

New laboratory space

The Murdoch Childrens Research Institute is constructing a new building on the RCH Campus. The Centre for Hormone Research will be moving our laboratory groups into the new building. The new laboratories will offer state of the art facilities and improved cohesiveness among the research groups.

Our research efforts, such as the Human Gene Chips project, being undertaken by Andrew Sinclair's group will be enhanced (see full story).

Our other major laboratory group is Neuro Endocrinology (Group Leader - Dr Vincenzo Russo). They are examining the effect of diabetes on the developing brain, which is vulnerable to very low or very high blood sugar.

In 2004 Antisense Therapeutics Ltd (ATL) established a laboratory at MCRI to support the company's research into novel antisense drugs for human diseases. Several key staff members from the MCRI's Dermal Therapeutics group moved full-time to the laboratory, while maintaining their academic links with the Institute and the CHR. ATL continues its development of a powerful antisense inhibitor of IGF-1 action, ATL1101, for use in psoriasis as well as research for antisense therapeutics for a range of other human diseases.



Human Gene Chips – a revolution in patient diagnosis

Clinical Significance

Intersex disorders, ranging in severity from genital abnormalities to complete sex reversal, are surprisingly common. They represent a major paediatric concern and healthcare burden. Uncertainty about a child's gender is extremely traumatic for the individual, parents and other family members. There are profound psychological and reproductive consequences in later life for the affected patient. The cause of these problems is most often the failure of the complex network of genes that regulate development of testes or ovaries.

The Problem

The Centre for Hormone Research has long been an international leader in the care and clinical management of intersex children. Over the last 10 years, A/Professor Sinclair has analysed DNA samples from intersex patients and tried to establish the underlying genetic cause of their condition. He has identified several major genes that play critical roles in testis development. Mutations in these genes explain 20% of cases but we have no explanation for the remaining 80% of patients.

Human Gene Chips – a solution

The completion of the human genome has made it possible to fit all the human genes on a single microchip. A new type of gene chip has been developed that will allow us to interrogate each of the 35,000 genes contained in a patient's DNA. For the first time we will be able to detect minute changes in these genes that will pinpoint the cause of testis or ovary failure in the remaining 80% patients. A/Professor Sinclair has negotiated with the gene chip manufacturers in the USA to be one of the first groups in the world to use this new powerful (500K SNP Chip) technology, which is due for release in September 2005.

Funding

The Centre for Hormone Research Development Board would like to thank the Helen MacPherson Smith Trust for their support in generously funding this project. Professor George Werther, Professor Garry Warne, Associate Professor Andrew Sinclair, RCH Foundation members and members of the CHR Development Board met with Helen MacPherson Smith Trustees and were able to secure the funding required. Each of the gene chips cost \$2,500 to analyse and can only be used once per patient. The minimum number of patients required for a comprehensive analysis is 40, therefore funding required for the project is \$100,000.

Implications

(1) The success of this research has the potential to revolutionise our understanding of gonad development and dysfunction in intersex patients. This will lead to improved diagnosis and clinical management of intersex patients. (2) Understanding the basis of gonad development also provides extraordinary insights into the development and pathology of other organs such as the eye, heart, skeletal and nervous systems. (3) This research project will be one of the first uses of this powerful technology, it may well become the new paradigm, revolutionising both the diagnosis and predisposition to a range of childhood conditions. eg. Childhood cancers, Cystic fibrosis and muscular dystrophy.

Commercialisation

With the success of the collaboration between the Dermal Therapeutics group and Antisense Therapeutics Limited, Professor George Werther has been appointed to the Commercialisation committee at MCRI.

In 2005, Professor George Werther was also appointed as Chair of the Scientific Advisory Board at Neuren Pharmaceuticals, a small New Zealand biotechnology company focussed on brain-protecting drugs, and recently listed on the Australian Stock Exchange. The Scientific Advisory Board includes a number of distinguished world experts in the Neuroprotection and Metabolism fields.

Story on ABC TV Four Corners

Professor Garry Warne, Associate Professor Andrew Sinclair and Associate Professor Vince Harley (Prince Henry's Institute) featured in a story which was shown on ABC TV's Four Corners on Monday 25 July 2005. The program titled "Gender Puzzle" featured on sexual identity and looked at the scientific advances in relation to genes. It also looked at the question of how to predict gender and decide on appropriate treatment in infants born with ambiguous genitalia. The interviews were filmed in the new research laboratory, AGRF and at Monash University.

