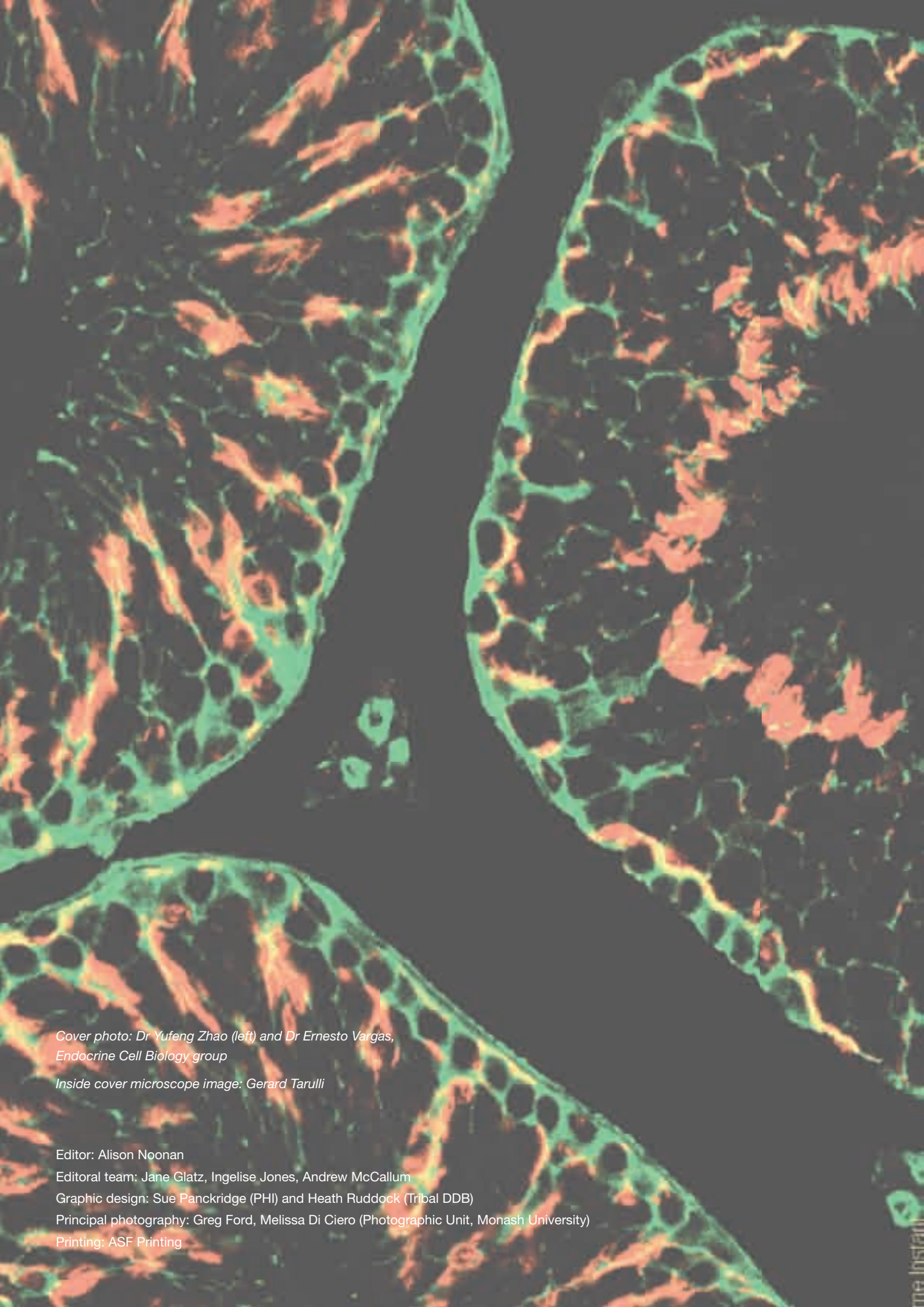
phi
prince henry's institute
science for better life ®

prince henry's institute
2005/06 annual report



Cover photo: Dr Yufeng Zhao (left) and Dr Ernesto Vargas, Endocrine Cell Biology group

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contents

vision & mission

Our Vision

To improve health through hormone research

Our Aims

- **Improve** early detection, diagnosis, prevention and treatment of disease
- **Contribute** to national and international health priorities
- **Lead** in the publication of new scientific knowledge
- **Enhance** scientific education through innovative research
- **Increase** community awareness through the promotion of research

Our Mission

To improve quality of life through the investigation of hormones in the fields of reproductive health, cancer, diabetes, obesity and cardiovascular disease

Our Values

- **Quality and integrity** in our research
- **Empathy** for those we help
- **Leadership and excellence**
- **Passion and discipline** for the work we do
- **Cooperation and creativity** in our field

about phi

A History of Excellence

Prince Henry's Institute (PHI) is world renowned for its research into reproduction and endocrinology, the study of hormones.

For nearly forty years, the Institute has maintained a reputation for excellence through its first class, internationally competitive research and clinical programs.

Established in 1969 as the Medical Research Centre at Prince Henry's Hospital in South Melbourne, PHI is now an independent Institute based at Monash Medical Centre in Clayton, Melbourne, Australia.

PHI is a **World Health Organization Collaborating Centre for Research in Human Reproduction**, one of only two in Australia. In 2003, the Institute was named as one of the top ranking research institutes in reproductive health worldwide, following an independent review.

Prince Henry's Institute is:

- an accredited institute of the National Health and Medical Research Council of Australia
- an affiliated institute of Southern Health
- an affiliated institute of Monash University
- a partner of the Monash Health Research Precinct at Monash Medical Centre
- a member of the Monash Institutes of Health
- a member of the Victorian Breast Cancer Research Consortium Inc
- an alliance partner with the National Australia Bank Ovarian Cancer Research Foundation

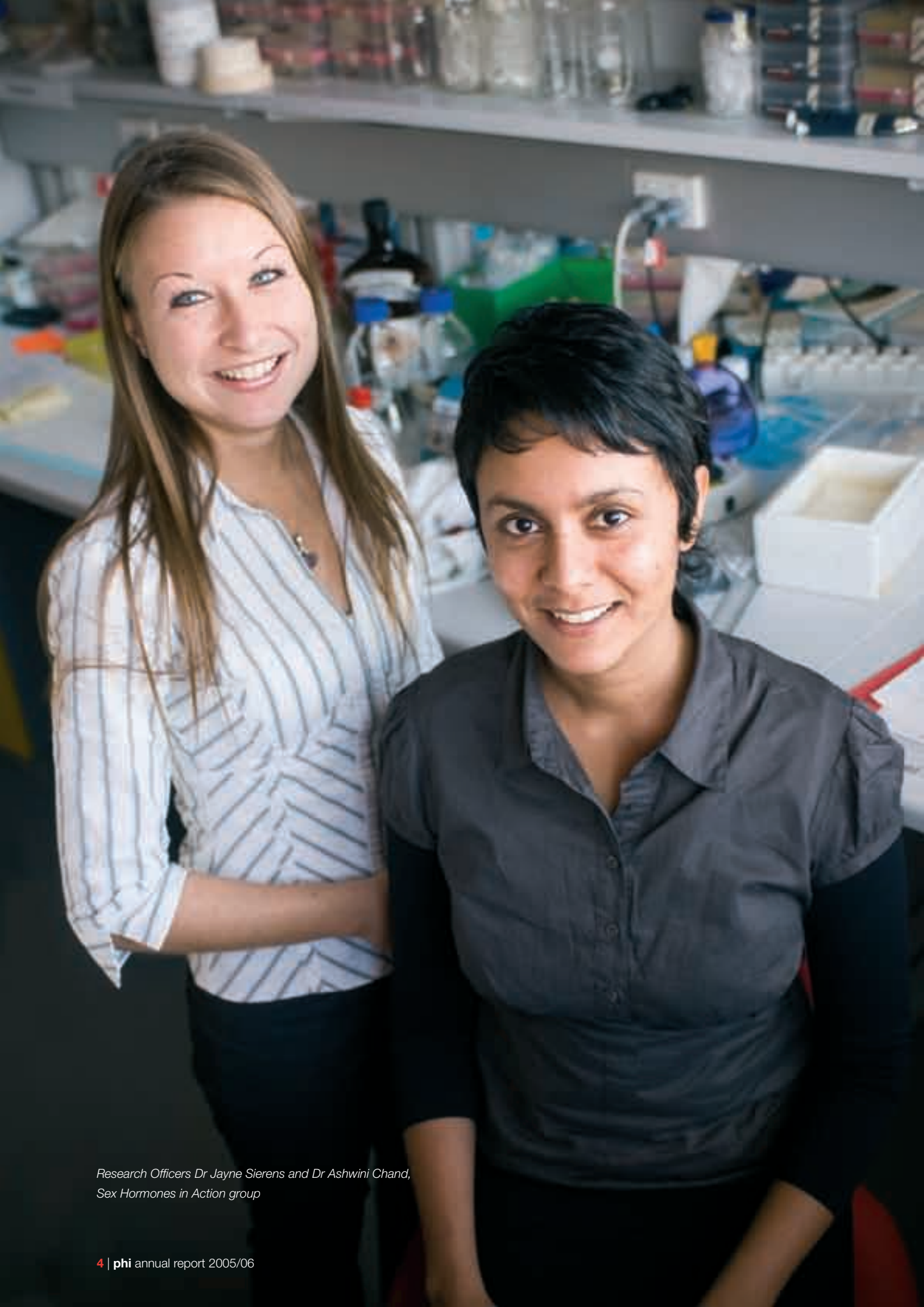
Photo opposite: Louisa Ludbrook, PhD student, Human Molecular Genetics group

The Institute's funding is derived from competitive international and national government grants, charitable trusts and foundations, the corporate sector, private philanthropy and public donations.

Hormones in Health

Hormones are an important part of the body's communications system. Much like the way the brain and limbs communicate by sending electrical signals along the nerves, the body's organs also communicate by sending hormones to one another in the blood stream. Cells within the organs also communicate via hormones.

Hormones control normal functioning in the body, but if dysfunctional, can also contribute to the onset of disease. The Institute's research focuses on the role of hormones in conditions such as breast, ovarian and endometrial cancers, male and female infertility, diabetes, obesity and heart disease.



Research Officers Dr Jayne Sierens and Dr Ashwini Chand, Sex Hormones in Action group

research highlights

Male gene linked to Parkinson's disease

Discovered that the testes determining protein SRY is also produced in the brain region affected in Parkinson's disease.

New target for female contraceptive

Showed that the protein convertase 6 is a central mediator of implantation and is thus a new target for female contraception.

Healthy placental development critical for fertility

Began research into the roles of interlukin-11 and leukemia inhibitory factor in early placental development. This has implications for the potential treatments of infertility in women and disorders of early pregnancy.

New sex determination gene

Discovered a new gene, FGFR2, that is involved in sex determination.

Role of activin in pregnancy

Showed that activin A plays an important role in preparing the endometrium for pregnancy.

Vitamin A linked to breast cancer growth

Showed that a derivative of vitamin A blocks action of the protein LRH1 and may have potential as a breast cancer treatment.

Treatment of abnormal uterine bleeding

Demonstrated, in an Australia-wide collaboration, new treatments for abnormal uterine bleeding in women using implantable progestin-only contraceptives.

New protease discovery in reproduction

Described a new enzyme, HtrA3, involved in implantation, placentation and uterine cancer and developed an HtrA3-deficient mouse line to establish its role in the reproductive tract.

Hormone activin reveals new disease cure

Found that disrupting the activin signalling system could play a role in the treatment of fertility, muscle growth and wound healing.

media snapshot

Parkinson's disease

Associate Professor Vincent Harley's collaborative research discovery, linking the male only gene SRY to the brain region affected in Parkinson's disease, received extensive commentary in Nature and ScienceNow online in February 2006.

Assoc. Professor Harley was profiled in The Sunday Extra (Sunday Age) liftout "Bright Minds, Big City" in March 2006 as a top Melbourne scientist for his research into Parkinson's disease. He was also quoted in The Age in April 2006 for an article exploring gender determination.

Testosterone study and male menopause

Dr Carolyn Allan's study on the effects of testosterone treatment on body fat and heart disease received extensive coverage in the Herald Sun in June 2006 and Oakleigh-Monash and Springvale-Dandenong Leader in July 2006. Dr Allan was also interviewed on popular talk-back radio station 3AW.

Dr Allan's work on the male menopause received coverage in the August 2005 edition of Men's Health Magazine and The West Australian's 'Mind and Body' lift out in September 2005.

Menopause

Professor Henry Burger's joint collaboration on 'The Melbourne Women's Midlife Health Project' featured as the lead story on page three of The Age in June 2006. Professor Burger commented on the hormonal changes that impact on women during menopause.

Obsessive Compulsive Disorder

Dr Wah Chin Boon and **PhD student Rachel Hill's** research discovery linking a lack of oestrogen to obsessive compulsive disorder in male mice received prominent coverage in The Age newspaper in June 2006 and Herald Sun in July 2006.

Fertility

Professor Jock Findlay's collaborative research with Associate Professor Jeff Kerr from Monash University into egg regeneration in mice was covered by leading national and international news sources throughout July 2006, including The Herald Sun, The Sydney Telegraph, Science News magazine (Washington, USA), The Hindustan Times (India), BioTechnologyNews (Australia) and Medical News Today (UK).

2005 Young Scientist of the Year Award Winner

Dr Christine White has gained invaluable media experience since receiving The Australian newspaper's 2005 Young Scientist of the Year Award. She now writes a weekly column for The Australian.

Dr White featured as one of "20 Unstoppable Women" in popular women's magazine Cleo in November 2005. She was also quoted in a feature story on pregnancy in the free national parenting magazine Melbourne and Sydney Child in November 2005.

Dr White's writing credits for the year included the cover story "The Hostile Womb" in the September 2005 Australasian Science magazine.

Silver Ribbon Campaign, Ovarian Cancer Research Foundation

The launch of the OCRF 2005 National Australia Bank Silver Ribbon Campaign was filmed at Prince Henry's Institute in September. This footage was included in a special broadcast on National Australia Bank Vision Network to approximately 40,000 staff, and also featured in a television news segment on National Nine News.

Bright minds, big city

In an upbeat mood? Feeling good about yourself? Sex life OK? Congratulations, you must be middle aged...

The change a liberating experience

PARKINSON'S DISEASE

DIABETES

Hunting the source of renewable oocytes

Hormone hope for men with obsessive disorder

By CHANTAL RUMBLE

THE debilitating symptoms of obsessive compulsive disorder in men may be relieved by simple hormonal treatment.

Researchers at Prince Henry's Institute in Melbourne have found a direct link between low oestrogen levels and obsessive compulsive behaviour, opening a new avenue of potential treatment — but only for men.

About 500,000 Australians are affected by the disorder, suffering persistent thoughts and repetitive actions with frequencies. Men be prone to de

grooming and running when their estrogen levels fell. Their behaviour normalised when oestrogen levels were restored.

Dr Wah Chin Boon, a senior researcher on the project, said it was the first time hormones had been linked to ob pulsive behaviour.

The researche oestrogen levels v fall in an enzy regulate chemica brain. Low

is the same in men as in the male mice," Dr Boon said. "If it is, new treatments for men may not be too far away, with drugs that mimic specific effects of oestrogen on the brain without feminising the body."

The research project is part of the role of

OBSESSIVE COMPULSIVE DISORDER: WHAT IS IT?

- An anxiety condition affecting 2-3 per cent of people.
- Patients plagued by persistent unwanted thoughts about which they try to fight

Christine White, 27

Young Scientist of the Year 2005

What's your motivation?

"This research is incredibly important because miscarriage and infertility affect so many couples."

Where do you hope it will lead?

"My aim is to improve the health of both mothers and babies and give women more and better choices in contraception."

www.heraldsun.com.au

Low testosterone linked to heart disease

Pot belly factor

LOW testosterone levels could help explain the round bellies of many middle-aged men.

Melbourne scientists have discovered that low testosterone levels are strongly linked to risk factors for heart disease.

In particular, low levels of the hormone contribute to excess abdominal fat in men.

The 12-month study treated men over 55 in good health and of average weight but who had low testosterone levels.

"Those men who received testosterone compared to those men who received placebo didn't gain fat around the abdomen ... and also tended to gain some skeletal muscle," said study author Dr Carolyn Allan, from Prince Henry's Institute of Medical Research.

The team also found that abdominal circumference was a stronger predictor of testosterone levels than the body mass index or height-to-weight ratio.

Lethargy, fatigue, low sex drive, loss of muscle strength, poor concentration and irritability have also been linked to low testosterone levels.

Michelle Pountney
health reporter

Dr Allan is now looking for healthy but overweight men aged 40 to 70 to take part in a study on the effects of testosterone treatment on body fat and heart disease.

"If you've got more fat to start with, and lower testosterone levels, you may benefit more," Dr Allan said.

"We know that men with heart disease are likely to have low testosterone levels, but we don't know which comes first — the heart disease or the low testosterone."

Dr Allan believes testosterone treatment could benefit ageing men with low testosterone who are overweight and at risk of heart disease. "We now want to trial the effectiveness of testosterone treatment in men who are carrying extra abdominal fat," she said.

All 60 men recruited for the study will be given exercise and diet advice.

Dr Allan said she hoped to prove that, compared with standard diet and exercise advice, treating men with testosterone to keep their level in the upper part of the normal range would decrease their body fat.

Murrumbeena real estate agent Tony Campbell has signed up for the study.

"I'm 53. I stopped smoking in my early 30s and put on weight. I never really worried about it, but as you get older it gets harder to lose and easier to put on," he said.

'I think you do lose your pep a bit but I don't know if that's testosterone or not'
– Real estate agent Tony Campbell

He hopes the study will prove to be a way of losing weight sensibly and helping add to medical knowledge.

"Testosterone levels start falling at 30 ... and being overweight accelerates that. I think you do lose your pep a bit, but I don't know if that's testosterone or not," he said.

ANYONE interested in participating in the trial should contact Anna Zamel-ska or Elise Forbes on 9594 2087 or 9594 2054.

real estate agent Tony Campbell dog, Rex. Picture: ELLEN SMITH

phi in the community

ASMR Medical Research Week 2-9 June, 2006

Prince Henry's Institute hosted a stall at the 2006 **ASMR Medical Research Week EXPO** at Federation Square, Melbourne. The Institute's display featured a range of fun and educational activities, including the popular 'Pin the Hormone on the Human' game and the new 'Who wants to be a Scientist' competition. Senior Research Officer Dr Sarah Meachem and Media Officer Alison Noonan were interviewed during a live broadcast by radio station **3RRR**.

The **Victorian ASMR Medical Research Week Dinner** was again a highlight of the week. Prince Henry's entertained guests on two tables at the prestigious Grand Hyatt function, including members from the **Jack Brockoff Foundation, Middletons Lawyers, New Scientist Magazine, The Age** and **the Treasurers Office of Victoria.**

Some of the Institute's brightest young scientists journeyed to South West and Northern Victoria as part of the **ASMR Regional Schools Tour**. Natalie Hannan, Chelsea Stoikos and Alex Umbers gave presentations about life as a scientist to high school students in Geelong, Ballarat, Wangarratta, Benalla and Yarrawonga. The tour is aimed at encouraging students to pursue a career in medical research.

Media & Communications Officer Miss Alison Noonan (left), PhD students Ms Tu'uhevaha Kaitu'u-Lino (right) and Miss Chelsea Stoikos (centre right) hosted a variety of educational activities for children at the ASMR Expo

Guests at the Medical Research Week dinner (L to R): PHI Research Officer Dr Jayne Sierens, Mr Peter Howard, Middleton's Lawyers, PHI Development and Communications Officer Miss Ingelise Jones

Ride for Reproduction

A team of cyclists from PHI participated in the **Murray to Moyne Cycle Relay** on 1 & 2 April 2006. Led by Chairman Mr John Robinson and Director Professor Evan Simpson, the team raised more than $30,000 for research into reproduction and fertility.

The highlight of the team's fundraising activities was the **PHI Ride for Reproduction Trivia Night & Auction** held on 28 March 2006. A crowd of more than 150 people enjoyed an entertaining evening and raised $5,000 in support of PHI research.

For more details see 'Development', page 53.

PHI Cycling team: (from top left clockwise) Mr John Robinson, Miss Natalie Hannan, Dr Morag Young, Dr Sarah Meachem, Mr Andrew McCallum, Prof. Evan Simpson, Dr Michael Clarkson, Mr Bruce Watson

Kooyong Classic Fundraiser

More than 100 Prince Henry's supporters enjoyed a wonderful day at the **Kooyong Classic PHI Fundraiser** on 11 January 2006. The crowd saw four excellent matches between some of the world's top tennis stars and raised almost $2,000 for PHI.

Tennis fans and PHI supporters Mr & Mrs Joy and Graeme Fair

Melbourne Marathon

An enthusiastic contingent of PHI staff and supporters volunteered and competed in the **ASICS Melbourne Marathon** on Sunday 9 October 2005. The relay team, which included Director Professor Evan Simpson, Dr Jayne Sierens, Alex Umbers and Dr Naomi Morison, won the Charity Team Category. PHI also provided 30 volunteers who worked as street marshals along the course.

Melbourne Marathon Relay team (L - R): Dr Jayne Sierens, Dr Naomi Morison, Professor Evan Simpson and Miss Alex Umbers

Community Presentations

PHI scientists gave a number of presentations to community groups and schools, including the **Rotary Club of Melbourne, Prince Henry's Affiliates Group, the Melbourne Sunrise Group, the Victorian Law Institute, Middletons Women's Information Network** and **Prince Alfred College** in Adelaide. Topics included "The Hormonal Consequences of Male Ageing", "The Role of Hormones in Diabetes and Obesity", "The Biology of Sex and Gender", "Science, Sex and Society" and "Sperm, Interrupted" (male hormonal contraception).

Dr Margaret Jones speaking to the Rotary Club of Melbourne about "Hormonal Consequences of Male Ageing"

chairman's report

Looking ahead, we are entering an exciting period of development at Prince Henry's Institute as we build on the first stage of the Research Precinct. We look forward to a future driven by positive results and the delivery of better health outcomes

I am pleased to report that the first stage of the Monash Health Research Precinct building was completed in March, within budget and on time. This infrastructure development was largely funded by a combination of Federal and State grants.

The newly created space is shared between Prince Henry's Institute and fellow precinct members, the Monash Institute of Medical Research (MIMR) and the Monash Institute of Health Services Research (MIHSR). Having successfully implemented this first stage of development, the Precinct principals, Prince Henry's Institute, Monash University and Southern Health, are now working towards the next phase.

The Precinct development provides the Institute with increased research space, which is essential to the introduction of new science and improved outcomes. However, the essence of the Precinct is collaborative medical research, providing an environment to facilitate closer working relationships and ideas between the various groups within Clayton Campus and beyond. The aim is to accelerate research outcomes and the consequent benefits to public health.

Substantial progress has been made in meeting this objective during the past 12 months. The introduction of Proteomics into precinct research has now been implemented and provides tangible evidence of development progress, with its ability to open up new areas of investigation. The Director's report describes this new technology in some detail.

Prince Henry's is also working with others in the Precinct to attract new research groups from within Australia and overseas. Modern facilities with adequate working space and state-of-the-art equipment are vital ingredients in the highly competitive recruitment process.

With increasing focus on commercial outcomes and administration efficiency within research bodies, Prince Henry's has recently appointed Dr Jane Glatz as Chief Operating Officer. Jane has a medical research background combined with an MBA and strong administrative experience, including the demanding role of establishing Research Australia. One of Jane's priorities is developing a strategic plan that sets out the future direction and imperatives for the Institute within the Monash Precinct.

As an independent medical research institute, Prince Henry's depends on support from philanthropic trusts and the broader public for a significant part of its funding. One of the Institute's fundraising initiatives involved entering a team in the annual Murray to Moyne Cycle Relay in April 2006. With good support from corporate and individual sponsors, our riders managed to raise more than $30,000 for research into reproduction and fertility. We are grateful that many in the community recognise the valuable work being done at Prince Henry's and are prepared to help both financially and by giving their time.

