant element needed for reproduction." A new bird-feed recipe is now being developed and trialled by David and colleagues Ron Moorhouse from DOC, and Yvette Cottam from Massey University in a project sponsored by Rio Tinto. It is hoped that by bringing the nutritional balance of the supplementary feeds better in line with the rimu fruit, the new recipe will encourage reproduction in the coming October breeding season, and also deliver the good proportion of females needed for the kakapos' survival.

of over 30 nutrients, and it is rare for those nutrients to be present in one food in the right proportions, then the scale of the problem becomes apparent. Understanding how these complex mixtures influence behaviour and physiology is crucial for understanding health in animals and humans."

David's interest in adaptive evolution and the nutritional interaction between plants and animals was ignited by the African butterfly *Acraea horta*, whose sole food-source was a plant which produced cyanide as a defence mechanism. Unlike other insects, the butterfly adapted to tolerate the toxin, absorbing it for its own protective purposes.

"Humans are a natural extension of my interest in comparative nutritional ecology," says David, who has broadened his interest in insects to include birds, marine life and several mammals. "If we can understand what optimal human nutrition is – what we were originally designed to operate with nutritionally

# update

It's a year since the Prime Minister opened the Institute's Sir John Logan Campbell Classroom, an outreach facility providing unique learning opportunities for secondary schools within the context of a world-class research institute.

In that time the Prime Minister's prediction that schools would grasp with open arms the opportunities presented by the Liggins' decision to offer access to the classroom free of charge, has been amply demonstrated. Current programmes are fully booked for 2007 with a significant number of schools joining a growing waiting list. By the end of the year, over 2000 students will have participated in Classroom programmes

During the year 13 programme, students meet with scientists from the Institute, the School of Biological Sciences (SBS) and the Faculty of Medical and Health Sciences (FMHS) in small conversational groups. They hear about the scientists' work, the pathways that lead to scientific careers and discuss the nature of science and the place of scientific research in society.

In novel initiatives to extend the programme, online seminars and distance lessons for biology students have begun. The technology to support these programmes has been provided by MANZANA New Zealand.

More than 60 biology teachers from 35 schools participated in the inaugural teachers' professional development day in November while earlier this month nearly 100 teachers heard presentations by leading scientists from the Institute, SBS and FMHS discussing The Biological Information Highway: Keeping up to speed with current advances in biology that are relevant to the New Zealand Secondary Curriculum. A further day is planned for November 2007.

Meanwhile, students from five schools are accessing support and resources for projects in the Royal Society of New Zealand CREST (Creativity in science and technology) awards scheme through the Classroom.

The Sir John Logan Campbell Classroom is headed by Jacquie Bay, a senior teacher with more than 17 years in science education.

For more information on the programmes email Jacquie at j.bay@auckland.ac.nz.

#### **Classroom** Lord Winston awarded Hood Fellowship

Acclaimed scientist and science communicator Professor Lord Robert Winston has been awarded a prestigious Hood Fellowship by The University of Auckland.

A scientific patron of the Institute, Lord Winston makes regular visits to Auckland in support of research and fundraising events.

His most recent visit in April saw him officially launch the latest book from Professors Peter Gluckman and Mark Hanson, Mismatch – why our world no longer fits our bodies.

The presenter of the BBC's award-winning series The Human Body and Child of our Time, took time out to address a Dymocks Booklovers' event and engage with admiring Liggins students at an Institute forum.

The Hood Fellowship will bring Professor Winston back to Auckland this August when he will present the first public lecture in the annual Seasons of Life series and begin work on a joint research project with the Institute and AgResearch. He will also be guest speaker at a Liggins fundraising event and address a group of students from Auckland high-schools.

The Hood Fellowship was established in recognition of the contribution made to the University by previous Vice-Chancellor, Dr John Hood. The Fellowship is generously sponsored by the Lion Foundation of New Zealand.

