



# Insight

PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH NEWSLETTER, *Winter 2004*

## Director's message



Dear Friends,

Research into ovarian cancer is an important component of the research program at Prince Henry's Institute. We are proud to announce the appointment of Dr Martin Oehler as the new National Australia Bank Research Fellow with the Ovarian Cancer Research Foundation. The Foundation is a collaboration between Prince Henry's Institute and Monash Medical Centre. We welcome Dr Oehler to the team and look forward to bringing you more news about our research into ovarian cancer. Research into male contraceptives and studies into estrogen and male sexual behaviour are also included in this issue.

I do hope you will enjoy reading the Winter issue of *Insight*.

  
Evan Simpson

## World class clinician & researcher joins ovarian cancer research team

Dr Martin Oehler, MD PhD has commenced as the **National Australia Bank Research Fellow** with the **Ovarian Cancer Research Foundation**. Martin will continue the Foundation's ovarian cancer research to find an early detection test for this disease.

Born and educated in Germany, Dr Oehler's extensive research and medical career includes postdoctoral positions at Baylor College of Medicine in Houston, Texas, USA and at the Institute of Molecular Medicine in Oxford, UK.

In Australia, Dr Oehler has embarked upon a Fellowship specialising in gynaecological oncology and completed his first year as a Clinical Fellow in the Department of Gynaecological Oncology at Westmead Hospital in Sydney.

Having published 40 papers in the fields of gynaecology and cancer research, Dr Oehler brings a wealth of expertise to this position.

He will divide his time between Prince Henry's Institute on behalf of the research arm of the Ovarian Cancer Research Foundation and his clinical work at Monash Medical Centre.

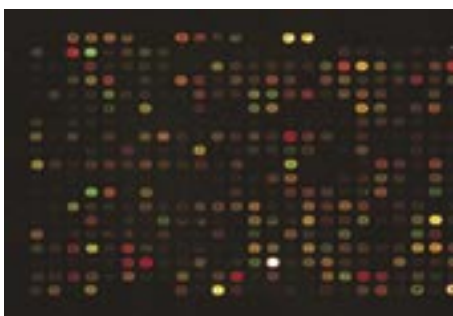
"As the National Australia Bank Research Fellow, this is a great opportunity to make a real contribution in the field of ovarian cancer research in Australia and hopefully provide some insight into this insidious disease," Dr Oehler said.

"I look forward to being a part of the fantastic team at the Ovarian Cancer Research Foundation, Prince Henry's Institute and Monash Medical Centre, and would like to take this opportunity to thank National Australia Bank for making this Fellowship possible." he said.

Dr Oehler's appointment replaces Dr Jane McNeilage, who held the position from 2001.

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Microarray analysis of genes expressed in ovarian cancer cells



National Australia Bank Research Fellow Dr Martin Oehler at Prince Henry's Institute

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# Australian scientists recognised as best in the world

**Professor Evan Simpson** from Prince Henry's Institute, **Professor T J (Jack) Martin** and **Professor Bruce Kemp**, from Melbourne's St Vincent's Institute, are the only Australians to be ranked in the top 250 in biomedical research worldwide, as measured by cited references to their work.



Left to right: Professor Bruce Kemp, Professor Evan Simpson and Professor T J (Jack) Martin

These three Australian researchers have been included in the Biology and Biochemistry category of the internationally recognised ISIHighlyCited.com.

This highlights the fundamental contributions these scientists have made to the advancement of science and technology and recognises that they were the most highly cited scientists within their category during the period; 1981 – 1999.

There are hundreds of thousands of articles published in research journals every year that contain references (or citations) that acknowledge the authors' debt to the published research findings of others.

The current Director of St Vincent's Institute, Professor Tom Kay paid tribute to the outstanding achievements of his colleagues.

"Together they form an elite group of Australian scientists whose contribution to medical research has been recognised in this way. We offer sincere congratulations on this wonderful recognition of their sustained contribution to the advancement of knowledge," he said.

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## Decline in male sexual energy due to lack of estrogen

Research at Prince Henry's shows that without estrogen, male mice suffer a total loss of sexual behaviour.

Scientists at Prince Henry's Institute have discovered that male ArKO mice experience programmed cell death in the Medial Preoptic Area, the region of the brain that regulates sexual behaviour.

The discovery is based on experiments conducted where a male ArKO mouse (a mouse model deficient in estrogen) is confined with a responsive normal female mouse.

"Normal male mice in this situation would mount the receptive female in a matter of seconds, said Professor Evan Simpson, Head of the research group conducting the studies.

"The male mouse lacking estrogen, however, showed no interest whatsoever in the female".

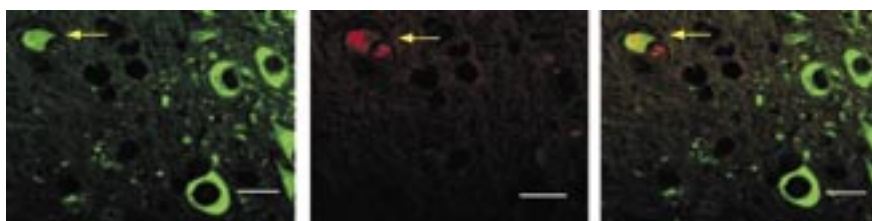
Research at the Institute showed that lack of sexual interest in the male ArKO mice is related to the loss of brain cells from the Medial Preoptic Area, which controls sexual behaviour.

"Our combined studies suggest that estrogen plays an important role in male sexual behaviour which has been previously unknown," said Professor Simpson.