Those of us close to the Institute are well aware of the outstanding quality and dedication of its people, but it is particularly rewarding when our leading scientists receive prestigious external recognition. The Institute's Director, Professor Evan Simpson, has been elected a Fellow of the Australian Academy of Science for outstanding achievements in hormone research. Professor Jock Findlay AM, our Deputy Director, is the only Australian to have won the UK Society for Reproduction and Fertility's Distinguished Scientist Award for 2006. The award honours Professor Findlay's exceptional contribution to reproduction and fertility research.

In the area of governance, the past year has seen a number of changes in membership of the Prince Henry's Board of Management. Michael Burn and Linda Sorrell resigned as Directors due to increasing executive workloads. Denise Heinjus joined the Board to replace Ms Sorrell as the Southern Health nominee.

I would like to take this opportunity to thank all those involved on the Board of Management, the Development Board and the various governance committees for their efforts. They give generously of their pro bono time and their input to managing the Institute's affairs is greatly appreciated. I would also like to thank the dedicated research and administrative support staff at Prince Henry's for their contributions to the collective achievements of the past year.

Looking ahead, we are entering an exciting period of development at Prince Henry's Institute as we build on the first stage of the Research Precinct. We look forward to further initiatives in collaborative research on the Clayton Campus.

The Institute is fortunate to have excellent people engaged in important scientific endeavour for the public good. There is good cause to be proud of what we do.

Mr John Robinson
Chairman

board of directors

Mr John Robinson BSc MGSc FAuslmm
Chairman

Mr Russell Fynmore AO FCPA
Deputy Chairman

Professor Evan Simpson BSc PhD
Director, PHI

Ms Lisa Hinrichsen BBus BA CA
Partner, KPMG Assurances and Advisory
Treasurer

Mr Richard Amos BA (Soc/Legal) BA (PR)
Managing Director, Royce Communications (from 15 Jun 2006)

Mrs Jane Bell B.Ec. LLB LLM (Lon)
Treasury Solicitor, Coles Myer Ltd

Mr Michael Burn BComm
Executive Director, Investment Banking Group, Macquarie Bank Ltd (until 9 Feb 2006)

Ms Ann Ellis Dip Ed

Mrs Margaret Lothian B.Ec LLB (Hons)
Principal Mediator and Senior Member of the Victorian Civil and Administrative Tribunal

Ms Anne Molyneux BA, Grad Dip Acc, M Mgmt, CA, FAICD
Director, CS International

Mr Trevor Montgomery SIPA
Senior Investment Advisor, Goldman Sachs JB Were

Mr David Pisker Dip. Film Making
Director, Tribal DDB

Professor Ed Byrne AO, MD, DSc, FRCP, FRACP Dean, Faculty of Medicine, Monash University
Monash University Nominee

Adjunct Professor Denise Heinjus RN, RM, GradCert(Mgt), MHltSc(Hons), FCN NSW
Southern Health Nominee
(from 20 Feb 2006)

Professor Nicos Nicola AO BSc (Hons) PhD Deputy Director, Walter & Eliza Hall Institute
NHMRC Nominee

Ms Linda Sorrell MHA, BHSM, Grad Cert-Casemix CEO, Southern Health
Southern Health Nominee
(until 20 Feb 2006)

Mr Bob Stensholt MP, BA, BD (Hons) MIntLaw Dip Phil
State Member for Burwood
State Minister for Health Nominee

Mr Terrence Haining FCPA, GDipAcc&Fin
Financial Services Manager, PHI
Secretary

institute governance

Board Committees

Development Board

Mr J Robinson (Chair)
Mr H Ruddock (Deputy Chair)
Dr R Barnes
Mr P Briede
Prof J Findlay AM
Dr Jane Glatz
Mrs J Hibbins
Mr A McCallum
Ms A Molyneux
Miss I Jones (Secretary)

Finance and Audit Committee

Mr D Linley (Chair)
Mr S Alford
Ms L Hinrichsen
Mr J Robinson
Mr T Haining (Secretary)

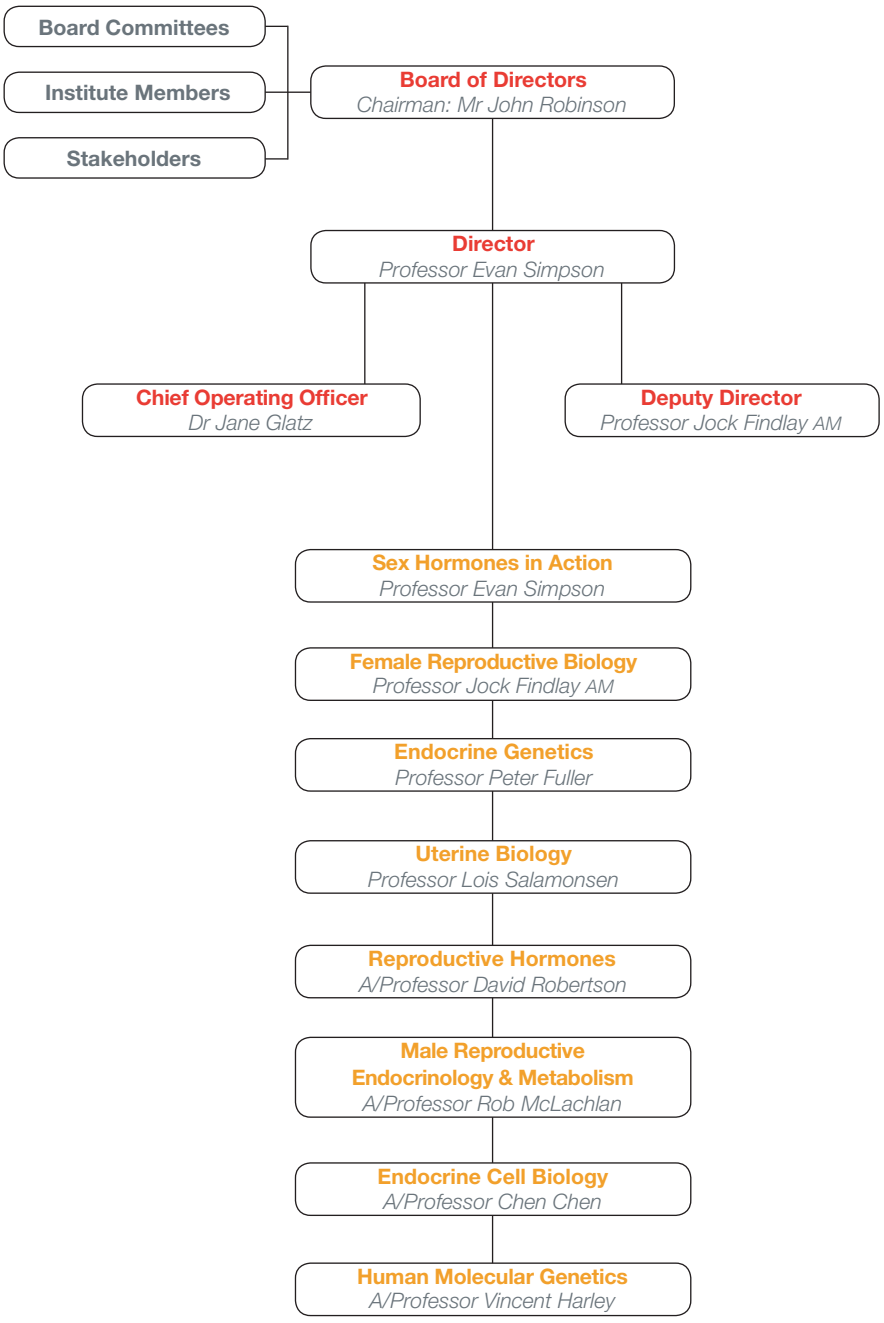
Remuneration Committee

Mr K Nathan (Chair)
Mr R Fynmore AO
Mr J Robinson

Intellectual Property & Commercialisation Committee

Ms M Lothian (Chair)
Mrs J Bell (Deputy Chair)
Mr G Fisher
Prof J Findlay AM
Dr Jane Glatz
Assoc Prof D Robertson
Prof L Salamonsen
Mr A McCallum (Secretary)

Organisational Structure



director's report

This year has been notable on account of the consolidation of several of the initiatives I described in last year's Annual Report, as well as some new initiatives in the pipeline

Monash Health Research Precinct

The Male Reproductive Group has now moved to occupy level four of the new Monash Health Research Precinct building. Our space on level three is currently being sub-leased back to Monash University, pending decisions regarding further developments on the site.

Stage 2 of this building project was initially anticipated to proceed shortly after the completion of Stage 1. Now, however, the situation has changed significantly with a number of exciting new developments.

In 2006, Ms Linda Sorrell, CEO of Southern Health, appointed Professor Colin Johnston to direct a new Research Advisory Council, following a report which urged that research be given a higher priority at Southern Health. Prince Henry's Institute (PHI) is represented on this council by myself and Deputy Director Professor Jock Findlay AM.

We believe that these exciting developments are indicative of a new culture within the Monash Medical Centre, with its emphasis on research excellence leading to improved translation into clinical practice. Because of these developments we are currently in consultation with our precinct partners and with the State Government regarding the next phase of the building project. In particular, whether we should be aiming for a larger and more ambitious development.

Recruitment

These new initiatives provide a strong base for our recruitment efforts. We are currently in discussions with three potential new research group leaders, as well as several promising young investigators, regarding relocation to Prince Henry's. In this way we are preparing the groundwork, not only for expansion of the Institute, but for replacement of senior members who are likely to retire within the next five years.

As part of these initiatives and in response to recommendations from the State Government to consolidate research activities into larger configurations, future research conducted at Monash Medical Centre will be centred around clusters based on topics such as women's and men's health, cancer, cardiovascular research and neuroendocrinology. Each of these groups will be associated with core facilities. This does not mean that PHI will lose its identity, but the establishment of such clusters will allow for greater synergy and collaboration between like-minded individuals.

Infrastructure

Our Proteomics Facility, which I mentioned in my last report, is now up and running and the search for early detection markers of ovarian cancer in blood and uterine washings has been begun. This work continues to enjoy the vital support of the National Australia Bank Ovarian Cancer Research Foundation (OCRF) and other groups, such as Witchery.

I am also very happy to report that, thanks to the generosity of the Gandel Charitable Trust, our DNA Sequencing Core Facility now has a brand new DNA sequencing instrument. This equipment incorporates the latest technology and will greatly increase the throughput of the facility. The core facility has also acquired a new quantitative Real-Time PCR machine, financed by Monash University. This machine will greatly accelerate our ability to understand the cell signalling pathways involved in the various projects underway at PHI, Monash Institute of Medical Research (MIMR) and the other core members.

Schering AG collaboration

We continue our fruitful collaboration with the German pharmaceutical company Schering AG and have submitted a proposal for a new contract initiated by the company. This contract includes three research groups from Prince Henry's, Professor Gail Risbridger at MIMR and Professor John Aitken at the University of Newcastle. The proposal offers a number of exciting new initiatives in male and female reproductive health as well as a new direction in terms of inflammatory disease.

Funding

Regarding funding, you may recall that last year I reported on the disappointing outcome of the failure of the biomedical research community to persuade the Commonwealth Government to accept the findings of its own Investment Review. This recommended a doubling of the NH&MRC budget to a sum approaching $1 billion annually, following the completion of the Wills Round. I am happy to report that this year the Federal Minister of Health announced not a doubling of the NH&MRC budget, but rather an increase of 50 per cent over a five year period. In addition, he announced the establishment of a new Fellowship Program which will considerably increase the number of NHMRC Fellows funded by the Federal Government. So all in all, this is a rather successful outcome reflecting the hard work of a number of agencies, including AAMRI and Research Australia, both of which PHI is a member.

Commercialisation

Regarding commercialisation, I am happy to announce that our Royalty stream on the sale of inhibin products in the USA continues to flow at a pleasing rate, and prospects for new markets, in particular the inhibin-based diagnostic test for ovarian cancer, are continuing to be very encouraging.

Following the relocation of Professor Iain Clarke to the Physiology Department of Monash University, we are currently negotiating with Monash University for a sub-lease of the Antibodies Australia site at Werribee and the assignment of the business name 'Antibodies Australia' to Professor Clarke.

COO Appointment

We welcome Dr Jane Glatz to the new role of Chief Operating Officer. Jane brings with her a wealth of experience in medical research and business administration.

So in conclusion, this year has seen successful outcomes to a number of the objectives that we, and others, have been working on for several years. At the same time, we are eager to pursue new avenues, and once again, I am confident that the outcome will only be to the Institute's benefit.

Professor Evan Simpson
Director

monash health research precinct

March 2006 marked an historic time for Prince Henry's Institute when staff made the highly anticipated move into Stage 1 of the Monash Health Research Precinct.

Members of the Institute's Male Reproductive Endocrinology and Metabolism Group and Reproductive Hormones Group relocated to the fourth floor in the new building, which is situated at the rear of Monash Medical Centre. Prince Henry's Institute shares occupancy of the precinct with Monash Institute of Medical Research (MIMR) and Monash Institute of Health Sciences Research (MIHSR).

The development was made possible through building grants received by Prince Henry's Institute and Monash University from the Federal and State Governments. Southern Health provided the land, for which the Institute is very grateful.

Acquisition of this increased space has allowed the Institute to expand its research activities and undertake experiments that were previously not possible, due to limited resources and facilities.

One of the most significant research benefits to come from the move has been the introduction of a state-of-the-art Proteomics facility. Proteomics, the study of proteins, is a revolutionary technology that has applications in the early detection, diagnosis and treatment of conditions, such as ovarian and endometrial cancer, heart disease, diabetes and male and female infertility.

Prince Henry's Institute looks forward to further development of the Monash Health Research Precinct, signifying a new era of medical research driven by positive results and the delivery of better health outcomes.

prestigious awards

Australian Academy of Science Fellow

Director Professor Evan Simpson was elected a Fellow of the Australian Academy of Science for his outstanding achievements in the field of hormone research.

Appointment to the Academy honours a career that has significantly advanced, and continues to advance, medical research. Professor Simpson was one of only 18 leading Australian scientists to be elected to the Academy in 2006.

Professor Simpson is recognised as a world leader in the area of oestrogen biosynthesis. His work over the last 25 years has shown that oestrogen plays an important role in the development of breast cancer, the maintenance of bone mineralisation in both men and women, and brain function.

Professor Simpson's lab was the first to clone the cDNA and subsequently the human gene encoding aromatase, the enzyme responsible for oestrogen biosynthesis. This concept has been instrumental in the development of new drugs for the treatment of breast tumours. His studies have also revealed many new and unexpected roles for oestrogens, including functions in male libido and the prevention of obesity.

He has received numerous awards, the most recent being the prestigious Roy O.Greep Award from the US Endocrine Society in 2005.

Director of Prince Henry's Institute since 1998, Professor Simpson's current research is aimed at discovering new and better therapies for breast cancer prevention and treatment.

UK Society for Reproduction and Fertility Distinguished Scientist Award

Deputy Director Professor Jock Findlay AM was awarded the UK Society for Reproduction and Fertility (SRF) Distinguished Scientist Award for 2006.

The award honours Professor Findlay's outstanding contribution to reproduction and fertility research. He is the only Australian to have won this prestigious prize.As part of the award, Professor Findlay presented a keynote lecture at the Society's annual conference in Leeds, England, in July.

The award marked a busy year for Professor Findlay, who also addressed The UK Society for Endocrinology's annual conference in Glasgow as the 2006 recipient of The Dale Medal. The Dale Medal is the highest accolade bestowed by the Society and acknowledges excellence in hormone research.

Professor Findlay has pioneered the field of reproductive health research for more than 30 years, establishing a reputation as a world renowned reproductive biologist. Professor Findlay was one of the original collaborators on the first paper on hormone replacement in women receiving IVF (in vitro fertilisation). In 2001 he was made a Member of the Order of Australia for services to medical research.

Head of the Female Reproductive Group at Prince Henry's, Professor Findlay's current work centres on the hormonal control of egg development in the ovary. This has implications in understanding ovulation, the regulation of the lifetime supply of eggs which determines the length of fertility and the time of menopause. He is also collaborating with other scientists at the Institute on a project investigating new methods of contraception.

Alex Umbers, Research Assistant,
Female Reproductive Biology group

phi women in science

Prince Henry's Institute is proud to boast a strong contingent of female scientists. Whether it be a PhD student embarking on a new career in medical research or a professor at the top of her field, women at the Institute are climbing the ladder of scientific success. Meet six of our most fascinating female role models and learn about their lives as scientists

Professor Lois Salamonsen

Senior Principal Research Fellow

Group Head, Uterine Biology Group
Reproductive biology – uterine function

Why did you choose that field?
The area of reproduction really excited me. I was also concerned that little was being done to address major problems in women's health.

What is your passion/motivation?
To better understand the fascinating events that occur within the uterus, and by doing so, improve women's health, particularly by increasing contraceptive choice, alleviating fertility and minimizing health problems, such as uterine bleeding.

What have you achieved through your research?
I have made important contributions to a body of knowledge that will lead to improvements in a range of women's health issues.

What are your hopes for the future?
To continue my research and further our knowledge of reproduction. Although I am currently the only female senior principal research fellow at Prince Henry's, I am sure there will be many more at the top in another decade. One of my passions is to mentor our clever young women scientists to help them achieve their dreams.

Describe your job in one word: Fulfilling.

Where can you be found when you're not in the lab? Walking on the beach or in the bush and spending time with my wonderful family.

Dr Margaret Jones

RD Wright Fellow

Sex Hormones in Action Group
The link between oestrogen and body fat

Why did you choose that field?
It chose me! While characterizing our novel ArKO (aromatase knockout) mouse model, my group discovered that without oestrogen this mouse became very fat. This intrigued us greatly and reflects my current research.

What is your passion/motivation? I want to change the way people think about fat! I'm excited by my research and one of my goals is to excite and enthuse the community about these and other medical research studies.

What have you achieved through your research? My group has determined the link between oestrogen and fat – even in males! We have been able to identify many unexpected roles for oestrogen, thus establishing its importance as more than just a female hormone involved in reproduction.

What are your hopes for the future? To better understand the dynamics of fat tissue and how oestrogen regulates its natural balance. While a clearer understanding of these processes will potentially provide novel strategies for treating fat accumulation, it is the association between too much body fat and the development of many illnesses that motivates me to continue. This is such an exciting field of research.

Describe your job in one word: Stimulating.

Where can you be found when you're not in the lab?
Being Mum to Colter (5) and Elizabeth (2½).

Dr Sarah Meachem

Senior Research Officer

Male Reproductive Endocrinology & Metabolism Group

Regulation of testis function

Why did you choose that field?
I thought I could make a difference to the community. If I could contribute to understanding testis function then it might lead to men having powerful choices in regulating their fertility, both in a contraceptive or infertility setting.

What is your passion/motivation?
Waking up thinking 'What will I learn today? What new knowledge will be created from my work?'

What have you achieved through your research?
Awesome friends, confidence, being evangelistic in my lobbying skills, the importance of integrity and heaps of knowledge about how hormones influence sperm production.

What are your hopes for the future?
To discover a cure for male infertility and create a male contraceptive. In 10 years I would like to see all scientists trained in effective communication skills, dispel the myth that scientists are nerds and have 30 per cent success rates for all NHMC research grants.

Describe your job in one word: Wild.

Where can you be found when you're not in the lab?
Riding my bike along Beach Road, hanging out with my niece Tiffany or in the park with my beautiful dog Bailey.

Dr Christine White

Research Officer

Uterine Biology Group

New contraceptive strategies

Why did you choose that field?
Pregnancy is the most amazing process. I am fascinated by the events that occur in very early pregnancy, which can determine whether the pregnancy continues and can also affect the quality of the pregnancy and the baby's health into adulthood. This research has huge implications for improving women's fertility and may enable us to develop new and better ways to prevent unplanned pregnancies.

What is your passion/motivation?
That my research will one day help in the treatment of infertile women or contribute to the development of new contraceptives to give couples more reproductive choices.

What have you achieved through your research?
I have had the opportunity to travel, visit overseas labs, present at conferences and publish scientific papers. A career highlight was winning the Young Scientist of the Year in 2005, which has given me the chance to write a weekly column in The Australian.

What are your hopes for the future?
I hope that my future research will make an impact on people's health, allowing them to live longer and happier lives.

Describe your job in one word? Challenging.

Where can you be found when you're not in the lab?
Spending time with my husband, friends and family, going to the movies, shopping, reading or going to the gym.

Dr Helena Sim

Research Officer

Human Molecular Genetics Group
Role of the male gene SRY in the human testis and brain

Why did you choose that field?
Sexual development disorders affect one in 300 births and their clinical management is a major paediatric issue. I am seeking to improve the diagnosis and clinical management of genetic diseases.

What is your passion/motivation?
The feeling that I have contributed to help unravel the complex network involved in sex differentiation, and eventually, to make a difference to someone's life.

What have you achieved through your research?
Our group discovered a new avenue for sex determination in males, which helps us to better understand the cause of intersex conditions. Also, in collaboration with the University of California we showed for the first time that the male only gene, SRY, is also produced in the brain region affected in Parkinson's disease.

What are your hopes for the future?
I hope to figure out how sex chromosomes lead to gender differences in the development of neurological diseases, such as Parkinson's.

Describe your job in one word? Challenging.

Where can you be found when you're not in the lab?
At home cooking for friends or enjoying a coffee and reading books at Borders Bookshop in the evenings.

Rachel Hill

PhD student

Sex Steroids in Action Group
Characterisation of the brain of the male aromatase knockout mouse

Why did you choose that field?
I am very interested in neuroscience, particularly the behavioural aspects. I love that there is still so much unexplored territory within the brain and that the slightest change in hormones can have a vast impact on the brain and its actions.

What is your passion/motivation?
My passion is neuroendocrinology – the study of hormonal actions and regulation within the brain. I want to explore every possibility and seek out the answers, no matter how long it takes!

What have you achieved through your research?
My work on Obsessive Compulsive Disorder (OCD) has helped to find a link between oestrogen and dopamine levels, therefore suggesting a possible alternative for the treatment of OCD where the first line of medication failed. I have also traveled overseas to present at several conferences and had publications in high profile journals.

What are your hopes for the future?
I would like to eventually work on a major neurodegenerative disease, such as Parkinson's or Alzhiemers, and find a cure for these extremely debilitating conditions.

Describe your job in one word? Discovery.

Where can you be found when you're not in the lab?
At the gymnastics club where I am a coach and judge.

ovarian cancer research foundation

Detecting ovarian cancer

Scientists at Prince Henry's Institute are working with the National Australia Bank Ovarian Cancer Research Foundation (NAB OCRF) to identify early detection markers for ovarian cancer.

Ovarian cancer is the sixth most common cancer affecting Australian women. Approximately 400 women are diagnosed with the disease in Victoria each year, while across Australia one woman dies every ten hours.

Although less common than breast cancer, proportionally more women die from ovarian cancer. Unfortunately the disease is usually well advanced when diagnosed and has often spread to other areas of the body.

The key to improving the survival rate of ovarian cancer is early detection.

The NAB OCRF, in collaboration with Prince Henry's Institute and Monash Medical Centre, is dedicated to continuing research into this insidious disease.

The Foundation is chaired by Associate Professor Tom Jobling, Head of Gynaecological Oncology at Monash Medical Centre, and was co-founded with Ms Liz Heliotis, Managing Director of the Foundation, in 2000, with the NAB as their founding and principal partner.

Dr Andrew Stephens is a new addition to the OCRF team at PHI, taking up a position as National Australia Bank Ovarian Cancer Research Foundation Research Fellow in 2006. The retailer Witchery also supports the Foundation and their sponsorship has enabled the appointment of Dr Henning Koehn as the Witchery Research Fellow.

Dr Stephens and Dr Koehn are working to progress the development of an early detection program for ovarian cancer in collaboration with Associate Professor Tom Jobling and Prince Henry's Institute's Associate Professor David Robertson.

For further information about the Ovarian Cancer Research Foundation, please visit **www.ocrf.com.au** or telephone **03 9296 2040** or **1300 OVARIAN (1300 682 742)**.