## Liggins goes global

The Liggins Institute is going global with a satellite branch being established at the United Kingdom's University of Cambridge

Institute Director Professor Peter Gluckman says the association with one of the world's foremost scientific universities reinforces the Liggins' reputation as a leading biomedical and clinical research centre and will provide greater access to a broad base of technologies.

"This formal association strengthens our many existing links with Cambridge, positioning the Institute at the forefront of the current revolution in biological research. It will provide access to rapidly developing technologies in bioinformatics and molecular biology that are unavailable to us in New Zealand."

The Cambridge branch of the Liggins is situated within the Department of Pathology and is headed by Professor Stewart Gilmour, one of the founding directors of the Liggins Institute. The relationship will also create unique opportunities for students at both locations with exchanges already underway between Auckland and Cambridge.

The first of these saw Cambridge student Tiffany Morris, whose PhD project is jointly supervised by Professor Gilmour and Professor Nabeel Affara in Cambridge in association with Professor Gluckman and Dr Mark Vickers in Auckland, spend two months at the Liggins. Her project involves measuring epigenetic changes in tissue samples collected from experimental trials based in Auckland. Through this connection Tiffany was able to participate in the whole experiment and fully appreciate the implications of her part of the project.

"The partnership illustrates the strength of our developing relationship with other leading research centres in the field of epigenetics," says Professor Gluckman.

## Seasons of life 2007

The Institute launches its 2007 Seasons of Life series this August with a lecture by renowned scientist and television presenter, Professor Lord Robert Winston

This hugely successful series, launched in 2006, aims to engage the public in discussion around topical issues in science and medicine. Liggins Ambassador Judy Bailey will introduce speakers who will explore the role of early influences on long term health – including personal happiness, child health, changing patterns of reproduction, and how women might optimise their own health for the benefit of their unborn children.

Opening the series on 21st August, Professor Lord Winston will address the topic of 'Happiness', a theme he explored in his latest series of *Child of our Time*. What makes us happy? Is happiness different for adults and children? Might happiness, like other aspects of our health, be determined before we are born?

What makes teenagers happy is often a particular conundrum for parents. Last year, Professor Peter Gluckman explained why children now reach puberty earlier than at any time since the Palaeolithic, while adolescent health researcher Dr Susan Bagshaw suggested strategies for managing this new phenomenon.

On 4th September, Dr Bagshaw returns to join new Liggins research fellow Dr Deborah Sloboda (see profile on page 5) in exploring how early life influences affect sexual maturity and the impact that earlier development has on our society.

While we are faced with alarmingly high rates of teenage pregnancy, how old is too old? On 11th September, clinician and



Liggins Ambassador Judy Bailey will introduce the lectures.



Professor Lord Robert Winston, challenging ideas about 'happiness'.

epidemiologist Dr Susan Morton will draw on her research in lifecourse biology and population health to examine how the current social and economic conditions that drive many women to delay starting their families, might impact on their fertility and the health of their children. Alongside Dr Morton, Dr Richard Fisher of Auckland's Fertility Associates, will discuss declining fertility and how science has helped women to extend their childbearing years.

Young or mature – whenever women choose to have their families, the question they all ask is "How do I give my child the best possible start in life?" Liggins Institute Director Professor Peter Gluckman has taken a prominent role chairing committees for the World Health Organisation and other international agencies considering global strategies to optimise pregnancies. In the final of our series on 18th September, Professor Gluckman will give an international perspective on how women the world over can make the most of their pregnancies and give their children a healthy start to life.

Lectures two, three and four will be held at the Liggins Institute at 5.30pm. The venue for Professor Winston's lecture is yet to be confirmed.

The series is free and open to the public, however places are limited and bookings are essential. Friends of the Liggins will receive personal invitations and priority bookings.

To register interest and receive updates and booking information email friends@liggins.auckland.ac.nz or telephone (09) 303 5972.