"The assumption that testosterone is the only hormone that impacts sexual behaviour in males is now proved untrue," he said.

The findings have been published in the journal *Molecular and Cellular Neuroscience*.

*Below: Research shows that a lack of estrogen in male mice causes cell death in the Medial Preoptic Area, the region of the brain that regulates sexual behaviour.*



1) Green image shows cells from Medial Preoptic Area

2) Red images dying cells in the same area

3) Superimposed picture of images 1 and 2.

# Clinical scientist returns to Australia to start contraceptive study

“This work may lead to some novel targets for male hormonal contraception. The results of this study should be published in the next six months” - Kati Matthiesson



Endocrinologist and PhD student, Kati Matthiesson has just returned from a 12 month sabbatical conducting research into male contraceptives, at the Population Center for Research in Reproduction at the University of Washington, USA.

Prince Henry's Institute and the University of Washington have had a long held collaborative relationship in the field of male reproductive research.

During her overseas stay as a Senior Endocrinology Fellow, Dr Matthiesson worked on a collaborative project investigating the effects of novel contraceptive combinations. In the study two new drugs with potential application in male contraception were trialed: Acyline and Dutasteride.

Acyline, a research drug made available by the National Institutes of Health switches off the pituitary hormones FSH and LH which are essential in maintaining normal sperm production.

Dutasteride is a drug which is currently approved by the Food and Drug Authority (FDA) for benign prostate hypertrophy (enlarged prostate).

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For more information about articles in *Insight* call Rebecca Scott (03) 9594 4391 or email [rebecca.scott@phimr.monash.edu.au](mailto:rebecca.scott@phimr.monash.edu.au)

It blocks the conversion of testosterone to dihydrotestosterone, which is also thought to be important in the maintenance of sperm production particularly in those men who do not respond readily to contraceptive treatment.

Participants in the study, following eight weeks of contraceptive treatment, underwent a testicular biopsy together with a previously planned vasectomy. Tissue obtained is in the process of being examined for alterations in cell architecture and steroid hormones levels. Blood hormone levels were also measured.

Back in Australia, Dr Matthiesson is building on her overseas experience to conduct a new contraceptive study, again recruiting men who want to have vasectomy and are willing to undergo a testicular biopsy.

It will be one of the few studies using human testicular tissue to investigate the differential effect of the hormones FSH and LH on sperm production.

“This is a unique opportunity to build on previous work done at Prince Henry's Institute and overseas, to investigate the role these hormones play in human reproduction and hopefully find new targets for male contraceptives,” she said.

## Planning a Vasectomy?

**Healthy men, who are planning a vasectomy and are aged between 21 and 45 years, are needed for a research study looking at how male contraceptives work.**

This twelve week study aims to understand the role of the specific hormones; follicle stimulating hormone and luteinising hormone, in the development of normal sperm.

Men who are interested in participating must be healthy and planning a vasectomy within the next three to four months.

Participation will require visits to Monash Medical Centre in Clayton.

Volunteers will be compensated for time and inconvenience.

For more information, call **Jo McKenzie on 03 9594 3087** (a 24 hour message phone line).

# Prince Henry's Institute goes back to school

Scientists at Prince Henry's Institute have been visiting schools throughout Melbourne to educate students about the study of hormones. Students have been presented with information about growth hormone, insulin, testosterone and estrogen, demonstrating the diverse and sometimes unexpected roles that hormones play in our bodies in health and disease.

For teachers wishing to find out more about our research, a PowerPoint presentation *Hormones and the 21<sup>st</sup> Century* is available on line at [www.phimr.monash.edu.au](http://www.phimr.monash.edu.au).



*Neveen Tawadros with students at Bentleigh Secondary College, left to right: Kate Elmer and Emma McDougall*



For more information about teaching resources, institute tours or school visits contact: Rebecca Scott tel: 03 9594 4391 or email [rebecca.scott@phimr.monash.edu.au](mailto:rebecca.scott@phimr.monash.edu.au)

*Year 12 Biology students from Huntingtower College in Mt Waverley hear about hormones in the 21st Century.*

*Left to right: Mitzi Dyson (PHIMR), Jessica Montgomery, Serene Yeo, Caris Allan, Joanne deMeester (teacher) and Stephanie Williamson.*

## Government tour showcases biotechnology

The breadth of biomedical research in Victoria was showcased in a special government tour for The Hon. Matt Viney, Parliamentary Secretary for the Department of Innovation, Industry and Regional Development and his colleagues in March 2004.

The Hon. Matt Viney hosted the tour for Members of Parliament; Mr Noel Pullen, Member for Higinbotham, Ms Anne Eckstein, Member for Ferntree Gully and Ms Rosy Buchanan, Member for Hastings.

At Prince Henry's Institute, the visitors were presented with information about current research findings including the improved diagnostic test for ovarian cancer, studies into Aspirin as a treatment option for breast cancer, research



*Left to right: Ms Anne Eckstein, Professor Evan Simpson, Mr Noel Pullen, Ms Rosy Buchanan, The Hon. Matt Viney*

into how fat causes the pancreas to malfunction in diabetes and the development of a male contraceptive.

A demonstration of a laser dissection microscope was given to the visitors. Prince Henry's Institute is the only Institute in Australia to work on ovarian cancer with this technology.

The tour also included the Monash Science and Technology Research and Innovation Precinct, The Department of Biomedical Sciences and Monash Institute of Reproduction and Development (STRIP).