Silver Ribbon Campaign

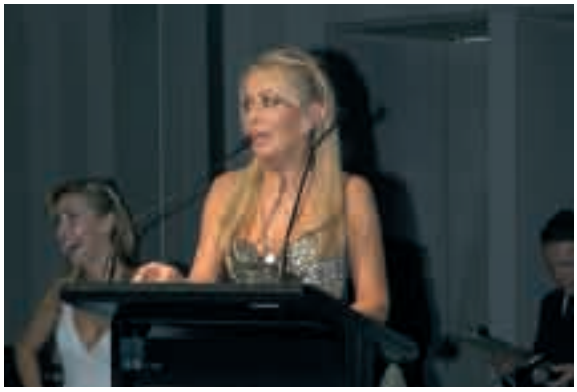
The annual Ovarian Cancer Research Week is positioned in the Federal Health Calendar in the first week of September to raise funds and create awareness for ovarian cancer research.

The NAB supports the Ovarian Cancer Research Foundation's annual "Silver Ribbon" campaign by selling silver ribbon lapel pins in all their branches throughout Australia during September. Silver Ribbons can be purchased from Witchery stores nationally throughout the year.

The campaign also includes the annual Exposure Gala evening which has become one of the highlights of Melbourne's social calendar.

We urge you to support this worthy cause to help us fund research into an early detection test. Donations may also be made at any National Australia Bank branch or on-line at www.ocrf.com.au.

(L to R): Assoc. Professor David Robertson, Dr Henning Koehn, Ms Liz Heliotis and Assoc. Professor Tom Jobling conducted numerous tours of the the Institute's facilities



Ms Catriona Rowntree (left) and OCRF Managing Director, Ms Liz Heliotis addressing guests at the 2005 OCRF Exposure Gala

(L to R): Dr Ashwini Chand, Mr Andrew McCallum, Mrs Pat McCallum and Miss Ingelise Jones at the OCRF Exposure Gala

(L to R): Miss Maria Alexiadis, Ms Liz Heliotis and Mr Kempson Mayberry, Jack Brockhoff Foundation, at the ASMR Medical Research Dinner

Dr Henning Koehn, Witchery Research Fellow 2006

2005 marked a new era of medical research at Prince Henry's with the introduction of a state-of-the-art Proteomics facility within the Institute

Photo: Research Officer Dr Yunxian Mak and Dr Andrew Stephens, Reproductive Hormones group

Providing new and better research outcomes

Proteomics, the study of protein expression, represents a new and exciting frontier in the advancement of medicine. Proteins are the structural and functional molecules that play an integral part in virtually all life processes.

This revolutionary technology has significant applications for the diagnosis and treatment of conditions such as cancer, heart disease, diabetes and male and female infertility. Among the many advantages is the ability of Proteomics to detect extremely small quantities of novel proteins in blood serum in diseased states.

Until recently, the technology used to analyse these proteins was limited, whereby only the more abundant proteins were readily identifiable in biological samples. The availability of Proteomics now permits us to explore and identify biologically important proteins, which are believed to be present in biological fluids but not yet identified.

The establishment of Proteomics technology at Prince Henry's will help to maximise the Institute's ability to create successful research outcomes. It will also enhance the opportunity for national research collaborations to combat disease and provide better health for all.

The following health conditions and research projects are being investigated using Proteomics.

Cancers

- Identification of serum markers for the early detection of ovarian and endometrial cancer.
- Identification of novel proteins expressed in endometrial and ovarian cancer cells and the regulation of these proteins by local growth factors.
- Identification of the key molecular events that lead to the development of oestrogen dependant breast cancers, as well as a range of granulosa cell tumours, a form of ovarian cancer.

Pregnancy

- Identification of key proteins required for preparation of the endometrium for embryo implantation in women who fail to become pregnant.
- Identification of the substrates for two enzymes called proteases, one previously not known, which are critical for the processes of embryo implantation and placentation, important for fertility and establishment of pregnancy.

Infertility

- Identification of serum markers of male infertility.
- Investigation of the hormonal control of the testis, of particular relevance to hormonal contraception.
- Analysis of the protein profile of uterine samples taken from fertile and infertile women.
- Examination of new targets for treatment of infertility and for development into a new test for 'uterine receptivity' in women.

Endometriosis

- Identification of unique proteins associated with endometriosis that may provide new targets for the early diagnosis and/or treatment of this disorder.

We are investigating the role of hormones in the ovary to better understand infertility in women

Photo: Jason Liew, PhD student, Female Reproductive Biology group

Ovarian studies

One in six Australian couples encounters difficulties conceiving a child. The causes of infertility are shared equally between men and women.

To better understand infertility in women, we are investigating the ovary and the impact of hormones such as oestrogen and inhibin.

The primary functions of the ovary are to produce eggs (housed within structures called follicles) and hormones, predominantly the sex steroids oestrogen and progesterone and the protein hormone inhibin.

Factors produced by the pituitary gland, located beneath the brain, and the ovary are necessary to trigger the growth and development of follicles that culminate in ovulation.

Release or ovulation of an egg from a developed follicle does not begin until puberty. A woman will only ovulate one, and occasionally two, eggs each menstrual cycle. Typically, a Western woman will have 400 menstrual cycles during her reproductive life, so she will ovulate about 400 eggs or 0.1 per cent of the original pool. This means that the vast majority of follicles will never release their eggs.

Instead they reach varying stages of maturity before they die by a process called atresia. The stage when the follicle supply is exhausted is known as the menopause.

Researchers at the Institute are interested in the role of hormones in ovarian development and function in health and disease. Our work aims to contribute to the development of novel contraceptive methods and treatments for infertility and ovarian tumours.

Ovarian follicle development

We are investigating the role of a group of hormones, called the transforming growth factor (TGF-beta) superfamily, in ovarian follicle development. An understanding of how follicles are selected for entry into the growth phase, and what it is about a select few follicles that ensures they go on to ovulate while the rest die, is key to identifying new targets for contraceptive development. It may also provide insights into premature menopause.

Current studies are aimed at determining how the TGF-beta superfamily members are involved in follicle growth and development. Only by understanding how the normal ovary is regulated can we begin to address and treat ovarian disorders.

Reproductive cancers

The protein betaglycan carries signals for both TGF-beta and inhibin, two factors that help control the development and functioning of reproductive organs.
Disruption to TGF-beta and inhibin function has been associated with many different cancers of the reproductive system, including those of the ovary, testis and breast.

Our scientists have developed a genetically modified mouse that does not express betaglycan and exhibits disrupted TGF-beta and inhibin functioning. Through this model, scientists are able to determine the role of betaglycan in reproductive health over the lifespan of the mice.

This work is expected to have important clinical implications in understanding how betaglycan contributes to the normal and abnormal growth of the reproductive organs in humans.

Steroid production

Mice that cannot produce inhibin will develop tumours of the ovary or testis. If these tissues are removed, tumours invariably emerge in the outer part of the adrenal gland, which makes inhibin.

Scientists at Prince Henry's have shown that inhibins completely block the inhibitory effects of activins on the enzyme 17alpha-hydroxylase.

This enzyme is essential for the production of sex and stress steroid hormones in the outer part of the adrenal gland. This action may be important in situations where abnormally high levels of male sex steroids occur, including adrenal tumours and Polycystic Ovarian Syndrome (PCOS).

We have also found that stress steroids increase the production of the inhibin binding protein betaglycan, and follistatin, a protein that blocks activin, by the pituitary and adrenal glands. This would mean that the actions of activins are more effectively blocked during some types of stress, which may lead to a reduction in fertility.

Funding

National Health and Medical Research Council of Australia

Collaborators

Department of Anatomy, Monash University, Melbourne

Centre for Urological Research, Monash Institute of Medical Research, Melbourne

MRC Human Reproductive Sciences Unit, Edinburgh, UK

Karolinska Institute, Stockholm, Sweden

Scientists are using the latest technology to identify key factors for embryo implantation

Photo: Tu'uhevaha Kaitu'u-Lino, PhD student, Uterine Biology group

Determining changes in the womb for pregnancy

The receptivity of the womb is critical for establishing pregnancy. There are many biological reasons why women may not be able to sustain a pregnancy and subsequently experience miscarriage.

Prince Henry's Institute has developed an extensive program of work to determine molecular changes in the womb that are critical for establishing pregnancy. Over past years, our scientists have discovered a number of factors previously unknown to be important in this situation.

During most of a woman's monthly cycle, the womb is hostile to an embryo and will reject any embryo that tries to implant. However, for a few days in each cycle, changes in the womb lining make it receptive. If an embryo then enters the uterus at this time, it will attach to this lining and start to invade. Invasion continues until the cells make close contact with the mother's blood supply, from which the developing foetus will obtain nourishment and oxygen.

Using a technology called antisense, our work has identified key factors essential for embryo implantation. We have shown that when certain molecules were blocked in a mouse, it failed to establish pregnancy. These same factors are present in the wombs of women at the time when an embryo would implant and hence are significant targets for investigation.

Invasion of the trophoblast (cells of the very early embryo that become the foetal part of the placenta) into the womb is very similar to the way white cells travel from the blood into tissues when needed to counter infection. We have shown that some of the molecules, called chemokines, which are needed for white cells transfer, are also used for trophoblast movement. These chemokines are produced within the lining of the womb for this function.

Our work has considerable implications for understanding infertility or inadequate placentation leading to miscarriage. It may also assist in improving treatments such as IVF, which can be limited by the failure of apparently normal embryos to implant in the womb. Factors known to be important for implantation may provide useful markers for a receptive womb or for identifying women who may miscarry early.

Establishing a healthy placenta

Failure to establish a healthy placenta, the organ that delivers oxygen and nutrients to the developing foetus, can lead to spontaneous abortion, pre-eclampsia, or impaired growth of the baby in the womb, resulting in a low birth weight baby.

Even moderately impaired foetal health is associated with a greater risk of contracting diseases in adult life (eg. high blood pressure, diabetes, coronary heart disease and obesity). Thus an understanding of the molecular mechanisms by which the placenta is formed is critically important for health, both during infancy and throughout life.

We have identified a new gene and protein that appear during the very stages of placental development and is thought to be a novel maternal factor vital for establishing and maintaining a pregnancy. To determine its precise function, we prepared a mouse line lacking this gene. Early work with this mouse shows that it experiences reproductive problems, supporting our hypothesis.

Abnormal uterine bleeding

Excessive uterine bleeding impairs the quality of life of many otherwise healthy women. It is the major presenting complaint in women referred to gynaecologists and represents a significant social and medical problem for women, their families and health services.

Hysterectomy is one of the most common major operations, with almost 30 per cent of these procedures conducted to alleviate heavy menstrual bleeding. Understanding the mechanisms of normal menstruation and how the womb lining repairs itself after this is critical if new treatments are to be developed for abnormal uterine bleeding to replace the need for hysterectomy.

Our research focuses on how the lining of the womb is shed during each menstrual cycle. It is now clear that it results from a highly controlled inflammatory-type reaction, as is seen in pathological situations where tissue is damaged (eg joints in rheumatoid arthritis). We have shown that the uterus has special control mechanisms to regulate this process.

Menstruation occurs only in women and a few animals, including some monkeys, the elephant shrew and some fruit bats. Other animals do not menstruate. Thus, study of this natural process in animal models is extremely difficult. In a major advance, scientists at Prince Henry's have developed a unique mouse model for menstruation. This model replicates most of the known molecular and cellular events of menstruation in women. These include expression of chemical catalysts (enzymes) that degrade tissues if uncontrolled and influx of white blood cells that provide a wealth of mediators of tissue breakdown.

Functional studies to determine the critical factors for menstruation now show that when certain infection-fighting white blood cells, the neutrophils, are not present, repair of the endometrium following menstruation is impaired. This finding has significant implications for uterine bleeding problems and suggests that abnormal bleeding is more likely a disorder of tissue restoration than of tissue breakdown.

Funding

National Health and Medical Research Council of Australia

National Institutes of Health, USA

CONRAD/CICCR Foundation, USA

Schering AG, Germany

Collaborators

Department of Obstetrics and Gynaecology, Monash University, Melbourne

Walter and Eliza Hall Institute of Medical Research, Melbourne

Monash IVF, Melbourne

Department of Applied Chemistry, Cell-free Science and Technology Research Centre, Ehime University, Matsuyama, Japan

Sydney Centre for Reproductive Health Research, Sydney

Women's and Infant's Health, University of Western Australia, Perth

University of Cambridge, UK

Oregon Regional Primate Centre, USA

Our scientists are leading the way in the development of an early detection test for ovarian cancer

Photo: Sonay Hussein-Fikret, PhD student, Endocrine Genetics group

Proteomics for early cancer detection

One woman dies from ovarian cancer in Australia every ten hours. Although less common than breast cancer, proportionally more women die from ovarian cancer.

Because of its vague symptoms, the disease is very difficult to detect in its early stages. For this reason, seven out of ten women are diagnosed with ovarian cancer at an advanced stage, when it has spread to other parts of the body. Scientists at Prince Henry's are using a new technology called Proteomics to identify early detection markers for ovarian cancer.

Proteomics is a promising tool for identifying new serum proteins in women with ovarian cancer through the study of protein shape, function and patterns of expression.

The Institute has developed a proteomics facility, and with the support of the National Australia Bank and the Ovarian Cancer Research Foundation (OCRF), has acquired a Ciphergen ProteinChip SELDI-TOF-MS (surface-enhanced laser desorption/ionization time of flight mass spectrometer) proteomic system.

This innovative technology provides a platform for the detailed characterization of proteins found in blood and other biological fluids and tissues.

By comparing different tissues (ie normal tissue vs cancer), changes in particular protein levels will provide clues as to whether these proteins are unique to cancer and can therefore be used as potential screening markers.

Prince Henry's Institute is a world leader in the molecular characterisation of granulosa cell tumours. Granulosa cells, which normally surround the egg housed in the ovary, can become malignant. These tumours differ from other ovarian cancers with a unique behaviour that requires specific study. We are able to continue this important research thanks to the ongoing support of the Granulosa Cell Tumour of the Ovary Foundation, a North American based patient support group. Our scientists have identified abnormal control of cell growth in these tumours. The genetic changes underlying this behaviour are currently being sought.

The role of hormones, particularly oestrogen, in these tumours is also under investigation. Several potential therapeutic interventions are being tested in human tissue and tissue cells in culture.

This molecular understanding will help to predict prognosis (whether the disease will relapse) and to develop specific targeted treatments.

The hormone inhibin is produced by granulosa cell tumours and also other ovarian cancers. Using laser capture microdissection technology, scientists are measuring inhibin levels in the different cells that form mucinous tumours, one of the most common types of ovarian cancers.

Australian first ovarian health study

There are currently no effective screening methods for assessing the ovary as there are for the breast and the cervix.

An Australian-first study is developing parameters for an ovarian health program to be available to healthy postmenopausal women to check their ovaries, in the same way that pap screens and mammograms are available to women wishing to check their cervix or breasts.

Five hundred women, whose last menstrual period was five or more years ago, have been recruited for the study. The combined blood test, consisting of CA125 and the hormone inhibin, developed by Prince Henry's Institute and Diagnostic Systems Laboratories Inc, is being tested for the first time in the study.

This study is being jointly funded by the National Australia Bank Ovarian Cancer Research Foundation (OCRF) and Diagnostic Systems Laboratories Inc.

Funding

National Health and Medical Research Council of Australia

National Australia Bank Ovarian Cancer Research Foundation, Melbourne

Granulosa Cell Tumour of the Ovary Foundation, USA

Diagnostic Systems Ltd, Houston, USA

Cancer Council of Victoria

Collaborators

Monash Institute of Medical Research, Melbourne

Department of Obstetrics and

Gynaecology, Monash University, Melbourne

Department of Gynaecological Oncology, Southern Health, Melbourne

Victorian Bioinformatics Consortium, Monash University, Melbourne

Diagnostic Systems Laboratories Inc, Houston, USA

Our research has provided new targets for the treatment of breast cancer

Photo: (L to R): Dr Kerry McInnes, PhD student Rachel Hill and Dr Wah Chin Boon, Sex Hormones in Action group

Blocking oestrogen formation in the breast

Breast cancer is the most common cause of cancer related death in women in Australia. One in eleven women will be diagnosed with breast cancer before the age of 75.

Our research has provided evidence that the principal source of oestrogen driving breast cancer development in post-menopausal women is local oestrogen production in the breast itself.

Inhibitors of aromatase, the enzyme that produces oestrogen, are now coming into the realm of breast cancer therapy.

These new treatments have been shown to improve the quality and length of life in elderly breast cancer sufferers.

However, the problem with these inhibitors is that they block aromatase activity everywhere in the body.

Aromatase activity is important in the brain for memory and in bone for preventing osteoporosis.

Our work is focused on looking for ways to specifically block oestrogen formation in the breast whilst not affecting the production of the hormone in other important sites in the body.

To achieve this goal, we are identifying factors that uniquely control aromatase production in the breast and which could therefore be targets for drug treatment.

LRH-1 and tumour growth

Studies at Prince Henry's have shown that the protein LRH-1, previously known for its role in the liver and the pancreas for controlling cholesterol and bile production, also plays a dual role in breast cancer.

In 2002, our research team was the first to demonstrate that LRH-1 has a direct connection with breast cancer via localised oestrogen formation. This is because in post menopausal women LRH-1 uniquely stimulates aromatase expression in the breast but not elsewhere.

Thus other sites in the body where oestrogen has an important role to play, such as bone and brain, are protected.

Current research at the Institute suggests that LRH-1 plays a dual role in furthering cancer progression by supplying the tumour with oestrogen that it needs to grow.

LRH-1 is also highly present within the tumour itself, where it is part of a direct pathway to stimulate tumour growth.

As a consequence of these studies, we have shown that LRH-1 is a significant target for the treatment of breast cancer.

Therefore drugs which might inhibit LRH-1 activity could be effective as the next generation of breast cancer therapeutic agents. A high-throughput 'in silico' screen has been conducted to search for compounds that bind to LRH-1.

This work is a collaboration between Prince Henry's Institute, St Vincent's Institute and Tohoku University, Japan. It is supported by the Victorian Breast Cancer Research Consortium, the National Health and Medical Research Council of Australia and the National Breast Cancer Foundation.

Funding

Victorian Breast Cancer Research Consortium Inc., Melbourne

National Health and Medical Research Council of Australia

National Breast Cancer Foundation, Australia

Collaborators

Victorian Breast Cancer Research Consortium Inc., Melbourne

Melbourne University

St Vincent's Institute, Melbourne

Tohoku University, Sendai, Japan

Duke University, North Carolina, USA

University of Calabria, Italy

Our research is important for the development of new therapeutic targets for male infertility

male reproductive research

Photo: Dr Sarah Meachem, Senior Research Officer, Male Reproductive Endocrinology & Metabolism group

Understanding the process of sperm production

One in 20 Australian men suffer fertility problems, but few treatments are currently available. Often couples resort to IVF in a bid to overcome their difficulties conceiving a child.

Scientists at Prince Henry's are investigating the complex process of sperm development to better understand the hormonal and genetic factors involved in male fertility.

Follicle stimulating hormone (FSH) and testosterone are the major hormones controlling the production of the earliest sperm cells (the spermatogonia). These cells fail to develop in some infertile men and are particularly prone to damage during cancer treatments. Our work has found that FSH plays a key role in spermatogonial survival, but not proliferation. Research is now underway to identify the genes/proteins that underpin this survival response, which is key to the development of new therapeutic targets for male infertility.

The development of the sperm head and tail, followed by the release of mature sperm, are vital to the 'export' of large numbers of healthy sperm with the ability to 'hunt and fertilise' the egg. This sperm release process (called spermiation) may be at fault in male infertility but the ability to block this step may be an opportunity to develop a new contraceptive that reversibly interferes with sperm release. Lab studies aimed at identifying the molecules controlling sperm release may also lead to a better understanding of, and new therapies for, some forms of male infertility.

As sperm grow, they lie between special nurse cells called Sertoli cells. Failure of the Sertoli cells to develop and/or function can lead to male infertility. Special junctions between the sperm and Sertoli cells allow the two cells to communicate and are the subject of close study at Prince Henry's. Other junctions between adjacent Sertoli cells are crucial in allowing sperm development to occur in a fully protected and regulated environment. We believe that these junctions are hormonally regulated and that problems in their operation may lead to infertility, while the manipulation of their action may be a new contraceptive target.

We are using a powerful new technology called proteomics, which maps and identifies all proteins in any particular sample, to investigate how hormones control spermatogonia, cell junctions and sperm release. We are also using this technology to search for serum-based markers of male infertility of potential diagnostic value.

Infertility database: studies on infertile men and the IVF-conceived offspring

For many years we have been undertaking collaborative studies with the Monash Institute of Medical Research (MIMR) and the Monash IVF program aiming to identify genes that control sperm production and are responsible for poor sperm quality. Patients in affiliated fertility practices are invited to contribute blood (DNA) samples along with information about their medical history, physical examination findings, semen quality and hormone levels.

This database is one of the largest in the world and forms an essential part of the programs of research at both institutes. DNA has also been collected from the children of infertile men who have been conceived by microinjection IVF, allowing studies of the genetic transmission of infertility.

We have reported on the frequency and variety of deletions of the Y chromosome, which is passed on from father to son and is a frequent cause of male infertility. A further collaboration is underway with the Baylor College of Medicine in Houston addressing the implication of genetic infertility for IVF children.

Oestrogens and male infertility

An important discovery has revealed a possible cause of infertility in males. We have found that the protein LRH-1, a key factor in oestrogen production in females, also controls oestrogen production in the male testis.

Previous research at Prince Henry's has shown that male human patients unable to produce oestrogens are infertile or subfertile. Our work is focused on investigating LRH-1 in the testis to determine its exact function. This involves identifying the genes regulated by LRH-1 and the proteins with which it interacts. These studies may help to identify new genes associated with male infertility and develop more effective treatments.

Lack of oestrogen linked to sex drive

Loss of libido is a complex problem that can be caused by a mix of lifestyle and hormonal factors. Our research with oestrogen deficient (ArKO) mice has revealed that lack of oestrogen in the male mice caused a total loss of sex drive.

Previous behavioural experiments conducted at the Institute involved placing a male ArKO mouse, deficient in oestrogen, with a responsive normal female mouse. A normal male mouse in this situation would initiate mating with the receptive female in a matter of seconds. The male ArKO mouse, however, made absolutely no attempt to mate with the female. Studies investigating the role of oestrogen in the brain reinforced this observation.

Results show that male ArKO mice experienced loss of cells in the medial preoptic area, the region of the brain that controls sex drive. This research could lead to the development of novel oestrogen treatments for men that enhance libido.

Funding

National Health and Medical Research Council of Australia

Andrology Australia

National Institutes of Health, USA

Schering AG, Germany

Serono Foundation

Collaborators

Monash Institute of Medical Research, Melbourne

Monash IVF, Melbourne

University of Calabria, Italy

University of Washington, USA

Tohoku University, Sendai, Japan

Our research is targeted at developing novel contraceptive options for men and women

Photo: Dr Guiying Nie, Senior Research Officer, Uterine Biology group

Male hormonal contraceptives

There is a worldwide need to develop more contraceptive options. In an ongoing effort to develop effective male contraceptives, Prince Henry's Institute has undertaken a study to investigate the roles of the pituitary protein hormones follicle stimulating hormone (FSH) and leutinising hormone (LH) in spermatogenesis, the process of sperm cell development.

The aim of this study is to gain an understanding of the roles of FSH and LH in the process of sperm maturation.

A recent clinical study on normal male volunteers has confirmed that FSH and LH are both needed for spermatogenesis. It also highlights the need to remove FSH and LH in future male hormonal contraceptives.

Our research has shown that release of the mature sperm from its parent cell, known as the Sertoli cell, is a possible target for hormonal contraception. The benefit of targeting this site is the potential to more quickly suppress sperm counts, and to enable lower doses of contraceptive hormones to be used, thus limiting side effects.

Prince Henry's Institute and Monash Institute of Medical Research have continued a Collaborative Research and Licensing Agreement with Schering AG, a leading German pharmaceutical company. This collaboration aims to identify new contraceptive targets using sophisticated genomic and proteomic techniques. Target genes have been selected and studies are underway to clarify their role in the sperm release process.

New female contraceptives

One in four Australian pregnancies are unwanted and many more are unplanned. There is a strong need for additional contraceptive choices

for women as many cannot tolerate hormonally-based contraceptives, while others would prefer contraception that can be used on an occasional basis.

Sexually transmitted diseases claim the lives of millions of women across the globe. New forms of female contraception, particularly those that may have a dual role, are needed to reduce these alarming statistics.