#### Friends of the Liggins Institute

## Note to Friends

We have a very full and exciting time ahead which will give Friends a number of opportunities to support the Liggins and find out more about their wonderful research.

Please circle Thursday 9th August, 2007 in your diary. On that night we will be holding a dinner at the Auckland Museum at which we will be auctioning the stunning BMW Art Bonnets that were specially commissioned for the 2006 Team McMillan BMW Art Awards. Cars from the world famous BMW Art Cars collection, which I believe were the inspiration for the bonnets, will be visiting New Zealand at that time. We will be fortunate to enjoy our dinner surrounded by cars that have been painted by Andy Warhol, Roy Lichtenstein, Frank Stella and Ken Done. By incredible serendipity Professor Lord Robert Winston, the worldrenowned British scientist and host of the BBC television series Child of Our Time and The Human Body (amongst others) will be our very special guest. As an added bonus, there will be some very lovely door prizes courtesy of Elizabeth Arden!

Later in the month art lovers will have another opportunity to support the Institute by purchasing something from the wide range of art that will be on display at Mazda Artworks at the Hilton. We have been very fortunate to have been involved with Artworks for several years now and it really is an 'un-missable' art show.

The fantastically interesting Seasons of Life series of four lectures will resume again on Tuesday 21st August. We will be having a special Friends get-together at each lecture, as a way of getting to know each other. More on this will be sent out in due course, or check the website for more information.

While it is not specifically related to babies, I was very interested to read about a recent Liggins discovery. Research at the Liggins has led to the development of a drug which is showing great promise at reversing memory loss caused by Parkinson's disease and may have applications for the memory loss which marks Alzheimer's disease.

Reading of this discovery reminded me why I support the Liggins Institute. As I thought how fantastic it would be to one day have a cure for these devastating illnesses, it made me remember the battles my grandmother and great aunt fought with Alzheimer's disease. It was absolutely tragic for our family to see them ill and be totally helpless to do anything.



Roxane Horton

enjoyment of everything else in life. There cannot be any cause more important than that which strives to ensure our children's risk of disease and ill-health is minimized.

Please support the Friends of Liggins to help that cause.

Warm regards,

Koxare Horton

Roxane Horton Chair, Friends of the Liggins Institute Committee

Good health is a precondition for the

FRIENDS OF THE LIGGINS INSTITUTE CHARITABLE TRUST

A charitable trust was formed in 2004 by a group of people enthusiastic about supporting the Institute's work.

Trustees

Roxane Horton, Professor Peter Gluckman, Professor Alastair MacCormick, Harry White

Friends of the Liggins Institute, PO Box 110085 Auckland 1148, New Zealand, Telephone 64 9 303 5972, Fax 64 9 373 7497, email friends@liggins.auckland.ac.nz, www.liggins.auckland.ac.nz/supporters

The Liggins Institute is committed to maximising the benefit of its research for New Zealand and, where appropriate, seeing its research translated into effective therapies. Accordingly, in some areas it has licensed its intellectual property to the pharmaccutical industry or to start-up companies associated with the Institute. The terms of these arrangements provide funds which can be committed to public good (ie non-commercial and cutting-edge) research within the University. In accordance with University policy and international practice in developing start-up companies, some staff will, or could, personally benefit from interest in these start-up initiatives. The University and, therefore, the Institute to undertake novel and leading-edge fundamental research. Most of the research within the Institute is, and will always be, of this nature and can never attract commercial investment. The University and Institute are mindful of the need to ensure that donated funds are applied only to the public good research components of the Institute's activities and cannot be applied (unless requested by the donor) to projects where commercial arrangements have been entered into. Specific procedures have been developed to ensure this, and potential donors are invited to contact the Institute's General Manager or the University Registrar for futher information.