Managing diabetes at school – new video to improve school life for students with diabetes

Two new groundbreaking education video/DVDs, to assist primary and secondary teachers and parents with the management of students with Type 1 diabetes, were launched late 2004 by the Parliamentary Secretary, Education, the Hon. Liz Beattie MP.

The two separate videos, Primary and Secondary, have been designed to highlight the day-to-day diabetes management issues and prompt discussion between parents and teachers about their differing expectations of each other when it comes to the care of the student with diabetes. Both videos share the same broad themes, however many of the issues discussed in the primary school version are different to those facing secondary schools.

In Australia, approximately 1 in every 1,000 students under the age of 15 is living with Type 1 diabetes. For teachers this means that, at some point in their career, it is likely that they will be responsible for a student with diabetes whether in the classroom, on a school excursion or at camp.

In 'Loco Parentis', teachers put forward their observations about the dramatic changes in the teaching profession, especially when it involves students with a medical condition, and discuss the definition of 'Duty of Care' as it relates to diabetes.

Parents express their concerns about the limited understanding of diabetes within the school community and the anxiety they face when having to entrust a school with the care of their diabetic child for long periods of time.

Using humorous and dramatic role plays, excerpts from focus group sessions conducted at the hospital, and comments from health professionals, 'Loco Parentis' puts forward a variety of useful management strategies for teachers while also addressing smaller issues such as lunchtime eating policies, the affect sport and stress during exams can have on blood sugar levels and body image.

'Loco Parentis' has been produced by Joanna Griggs of ERC Media at the Royal Children's Hospital's Education Resource Centre with assistance from the Department of Endocrinology and Diabetes led by Dr Fergus Cameron.

The videos are the third installment in a planned series of six videos addressing issues specific to children and teenagers with diabetes. The first in the series 'keep you life ONLINE – Teenager & Young Adults Living Positively with Diabetes' has received a number of international media awards. The second video, 'Here We Go 'round the Mulberry Bush – Positive Parenting of Toddlers with Diabetes' is being successfully distributed by the Juvenile Diabetes Research Foundation to parents with newly diagnosed toddlers.

All of the above mentioned videos are available for purchase, please contact Lee-Ann Jones at leeann.jones@mcri.edu.au or 03 9345 7057. Loco Parentis is \$44 per video (including GST & Postage)



Another publication in "Endocrine Reviews"

Congratulations to Dr Vincenzo Russo, Professor George Werther, Professor Peter Gluckman and Professor Eva Feldman. Their manuscript entitled "The insulin-like growth factor system and its pleiotropic functions in brain" has been accepted for publication and scheduled to appear in the December 2005 issue of the highly prestigious journal Endocrine Reviews. This paper summarises current knowledge in the area and includes the contributions of the Centre for Hormone Research over the last 10 years.

If you would like to receive a copy of this article please contact Lee-Ann Jones, leeann.jones@mcri.edu.au or phone 03 9345 7057

Grand rounds – sweet 'n sour: Diabetes @ rch: outcomes and new directions

In April 2005, Dr Fergus Cameron was guest speaker at Grand Rounds, Ella Latham Theatre. Dr Fergus Cameron is the Deputy Director of the Department of Endocrinology and Diabetes and the Head of Diabetes Services at RCH. Arguably the modern era of diabetes management commenced in 1993 with the publication of the Diabetes Control and Complications Trial. It is now just over a decade since that pivotal paper. Have things improved for children with type 1 diabetes at RCH? What is the state of play in terms of outcomes for children and adolescents with diabetes? Dr Cameron reviewed the current state of holistic outcomes for diabetes and discussed future priorities and clinical therapies for type 1 diabetes children and adolescents.

You are able to borrow a DVD copy of this presentation by contacting Lee-Ann Jones at leeann.jones@mcri.edu.au or 03 9345 7057

New appointments



Dr Peter Simm is a trainee paediatrician who has spent the past few years at the Royal Children's and who is keen to pursue a career in paediatric endocrinology. He has commenced a Doctorate of Medicine exploring the complex interactions between oestrogen and growth hormone on growing bones. In addition, he is involved in a number of smaller clinical projects across different areas within endocrinology from bone health to males with hypogonadism. Outside of the hospital, he enjoys running, playing music and watching Collingwood (not as much this year!)