Exploratory research at Prince Henry's has enabled us to discover several genes that are potential targets for new contraceptives.

In past years, the Institute has been part of an International WHO-Rockefeller Initiative searching for molecules that are essential for implantation and could provide targets for contraception. We were also invited to join a new initiative by Schering AG, one of the few companies actively involved in contraceptive development. These initiatives are to discover and progress new leads for female contraception not based on the hormones that make many of the current contraceptives unacceptable to women. The Institute also receives funding from the CONRAD/CICCR, a US not-for-profit body, which funds research on contraceptive development and supports our work on other contraceptive leads.

Our research findings have provided a target for a unique female contraceptive. We have discovered that the molecule PC6 (proprotein convertase 6) is a critical maternal factor for embryo implantation in mice. The "proof of principle" established that when the molecule is blocked in the mouse uterus, implantation is prevented. Importantly the same molecule has been linked with HIV infection. This provides the basis for a unique contraceptive that not only blocks pregnancy but reduces HIV infectivity in women.

Other important targets for female contraception are two related molecules, called cytokines. Mice lacking these cytokines are unable to reproduce because their embryos cannot implant in the womb. With our collaborators at the Walter and Eliza Hall Institute, who have developed novel inhibitors for one of these cytokines, we have now shown that administering the inhibitors to mice just after mating can stop the mice establishing a pregnancy.

Long acting contraceptives

It is estimated that over 20 million women worldwide use progestin-only contraceptives, such as Implanon. These contraceptives have the advantage of being long acting. However, around 25 per cent of women are forced to terminate the use of progestin-only contraceptives because of uterine bleeding problems.

Scientists at Prince Henry's are investigating the causes of this bleeding, with support from the National Institutes of Health in the USA. We have developed a mouse model that receives small pieces of the Implanon implants. The uteri of these mice develop many of the same features seen in women using such implants. Current studies are testing how short-term treatment of these mice with certain substances may change the tissue so that it is not predisposed to bleeding.

The Prince Henry's team is also a co-investigator in a national clinical trial to test new short-term treatments for the bleeding problems associated with the use of Implanon. The pilot study from this trial has been extremely encouraging and has enabled the team to devise what they hope will be even more effective treatments for trialling in the second phase of the study. Some of these treatments are also being tested in our mouse model to gauge their effectiveness and determine the underlying mechanisms. This work is funded by a prestigious grant from the National Institutes of Health in the USA.

In a collaboration with colleagues in Brazil, we have also shown that endometrial content of two subtypes of leukocytes are associated with the uterine bleeding in users of another intrauterine progestin-containing contraceptive.

Funding

National Health and Medical Research Council of Australia

National Institutes of Health, USA

CONRAD/CICCR Foundation

Schering AG, Germany

Collaborators

Walter and Eliza Hall Institute of Medical Research, Melbourne

Sydney Centre for Reproductive Health Research, Sydney

Women's and Infant's Health, University of Western Australia, Perth

Royal Women's Hospital, Melbourne

Mater Mother's Hospital, South Brisbane

ANZAC Research Institute, Sydney

University of Bologna, Italy

Universidada Estadual de Campinas, Brazil

Scientists are researching the hormones inhibin and activin and their role in male and female reproduction

Photo: Yogeshwar Makanji, PhD student, Reproductive Hormones group

Investigating inhibin in reproduction

The hormone inhibin plays a key role in the regulation of follicle stimulating hormone (FSH), produced from the pituitary in the brain, which in turn controls sperm production in the testis and egg production in the ovary. When FSH secretion is elevated, the ovary compensates by producing more inhibin.

This reduces the secretion of FSH and stabilises its circulating levels, ensuring that only one egg ovulates at a time. Knowledge about inhibin and how it regulates FSH has a direct impact on natural reproductive processes, including the menopause transition. It is also significant in the treatment of conditions such as premature ovarian failure and infertility. The role of inhibin in the male, while important, is less clearly understood.

A significant discovery by scientists at Prince Henry's in the 1980s was the isolation of inhibin. Our current field of research focuses on two circulating forms of inhibins, inhibin A and B, which are believed to have different functions in the body. Inhibin B is found only in the male circulation and the early stages of follicle + egg development in the ovary in women.

Inhibin A, on the other hand, is produced by the dominant follicle in the ovary that is destined to ovulate. Because of these differing functions, scientists are studying both inhibin forms separately.

Premature ovarian failure

Premature ovarian failure causes women to experience menopause before the age of 40. This disease affects one in 100 women worldwide. Women with premature ovarian failure stop ovulating, their menstrual cycles cease and they experience menopausal-related symptoms of infertility, as well as an increased risk of cardiovascular disease and osteoporosis.

Scientists at Prince Henry's are investigating the possibility that a mutated, less active form of inhibin is present in some women with premature ovarian failure. Because the hormone is less active, it is believed the ovarian supply of eggs diminishes earlier in life, resulting in premature menopause.

Fighting disease with activin

Prince Henry's, in collaboration with the Salk Institute, USA, has discovered a novel compound important for disrupting the activin signalling system. This could help to develop ways to either block or enhance its action and provide a range of clinical applications for the treatment of a number of conditions.

Our work has shown that blocking the action of activin impacts on scar tissue formation during wound repair. We have also shown that activin has a relationship with profound muscle and fat loss in conditions associated with AIDS and cancer.

Another research discovery is that this compound could also block the action of the protein, myostatin, which regulates muscle tissue growth. We have shown that muscle growth is enhanced when myostain is blocked, which may have particular significance for people with muscular dystrophy.

The Institute also hopes to define the role of activin in ovarian and testicular cancers. This may have implications for potential treatments of these diseases.

Importance of activin for pregnancy

Previous studies at Prince Henry's demonstrated that activin, particularly activin A, is abundant in the endometrium, the tissue lining the uterus, and vital in the preparation of the endometrium for pregnancy.

Following on from these studies, we have now shown the potential mechanisms by which this occurs. These include actions on a family of enzymes that are needed for 'cutting' paths into the mother's tissue.

This enables the cells that make up the foetal component of the placenta to invade the mother's blood supply, thus providing oxygen and nutrients to the developing foetus.

Funding

National Health and Medical Research Council of Australia

Diagnostic Systems Laboratories, Webster, Texas

Collaborators

SALK Institute, San Diego, USA

University of Auckland, New Zealand

Researchers are investigating the hormonal changes that occur as men and women age

hormones & ageing

The menopause

The menopause literally means the very last period in a woman's life. It typically affects women between 45 and 55 years of age.

Symptoms of the menopause include hot flushes, low libido and loss of memory. Prince Henry's Institute is providing important scientific input for several collaborative studies which aim to fully describe the hormonal changes that occur as women age and pass through the menopause.

A major collaborative study is with the Melbourne Women's Mid Life Health Project, conducted from the University of Melbourne's Office for Gender and Health.

This study has followed a group of approximately 400 women for 14 years to document their experience of the menopausal transition and the menopause. Hormone levels and markers of cardiovascular risk have also been measured to obtain a representative picture of the health of Australian women at that stage of their lives.

Photo above (L to R): Dr Carolyn Allan, Sr Anna Zamojska, Sr Elise Forbes, Professor Henry Burger and Professor Rob McLachlan, Clinical Andrology Service

Collaborative projects with the Department of Obstetrics and Gynaecology, University of Sydney, are clarifying the relationships of hormonal changes to bleeding patterns and the hormonal characteristics of irregular cycles as the menopause approaches.

A major study of the relationships between a variety of hormone levels, and aspects of joint, cardiovascular and cognitive function is ongoing, in collaboration with the Jean Hailes Foundation and the Women's Health Program, Monash University.

Menopause, growth hormone and oestrogen

Two parallel endocrine changes occur during the menopause - a reduction in oestrogen and a reduction in growth hormone. In postmenopausal women, growth hormone deficiency contributes to the decline of normal physiological functions in tissues, such as the brain and the heart. Our work aims to understand the relationship between oestrogen and growth hormone and the impact on the health of menopausal women. The oestrogen deficient (ArKO) mouse provides an ideal model for scientists to gain insight into the role of oestrogen in the regulation of growth hormone.

Studies have shown that growth hormone and its releasing hormone receptors in the pituitary of ArKO mice were significantly reduced, while growth hormone releasing inhibitory hormone receptors were increased. Oestrogen replacement therapy reversed the changes in growth hormone cells. Our research is focused on creating treatment options for growth hormone deficiency in menopausal women and other oestrogen-deficient conditions.

Testosterone therapy in aging men

The use of testosterone therapy in older men remains a controversial issue. Research at Prince Henry's is investigating the changes in testosterone levels experienced by some men as they age, and the role played by testosterone therapy.

The Institute has recently completed a 12 month study examining the effects of testosterone in a group of older men who presented with a range of associated symptoms, including tiredness, poor concentration and reduced sex drive. The results of the study demonstrated that physiological testosterone therapy, relative to a placebo or inactive treatment, administered over a year was able to stop the increase in intra-abdominal fat often seen in ageing men. There was also a suggestion that risk factors for cardiovascular disease may be favourably altered by testosterone treatment.

Research at the Institute has also shown that testosterone levels are lower in obese ageing men who often also have symptoms suggestive of testosterone deficiency. Obese men have an increased risk of several health problems, including heart disease, high blood pressure, diabetes and sleep apnoea.

Based on these findings, we have now commenced a study examining the effects of testosterone treatment in obese middle-aged men. The study is looking at the effects of treatment on body fat and markers for cardiovascular disease. We are also investigating the interaction between lifestyle modification and weight loss with testosterone production.

Our scientists are also working with other industrial partners in the development of a new formulation of testosterone that is hoped to be more effective and convenient than existing treatments for androgen-deficient men.

Erectile dysfunction

Erectile dysfunction affects a large number of Australian men and can be treated in various ways, including tablets. The Institute has conducted a number of studies investigating the effects of these treatments on relationships and self esteem issues and in the evaluation of new pharmaceutical agents.

Funding

Schering Aust Pty Ltd

National Health and Medical Research Council of Australia

Organon Australia Pty Ltd

Novartis

Collaborators

RMIT University, Melbourne

The Jean Hailes Foundation, Melbourne

Monash University, Melbourne

Southern Health, Melbourne

University of Sydney

University of Western Australia, Perth

Baylor College of Medicine, Texas, USA

Tulane University Medical Centre, New Orleans, USA

Merck Research Laboratories, New Jersey, USA

National Institute for Medical Research, London, UK

University of Alberta, Canada

Tohoku University, Sendai, Japan

Karolinska Hospital & Karolinska Institute, Sweden

Interaction between hormones and metabolism is a focus of several research groups at PHI

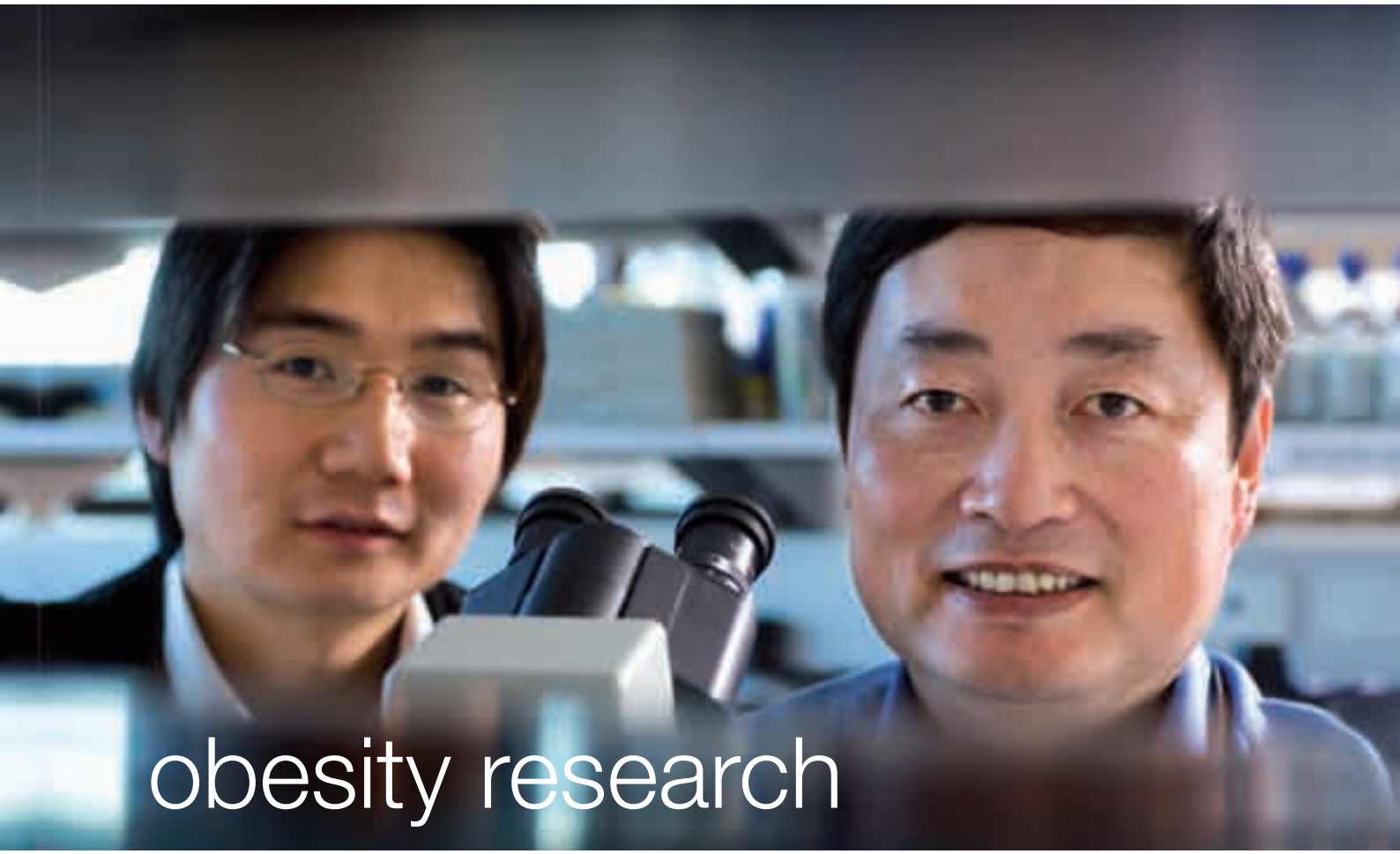


Photo: Sean Yang, PhD student (left) and Associate Professor Chen Chen, Endocrine Cell Biology group

Regulation of food intake

Obesity is caused by unhealthy levels of excess fat and has become a global epidemic of increasing concern. It is estimated that almost 60 per cent of the Australian population is overweight or obese.

Appetite and the regulation of food intake are controlled by cells located in the brain region of the hypothalamus. Scientists are investigating how food intake is regulated in a bid to understand how obesity occurs.

Research at Prince Henry's has detailed how food intake and weight can be altered by various factors, such as the length of day. This helps to understand the basic mechanisms that control appetite. Of particular interest to scientists is the interaction between nutrition and reproduction and the cellular functions that relate to both.

A significant factor in the regulation of food intake is the protein hormone leptin. Leptin is produced by fat cells and acts as a 'barometer' in the brain to control appetite and metabolism.

In thin animals, low levels of leptin inform the brain of a lack of energy stores and reproduction ceases. However studies show that reproductive function in animals can be restored by introduction of leptin into the brain.

Scientists are currently studying the brain mechanisms underlying this response.

Appetite controlling hormones

Appetite controlling hormones regulate body fat, fat/muscle ratio and are the major contributing factors in obesity. The Institute is conducting research into the hormones leptin, orexin, ghrelin, growth hormone and free fatty acids to better understand this escalating health problem.

People with obesity suffer low levels of growth hormone, resulting in an increase in fat tissue and a decrease in muscle mass. The ability of leptin to reduce food intake is also altered. Our research has shown that high levels of leptin act on the pituitary gland (at the base of the brain) to inhibit growth hormone production and secretion through functional cell damage.

The hormones orexin and ghrelin have been identified as potential treatments for growth hormone deficiency in obesity. Brain derived orexin acts on the pituitary to enhance growth hormone secretion through the regulation of growth hormone cell function. On the other hand, ghrelin, which is produced in the stomach, stimulates growth hormone directly from pituitary cells to increase the effect of growth releasing hormone cells from the brain. Free fatty acids, released from fat cells, act on endocrine cells to stimulate hormone secretion.

By studying these movements in the pituitary gland, we can better explain the mechanisms causing growth hormone deficiency in obesity. By clarifying the way in which appetite controls hormone function we hope to be able to correct this deficiency. In doing so, our research could help to reduce fat and increase energy expenditure and muscle mass.

Oestrogen and Metabolic Syndrome

Lack of physical activity, poor diet and subsequent increase in obesity has resulted in a significant rise in the incidence of the Metabolic Syndrome. This common condition has been estimated to affect 20-30 per cent of the middle-aged population.

The Metabolic Syndrome is a group of closely related health risks that can lead to the development of heart disease, stroke and diabetes. The risk factors include obesity, particularly excess fat around the stomach, insulin resistance and high blood pressure. There is an important, but not yet fully understood, relationship between oestrogen and the development of these risk factors.

Using the ArKO mouse, which is unable to produce its own oestrogen, scientists at Prince Henry's are conducting studies investigating how oestrogen contributes to maintaining the body's balance of fat tissue, sensitivity to insulin and a healthy heart. We have found that the ArKO mice, particularly males, become obese, insulin resistant and develop fatty liver. They also develop cardiovascular and cerebrovascular problems.

We have found that men who are incapable of producing oestrogen, due to a natural mutation, also develop similar problems to the ArKO mice. Therefore, oestrogens have an important role to play in the prevention of the Metabolic Syndrome in both males and females. The outcome of this work will provide a better understanding of how oestrogen therapy could best be used to prevent the development of the Metabolic Syndrome risk factors.

Funding

National Health and Medical Research Council of Australia

National Institutes of Health, USA

Merck & Co Inc.

Collaborators

Monash University, Melbourne

Baker Heart Research Institute, Melbourne

Victorian Institute of Animal Science, Melbourne

AgResearch, New Zealand

Shinshu University; Tohoku University, Japan

Kitsato University, Japan

Fourth Military Medical University, Xi'an, China

National Cardiovascular Centre Research Institute, Osaka, Japan

LeHigh University, USA

MRC Human Reproductive Sciences Unit, Edinburgh, UK

Scientists are looking for ways to control muscle cell death and cardiac fibrosis, two major pathological changes in heart disease

cardiovascular research

Photo (L to R): Dr Morag Young, MSc student Kim Brolin and Professor Peter Fuller, Endocrine Genetics group

Linking hormones and heart disease

Cardiovascular disease is the leading cause of death and disability in Australia, affecting more than 3.7 million people. Every 10 minutes someone dies as a result of heart, stroke and vascular diseases.

The underlying causes of much cardiovascular disease include hypertension (high blood pressure), stiffening of the heart (cardiac fibrosis) and chronic heart failure.

The body's ability to handle salt (sodium chloride) is one of the critical determinants of blood pressure control. The most important factor in the control of salt balance is the hormone aldosterone.

Through better understanding of aldosterone and its role in the development of hypertension, our scientists are assisting in the development of improved treatments for cardiovascular disease and heart failure. Aldosterone is a steroid hormone produced by the adrenal gland, which acts on the kidney and colon to increase sodium retention.

Over-stimulation of this system leads to hypertension. Despite the obvious importance of aldosterone in cardiovascular disease, there is still little understanding of the basic molecular mechanisms of its action.

Like other steroid hormones, aldosterone primarily regulates cellular function by binding to an intracellular receptor. Once activated, this receptor switches genes on and off.

A better understanding of the interaction of aldosterone with its receptor at a molecular level is a major focus of this research.

We have identified the components of receptor signalling that differ between tissues and the different steroids that bind to the receptor.

In the design of novel therapies, drugs that are tissue specific are highly desirable. Studies are directed at understanding the basis of tissue specificity, particularly differences that may allow targeted therapy. It is hoped that our studies will lead to improved treatment options for hypertension and cardiovascular disease.

Aldosterone and cardiac fibrosis

High levels of aldosterone are an independent risk factor for cardiovascular disease. International trials have shown that the addition of a low dose aldosterone receptor blocker, on top of normal treatment, produced 30-35 per cent improvement in survival for patients with moderate to severe heart failure. This highlights the important role of aldosterone and its receptor in the development of heart failure.

Scientists at Prince Henry's are investigating the role of aldosterone in the development of cardiac fibrosis. Fibrosis, or stiffening of the heart tissue, is involved in the progression of heart failure. Ongoing work has shown that cardiac fibrosis develops following activation of the aldosterone receptor and that initiation of inflammation in the blood vessel wall is a key step in this process.

Our research suggests that the aldosterone receptor may also be regulated by the closely related hormone corticosterone to produce cardiac fibrosis. Importantly, we have identified that blocking the aldosterone receptor not only prevents cardiac fibrosis and vascular damage, but can also reverse this process. It may also have beneficial effects in the kidney.

Results from our studies will set the foundations for the development of future pharmacological interventions and new treatments for cardiac fibrosis, heart failure and hypertensive kidney disease.

Ghrelin to treat chronic heart failure

In the search for effective treatments for chronic heart failure, scientists at Prince Henry's have initiated novel studies exploring the role of the hormone ghrelin, and synthetic ghrelin analogues, in cardiac disease.

Produced in the stomach, ghrelin has also been found to play an important role in the heart. The specific receptor for ghrelin is present in the heart muscle cells in high concentrations. This hormone increases the contraction of heart muscle cells and protects them from programmed cell death, which normally occurs in heart failure and blocked coronary arteries. It also reduces the growth of fibroblast cells that cause cardiac fibrosis.

Animal studies have shown that ghrelin's analogues protect the heart muscle cells and alleviate cardiac dysfunction and weight loss in chronic heart failure. Research now aims to clarify the mechanisms by which ghrelin, and its analogues, act upon cardiac muscle and fibroblast cells.

By further investigating the cellular mechanisms of ghrelin, scientists will be able to show the potential use of this hormone and analogues in the treatment of chronic heart failure.

Funding

National Health and Medical Research Council of Australia

National Heart Foundation of Australia

High Blood Pressure Research Council of Australia

Pfizer Pty Ltd

Merck & Co.Inc

Collaborators

Walter and Eliza Hall Institute, Melbourne

Chinese Academy of Medical Sciences, Beijing, China

Department of Biochemistry, Monash University, Melbourne

Department of Medicine and Surgery, Monash University, Melbourne

Diabetes affects more than one million Australians. It is hoped that our research will lead to new ways of preventing and managing this serious disease

diabetes research

Photo: Neveen Tawadros, PhD student, Uterine Biology/Endocrine Cell Biology group

The role of genes in diabetes

Diabetes affects more than one million Australians and is the seventh highest cause of death. An average of 55,000 people each year, or 275 a day, are diagnosed with the disease.

Research at Prince Henry's has discovered a potential role of the human gene SOX13 and its protein in Type 2 diabetes. The SOX13 gene is produced in the developing embryo, particularly in cells that become the insulin producing beta cells of the pancreas. These cells are important as they are required for the normal metabolism of sugars in the body.

Our studies have shown that the SOX13 protein activates genes when it is in the nucleus of the beta cell. Scientists have observed high levels of insulin in those cells containing SOX13 in the nucleus, the site where it is active. SOX13 has also been found to form a complex with the SOX9 gene, significantly improving its action. Humans and mice lacking SOX9 develop diabetes. Research at Prince Henry's is aimed at dissecting the molecular mechanisms by which these two SOX proteins affect insulin production. This could help to better understand the regulation of insulin in health and disease.

Insulin secretion and fat cells

Type 2 diabetes accounts for 90 per cent of all diabetes cases. Overweight or obese people are four times more likely to develop Type 2 diabetes than those of normal weight.

Diabetes sufferers have a significant abnormality of beta cells, the insulin producing cells located in the pancreas. Beta cells make and release insulin, a hormone that controls the level of glucose in the blood. It is believed that excessive fat cells evoke tissue non-responsiveness to insulin and damage the beta cell function. However the mechanisms underlying this damage in obese patients is unclear and is the focus of research at Prince Henry's.