Two of the Team McMillan BMW Art Bonnets that will be auctioned on the 9th August. See them all on www.liggins.auckland.ac.nz/newsandevents. Top: Don Packwood Class Act (1939 Le Mans) Bottom: Mark Olsen Tweenies VI (courtesy Fisher Fine Art)

## Coming events

#### Art Cars dinner and auction with Professor Lord Winston

Celebrate the creative connection between art, science and technology by joining Lord Winston for dinner at Auckland Museum this August, when a select exhibition of BMW Art Cars painted by some of the world's leading artists will be on display at a unique fundraising event.

The gourmet dinner and art auction will be held on Thursday 9th August at the Museum's spectacular new Lion Foundation Events Centre. The evening's highlights will include an address by Institute scientific patron, Professor Robert Winston and an auction of ten unique pieces of art created on shortened BMW bonnets for the 2006 Team McMillan BMW Art Awards. The Art Bonnets are the work of leading New Zealand artists: Billy Apple, Martin Ball, George Baloghy, Sarah Guppy, Russell Jackson, Mary McIntyre, Peter O'Hagan, Mark Olsen, Don Packwood and Geoff Tune.

Over the last 30 years international automobile manufacturer BMW has commissioned 15 world famous artists to use their cars as canvases that reflect the art and technology of that time. Four cars from the BMW Art Cars collection will be on display at Auckland War Memorial Museum from 18th July to 10th August. The artists are: Andy Warhol, Roy Lichtenstein, Frank Stella and Ken Done.

Creative Connections has been made possible through the generous support of BMW Group New Zealand, Team McMillan BMW and The Lion Foundation, sponsors of Lord Winston's Hood Fellowship. The Institute is grateful for the additional support of Oliver Young, Elizabeth Arden, New Zealand Post and the Friends of the Liggins committee.

Funds raised from the auction of the Art Bonnets will be used in support of the Institute's Sir John Logan Campbell Classroom – a unique outreach facility providing hands-on science experience for school students – in addition to supporting the Institute's ongoing research into a healthy start to life.

For more information or to book your tickets, please contact Friends of the Liggins on telephone (09) 303 5972, email friends@liggins.auckland.ac.nz or see www.liggins.auckland.ac.nz/newsandevents.



Roy Lichtenstein, Art Car, 1977



Andy Warhol, Art Car, 1979

#### Mazda Artworks 2007



The Liggins Institute is proud to have once again been chosen as a beneficiary of the Mazda Artworks exhibition and art sale.

This year over 900 pieces including painting, photography, ceramics and glass art, will be on display and for sale at the Hilton Hotel on Auckland's Princes Wharf between 27th August and 1st September.

'Artworks' was launched in 2002 and since then has delivered over a \$1,000,000 to artists and \$600,000 to organisations focussed on developing and assisting children. The Liggins Institute has been associated with the event since 2003.

Director of the Institute, Professor Peter Gluckman said the continued commitment of Mazda Artworks and its organisers, the Rotary Club of Ellerslie Sunrise, had done a great deal to support the work of the Institute. "We are delighted to have been an ongoing beneficiary of this annual exhibition and look forward to being involved as the event expands into new dimensions and media."

The Institute will use proceeds from Artworks to help support the Sir John Logan Campbell Classroom (see page 10) so that it can continue to offer programmes to schools free of charge and ensure there are no barriers preventing students from schools with fewer resources from experiencing these opportunities.

For more information visit www.mazdaartworks.co.nz.

#### Share our dreams

#### Liggins Director reflects on what makes the Institute special

Recently Professor Lord Robert Winston visited the Liggins Institute to prepare for a joint research project we plan to undertake later in the year. While he was here he made two very important observations about the Institute that I have been reflecting on.

His first referred to our research. He pointed out that we are unique amongst the world's research institutes in that all our research is ultimately focussed on the fundamental question of what makes us who we are.

It asks: what is it that determines how, from a single fertilised egg, we develop with a specific profile that forecasts our future health and risk of diseases? Further, it demands that we find ways to use this understanding of our development to improve the health of individuals and entire populations.