Dr Michele O'Connell who joined us in February to gain further sub-specialty training in paediatric endocrinology is the latest Irish addition to our team! Michele is one of our clinical research fellows and will undertake a number of clinical projects whilst here in the department. Her current areas of research include a study testing the 'accelerator hypothesis' as to why/whether children are presenting with diabetes at an earlier age and another examining the relationship between diabetes and epilepsy. She also hopes to pursue a higher degree over the next few years.



Anna Crack is a new addition to our Diabetes Nurse Education Team. Anna has a nursing background with experience in both clinical nursing and nurse education. Her educating experience involved travelling to Secondary Schools to talk with students about adolescent health issues.

Anna is delighted to be a part of the team at R.C.H. and in her spare time enjoys cooking, socialising with friends and supporting the Carlton football team!



Dr Preamrudee Poomthavorn is a paediatrician from Thailand. She joined the Centre for Hormone Research in July 2004 to have further training in Paediatric Endocrinology. She is also interested in laboratory based research. Preamrudee is involved in the study examining the cellular and molecular mechanisms regulating brain cells response to metabolic stress, including diabetes complications. Moreover, she is doing a clinical research on hypopituitarism following head injury. Preamrudee is grateful to have an opportunity to be working in the Centre.

Joining the Centre later in the year will be Dr Anurag Bajpai (India) recipient of the 2005 Pfizer Career Development Award and Dr Julieta Solis-Chacon a clinical research fellow from Costa Rica. Julieta's husband will be travelling with her and will be training in the RCH Intensive Care Unit.

Development board

Farewell. The Staff and Members of the Development Board would like to thank Mandy Yencken and Debbie Thomas for their dedicated support and contribution to helping raise the profile and funds for the Centre. Both Mandy and Debbie were integral in the success of the BMW Edge event and will be missed as active members of the Major Events committee.

New Faces. **Mr Ian Solomon** and **Mr David J Galbally** have been appointed to the Development Board for a period of two years. **Ian Solomon** is a Senior Associate in the Melbourne office of Mallesons Stephen Jaques where he works mainly in the areas of project and structured finance, general corporate finance and capital markets. He also has worked as a solicitor in a corporate and finance group in the London office of international law firm Slaughter & May. **David J Galbally** has a strong background in marketing and sales. David is currently the Account Manager Sponsorship & Promotions with the St Kilda Football club. His role involves identifying and sourcing new business for the club whilst managing existing commercial accounts. For the past few years he has been in marketing and sales after leaving the Health industry where he was a Personal Trainer.

9th Annual Inverloch Diabetic Dinner Dance & Auction

The 9th Annual Inverloch Diabetic Dinner Dance & Auction was held on Saturday 25 June 2005. The event was attended by 288 people including several RCH staff members. The evening was a success raising a total of \$32,000. The money raised on the night goes towards our diabetes complications screening program and our diabetic research. A big thank you to the Beaglehall family and people of Inverloch. The night was made a success due to the many volunteers and donations received.

Planning is currently underway for the 10th Annual Inverloch event and if you would like to make a donation for the auction or be a volunteer please contact Kerrie Beaglehall on kbeaglehall@hotmail.com



Professor George Werther being presented with the cheque by Kerrie, Carla, Ross, Brett and Laura Beaglehall. (Photo from the Great Southern Star, Leongatha)

Supporting the Centre

- Ann Simmons
- Barry Novy (Kliger Wood)
- Caroline Cornish
- Debbie & Peter Thomas
- Dene Buxton
- Fiona Smith
- Jenny Viska
- Kerrie Hunter
- Kerrie, Ross & Carla
- Beaglehall and the Inverloch Community
- Lee-Ann Jones
- Louise Fortune
- Nooky Michelmore
- Novo Nordisk
- Paul Brochie
- Peter Clark (SciGen Aust Pty Ltd)
- Pfizer
- Philippa & Alan Finney
- Rivoli Cinemas
- Robbie Dyer
- Sally Lindsay
- Saltpillar Theatre Company
- Sarah Curtis
- Swisse Vitamins
- The Australian Club
- The Rotary Club of Chadstone/East Malvern
- We gratefully acknowledge the generosity of these donors, and their ongoing support of the work in the Centre.