Scientists are currently investigating the role of each individual hormone and factor produced from fat cells. Using a co-culture system, fat and beta cells have been put together to analyse the action of hormones and factors produced from fat cells on the beta cells. It has been shown that fat cells induce a clear dysfunction of beta cells in producing sufficient insulin. Fat cells have also been found to secrete several hormones throughout the body's circulation. These individual hormones are currently under investigation.

Free fatty acids are also released by fat cells. A high level of these acids occurs in obesity. Our studies have observed the short and long term effects of free fatty acids in a bid to better understand the actions of fat cell derived hormones and free fatty acids on beta cells.

It is hoped that this research will reveal an effective way to control beta cell dysfunction and delay the development of Type 2 diabetes in obesity.

Oestrogen and diabetes

Scientists have discovered that mice lacking oestrogen develop diabetes. Studies show that oestrogen-deficient mice develop increased body fat, insulin resistance and diabetes as they get older. However these conditions can be prevented with oestrogen treatment. This gives scientists insight into the role of oestrogen in the prevention of diabetes.

This research is significant for understanding the ageing process and health problems of postmenopausal women who are unable to produce their own oestrogen. It is also important for younger women who suffer Polycystic Ovarian Syndrome (PCOS), a common condition characterised by ovarian failure. Both ageing and PCOS are associated with an increased incidence of diabetes.

Funding

National Health and Medical Research Council, Australia

National Institutes of Health, USA

Eli Lilly Pty Ltd

Diabetes Australia Research Trust

Collaborators

Monash University, Melbourne

University of Melbourne

Central South University, Changsha, China

Fourth Military Medical University, Xi'an, China

University of Texas, Southwestern Medical Centre, USA

Our scientists are investigating genes responsible for the development of various intersex conditions

Photo: Associate Professor Vincent Harley, Human Molecular Genetics group

Sex and genetics

Whether you are male or female depends on whether you develop testes or ovaries.

In the human embryo, gender is determined at seven weeks gestation in the gonads by the sex chromosomes (males have XY chromosomes, females have XX).

If you have a Y chromosome, the SRY gene will be turned on, your gonads begin to develop into testes and male development commences.

If you do not have a Y chromosome, your gonads will develop into ovaries and female development begins.

Scientists at Prince Henry's are investigating genes, such as SRY and SOX9, which when altered in humans, disrupt formation of the human testis and lead to various forms of intersex conditions.

Discovering the genes responsible for intersex conditions

Intersex is a condition where the physical sex of the person does not match the sex of their chromosomes (i.e. XY females and XX males). Defects in sexual development affect one in 4,000 births and their clinical management is a major paediatric issue.

These disorders usually result in infertility, genetic abnormalities, gender misalignment and long-term psychological trauma. 80 per cent of intersex cases remain unexplained genetically.

We have developed a human cell culture model that replays critical events in gonad development. By perturbing this system, scientists are discovering new genes that cause intersex conditions, thus improving genetic diagnoses, counselling and treatment options.

For example, manipulating SOX9 expression in these cells has led to the discovery of three SOX9 responsive genes, one of which, Desert Hedgehog (DHH), is an intersex gene. The two other SOX9 target genes are currently under study.

In a second approach to discovering intersex genes, scientists temporarily inactivated the FGFR2 (Fibroblast Growth Factor Receptor) gene, a possible receptor of the male sex-determining gene FGF9. Male mice lacking FGFR2 displayed ovotestes, a condition where the gonads contain both ovarian and testicular tissue.

This implies that FGFR2 is a novel sex-determining gene required for normal testes development.

Further effects of intersex conditions

Research at the Institute has also demonstrated the effects of loss of SOX9 in Campomelic Dysplasia (CD), a human condition characterised by severe dwarfism, where individuals with XY chromosomes have female genitalia.

Mice lacking the SOX9 gene show many features of CD, including sex reversal and dwarfism. By analysing these mice, our understanding of the normal roles of SOX9 in bone and testes formation is improved. Both humans and mice lacking the SOX9 gene also have other conditions, including craniofacial defects (such as cleft palate) and diabetes, which are under investigation.

Bone deformities

Craniofacial abnormalities occur in one-third of all birth defects and in most cases the genetic basis is unknown. Children affected with cleft palate frequently have respiratory and feeding difficulties in the first month after birth, which result in moderate to severe growth and development deficiencies in their first year.

Our studies show that the SOX9 gene, which is critical in sex determination, is also important in the formation of the face and other bones. Current research involves screening patients with craniofacial anomalies, such as Pierre-Robin Sequence, for genetic changes in a DNA element that controls SOX9 production in the face.

This research will provide new insights into why development does not proceed normally in patients with craniofacial anomalies. This is the first step towards improving diagnosis and clinical management of this very common and heterogeneous group of disorders.

Funding

National Health & Medical Research Council of Australia

National Institutes of Health, USA

Collaborators

Murdoch Children's Research Institute, Melbourne

Institute of Molecular Bioscience, Queensland

Institute of Human Genetics, University of Freiburg, Germany

University of California Los Angeles, USA

Washington University, St Louis, USA

Our research could help to explain why men are more likely to develop Parkinson's disease than women

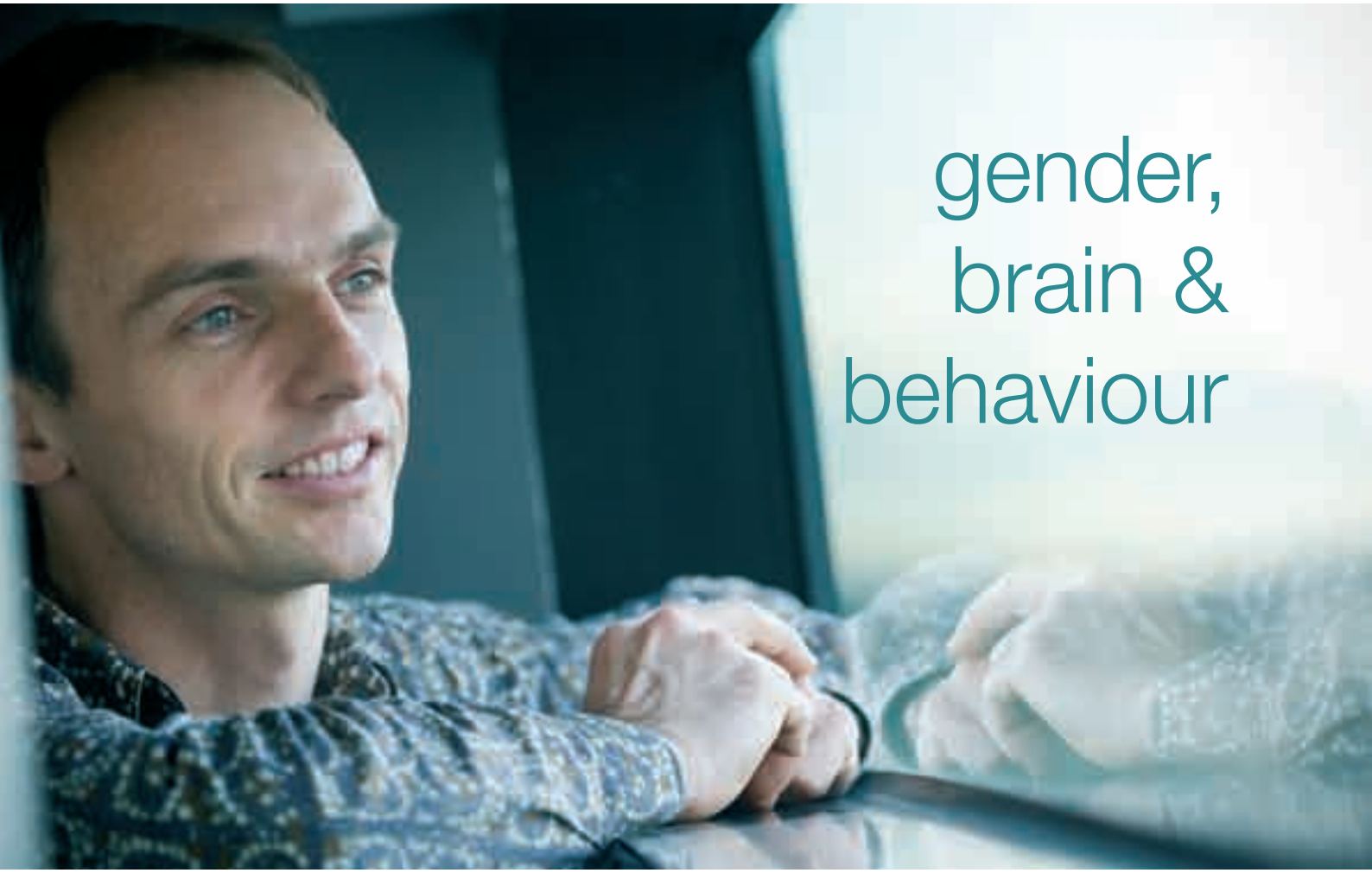


Photo: Dr Michael Clarkson, Peter Doherty Fellow, Human Molecular Genetics group

Parkinson's disease and the male gene, SRY

Parkinson's disease (PD) is a chronic movement disorder that affects around 40,000 Australians.

Symptoms include shaking, slowness of movement, rigidity and difficulty with balance. Men are 1.5 times more likely to develop the disease than women.

Scientists at Prince Henry's believe this could be due in part to the sex chromosome differences between males (XY) and females (XX).

We have evidence that the SRY protein, made from the Y chromosome and responsible for the development of testicles, is also present in men's brains.

Using antisense technology to remove SRY from the brains of male rats, our collaborators at the University of California found that the rats developed movement problems reminiscent of those seen in PD. Significantly the rats recovered when SRY levels were restored.

This finding opens up a new avenue of therapeutic possibilities.

Future studies are aimed at understanding how SRY controls the production of dopamine, the critical messenger molecule that is deficient in PD.

Oestrogen linked to Obsessive Compulsive Disorder

One in 40 people worldwide are affected by Obsessive Compulsive Disorder (OCD). The exact cause is unknown.

Symptoms include repetitive and impulsive behaviours, such as excessive hand washing, checking or counting. Men tend to develop the disorder at an earlier age and suffer more severe symptoms than women.

Our research has shown that hormones play an important role in the development of OCD in males.

Studies performed in the Prince Henry's laboratory revealed that oestrogen-deficient male mice displayed obsessive compulsive behaviours, such as excessive grooming and running on the treadmill. However oestrogen replacement therapy returned this OCD behaviour to normal.

It is known that male sufferers of OCD have lower levels of a specific gene called COMT.

Low levels of COMT affect the breakdown of chemical signals in the brain, such as dopamine, causing compulsive behaviour. We found that COMT levels were halved in the oestrogen-deficient male mice. Treatment of these animals with oestrogen restored COMT expression levels and behavioural levels to normal.

Our research could shed light on the phenomena as to why male OCD patients develop the disorder earlier and suffer a worse fate than women.

Funding

National Health and Medical Research Council of Australia

National Institutes of Health, USA

Collaborators

Howard Florey Institute, Melbourne

University of California, Los Angeles, USA

commercialisation

Commercialisation of intellectual property represents ongoing opportunities to significantly broaden the Institute's revenue base

Prince Henry's strategy continues to focus on licensing relationships or strategic alliances with appropriate commercial entities to develop its intellectual property to royalty-yielding products and services on the worldwide market.

For example, royalties received from the sale of inhibin based products continue to grow, as can be seen from the table below:

Royalties Received 2003 - 2006

Year ended	Net royalties received
30 Jun 2003	$51,000
30 Jun 2004	$67,000
30 Jun 2005	$81,000
30 Jun 2006	$114,000

Patent applications

Further patent applications to enhance marketing opportunities for new inhibin based products have been approved and are under examination in several jurisdictions worldwide.

New applications have been submitted in the following areas:

- Novel Serine Protease – possible therapeutic applications for eclampsia;
- Restoration of Reproductive Function in reproductively impaired subjects;
- Pregnancy Related Enzyme Activity – possible HIV preventative therapies.

A provisional application with possible therapeutic implications for Parkinson's disease is currently under preparation.

Mr Andrew McCallum, Development & Commercialisation Services Manager and Professor Lois Salamonsen, Group leader, Uterine Biology group

Commercial opportunities for the future

Plans to develop a commercial scale antibody production, marketing and distribution operation, utilizing the Institute's facilities at Werribee, were not pursued due to the impending closure of the Institute's research activities at that site on 31 December 2005. The facilities have been offered to potential users on a sub-lease basis. The business name **Antibodies Australia** has also been offered to potentially interested parties.

Collaborative and contract research activities with external entities are also undertaken from time to time. For example, PHI has recently collaborated with **Schering AG** of Germany, **Monash University** and the **University of Newcastle** to investigate certain aspects of endometriosis and male fertility control and regulation.

The Institute's approach is to achieve shared ownership of intellectual property generated from these collaborations to ensure PHI captures maximum benefit from commercial partnerships. A commercial research policy is currently under development to facilitate this in the future.

development

From peddling our bikes through Victorian countryside to running and volunteering for the Melbourne Marathon, from speaking to community groups to hosting a legion of tennis fans at the Kooyong Classic, we have entered a new era of development

Kooyong Classic Fundraiser

11 January 2006

A day at the Kooyong Classic looks set to be an annual PHI fundraiser after the success of the 2006 event. Over one hundred Institute supporters enjoyed exciting matches between some of the world's top tennis players.
The event raised almost $2,000 for research at PHI.

Special thanks to Colin Stubs, organiser of the Kooyong Classic, for his generous support. The 2007 fundraiser promises to be even bigger and better!

Community presentations

An important part of getting our message across to the public includes speaking to various community groups and businesses.

During the past year, some of our most talented scientists gave engaging presentations to groups including the Women's Information Network (WIN), Middletons, the Victorian Law Institute, the Rotary Club of Melbourne, the Melbourne Sunrise Club, and the Prince Henry's Affiliates Group.

Melbourne Marathon

9 October 2005

Our PHI relay team won the Charity category in the Melbourne Marathon. We also provided 30 dedicated volunteers who worked along the course. Volunteers included PHI staff, students, Development Board members, family and friends. In reward of their efforts, the Institute received a donation from the event's major sponsor ASICS.

New horizons

PHI welcomes Chief Operating Officer Dr Jane Glatz to lead the Development team.

Our progress during the last year would not have been possible without support from Development and Commercialisation Manager Mr Andrew McCallum, Development Board members, PHI staff and volunteers. We sincerely thank them for their contribution.

We look forward to your continued support as we work hard to raise our profile and generate support for our research.

For more information please contact:
Ingelise Jones, Development & Communications Officer
Tel: +61 3 9594 4303
Email: ingelise.jones@princehenrys.org

Photos (L to R): Kooyong Classic Fundraiser; PHI Marathon Relay Team; Ride for Reproduction




ride for reproduction

Around one in six couples has trouble conceiving a child. While infertility is not life threatening, it is an issue that touches the lives of many people. Through the support of our sponsors and donors, we are committed to identifying causes of infertility, improving diagnosis, and developing new treatments for both men and women

Murray to Moyne Cycle

Relay 1 & 2 April 2006

The Ride for Reproduction brought a number of people together for a common cause – reproduction! This play on words proved to be a novel concept for Prince Henry's with over $30,000 raised for reproduction and fertility research.

Our team generated donations and sponsorships in support of their participation in the Murray to Moyne Cycle Relay, a 24 hour 520km challenge from Echuca to Port Fairy, Victoria. Held in April each year, the event involves 1600 cyclists representing over 150 different health charities.

We sincerely appreciate the overwhelming support received from our corporate partners, local businesses, friends, family and the public.

Congratulations and thank you to our courageous cyclists: Chairman Mr John Robinson, Director Professor Evan Simpson, Miss Natalie Hannan, Dr Morag Young, Dr Sarah Meachem, Mr Andrew McCallum, Dr Michael Clarkson and Mr Bruce Watson, and to our support crew: Mr Terry Haining, Ms Anne Bruce and Miss Ingelise Jones.

Each member of the team faced their own personal challenges in preparing and training for the ride. Their commitment to the Institute and to raising money for fertility research was outstanding. All the cyclists and support crew will agree the experience was unforgettable and rewarding.

Special thanks also to Mr Ross Waddington, CEO of Lorne Community Hospital, who provided invaluable guidance to the team.

Trivia Night & Auction

28 March 2006

An entertaining Trivia Night & Auction featured as a highlight of the Ride for Reproduction campaign. Hosted by Mr Sam Gamon of Chisholm & Gamon Property, the event attracted over 150 PHI supporters and raised more than $5,000 for research. Thank you to everyone who attended the event and to those who donated prizes and auction items.

Thank you to our sponsors & donors

The Institute would like to thank the following people, clubs and businesses for their generosity:

Major Sponsors: Boom Logistics, Wilson HTM

Sponsors: KPMG, Phillips Fox, PKF

Trivia Night & Auction supporters: Mr Sam Gamon, Chisholm & Gamon Property; Mr. Fraser Gehrig and the St. Kilda Football Club; Melbourne Bowling Club; My Well Being; Hills; Readings; Bike Life; Dr Belinda Owen, Holden Chiropractic; Mr John Robinson; Professor John Funder; Ms Maria Alexiadis; Ms Sue Panckridge.

Mr Andrew McCallum, Development & Commercialisation Manager (Team Coach), Prof Evan Simpson, PHI Director and Mr John Robinson, PHI Chairman

Miss Natalie Hannan, PhD student and cycling team member, sporting the team jersey

Trivia Night host and auctioneer Mr Sam Gamon, Chisholm & Gamon Property

Mr Bruce Watson and Dr Morag Young brave the elements during the Murray to Moyne Cycle Relay

2007 Ride for Reproduction

If you would like to support or be involved in our 2007 Ride for Reproduction, please contact:
Ingelise Jones, Team Manager
Tel: 03 9594 4303
email: ingelise.jones@princehenrys.org

community support & donations

Our supporters inspire us to achieve excellence in research.
We would like to sincerely thank all of our supporters, including individual donors, community groups, Trusts, Foundations and Corporations for their contribution during 2005/06

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PHI Volunteers

PHI volunteers play a special role in our success. Dedicated professionals have provided pro-bono advice to the Institute on legal matters, as well as branding and marketing initiatives over the past year. Many other supporters have kindly volunteered their time to assist with fundraising and awareness activities.

Professional Services:
Mr David Pisker, NetX (formerly Tribal DDB)
Mr Heath Rudduck, Tribal DDB
Mr Rob Findlay, Tribal DDB
Mr Peter Chalk, Blake Dawson Waldron
MR Grant Fisher, Blake Dawson Waldron
MR Peter Howard, Middleton Lawyers

Melbourne Marathon, Oct 2005
Course volunteers:
Mr Andrew McCallum
Ms Carolyn Gellert
Ms Catriona McCallum
Ms Chelsea Stoikos
Mrs Claudette Thiedeman
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Ride for Reproduction April 2006 Cycle Relay Team:
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Mr Sarah Meachem
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Institute Members

Institute Members are an important part of the Prince Henry's Institute network. Their contribution to the well-being of the Institute is greatly valued. We thank our Members for their leadership, direction and advice.

Mr John Abdallah
Mr Richard Amos
Mr Donald Argus AO
Prof Robert Atkins
Mrs Janice Bate
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research staff as at June 30 2006

Sex Hormones in Action

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RD Wright Fellow
Margaret Jones PhD
Colin Clyne PhD

Senior Research Officers
Wah Chin Boon PhD

Howard Florey Centenary Postdoctoral Fellow
Anne Corbould MBBS (Hons) PhD FRACP

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Kerry McInnes PhD
Jayne Sierens PhD

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PhD Students
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Niroshani Pathirage BSc (Hons)
Jenny Chow BBiomedSc (Hons)
Michelle Van Sinderen BSc (Hons)

Honours Students
Yogavalli Poobalan BSc
Kenneth Walker BSc

Female Reproductive Biology

Deputy Director, Senior Principal Research Fellow and Group Head
Professor Jock Findlay AM PhD DSc

Senior Research Officers
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Paul Farnworth PhD
Kaye Stenvers PhD

Research Officer
Simon Chu PhD

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Yao Wang BSc (Hons)
Alexandra Umbers BSc (Hons)
Mitzi Dyson BAppSc
Marnie Sparrow BSc
Hui Kheng Chua BSc (Hons)

PhD Students
Marissa Bowden BA BSc (Hons)
Jason Liew BBiomedSc (Hons)

Honours Student
Joanne Yap BSc

Uterine Biology

Senior Principal Research Fellow and Group Head
Professor Lois Salamonsen PhD

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Lynette Kilpatrick PhD
Claudia Freyer PhD
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Christine White PhD
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Jin Zhang BMed
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Kathryn Visser BSc (Hons)

Research Nurse
Judy Hocking RN

PhD Students
Premila Paiva BSc (Hons)
Natalie Hannan BSc (Hons)
Tu'uhevaha Kaitu'u-Lino BBiomedSc (Hons)
Chelsea Stoikos BSc (Hons)

Male Reproductive Endocrinology and Metabolism

Principal Research Fellow and Group Head
Professor Rob McLachlan MBBS FRACP PhD

Basic Science Team Head
Peter Stanton PhD

Clinical Research Fellows
Carolyn Allan MBBS FRACP
Kati Matthiesson MBBS FRACP

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Sarah Meachem PhD
Michael Lynch PhD
Liza O'Donnell PhD
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Pavel Sluka PhD

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Elise Forbes RN
Joanne McKenzie RN
Anna Zamojska RN

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Georgia Balourdos BSc (Hons)
Caroline Foo BAppSc
Fiona McLean BSc (Hons)
Ming Ying Lee BSc (Hons)
Anne Reilly BSc (Hons)

PhD Students
Amanda Beardsley BSc (Hons)
Mark McCabe BSc (Hons)
Saleela Ruwanpura BBiomedSc (Hons)
Gerard Tarulli BSc (Hons)

Hons Students
Priscilla Kan BBiomedSc

Reproductive Hormones

Principal Research Fellow & Group Head
Associate Professor David Robertson PhD

Emeritus Director
Henry Burger AO, FAA, MD BS FRCP FRACP FCP (SA) FRCOG FRANZCOG

Senior Research Officer
Craig Harrison PhD

National Australia Bank Ovarian Cancer Research Foundation Research Fellow
Andrew Stephens BSc (Hons) PhD

Witchery Research Fellow
Henning Koehn PhD

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Research Assistants
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Sara Goodman PGDipSc
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Yannick Planche BSc (Hons)

PhD Students
Yogeshwar Makanji BAppSc (Hons)
Irene Papageorgiou BSc (Hons)

Endocrine Genetics

Senior Principal Research Fellow and Group Head
Professor Peter Fuller BMedSci MBBS PhD FRACP

Senior Research Officer
Morag Young PhD

Research Assistants
Yitzou Yao MD
Francine Brennan BSc (Hons)
Maria Alexiadis BSc (Hons)
James Morgan BSc (Hons)

PhD Students
Sonay Hussein-Fikret BBiomedSci (Hons)
Amanda Rickard BSc (Hons)
Emily Lam BBiomedSc (Hons)

Visiting Masters Student
Kim Brolin MSc

Honours Student
Yinan Zhang

Endocrine Cell Biology

Senior Research Fellow and Group Head
Associate Professor Chen Chen MD PhD

TM Ramsay Fellow
Damien Keating PhD

Research Officers
Yufeng Zhao PhD
Ernesto Vargas PhD

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Maria Docanto BSc (Hons)
Kun Wang BMed, MMed

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Neveen Tawadros BSc
Jyothsna Rama Rao BSc
Sean Yang BSc

Human Molecular Genetics

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Visiting Scientist
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John Funder AO MD BS PhD FRACP

Core Facilities

Gandel DNA Sequencing Facility Manager
Vivien Vasic BSc

Maintenance Technician
Bruce Watson

Laboratory Technicians
Robin Leuba BA Dip Ed
Susan Taleh BA

business administration

Research activities are supported by a small but dedicated administrative team who work to provide efficient and effective service to researchers across all business functions

Business functions include:

- finance, payroll and grants management;
- commercialisation and intellectual property protection;
- facilities and equipment;
- OH&S, laboratory safety;
- human resources and workplace policies;
- information technology;
- media and communications;
- marketing and fundraising, and
- support for the Board of Directors and subcommittees.

The administration team is also responsible for the significant level of reporting and audit under the State Government Acts of Parliament.