Professor Winston's second point related to the particular environment we are working in and the role that we have in influencing public attitudes about science and knowledge.

New Zealand culture sometimes appears to emphasise sports, the outdoors – and more recently the Arts, while science and intellectual enquiry have been poorly represented. There are few locally produced science programmes on television and stories that highlight science and knowledge are scarce in our media generally.

Yet the future of any society depends primarily on its use of scientific knowledge, the questioning of who and what we are and how we live in this world.

The challenges before us, including our future health, arise from the impact that we as a species have had on the planet – and for solutions we must turn to science. Knowledge will be key to this future – and in New Zealand, with its dependence on agriculture and biotechnology, biological knowledge will be critical.

Professor Winston felt that science's low profile in New Zealand posed a particular challenge for the Liggins and made our achievements to date all the more remarkable.

He saw the Institute as having a responsibility to allocate resources and lead the way in changing attitudes to science and to knowledge. That is why we have given so much emphasis to engaging with the community to discuss our work and why the Classroom and its programmes for high school students and teachers are so important. In fact, the demand for these programmes far outstrips our capacity to meet it; it is only the limitations of our resources that inhibit their expansion.

Research is hard slow work with many false turns and frustrations; there just cannot be headline breakthroughs every day. But it is rewarding to be reminded that the work we are doing is so important. Thank you for your ongoing interest.



Peter Gluckman



Professor Peter Gluckman

#### Late breaking news

The Liggins Institute's international standing was reconfirmed in May when one in four eligible researchers received an A-grade in the Tertiary Education Commission's recently released Performance Based Research Fund assessment Performance Based Research Fund (PBRF) rankings. The rankings are an indication of academic quality and determine the distribution of research funding amongst New Zealand universities.

More recently Government announced that it will continue funding the Centre of Research Excellence headquartered at the Liggins – the National Research Centre for Growth and Development (NRCGD) – for a second six year period.

The renewal will allow the Centre to focus its research on understanding how biological 'cues' in the earliest stages of life can herald life course consequences that impact on human health and disease and productivity in farm animals.

The NRCGD unites researchers from the Universities of Auckland, Canterbury and Otago, Massey University, AgResearch and Landcorp. Its uniquely multidisciplinary approach, which draws on fields as diverse as medicine and mathematics, agriculture and epidemiology, means that it has the capacity to rapidly translate findings in basic science into clinical practice, recommendations for public health policy and improvements in agriculture.

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		<b>&gt;</b>
Dates to diary		
	Seasons of Life Seminar	Series
Thursday 9th August	Tuesday 21st August	Tuesday 11th September
Celebrating Creative Connections	What makes us happy?	Leaving it too late?
Lion Foundation Events Centre	Professor Lord Robert Winston	- social pressures and declining fertility
Auckland Museum	5.50pm, venue to be announced	5.30pm, Liggins Institute
27th August to 1st September	Tuesday 4th September	Tuesday 18th September
Mazda Artworks at the Hilton	– early puberty and teen pregnancies	Getting it just right
Charity art exhibition and sale	Dr. Dehareh Slebada and	- strategies to obtimise pregnancies

- strategies to optimise pregnancies Professor Peter Gluckman 5.30pm, Liggins Institute

For information and bookings for all events: telephone (09) 303 5972 or email friends@liggins.auckland.ac.nz or see www.liggins.auckland.ac.nz/newsandevents

Dr Deborah Sloboda and

5.30pm, Liggins Institute

Dr Sue Bradshaw

Details: www.mazdaartworks.co.nz

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#### TEAM McMILLAN AND THE LIGGINS INSTITUTE A partnership of excellence

Team McMillan BMW and MINI support the Liggins Institute's quest for a healthy start to life. They donate \$500 to the Institute every time a Friend or associate of the Institute purchases a new or approved used BMW or MINI; please mention the Liggins Institute at the time of purchase.