Two special events

The Centre for Hormone Research invites you to a Charity Preview Screening

100% of ticket sales goes to supporting Child Health Research at the Centre for Hormone Research, Murdoch Childrens Research Institute, The Royal Children's Hospital



Monday 12 September, 2005 at 6.45pm

**Rivoli Cinemas
200 Camberwell Road,
EAST HAWTHORN**

**Tickets \$20.00 per person
(GST Inclusive)**

TICKET SALES: (03) 9345 7057
Email leeann.jones@mcri.edu.au
or at door unless sold out

Special thanks to Rivoli Cinemas and Buena Vista International

Charity Performance

Saltpillar Theatre Company By special arrangement with Hal Leonard presents



Starring: **Professor George Werther, Steven Curtis, Ben Morley, Michael Szuc, Adam Wajnberg**
Directed by: **Danny Gesundheit**
Produced by: **Esther Gross**
Set Design: **Jacquie Lee**
Lighting Design: **John Dutton**

Saltpillar Theatre Company is generously supporting our Centre with a Special charity performance of Chaim Potok's **"The Chosen"** starring our very own and talented Director, **Professor George Werther** **Wednesday 17 August 2005 at 8.00pm** **Phoenix Theatre, Glenhuntly Road, Elwood, Tickets: \$20** Bookings: Lee-Ann Jones on 9345 7057



All proceeds support research into child health: diabetes, healthy bones, growth and sexual development at the Centre for Hormone Research, Murdoch Childrens Research Institute, The Royal Children's Hospital, Melbourne

Staff achievements

As Chief Investigator, Dr Ildiko Kovacs was awarded a \$25,000 APEG Novo Nordisk Research Grant for her project "Cellular and Molecular Mechanisms of Diabetic Cerebral Oedema". The major aim of this project is to provide further insights into the mechanisms of unexpected brain swelling in children with diabetic ketoacidosis. She will use "in vitro" model systems to examine the role and mechanisms of these fluid and salt shifts. This work may lead to strategies to prevent and treat this devastating complication of diabetes in children.

Associate Professor Andrew Sinclair has been appointed to the Australian Biotechnology Advisory Council. This council provides high-level independent advice on the role of government, industry and research in biotechnology development to the Australian Government's Biotechnology Ministerial Council, which is comprised of ministers: Ian Macfarlane (Industry & Resources), Brendan Nelson (Education, Science & Training), Tony Abbot (Health & Ageing), Warren Truss (Agriculture) and Ian Campbell (Environment)

Garry Warne has been awarded an honorary appointment with the University of Melbourne, Department of Paediatrics as a Professorial Fellow with the title of Professor. Professor Garry Warne's appointment commenced on 1 June 2005.

Dr Vincenzo Russo has been appointed to the Centre Executive and Development Board. Dr Russo replaces Dr Christopher Wraight who is now the full-time Research Director for Antisense Therapeutics Limited (ATL).

Dr Justin Brown was awarded the poster prize at the Pfizer International Growth Conference in Athens in March 2005. The poster was on Dr Brown's research into the way bisphosphonates regulate bone cell growth. These drugs have become very important in childhood bone disorders such as 'brittle bone disease' and other conditions such as osteoporosis. This work was in collaboration with Professor John Bateman and Dr Jamie Fitzgerald from the Cell and Matrix Biology laboratory.

The Murdoch Childrens Research Institute undergoes a major restructure.

The MCRI research has been divided into six broad Research Themes, the new structure capitalizes on the uniqueness of MCRI's significant strengths in laboratory, clinical and public health research and potential integration across the disciplines.

MCRI Director Professor Terry Dwyer recently announced, after a rigorous process, that six new Theme Directors have been chosen. Theme Directors will be responsible for the management, strategic direction, mentoring and appraisal of all groups within the research theme. These Directors will form the new Institute Executive working towards growth of the Institute objectives.

We are delighted that our own Associate Professor Andrew Sinclair was selected as the Theme Director for Genes and Development (the other themes being "Musculoskeletal", "Molecular Genetics and Community", "Infection, Immunity and Environment", "Healthy Development" and "Neonatology and Neurodevelopment").

The Genes and Development Theme uses laboratory, clinical and public health approaches to understand the role of genes in the developing embryo and childhood disease. This theme comprising about 100 people will focus on developmental processes that are key to a number of childhood conditions such as diabetes, growth, intersex, pituitary, cancer, liver and hearing-loss disorders. This research will lead to improved care and outcomes for the affected children. The Centre for Hormone Research will operate within this theme.