June 2006 marked a turning point in business administration at PHI, with the appointment of Dr Jane Glatz to the new role of Chief Operating Officer. Dr Glatz has scientific research and business qualifications (PhD & MBA) and senior management experience of medical research and community engagement programs. Her blend of research and business experience will provide strategic leadership and a valuable interface between the Institute's researchers and administration team.

Administration Staff
as at June 30 2006

Director, Administration (to 19 June)
Professor Jock Findlay AM PhD DSc

Chief Operating Officer (from 19 June)
Dr Jane Glatz BSc (Hons) PhD MBA

Development & Commercialisation Services Manager
Andrew McCallum BE (Met) MEngSc MAICD

Financial Services Manager
Terry Haining FCPA GDipAcc&Fin

Materials & Human Resources Manager
Paul Pearce ARMIT MAppSci GradCertHRM MAHRI

Development & Communications Officer
Ingelise Jones BA GradDip Comn (Public Relations)

Media & Communications Officer
Alison Noonan BComn (Journalism)

Graphic Communications Coordinator
Sue Panckridge DipArt

Finance Administration Officer
Sheridan Wallington

Purchasing Officer
Peter Wood AIWA

Human Resources Management Officer
Nermeen Tawadros BSc (Med Sci) BCompSci

Materials Resources Officer
Henry Wos

Laboratory Administrative Assistant
Prudence Barwell

Professor Jock Findlay

Dr Jane Glatz

Personal Assistants/Reception Staff
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Jeanette Birtles BSc (Hons)
Sue Elger
Susan Smith
Claudette Thiedeman
Jeana Thomas

Prince Henry's Institute takes great pride in nurturing the scientists of tomorrow. We boast an excellent reputation for postgraduate research and study, offering extensive opportunities for students embarking on a career in medical research

students 2005/06

Student life at PHI

Our young researchers have achieved great success and enjoyed many social activities in 2005-06.
Some of the year's highlights include:

Student Symposium

The Institute's young scientific talent was showcased during the 12th Annual Student Symposium in November 2005. The Student Symposium provides Postgraduate and Honours students with invaluable public speaking experience and an opportunity to present their research in a competitive environment. Winners included Gerard Tarulli (Best Honours/Masters presentation), Yogeshwar Makanji (Best 1st Year PhD presentation), Kevin Knower (Best Overall PhD presentation) and Agnes Kovacic (Special Commendation PhD award).

Quantum Award

PhD student Rachel Hill received the prestigious 2005 Quantum Award for Scientific Excellence for her research linking a lack of oestrogen to programmed cell death in the brain and reduced sexual behaviour in male mice. Rachel's abstract was presented at the US Endocrinology's Annual Meeting in New Orleans, USA, 2004.

PHI Student Society

The PHI Student Society organized many enjoyable off-campus social functions and was actively involved in the successful PHI Student Open Day. 2006 also saw the advent of the Postgraduate Careers Seminar Series, held in conjunction with the Monash Careers and Employment Services.

a taste of student life

Natalie Hannan

PhD student, Uterine Biology Group

The research we do here is cutting edge and very rewarding. There are so many great research areas that you are sure to find something you love. All in all, I think PHI is a great place to study!

Why did you choose female fertility research?

I am very interested in early pregnancy. I would like to better understand and contribute to the scientific knowledge in this field, with the hope of helping to improve pregnancy success rates, both natural and assisted (IVF treatment).

What do you enjoy about your research?

I get great satisfaction knowing that I may one day be able to help people, particularly women who are infertile and need IVF treatment.

Why did you choose to study at PHI?

I really believe that the Institute's research is actually going to make a difference. I also like the thought of studying at an independent research institute where I can learn more than I could in an on-campus lab.

Describe a typical day as a student at PHI:

A normal day at PHI would involve me working on an experiment or reading other fertility related research articles. Once a week I go to a lab meeting, which allows me to keep up to date with new techniques, improve my communication skills and review peer work. Students are also encouraged to attend professional development activities and present at local and international conferences.

Do you participate in extra curricular activities?

I am often involved in extra curricular activities with my friends at PHI, including fundraising, social events and ASMR. I had a great time riding in this year's Murray to Moyne Cycle Relay and have completed many charity fun runs.

Gerard Tarulli

PhD student, Male Reproductive Endocrinology

The team here is fresh and dynamic and the independent, non-profit nature of the Institute makes for a much more liberal experience. You are allowed a greater level of independence by not being on campus, but close enough to Monash University to enjoy all of its benefits.

Why did you choose male infertility research?

I think the area of male health is under-represented and I feel that it's my duty to try to balance the scales a little.

What do you enjoy about your research?

I enjoy my work because it is intellectually stimulating and I like the fact that everyday is different.

Why did you choose to study at PHI?

I chose to study at PHI because of its well established record of research excellence in the field of male health. I thought I would have greater success promoting public awareness of men's health issues and advancing our understanding of male reproduction here.

Describe a typical day as a student at PHI:

I arrive at work at 8am, check my emails, write up the day's experiments and head to the lab to start my experiments. I would usually attend meetings or forums after lunch, get back into the lab and go home around 6pm.

Do you participate in extra curricular activities?

In my spare time I keep busy as the PHI Student Society President and am an ASMR member and part of the regional tour sub-committee. I am also involved in contract and consultant media work.

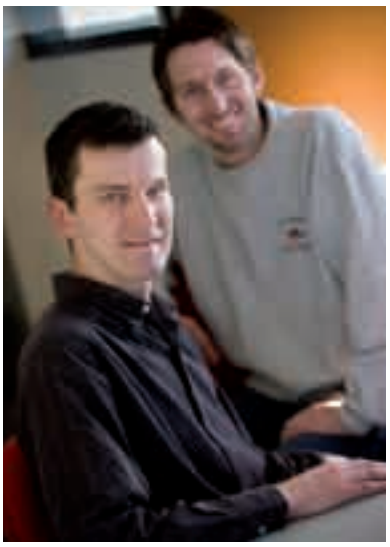
class of 2005/06

The following students undertook or continued their studies at the Institute:

Amanda Beardsley BSc (Hons)
PhD Student
The hormonal regulation of spermiation
Supervisors: Dr Liza O'Donnell; Assoc. Professor David Robertson

Marissa Bowden BA/BSc (Hons)
PhD Student
The expression and function of mammalian Htra3 throughout rat ovarian development
Supervisors: Professor Jock Findlay AM; Dr Guiying Nie

Kim Brolin (University of Stockholm, Sweden)
MSc Student
Differential gene regulation by renal mineralocorticoid receptors using different agonist ligands
Supervisor: Dr Morag Young



Research Officer Dr Pavel Sluka (left) and PhD student Mr Mark McCabe, Male Reproductive Endocrinology and Metabolism group

Jenny Chow BBiomedSc (Hons)
PhD Student
The effect of oestrogen on triglyceride homeostasis
Supervisors: Dr Wah Chin Boon; Professor Evan Simpson

Natalie Hannan BSc (Hons)
PhD Student
Endometrial proteins in human embryo implantation and their relevance to fertility
Supervisor: Professor Lois Salamonsen

Rachel Hill BSc (Hons)
PhD Student
Characterisation of the brain of the male Aromatase Knockout (ArKO) mouse
Supervisors: Dr Wah Chin Boon; Professor Evan Simpson

Sonay Hussein-Fikret BBiomedSc (Hons)
PhD Student
Steroid receptor coactivators in ovarian granulosa cell tumours
Supervisor: Professor Peter Fuller

Tu'uhevaha Kaitu'u-Lino BBiomedSc (Hons)
PhD Student
Tissue breakdown and repair in the endometrium
Supervisors: Professor Lois Salamonsen; Dr Naomi Morison

Priscilla Kan BBiomedSc
Honours Student
Characterising the role of ACT in male infertility
Supervisors: Dr Michael Lynch; Dr Peter Stanton

Sabine Kelly BSc (Hons)
PhD Student
Investigation of SOX9 function during testis formation
Supervisor: Assoc. Professor Vincent Harley

Kevin Knower BSc (Hons)
PhD Student
Molecular studies of the initiation of human sex determination
Supervisor: Assoc. Professor Vincent Harley

Emily Lam BBiomedSc (Hons)
PhD Student
Does 11beta HSD1 inhibition protect the coronary vessels against mineralocorticoid salt induced vascular inflammation?
Supervisor: Dr Morag Young

Riki Lane BA/BSc
Honours Student
Brain sex –the role of SRY in the regulation of dopaminergic neurons
Supervisors: Assoc. Professor Vincent Harley; Dr John Mitchell

Jason Liew BBiomedSc (Hons)
PhD Student
The role of oestrogen in ovarian function
Supervisors: Professor Jock Findlay; Dr Ann Drummond; Dr Margaret Jones

Louisa Ludbrook BBiomedSc (Hons)
PhD Student
DAX1 and gonadogenesis
Supervisor: Assoc. Professor Vincent Harley

Yogeshwar Makanji BAppSc (Hons)
PhD Student
Biological characterisation of Inhibin A and Inhibin B
Supervisors: Assoc. Professor David Robertson; Dr Craig Harrison

Mark McCabe BAppBiol/Biotech (Hons)
PhD Student
Hormonal regulation of the Sertoli cell tight junction
Supervisors: Dr Peter Stanton; Dr Peter Smooker

Premila Paiva BSc (Hons)
PhD Student
Endometrial-placental interactions in human blastocyst implantation: roles for interleukin-11
Supervisors: Dr Eva Dimitriadis; Professor Lois Salamonsen

Irene Papageorgiou BSc (Hons)
PhD Student
The role of Cripto in tumourogenesis
Supervisors: Dr Craig Harrison; Assoc. Professor David Robertson

Niroshani Pathirage BSc (Hons)
PhD Student
Regulation of aromatase in endometrial and ovarian cancer
Supervisors: Dr Colin Clyne; Professor Evan Simpson

Yogavalli Poobalan BSc
Honours student
Regulation of FSTL-3 in the male reproductive system
Supervisors: Dr Jayne Sierens; Dr Colin Clyne

Jyothsna Rama Rao BSc MSc
PhD Student
Effect of fat derived hormones on pancreatic beta cells
Supervisors: Assoc. Professor Chen Chen; Assoc. Professor Helena Parkington

Amanda Rickard BBiomedSc (Hons)
PhD Student
Mineralocorticoid/salt induced vascular damage and cardiac fibrosis
Supervisor: Dr Morag Young

Saleela Ruwanpura BBiomedSc (Hons)
PhD Student
FSH effects on spermatogenesis
Supervisors: Dr Rob McLachlan; Dr Sarah Meachem

Melissa Stahle BSc
Honours Student
The role of SRY-KRABO interactims in mammalian sex determination
Supervisor: Assoc. Professor Vincent Harley

Chelsea Stoikos BSc (Hons)
PhD Student
Molecular events in the endometrium: implications for infertility
Supervisors: Dr Eva Dimitriadis, Professor Lois Salamonsen

Paisu Tang BSc (Hons)
PhD Student
Functional studies on the ATRX protein
Supervisors: Assoc. Professor Vincent Harley, Professor Jennifer Marshall Graves

Gerard Tarulli BSc (Hons)
PhD Student
Regulation of Sertoli cell function
Supervisors: Dr Peter Stanton, Dr Sarah Meachem, Professor John Bertram

Neveen Tawadros BSc
PhD Student
Physiological and pathological role of ghrelin and its receptor in the human uterus
Supervisors: Assoc. Professor Chen Chen and Professor Lois Salamonsen

Michelle Van Sinderen BSc (Hons)
PhD Student
Oestrogen, Adiposity and Insulin resistance
Supervisor: Dr Margaret Jones

Kenneth Walker
Honours Student
The Effects of Oestrogen on the Developing Kidney
Supervisors: Dr Kerry McInnes, Dr Georgina Caruana

Sean Yang BSc
PhD Student
The Regulation of Growth Hormone by Secretagogues
Supervisors: Assoc. Professor Chen Chen, Assoc. Professor Helena Parkington

Joanne Yap BSc
Honours Student
Characterisation of activin beta C in the over-expressing mouse ovary
Supervisors: Dr Ann Drummond, Dr Elspeth Gold

Yinan Zhang BBiomedSc (Hons)
PhD Student
Differential gene expression of mineralocorticoid receptor activation by different agonists
Supervisor: Dr Morag Young

Miss Amanda Rickard, PhD student, Endocrine Genetics group

Education Program in Reproductive Biology

The Education Program in Reproductive Biology (EPRB) aims to foster education and research into reproductive biology and embryology for domestic and international postgraduate students.

The EPRB program is a joint venture between Prince Henry's Institute (PHI) and Monash Institute of Medical Research (MIMR), in association with the Monash University Departments of Physiology, Pharmacology, Obstetrics & Gynaecology, Paediatrics and Anatomy & Cell Biology.

The Graduate Diploma & Master of Reproductive Sciences and the Master of Clinical Embryology are run by the EPRB through the Monash Institute of Medical Research. Thirty-three students, including seven international students, were enrolled in these courses in 2005.

PHI plays a key role in the coordination and teaching of the EPRB program and helps to promote its activities. Many of the Institute's scientists assist in the development of course units, give lectures and facilitate practical sessions. PHI researchers also supervise students undertaking research projects in the Master of Reproductive Sciences.

Associate Professor David Robertson, Head of the Reproductive Hormone Group at PHI, is Deputy Director of the program. Dr Sarah Meachem, Senior Research Officer in the Male Reproductive Endocrinology Group, is the primary coordinator of the unit Fertility Regulation and Professor Jock Findlay AM, Deputy Director of the Institute, also contributes to this subject.

For more information on courses and open days telephone: (03) 9594 7100 or visit the website at www.med.monash.edu.au/eprb.

Miss Saleela Ruwanpura, PhD Student, Male Reproductive Endocrinology and Metabolism group

Miss Irene Papageorgiou, PhD student, Reproductive Hormones group

Dr Simon Chu, Research Officer, Female Reproductive Biology group

Monash Graduation Day (L to R): Dr Carolyn Allan, Assoc. Professor David Robertson, Dr Pavel Sluka, Dr Liza O'Donnell, Dr Peter Stanton and Professor John Bertram, Head, Department of Anatomy and Cell Biology, Monash University

PHI Student Symposium (standing L to R): Ms Nina Taylor (Novo Nordisk representative), Dr Kaye Stenvers, Dr Patrick Humbert (Peter MacCallum Cancer Centre), Professor Evan Simpson, Dr Guiying Nie; (seated L to R): Miss Premilla Paiva, Mr Gerard Tarulli, Miss Agnes Kovacic, Mr Kevin Knower

Miss Jenny Chow, PhD student, Sex Hormones in Action group

phi awards

Prince Henry's Institute has a number of named funds established in honour or memory of loved ones. Income from these permanently invested funds support fellowships, scholarships and awards

TM Ramsay Fellow

Dr Damien Keating

The TM Ramsay Fellowship honours the late Sir Thomas Ramsay, a former Director of the Institute Board from 1986-87. Through the continued generosity of his wife, Lady Ramsay, the TM Ramsay Fellowship assists young postdoctoral scientists to establish their careers in medical research. The Institute would like to acknowledge and thank Lady Ramsay for her invaluable support.

Awarded every two years, the TM Ramsay Fellow for 2004-2006 was Dr Damien Keating. Dr Keating played an integral role as Senior Research Officer with the Endocrine Cell Biology Group during his two years at Prince Henry's Institute.

Dr Keating's research focused on finding possible links between obesity and the onset of Type 2 diabetes. He was specifically interested in investigating whether the reduced levels of insulin release from the pancreas, typical in Type 2 diabetes, is caused by hormones secreted from fat cells.

Dr Keating hopes his research will contribute to a better understanding of the role of hormones in diabetes and potentially lead to new treatments.

Fred Boylan & Bill Burke Fellow

Dr Stefan Bagheri-Fam

The Boylan/Burke Fellowship was established from a bequest made by the late Mrs June Boylan in honour of her husband, Mr Fred Boylan, the Institute's first Chairman. First awarded in 1987, this fellowship has given a number of postdoctoral scientists the opportunity to conduct research at Prince Henry's Institute.

The 2004-2006 Boylan/Burke Fellowship was awarded to Dr Stefan Bagheri-Fam. As a valuable member of the Institute's Human Molecular Genetics Group, Dr Bagheri-Fam is investigating the role of the FGFR2 protein in sex determination.

His research is aimed at providing a better understanding of how the fate of male development is decided. Dr Bagheri-Fam's work has so far indicated that FGFR2 is required at the initial steps of male development. Prior to joining Prince Henry's Institute,

Dr Bagheri-Fam worked at the University of Freiburg, Germany.

John Donges Administration Award

The John Donges Administration Award is presented to a member of administration who has demonstrated professionalism, courtesy, confidence, accuracy and timeliness. The award was established in 2003 in honour of the late Mr John Donges, former Treasurer of Prince Henry's Institute. Mr Donges is fondly remembered for his dedication and contribution to the Institute. We are grateful to Mrs Trish Donges and her family for their ongoing support.

Congratulations to the 2005 recipient, Ms Nermeen Tawardos. Ms Tawardos has been an integral part of the Business Administration team at Prince Henry's for over two years. The John Donges Award recognises Ms Tawardos for her enthusiasm and efficiency in her role as Human Resources Management Officer. Ms Tawardos is responsible for IT and records management and support in human resources.

Kadir-Fatimah Award

Professor Khalid bin Abdul Kadir studied for his PhD at Prince Henry's Hospital Medical Research Centre from 1980-1982. On his departure, Professor Kadhir donated funds for an annual award in recognition of the excellent service he received from research assistants and administrative staff during his years at Prince Henry's. Named after his parents, the Kadir-Fatimah Award has recently evolved to reward research assistants for technical excellence. Today, Professor Kadir is a Senior Consultant Endocrinologist, a Professor of Medicine at Monash University, Malaysia, and an Emeritus Director of the Faculty of Medicine at the University of Kebangsaan, Malaysia. The Institute thanks Dr Kadir for his continued support.

Congratulations to the 2005 recipient of the Kadir-Fatimah Award, Mrs Karen Chan. Mrs Chan has been working as a Research Assistant at Prince Henry's for 14 years. Her research interests have focused on members of the TGF superfamily, particularly inhibin and activin. Currently, Mrs Chan is working with Dr Craig Harrison in developing mechanisms to block activin actions, which could potentially lead to treatments for wound healing and cancer.

PHI Postgraduate Scholarships

Each year the Institute awards scholarships to promising young PhD students. Congratulations to our current PHI Postgraduate Scholars: Saleela Ruwanpura; Jenny Chow; Chelsea Stoikos; Jyothsna Rao; Sean Yang and Gerard Tarulli.

Student Assistance

Our postgraduate students are fortunate to receive financial support from two of our long standing funds, the **Hudson Hoagland Fund** and the **Prince Henry's Hospital Memorial Scholarship Fund**. Income from these invested funds is used to supplement travel and other student expenses that arise during the year.

The Institute would like to thank Dr Robert Searls, Chairman of the Institute from 1987-1993, for establishing the Hudson Hoagland Fund. The fund was named in honour of his friend and colleague Mr Hudson Hoagland, co-founder of the Worcester Foundation for Experimental Biology in Massachusetts, USA.

Prince Henry's would also like to acknowledge the late Mr Alex Ogilvy, Chairman of the Board from 1976-86. The Prince Henry's Hospital Fund was established with funds from Mr Ogilvy's estate in memorial to the Prince Henry's Hospital.

awards & achievements

Awards

Dr Carolyn Allan
Bryan Hudson Clinical Endocrinology Award, Endocrine Society of Australia, Perth, 2005

Dr Eva Dimitriadis
PHI Career Development Award, Prince Henry's Institute, 2006

Professor Jock Findlay AM
Distinguished Scientist Award, UK Society for Reproduction, UK, 2006

Natalie Hannan
Dora Lush NHMRC Biomedical Postgraduate Scholarship, 2006

Dr Craig Harrison
PHI Career Development Award, Prince Henry's Institute, 2006

Rachel Hill
Quantum Scientific Award for Scientific Excellence, Prince Henry's Institute Abstract Award, 2005

Dr Rebecca Jones
SGI President's Presenters Award, SGI Annual Scientific Meeting, Toronto, 2006

Yogeshwar Makanji
Best Presentation, 1st Year PhD Category, 12th Annual Student Symposium, Prince Henry's Institute, 2005

Dr Guiying Nie
JSPS Bilateral Program Award, Australian Academy of Science, 2005

Dr Kaye Stenvers
PHI Career Development Award, Prince Henry's Institute, 2006

Michelle Van Sinderen
Graduate Scholarship, Monash University, 2005

Gerard Tarulli
Honours Prize, 12th Annual Student Symposium, Prince Henry's Institute, 2005;

PhD Prize, 12th Annual Student Symposium, Department of Anatomy & Cell Biology, Monash University, 2005

Nermeen Tawadros
John Donges Administration Award, Prince Henry's Institute, 2005

Dr Morag Young
Clinical Science New Investigator Award, High Blood Pressure Research Council of Australia, 2005;

Review for Physiology 1000, Faculty 1000, London, 2005

Award nominees

Dr Simon Chu
Nominee, Premiers Award for Medical Research, State Government of Victoria, 2006;

Nominee, Ian Potter Foundation Travel Award, Ian Potter Foundation, Melbourne, 2006

Amanda Rickard
Finalist, Young Investigator Award, High Blood Pressure Research Council of Australia, Melbourne, 2005

Travel awards

Dr Carolyn Allan
Endocrine Society of Australia Travel Grant, Annual Scientific Meeting, Perth, 2005

Amanda Beardsley
Larry Ewing Memorial Trainee Travel Fund, Society for the Study of Reproduction, Quebec City, Canada, 2005

Dr Sarah Meachem
Ian Potter Travel Grant, The Ian Potter Foundation, 2005

Dr Jayne Sierens
Endocrine Society of Australia International Travel Award, SSR, Quebec, Canada, 2005

Dr Morag Young
US Endocrine Society Travel Award, San Diego, USA, 2005

Gerard Tarulli
SRB Travel Grant, Society for Reproductive Biology, Melbourne, 2005

L to R : Dr Giuying Nie, Professor Lois Salamonsen and Dr Eva Dimitriadis, Uterine Biology Group

NHMRC committees

Professor Jock Findlay AM
Chair, Embryo Research Licensing Committee, NHMRC Principal Committee, Canberra, ACT, 2005-06;

Member NH&MRC, NHMRC, Canberra, ACT, 2005-06;

International committees & journal appointments

Professor Evan Simpson
Associate Editor, Endocrine Reviews, 2000-05;

Editor in Chief, Journal of Molecular Endocrinology 2000-06

Professor Jock Findlay AM
Co-Director, Ovarian Workshop, USA, 2005-2009

Dr Sarah Meachem
Member of the Board, Journal of Endocrinology, 2005-2006

Australian committees & appointments

Professor Jock Findlay AM
Reappointed Chair, Infertility Treatment Authority, Melbourne, Victoria, 2005-09;

Dr Sarah Meachem
Coordinator, Fertility Regulation Unit, Education Program for Reproduction Biology, 2005-2006;

Dr Morag Young
Chair Victorian Careers Committee, Australian Society for Medical Research, Melbourne, 2005-2006

Societies & conference committees

Professor Evan Simpson
Member, Nominations Committee, US Endocrine Society, 2006-08;

Member, Meetings & Education Programs Committee, US Endocrine Society, 2005-07

Dr Sarah Meachem
Executive Director, Australian Society for Medical Research, 2005-2006;

Council Member and Public Relations Director, Society for Reproductive Biology, 2005-2006;

Committee Member, Australian Society for Medical Research, National Scientific Congress, Couran Cove, Queensland, 2005;

Organising Committee, Society for Reproductive Biology, Gold Coast, Queensland, 2006

Tu'uhevaha Kaitu'u-Lino
Australian student representative, Society of Reproductive Biology, 2005-06

University appointments

Dr Sarah Meachem
Honorary Lecturer,
Department of Anatomy and Cell Biology, Monash University, 2005

Dr Kaye Stenvers
Honorary Assistant Lecturer,
Department of Anatomy and Cell Biology, Monash University, 2005

Dr Kerry McInnes
Honorary Assistant Lecturer,
Department of Anatomy and Cell Biology, Monash University, 2005

Degrees conferred

Dr Carolyn Allan
PhD, Monash University, 2005

Dr Pavel Sluka
PhD, Monash University, 2005

Dr Christine White
PhD, Monash University, 2005

Fellowships

Dr Carolyn Allan
Novartis Endocrinology Fellowship, Royal Australasian College of Physicians, 2006

Professor Jock Findlay AM
NHMRC Research Fellowship, NHMRC, 2005-06

Dr Damien Keating
Bio Innovation SA Molecular Neuroscience Fellowship, Flinders University, 2006

Professor Lois Salamonsen
NH&MRC Senior Principal Research Fellowship, 2005

Dr Alejandro Tapia
Endeavour Postgraduate and Postdoctoral Fellowship, Federal Government, Australia, 2005

Visiting researchers Dr Alejandro Tapia (Chile) and Dr Kaori Koga (Japan)

scientific presentations

AAMRI: Contribution of Medical Research to the Australian Community, Melbourne

ASMR Medical Research Week EXPO, Melbourne

ASMR National Scientific Conferences: “Aromatase, nuclear receptors and breast cancer” and “Hormones, Fertility & Cancer”, Couran Cove, QLD

Australian Biotechnology Summit, Sydney

Australian Neuroscience Society 2006 National Conference, Sydney

Australian Physiological and Pharmacological Society Meeting, Brisbane

Australasian Society for the Study of Obesity (ASSO) 2005 Annual Scientific Meeting, Adelaide

British Association Festival of Science 2005, Dublin, Ireland

ComBio 2005, Adelaide

Discovery Science and Biotechnology Conference, Melbourne

11th Conference of the European Placenta Group, Glasgow, UK

18th Lorne Cancer Conference, Lorne, Vic

Endocrine Society of Australia, Perth

Endo 2006, Boston, USA

European Congress of Endocrinology 2006 (ECE2006), Glasgow, UK

Exercise, Muscle & Metabolism Conference, Melbourne

Expert Meeting on Implantation Research, Evian, France

1st International Summit on SOX Developmental Transcription Factors, Cairns

4th International Symposium on Vertebrate Sex Determination, Kailua-Kona, Hawaii

5th International Congress of Pathophysiology, Beijing, China

5th World Congress on the Aging Male, Salzburg, Vienna

14th European Testis Workshop, Munich, Germany

15th International Society of Developmental Biologists Congress 2005, Sydney

Frontiers in Vascular Medicine, Monash University, Melbourne

Gerard Innovation Lecture, Prince Alfred College, Adelaide

Granulosa Cell Tumor of the Ovary Foundation Meeting, San Diego, USA

The High Blood Pressure Research Council of Australia Annual General Meeting, Melbourne

Human Genetics Research Taskforce Workshop, Red Hill, Victoria

International Society of Hypertension Research and Cardiac Society of Australia Meeting, Perth

Japanese Society of Reproductive Immunology Conference, Osaka, Japan

Keystone Symposia: Nuclear Receptors: Orphan Brothers, Banff, Canada

Keystone Symposia: Nuclear Receptors: Steroid Sisters, Banff, Canada

Molecular Steroidogenesis Society Meeting, Boston, USA

North American Membrane Society (NAMS) Annual Conference, Rhode Island, NYC, USA

Proteomics Symposium 2006, Australasian Proteomics Society (APS) 11th Annual Symposium, Lorne

Reproductive Health Experts Meeting, Serono, Boston, USA

Reproductive Tract Biology (Gordon Conference), Connecticut, USA

2nd Female AMPPA Workshop, Schering, Berlin

2nd International Conference on Birth Defects and Disabilities in the Developing World, Beijing, China

6th EMBL Mouse Molecular Genetics Meeting, Heidelberg, Germany

22nd Annual Meeting of the European Society of Human Reproduction and Embryology, Prague, Czech Republic

27th Lorne Genome Conference, Lorne

37th Annual March of Dimes Clinical Genetics Conference: The Genetics of Sexual Differentiation, San Diego, USA

Science at the Shine Dome, Australian Academy of Science, Canberra

Society of Reproductive Biology Annual Scientific Meeting, Perth

Symposium on Ion Channels in Cardiac Myocytes, Zhang-Jia-Jie, Hunan Province, China

The 32nd International Aldosterone Conference, Boston, USA

38th Annual Meeting of the Society for the Study of Reproduction, Quebec, Canada

Tissue-specific estrogen action: Novel mechanisms, novel ligands, novel therapies? Ernst Schering Foundation, Berlin, Germany

Tumour Markers of Personalised Medicine, Hawaii

2005 Annual Conference of the British Society for Immunology, Harrogate, UK

2005 Gordon Research Conference on Hormone Action in Development & Cancer, South Hadley, Massachusetts, USA

Victorian Society of Developmental Biology Symposium, WEHI, Melbourne

Y Chromosome and Male Germ Cell Biology in Health and Diseases in the Post Genomic Era, Asilomar, CA, USA

visiting speakers

Assoc Professor Mibel Aguilar
Department of Biochemistry & Molecular Biology, Monash University:
"Beta amino acids: A new approach to Peptide-based drug design"

Prof. Leon Bach
Department of Medicine, Monash University:
"Insulin-like growth factor (IGF) binding protein-6; an important regulator of IGF-II actions"

Dr Philip Berger
Scientific Director, The Ritchie Centre for Baby Health Research:
"Ontogeny of behaviour in the early gestation fetus"

Dr Alan Cowman
Division Head, Infection and Immunity, WEHI:
"Invasion and renovation of human erythrocytes by the malaria parasite"

Professor Peter Colman
Head, Structural Biology Division, WEHI &
Professor Rob Lewis
Director, Monash Centre for Synchrotron Science: *"Possibilities for Health and Medical Research with the new Synchrotron"*

Dr Xiao-Jun Du
Experimental Cardiology Laboratory, Baker Heart Research Institute:
"Linking reproductive hormone relaxin to heart disease"

Dr John J Eppig
Senior Staff Scientist, The Jackson Laboratory, Bar Harbor, Memphis - USA:
"Exploring the role of oocytes in granulosa cell differentiation and follicular development"

Dr David Etheridge
CSIRO Marine and Atmospheric Research:
"The earth's changing atmosphere - an Australian perspective"

Jennifer Fenner
Monash Institute of Medical Research:
"Regulation of Type I Interferon Responses by SOCS Proteins"

Dr Amanda Fosang
Murdoch Children's Research Institute:
"Cartilage destruction in arthritis: Studies with knockin and knockout mice"

Andrew Gundlach
Howard Florey:
"Recent, rapid progress in relaxin peptide/ receptor research: Focus on the nervous system"

Shane Herbert
Applied Biosystems Product Specialist:
"The 7900HT high performance real-time PCR platform - A real asset to any disease research program"

Keith Hutchison
Department History and Philosophy of Science, University of Melbourne:
"EULER AND THE ACHROMATIC LENS: Rediscovering the Idiosyncracies of Nature"

Dr Gayle M. Jones
Monash Immunology and Stem Cell Laboratories, Monash University:
"Microarray gene expression profiling for rare or low template RNA samples"

Professor Ken Korach
Chief, Laboratory of Reproduction and Developmental Toxicology NIEHS, NIH, Triangle Park NC, USA:
"More consequences from the loss of estrogen receptor signalling"

Dr Martin Lackmann
Biochemistry and Molecular Biology Department, Monash University:
"Structure-based targeting concepts for Eph receptor-positive tumours"

Dr Ashley Mansell
Monash Institute of Medical Research:
"For whom the bell Tolls: Toll-like Receptors in Innate Immunity"

Prof TJ Martin
St Vincent's Institute:
"PTHrP, from cancer hormone to multifunctional protein"

Assoc Prof Ian S. McLennan
University of Otago, Dunedin, NZ:
"Is Müllerian Inhibiting Substance an overlooked gonadal hormone, with broad neural functions?"

Yos Morsi
Research Director: Biomechanics and Tissue Engineering Group, Industrial Research Institute Swinburne IRIS:
"Tissue Engineering of Human Heart Valve Grown In Vitro - Progress and Challenges"

Professor Miles Prince
Chair of Haematology Service , University of Melbourne ; Director, Centre for Blood Cell Therapies, Peter MacCallum Cancer Centre:
"The practical issues of performing cell therapies"

Dr Jamie Rossjohn
Biochemistry and Molecular Biology Department, Monash University:
"A structural investigation within the immunological synapse"

Vince Russo
Murdoch Children's Research Institute:
"The IGF system and its pleiotropic functions in brain"

Harald Schmidt
Head, Department of Pharmacology, Monash University:
"Free Radicals in Blood Vessels"

Dr Paul Thomas
Pituitary Research Group, Murdoch Children's Research Institute:
"Sox genes, stem cells and short stature"

Assoc Prof Eric Vilain
UCLA (University of California, Los Angeles):
"Between a man and a woman: molecular mechanisms of sexual development"

Bryan Williams
Director, Monash Institute of Medical Research:
"Discriminating self and non self double stranded RNAs in mammalian cells"

publications 2005

1. Anderson ST, Kusters DH, Clarke IJ, Pow DV, Curlewis JD. Expression of pituitary adenylate cyclase activating polypeptide type 1 receptor (PAC1R) in the ewe hypothalamus: distribution and colocalization with tyrosine hydroxylase-immunoreactive neurones. *J Neuroendocrinol.* 2005 May;17(5):298-305.

2. Boon WC, Diepstraten J, van der Burg J, Jones ME, Simpson ER, van den Buuse M. Hippocampal NMDA receptor subunit expression and watermaze learning in estrogen deficient female mice. *Brain Res Mol Brain Res.* 2005 Oct 31;140(1-2):127-32. Epub 2005 Aug 9.

3. Britt KL, Simpson ER, Findlay JK. Effects of phytoestrogens on the ovarian and pituitary phenotypes of estrogen-deficient female aromatase knockout mice. *Menopause.* 2005 Mar;12(2):174-85.

4. Broadbear JH, Pierce BN, Clarke IJ, Canny BJ. Role of sex and sex steroids in mediating pituitary-adrenal responses to acute buspirone treatment in sheep. *J Neuroendocrinol.* 2005 Dec;17(12):804-10.

5. Burger HG. Commentary, NAMS First To Know on FREEMAN EW et al. Follicular phase hormone levels and menstrual bleeding status in the approach to menopause. *Fertil Steril.* 2005; 83: 383-392.

6. Burger HG. Testosterone changes in women with age and menopause. *American Society for Reproductive Medicine, Menopausal Medicine.* 2005; 13: 1; 104.

7. Burger HG, Robertson DM, Baksheev L, Collins A, Csemiczky G, Landgren BM. The relationship between the endocrine characteristics and the regularity of menstrual cycles in the approach to menopause. *Menopause.* 2005 May-Jun;12(3):267-74.

8. Clarke IJ, Backholer K, Tilbrook AJ. Y2 receptor-selective agonist delays the estrogen-induced luteinizing hormone surge in ovariectomized ewes, but y1-receptor-selective agonist stimulates voluntary food intake. *Endocrinology.* 2005 Feb;146(2):769-75.

9. Clarke IJ, Pompolo S. Synthesis and secretion of GnRH. *Anim Reprod Sci.* 2005 Aug;88(1-2):29-55. Review.

10. Clarke IJ, Tobin VA, Pompolo S, Pereira A. Effects of changing gonadotropin-releasing hormone pulse frequency and estrogen treatment on levels of estradiol receptor-alpha and induction of Fos and phosphorylated cyclic adenosine monophosphate response element binding protein in pituitary gonadotropes: studies in hypothalamo-pituitary disconnected ewes. *Endocrinology.* 2005 Mar;146(3):1128-37.

11. Clarke IJ, Scott CJ, Pereira A, Pompolo S. The role of noradrenaline in the generation of the preovulatory LH surge in the ewe. *Domest Anim Endocrinol.* 2005 Aug 31; [Epub ahead of print]

12. Coultas L, Bouillete P, Loveland KL, Meachem S, Adams JM, Strasser A. Concomitant loss of pro-apoptotic BH3-only Bcl2 antagonists Blk and Bim arrest spermatogenesis. *EMBO. J.* 2005 Nov 16;24(22):3963-73.

13. Dawood T, Williams MR, Fullerton MJ, Myles K, Schuijers J, Funder JW, Sudhir K, Komesaroff PA. Glucocorticoid responses to stress in castrate and testosterone-replaced rams. *Regul Pept.* 2005 Feb 15;125(1-3):47-53.

14. Dennerstein L, Lehert P, Burger H. The relative effects of hormones and relationship factors on sexual function of women through the natural menopausal transition. *Fertil Steril.* 2005 Jul;84(1):174-80.

15. Dennerstein L, Lehert P, Burger H, Guthrie J. Sexuality. *Am J Med.* 2005 Dec 19;118(12 Suppl 2):59-63.

16. Dimitriadis E, Stoikos C, Baca M, Fairlie WD, McCoubrie JE, Salamonsen LA. Relaxin and prostaglandin E(2) regulate interleukin 11 during human endometrial stromal cell decidualization. *J Clin Endocrinol Metab.* 2005 Jun;90(6):3458-65.

17. Dimitriadis E, White CA, Jones RL, Salamonsen LA. Cytokines, chemokines and growth factors in endometrium related to implantation. *Hum Reprod Update.* 2005 Nov-Dec;11(6):613-30.

18. Dufourny L, Caraty A, Clarke IJ, Robinson JE, Skinner DC. Progesterone-receptive beta-endorphin and dynorphin B neurons in the arcuate nucleus project to regions of high gonadotropin-releasing hormone neuron density in the ovine preoptic area. *Neuroendocrinology.* 2005; 81(3):139-49.

19. Dufourny L, Caraty A, Clarke IJ, Robinson JE, Skinner DC. Progesterone-receptive dopaminergic and neuropeptide Y neurons project from the arcuate nucleus to gonadotropin-releasing hormone-rich regions of the ovine preoptic area. *Neuroendocrinology.* 2005;82(1):21-31.

20. Fuller PJ. Aldosterone: secretion and action. In: Endocrinology. DeGroot L. J. and Jameson, J.L. (Senior Editors). 5th Edition,W.B. Saunders Co. Philadelphia 2005.

21. Fuller PJ, Alexiadis M, Jobling T, McNeilage J. Seladin-1/DHCR24 expression in normal ovary, ovarian epithelial and granulosa tumours. *Clin Endocrinol (Oxf).* 2005 Jul;63(1):111-5.

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PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH

ANNUAL REPORT STATEMENTS FOR THE FINANCIAL YEAR ENDED 30 JUNE 2006

PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH

ANNUAL REPORT 2005/2006

This is the Fifteenth Annual Report of Prince Henry's Institute of Medical Research submitted to the Minister for Industry in accordance with the requirements of the Financial Act 1994.

The Report covers the Institute's financial period, 12 months ended 30th June 2006 and was approved for submission to the Minister at a meeting of the Board of Prince Henry's Institute of Medical Research on 24th August 2006.

ER Simpson
DIRECTOR

TT Haining
SECRETARY AND FINANCIAL SERVICES MANAGER

PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH

STATEMENT OF OPERATIONS FOR THE FINANCIAL YEAR ENDED 30 JUNE 2006

GENERAL INFORMATION

a) Establishment
The Institute is established by the Prince Henry's Institute of Medical Research Act 1988 (the Act). The responsible Minister is the Minister for Innovation.

b) Objectives
The objectives, powers and functions of the Institute as described in Section 5 of the Act are set out below:

1) The objectives of the Institute are:

a) to operate as a charitable scientific organisation; and
b) to further knowledge in the field of medicine, particularly human medicine and biotechnology, by the conducting and carrying out of research including research
   (i) to discover the nature and causes of human diseases and afflictions; and
   (ii) to improve the methods of preventing, diagnosing and treating diseases; and
c) to develop, commercially exploit and market industrial and intellectual property rights developed by or on behalf of the Institute; and
d) to provide services in the fields of human and animal medicine; and
e) to provide, and aid in the provision of, educational programs relating to the subject of research conducted by the Institute; and
f) to publish information relating to the work of the Institute.

2) The Institute shall have the following powers:

a) To enter into contracts, agreements or arrangements;
b) To hold industrial and intellectual property rights relating to inventions or discoveries made by or on behalf of the Institute;
c) To hold money raised, or received by way of grants, subsidies, subscriptions, gifts, bequests or in any other manner;
d) To borrow or otherwise obtain financial accommodation and charge all or any part of its real and personal property as security for the repayment of any liability in accordance with this Act and
e) To create and issue debentures in accordance with this Act and
f) To invest and from time to time vary the investment of any of its money in accordance with this Act.

c) Services
The Institute is dedicated to research in the field of endocrinology - the study of hormones and their role in health and disease, including cancer. In addition, the Institute is affiliated with Monash University and as such, provides teaching services to undergraduates and postgraduates and is associated with Southern Health.

d) Implementation of Government policy
The Institute is not responsible for implementing Government policy.

e) Administrative Structure

i) Members of the Board of Management

Mr John Robinson BSc, MGSc, FIMM
Chairman, Member of the Institute appointed by the Board

Mr Russell Fynmore AO, FCPA
Deputy Chairman
Member of the Institute appointed by the Board

Ms Lisa Hinrichsen B.Bus, BA, CA
Honorary Treasurer
Member of the Institute appointed by the Board

Professor Evan R Simpson BSc (Hons), PhD
Director

Mr Richard Amos BA (Soc/Legal), BA (PR)
Member of the Institute appointed by the Board

Mrs Jane Bell BEc, LLB, LLM (Lon), GAICD
Member of the Institute appointed by the Board

Professor Edward Byrne AO, B.Med.Sci, MBBS (1st Class Hons) Dipl. Clin Sci., FRACP, MD, D.Sc, FRCP (UK), MBA
Nominated to the Board by Monash University

Mrs Ann Ellis DipEd
Member of the Institute appointed by the Board

Adjunct Professor Denise Heinjus RN, Grad Cert (Mgt), MHltSc (Hons), FCN NSW
Nominated to the Board by Southern Health

Ms Margaret Lothian BEc, LLB (Hons)
Member of the Institute appointed by the Board

Ms Anne Molyneux BA, Grad Dip Acc, M Mgmt, CA, FACD
Member of the Institute appointed by the Board

Mr Trevor Montgomery SIPA
Member of the Institute appointed by the Board

Professor Nic Nicola AO BSc (Hons), PhD
Nominated to the Board by the National Health and Medical Research Council

Mr David Pisker Dip. Film Making
Member of the Institute appointed by the Board

Mr Bob Stensholt MP, BA, BD (Hons) MIntLaw Dip Phil
Nominated to the Board by the Minister for Health and Ageing

ii) Office Bearers

Chairman: Mr J Robinson
Deputy Chairman: Mr R J Fynmore AO
Hon. Treasurer: Ms L Hinrichsen
Director: Professor E R Simpson
Deputy Director: Professor J K Findlay AM
Public Officer and Secretary: Mr T T Haining

iii) Organisation Chart (please see page 13)

PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH

STATEMENT OF OPERATIONS FOR THE FINANCIAL YEAR ENDED 30 JUNE 2006

iv) Postal address:

PO Box 5152, Clayton, Vic 3168, Australia

Courier address:
Clinical Research & Services, Level 3, Block E
246 Clayton Road, Clayton, Vic 3168, Australia

Administration & Laboratories:
Level 4, Block E, Monash Medical Centre
246 Clayton Road, Clayton, Vic 3168, Australia

Biological Resources Facility:
Biotechnology Precinct, VIAS
Werribee, Victoria

Telephone: (03) 9594 4372
Facsimile: (03) 9594 6125
Home Page: http://www.princehenrys.org

f) Information
Information about the powers, functions and duties of the Institute can be found in the Prince Henry's Institute of Medical Research Act 1988.

Reports of the activities of the Institute can be found on its website and in the Annual Report of its operations, available from the Institute, reports to funding bodies such as the National Health and Medical Research Council of Australia, The Cancer Council of Victoria, the World Health Organization and other private foundations, and publications in learned scientific and medical journals, theses and reviews available in biomedical libraries.

g) Subsidiaries
The Institute does not have subsidiaries, and has a Joint Venture with Monash University for Australia Taxation Office (Goods and Services Tax) purposes related to the Monash Health Research Precinct.

REVIEW OF OPERATIONS

a) Operational Objectives
The operational objectives of the Institute for the 12 months ended 30th June 2006 were to further medical knowledge by conducting research in the field of endocrinology, to disseminate new information by publication in learned scientific journals and presentations at scientific and clinical meetings, to apply, where possible, the new information to clinical practice, to commercially develop intellectual property rights, and to provide educational programs particularly relating to the research interests of the Institute.

The Institute is a member of the Monash Health Research Precinct. Stage 1 of the new building development was completed on the 22nd September 2005. This development will enhance the facilities available for the Institute to meet its objectives.

b) External Influences
There were no legislative or other factors that substantially affected achievement of the operational objectives of the Institute.

c) Changes to Objectives
There were no major changes to the powers or functions of the Institute or to its organisational structure or methods of operation during the 12 month period under review.

d) External Reviews
No external review of the objectives, functions, powers or duties of the Institute were carried out.

e) Summary of Operations
The major research and development activities, and the clinical services and teaching programs of the Institute are summarized in the Annual Report for 12 months ended June 2006.

f) Promotional Activities
Community awareness of the Institute and the services it provides have been developed by circulating newsletters to Members and benefactors of the Institute, distributing the Annual Report to donors and interested parties, including Foundations, Trusts, Companies, and other research and teaching institutions. Community awareness has also been established by the participation of senior members of the Institute in public and professional education programs as well as many of the Institute's activities being reported in the media.

g) Legislative Responsibilities
The Institute had no responsibility for the administration of other Acts of legislation, and was not affected by any judicial decisions during the financial year.

h) Regulations
The Institute has 10 By-Laws, made under Section 19 of the Prince Henry's Institute of Medical Research Act 1988. It is the opinion of the Board that these regulations are too numerous to summarise in this statement,but a list can be obtained from the Institute.

i) Employees
There were 107 full-time, part-time and casual employees on 30th June 2006 and 108 on 30th June 2005. These figures do not include postgraduate scholars studying at the Institute during the 12 months ended 30th June 2006.

j) Pecuniary Interests
Members of the Board have made declarations of interest under Section 14 of Prince Henry's Institute of Medical Research Act 1988.

k) Overseas Visits
All overseas visits undertaken on behalf of or paid for by the Institute were for technical purposes.

PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH

STATEMENT OF OPERATIONS FOR THE FINANCIAL YEAR ENDED 30 JUNE 2006

l) Occupational Health and Safety
The Institute's staff is its greatest asset and hence OH&S is a key issue. A Safety Committee comprising representatives from all groups and management is constituted as per the Victorian OH&S Act 2004. One staff member is designated Safety Manager under the jurisdiction as listed under the Act and this person represents PHIMR on the Southern Health Safety Representative group. We also have extensive liaison with Monash University in OH&S. The Safety Manager (Materials & Human Resources Manager) chairs four safety meetings per annum and undertakes the overseeing of orientation and training as well as development of safety policy. The Safety Manager also sits on the Southern Health Radiation Safety Committee. During the year ended 30th June 2006 a comprehensive audit of safety was undertaken with a favourable outcome. The GAP analysis did highlight areas where more attention was needed and these are currently under development as is a review of policy on responsibilities under the new OH&S act.

m) Environmental Regulations
The Institute complies with the Environmental Protection Act in respect of its operations. Discharges to air and water are below specified levels of contaminants and solid waste is disposed of in an appropriate manner. Biomedical waste and sharps are disposed of through appropriately licensed contractors.

n) Industrial Relations
The Institute largely follows the guidelines of the Public Sector and Monash University with respect to matters of industrial relations, except where provisions are laid down by the National Health and Medical Research Council. There was no time lost due to industrial accidents and disputes during the year.

o) Freedom of Information
There were no requests made directly to the Institute under the Freedom of Information Act 1982.

p) External Committees
No external committees dealing with public policy matters were set up during the financial year.

q) Consultants
Wyndarra Consulting – Risk Management and Internal Audit Consultancy.

r) Performance Statistics: The financial statistics are summarised in the financial statements which accompany this statement of Operations. Other statistics are summarised in the following table.

TABLE 1

	2006	2005
Scientific papers published or accepted for publication	67*	89**
Postgraduate Students:		
Total number of students	30	37
Enrolled for Ph.D	25	32
Enrolled for Masters, Honours and BMedSci	5	5
Number Graduating:		
Ph.D	5	6
Masters, Honours and BMedSci	4	12

Institute Staff:

	2006		2005	
	Number	**EFT**	**Number**	**EFT**
Research Staff	109	72.18	110	72.95
Laboratory Support	3	.50	2	.52
Buildings/Facilities Operations	1	.50	1	.50
Management/ Administrative Staff	22	15.44	21	16.11
TOTAL	**135**	**88.62**	**134**	**90.08**

* Denotes calendar year 2006
**Denotes calendar year 2005

PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH

OPERATING STATEMENT FOR THE FINANCIAL YEAR ENDED 30 JUNE 2006

	Note	2006 $	2005 $
Revenue from operations			
Australian Government Grants	2(a)	6,248,160	5,633,764
Non-Government Grants	2(b)	3,599,221	3,123,848
Share of profits / (losses) from associate using the equity method of accounting	2(c)	12,928	-
Other income	2(d)	2,120,500	3,478,071
Total revenue from operations		**11,980,809**	**12,235,683**
Expenditure for operations			
Scientific and laboratory expenses	2(e)	(7,991,124)	(7,243,796)
Administration expenses	2(e)	(2,626,700)	(2,059,781)
Depreciation and amortisation expense	2(e)	(553,892)	(373,285)
Impairment of non-current assets	2(e)	(192,000)	-
Total expenditure for operations		**(11,363,716)**	**(9,676,862)**
Net operating result for the financial year		**617,093**	**2,558,821**

The accompanying notes on pages 90 to 103 form part of these financial statements

PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH

BALANCE SHEET AS AT 30 JUNE 2006

	Note	2006 $	2005 $
Current Assets			
Cash and cash equivalents	21(b)	1,987,264	1,491,395
Receivables	4	2,106,728	2,251,796
Inventories	5	64,331	39,366
Investments in listed companies	6	7,451,307	5,007,809
Other assets	7	38,390	35,156
Total current assets		**11,648,020**	**8,825,522**
Non-current assets			
Receivables	4	-	399,145
Investment in non-listed companies		14,000	14,000
Investments in associate using the equity method of accounting	8	5,641,637	4,580,469
Property, plant and equipment	9	2,003,101	2,420,034
Total non-current assets		**7,658,738**	**7,413,648**
Total assets		**19,306,758**	**16,239,170**
Current liabilities			
Payables	10	1,702,834	1,263,610
Provisions	11	1,411,242	1,501,151
Total current liabilities		**3,114,076**	**2,764,761**
Non-current liabilities			
Provisions	11	130,668	147,912
Total non-current liabilities		**130,668**	**147,912**
Total liabilities		**3,244,744**	**2,912,673**
Net assets		**16,062,014**	**13,326,497**
Equity			
Contributed capital		5,711,063	5,711,063
Reserves		2,310,034	204,037
Accumulated surplus		8,040,917	7,411,397
Total equity		**16,062,014**	**13,326,497**

The accompanying notes on pages 90 to 103 form part of these financial statements

PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH

STATEMENT OF CHANGES IN EQUITY FOR THE FINANCIAL YEAR ENDED 30 JUNE 2006

	Note	Contributed Capital $	Asset Revaluation Reserve $	Available for sale Revaluation Reserve $	Specific Purpose Reserve $	Accumulated Surplus $	Total $
Balance as at 1 July 2004		5,711,063	126,849	-	3,629,483	1,235,520	10,702,915
Asset revaluation – Werribee		-	64,761	-	-	-	64,761
Transfer to / (from) reserves		-	-	-	(3,617,056)	3,617,056	-
Net result for the financial year		-	-	-	-	2,558,821	2,558,821
Balance as at 30 June 2005		5,711,063	191,610	-	12,427	7,411,397	13,326,497
Asset revaluation – Werribee		-	(191,610)	-	-	-	(191,610)
Transfer to/(from) reserves		-	-	-	(12,427)	12,427	-
Adoption of AASB 139 from 1 July 2005	1(r)	-	-	1,668,970	-	-	1,668,970
Movement in fair value of investments in listed companies	6	-	-	641,064	-	-	641,064
Net result for the financial year		-	-	-	-	617,093	617,093
Balance as at 30 June 2006		**5,711,063**	**-**	**2,310,034**	**-**	**8,040,917**	**16,062,014**

The accompanying notes on pages 90 to 103 form part of these financial statements

PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH

CASH FLOW STATEMENT FOR THE FINANCIAL YEAR ENDED 30 JUNE 2006

	Note	2006 $	2005 $
Cash flows from operating activities			
Receipts from Government		6,796,176	5,633,764
Receipts from other entities		4,005,454	3,977,749
Payments to suppliers and employees		(9,865,774)	(9,171,522)
Goods and Services Tax recovered from the ATO		452,243	646,719
Goods and Services Tax paid to the ATO		(470,339)	(636,108)
Interest received		98,032	177,983
Dividends received		904,769	1,032,124
Other revenue		487,385	331,783
Net cash provided by / (used in) operating activities	21(a)	**2,407,946**	**1,992,492**
Cash flows from investing activities			
Payment for investments in non-listed companies		(1,048,240)	(982,109)
Payment for investments		(1,601,292)	(4,879,888)
Proceeds on sale of investments		1,248,270	4,309,456
Payment for property, plant and equipment		(568,815)	(454,787)
Proceeds from sale of property, plant and equipment		58,000	41,228
Net cash provided by / (used in) investing activities		**(1,912,077)**	**(1,966,100)**
Net increase / (decrease) in cash held		**495,869**	**26,392**
Cash and cash equivalents at the beginning of the financial year		**1,491,395**	**1,465,003**
Cash and cash equivalents at the end of the financial year	21(b)	**1,987,264**	**1,491,395**

The accompanying notes on pages 90 to 103 form part of these financial statements

PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 30 JUNE 2006

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 30 JUNE 2006

1. Summary of accounting policies

Prince Henry's Institute of Medical Research ("the Institute") is an organisation formed under an Act of the Victorian Parliament, 1988 No 43. The Institute is exempt from income tax under Subdivision 30-BA of the Income Tax Assessment Act 1997.

Statement of compliance
This financial report is a general purpose financial report prepared in accordance with the Financial Management Act 1994, Australian Accounting Standards and Urgent Issues Group Intepretations. Accounting Standards include Australian equivalents to International Financial Reporting Standards ("A-IFRS")

The financial statements were authorised for issue by Financial Services Manager – Prince Henry's Institute of Medical Research on 24 August 2006.

Basis of preparation
The financial report has been prepared on the basis of historical cost, except for the revaluation of certain non-current assets and financial instruments. Cost is based on the fair values of the consideration given in exchange for assets.

In the application of A-IFRS management is required to make judgments, estimates and assumptions about carrying values of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstance, the results of which form the basis of making the judgments. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

Judgements made by management in the application of A-IFRS that have significant effects on the financial statements and estimates with a significant risk of material adjustments in the next year are disclosed throughout the notes in the financial statements.

Accounting policies are selected and applied in a manner which ensures that the resulting financial information satisfies the concepts of relevance and reliability, thereby ensuring that the substance of the underlying transactions or other events is reported.

The Institute changed its accounting policies on 1 July 2005 to comply with A-IFRS. The transition to A-IFRS is accounted for in accordance with Accounting Standard AASB 1 'First-time Adoption of Australian Equivalents to International Financial Reporting Standards', with 1 July 2004 as the date of transition. An explanation of how the transition from superseded policies to A-IFRS has affected the Institute's financial position, financial performance and cash flows is discussed in note 23.

The accounting policies set out below have been applied in preparing the financial statements for the year ended 30 June 2006, the comparative information presented in these financial statements for the year ended 30 June 2005, and in the preparation of the opening A-IFRS balance sheet at 1 July 2004, the Institute's date of transition, except for the accounting policies in respect of financial instruments. The Institute adopted Accounting Standards AASB 132 'Financial Instruments: Disclosure and Presentation' and AASB 139 'Financial Instruments: Recognition and Measurement' prospectively from 1 July 2005. The accounting policies for financial instruments applicable to the comparative information and the impact of the changes in these accounting policies is discussed further in note 1(r).

The following significant accounting policies have been adopted in the preparation and presentation of the financial report:

(a) Cash and Cash Equivalents
Cash and cash equivalents comprise cash on hand and in banks and investments in money market instruments.

(b) Contributed Capital
Consistent with UIG Interpretation 1038 'Contributions by Owners Made to Wholly-Owned Public Sector Entities' grants for additions to net assets have been designated as contributed capital. Other transfers that are in the nature of contributions or distributions have also been designated as contributed capital.

(c) Depreciation
Depreciation is provided on property, plant and equipment, including leasehold improvements. Depreciation is calculated on a straight line basis so as to write off the net cost or other revalued amount of each asset over its expected useful life to its estimated residual value. Leasehold improvements are depreciated over the period of the lease or estimated useful life, whichever is the shorter, using the straight line method. The estimated useful lives, residual values and depreciation method is reviewed at the end of each annual reporting period.
The following estimated useful lives are used in the calculation of depreciation:

	2006	2005
Leasehold improvements	10 years	21 years
Plant and equipment	2 – 10 years	2 – 10 years

The change to useful life of the leasehold premises at Werribee is detailed in Note 9.

(d) Provisions - Employee benefits
Provision is made for benefits accruing to employees in respect of wages and salaries, annual leave and long service leave when it is probable that settlement will be required and they are capable of being measured reliably.

Consistent with AASB 101 para 60 (d) the Institute does not have unconditional right to defer settlement of the employee benefits liabilities at the time the entitlement becomes an employee right. Provisions made in respect of employee benefits are categorised between current and non-current on the basis of the employees' right to access the entitlements.

Provisions made in respect of employee benefits expected to be settled within 12 months, are measured at their nominal values using the remuneration rate expected to apply at the time of settlement.

1. Summary of accounting policies (cont.)

Provisions made in respect of employee benefits which are not expected to be settled within 12 months are measured as the present value of the estimated future cash outflows to be made by the Institute in respect of services provided by employees up to reporting date.

The amount charged to the Operating Statement in respect of superannuation represents the contributions made by the Institute to superannuation funds during the financial year. (Refer Note 16)

(e) Investments in listed companies
Investments are recognised and derecognised on trade date where purchase or sale of an investment is under a contract whose terms require delivery of the investment within the timeframe established by the market concerned, and are initially measured at fair value, net of transaction costs.

Investments held by the Institute are classified as being available-for-sale and are stated at fair value, gains and losses arising from changes in fair value are recognised directly in equity, until the investment is disposed of or is determined to be impaired, at which time the cumulative gain or loss previously recognised in equity is included in profit or loss for the period.
Dividend revenue is recognised on a receivable basis.
Interest revenue is recognised on a time proportionate basis that takes into account the effective yield on the financial asset.

(f) Payables
The Institute's policy for settlement of payables is 30 days from invoice.

Trade payables and other accounts payable are recognised when the Institute becomes obliged to make future payments resulting from the purchase of goods and services.

(g) Goods and services tax
Revenues, expenses and assets are recognised net of the amount of goods and services tax (GST), except:
- where the amount of GST incurred is not recoverable from the taxation authority, it is recognised as part of the cost of acquisition of an asset or as part of an item of expense; or
- for receivables and payables which are recognised inclusive of GST.

The net amount of GST payable to the Australian Taxation Office is included as part of payables.
Cash flows are included in the cash flow statement on a gross basis.

(h) Comparative figures
When required by A-IFRS, comparative figures have been adjusted to conform to changes in presentation for the current financial year.

In the current financial year, the Institute has reported revenue net of expenditure, where required or permitted by A-IFRS; or where gains, losses and related expenses arise from the same transaction or event or from similar individually immaterial transactions or events. In prior years, the Institute reported gross amounts for income and expenditure.

In the previous financial year, investments in money market instruments were presented as a component of the total investment balance. As disclosed in Note 1(a), the Institute now considers cash and cash equivalents to comprise cash on hand and in banks and investments in money market instruments. As a result of this change an amount of $1,279,057 previously reported at 30 June 2005 as investments has been reclassified as cash and cash equivalents.

(i) Impairment of assets
Physical assets are assessed annually for indications of impairment, except for:
- inventories; and
- financial assets.

Where there is an indication of impairment, the assets concerned are tested as to whether their carrying value exceeds their recoverable amount. Where an asset's carrying value exceeds its recoverable amount, the difference is written-off by a charge to the operating statement except to the extent that the write-down can be debited to a revaluation reserve amount applicable to that specific asset.
Recoverable amount for assets primarily used to generate net cash inflows is measured at the higher of the present value of future cash flows expected to be obtained from the asset and fair value less cost to sell.
It is deemed that, in the event of the loss of an asset, the future economic benefits arising from the use of the asset will be replaced unless a specific decision to the contrary has been made.

(j) Foreign currency
All foreign currency transactions during the financial year are brought to account using the exchange rate in effect at the date of the transaction. Foreign monetary items at reporting date are translated at the exchange rate existing at reporting date.

Exchange differences are recognised in profit or loss in the period in which they arise.

(k) Investments in associate using the equity method of accounting
Associates are those entities over which the Institute exercises significant influence, but not control.

Investments in associates are accounted for in the financial statements using the equity method. Under this method, the Institute's share of the post-acquisition profits or losses of associates is recognised in the operating statement and its share of post-acquisition movements in reserves is recognised in reserves. The cumulative post-acquisition movements are adjusted against the cost of the investment.

(l) Inventories
Inventories are valued at the lower of cost and net realisable value.

(m) Leases
Leases are classified as finance leases whenever the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

1. Summary of accounting policies (cont.)

Finance Leases
A lease asset and a lease liability equal to the present value of the minimum lease payments are recorded at the inception of the lease.

Lease payments are apportioned between finance charges and reduction of the lease obligation so as to achieve a constant rate of interest on the remaining balance of the liability. Finance charges are charged directly against income, unless they are directly attributable to qualifying assets, in which case they are capitalised.

Operating Leases
Payments made under operating leases are expensed on a straight line basis over the term of the lease, except where an alternative basis is more representative of the pattern of benefits derived from the leased property.

Lease Incentives
Lease incentives are recognised as liabilities. The aggregate benefits of incentives are recognised as a reduction of rental, on a straight line basis expect where an alternative basis is more representative of the time pattern in which economic benefits from the leased asset are consumed.

(n) Revenue recognition
Government grants are recognised as revenue when the Institute gains control of the underlying assets. Where grants are reciprocal, revenue is recognised as performance occurs under the grant. Non-reciprocal grants are recognised as revenue when the grant is received or receivable. Conditional grants may be reciprocal or non-reciprocal depending on the terms of the grant.

Dividend revenue is recognised on a receivable basis.

Interest revenue is recognised on a time proportionate basis that takes into account the effective yield on the financial asset.

Income from the sale of goods and disposal of other assets is recognised when the Institute has passed control of the goods or other assets to the buyer.

Income from a contract to provide services is recognised by reference to the stage of completion of the contract.
Royalty income is recognised as earned or received.

(o) Revaluations
Assets other than those that are carried at cost are revalued with sufficient regularity to ensure that the carrying amount of each asset does not differ materially from its fair value.

Leasehold improvements are carried at deemed cost on the transition to A-IFRS based on the independent valuation performed by Egan National Valuers on the date of transition. The financial impact of this valuation is disclosed in Note 9 Property, plant and equipment.

Revaluation increments are credited directly to equity in the revaluation reserve, except that, to the extent that an increment reverses a revaluation decrement in respect of the same asset previously recognised as an expense in the net result, the increment is recognised as revenue in determining the net result.

Revaluation decrements are recognised immediately as expenses in the net result, except that, to the extent that a credit balance exists in the revaluation reserve in respect of the same asset, they are debited to the revaluation reserve.

Revaluation reserves are transferred to accumulated surplus on sale or derecognition of the relevant asset.

(p) Non-current physical assets
Each class of property, plant and equipment is carried at cost or fair value, less where applicable, any accumulated depreciation and impairment losses.

The carrying amount of plant and equipment is reviewed annually to ensure it is not excess of the recoverable amount. The recoverable amount is assessed on the basis of replacement value. The recoverable amount for the leasehold assets is measured at the higher of the present value of future cash flows expected to be obtained from the asset and fair value less costs to sell.

(q) Rounding of amounts
Unless otherwise disclosed, amounts in the financial report have been rounded to the nearest dollar.

(r) Adoption of AASB 132 and AASB 139
The Institute elected to defer application of the AASB 132 "Financial Instruments: Disclosure and Presentation" and AASB 139 "Financial Instruments Recognition and Measurement" from transition date to 1 July 2005 as allowed under AASB 132 and AASB 139. At 1 July 2005 the Institute designated it's investment in listed companies as being "available-for-sale" and restated them to market value with the increment arising from the restatement taken to a revaluation reserve as part of equity. The Institute has also elected not to restate comparative information for financial instruments as permitted by AASB 132 and AASB 139.

The accounting policies applied to accounting for financial instruments in the current financial year are detailed in note 1. The following accounting policies were previously applied to accounting for financial instruments in the comparative financial year:

(a) Accounts Payable
Trade payables and other accounts payable were recognised when the Institute becomes obliged to make future payments resulting from the purchase of goods and services.

Interest
Interest was classified as an expense, consistent with the statement of financial position classification of the related debt instruments.

(b) Investments
Investments other than those in associated entities were recorded at cost.

(c) Receivables
All receivables were recorded at amounts due less any allowance for doubtful debts.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 30 JUNE 2006

1. Summary of accounting policies (cont.)

Effect of adoption of AASB 132 and AASB 139

The effect of adopting AASB 132 and AASB 139 on the balance sheet as at 1 July 2005 is shown below:

	30 June 2005 $	Effect of adoption $	1 July 2005 $
Current assets			
Cash and cash equivalents	1,491,395	-	1,491,395
Receivables	2,251,796	-	2,251,796
Inventories	39,366	-	39,366
Investments in listed companies	5,007,809	1,668,970	6,676,779
Other assets	35,156	-	35,156
Total current assets	**8,825,522**	**1,668,970**	**10,494,492**
Non-current assets			
Receivables	399,145	-	399,145
Investments in non-listed companies	14,000	-	14,000
Investments in associate using the equity method of accounting	4,580,469	-	4,580,469
Property, plant and equipment	2,420,034	-	2,420,034
Total non-current assets	7,413,648	-	7,413,648
Total assets	**16,239,170**	**1,668,970**	**17,908,140**
Current liabilities			
Payables	1,263,610	-	1,263,610
Provisions	647,465	-	647,465
Total current liabilities	**1,911,075**	**-**	**1,911,075**
Non-current liabilities			
Provisions	1,044,879	-	1,044,879
Total non-current liabilities	**1,044,879**	**-**	**1,044,879**
Total liabilities	**2,955,954**	**-**	**2,955,954**
Net assets	**13,283,216**	**1,668,970**	**14,952,186**
Equity			
Contributed capital	5,711,063	-	5,711,063
Revaluation Reserve	191,610	1,668,970	1,860,580
Specific Purpose Reserves	12,427	-	12,427
Accumulated surplus	7,368,116	-	7,368,116
Total equity	**13,283,216**	**1,668,970**	**14,952,186**

2. Net result from Operations

Income from Operations	2006 $	2005 $
(a) Australian Government Grants		
Australian Government Grant – National Health & Medical Research Council	3,836,358	3,987,907
Australian Government Grant – National Health & Medical Research Council - infrastructure	1,204,393	408,360
Victorian Government Grant – Department of Innovation, Industry & Regional Development	984,800	989,652
Victorian Government Grant – Department of Human Services	222,609	247,845
Total Australian Government Grants	**6,248,160**	**5,633,764**
(b) Non-Government Grants		
(i) Overseas Grants and Fellowships		
Schering AG	1,410,245	667,772
CONRAD Program	147,374	134,530
National Institutes of Health	117,595	188,815
Endocrine Pharmaceuticals UK	61,566	83,018
Serono Foundation	59,218	61,350
University of California LA	41,157	49,555
Granulosa Cell Tumor of the Ovary Foundation	24,946	-
Axzo Nobel Organon	3,637	-
Merck & Co Pty Ltd	-	213,928
World Health Organisation	-	70,062
University of Michigan	-	51,668
L'Institute Nationale d'Environment	-	27,986
University of Milan	-	2,094
University of Nottingham	-	389
Total overseas grants and fellowships	**1,865,738**	**1,551,167**
(ii) Australian Grants and Fellowships		
Cancer Council Victoria	566,996	550,000
Pfizer Australia Pty Ltd	157,213	417,533
NAB Ovarian Cancer Research Foundation	142,890	81,033
Schering Pty Ltd	100,000	-
National Heart Foundation	60,000	25,000
Diabetes Australia	22,500	42,500
The Royal Australian College of Physicans	20,000	-
National Breast Cancer Foundation	15,000	-
Novartis Australia Pty Ltd	9,091	40,000
Foundation for High Blood Pressure Research	-	35,000
The Cancer Institute (NSW)	-	18,000
Total Australian grants and fellowships	**1,093,690**	**1,209,066**

2. Net result from Operations (cont.)

	2006 $	2005 $
(iii) Commercial Contracts		
Diagnostic System Laboratories	95,559	58,500
Acrux DDS Pty Ltd	6,900	55,197
Novo Nordisk Pharmaceuticals	3,637	4,779
NV Organon (Aust) Pty Ltd	-	16,700
Mayo Clinic College of Medicine	-	10,032
Institut fur Zoologie	-	1,932
CIBA Vision Corporation (CV)	-	1,535
Prosearch International Australia	-	1,300
Total commercial contracts	**106,096**	**149,975**
(iv) Transfers from Other Institutions		
Murdoch Children's Research Institute	307,047	-
Monash University	213,125	164,649
Southern Health	13,525	19,783
Walter and Eliza Hall Institute	-	15,917
University Queensland	-	4,250
The Garvan Institute	-	3,000
University Melbourne	-	2,600
Mercy Hospital	-	2,141
Howard Florey Institute	-	1,300
Total transfers from other institutions	**533,697**	**213,640**
Total Non-Government Grants	**3,599,221**	**3,123,848**

(c) Share of profits from associate using the equity method of accounting

Profit receivable from associate – Monash Health Research Precinct

	2006 $	2005 $
	12,928	-

(d) Other Income

Share dividends	904,769	1,032,124
Australian Government Grant – National Health & Medical Research Council – Monash Health Research Precinct Pty Ltd – Capital Donation	445,454	1,454,545
Australian Government Grant – National Health & Medical Research Council – Capital Equipment Grant	102,562	122,349
Donations general	398,845	311,272
Travel Support	115,641	102,207
Interest	98,032	177,983
Royalties	56,362	127,950
Donation – Equipment in kind	-	344,000
Other	208,639	14,962
Gain / (loss) on disposal of property, plant and equipment	9,756	1,924
Gain / (loss) on disposal of investments	(219,560)	(211,245)
Total other income	**2,120,500**	**3,478,071**
Total Revenue from operations	**11,980,809**	**12,235,683**

(e) Expenditure for Operations

Net result for the financial year has been arrived at after crediting (charging) the following items:

	2006 $	2005 $
Scientific and laboratory expenses		
Employee benefits - Scientific	6,083,245	5,453,652
Scientific related consumables	1,233,839	1,195,245
Research support services	674,040	594,899
Total scientific & laboratory expenses	**7,991,124**	**7,243,796**
Administration expenses		
Employee benefits - Administration	1,148,405	957,986
Travel and Accommodation	355,901	405,168
Occupancy	262,435	2,000
Public Relations	190,552	168,214
Legal Expenses	76,477	128,855
Repairs and maintenance	58,250	53,803
Write-down of leasehold property - Werribee (refer Note 9)	90,390	-
Other	444,290	343,755
Total administration expenses	**2,626,700**	**2,059,781**
Depreciation and amortisation expense		
Depreciation on non-current assets	528,695	373,285
Write-back of depreciation on revaluation - Werribee property	25,197	-
Amortisation on leasehold premises	-	-
Total depreciation and amortisation expense	**553,892**	**373,285**
Impairment of non-current assets		
Werribee leasehold (Refer to Note 9)	192,000	-
Total Expenditure	**11,363,716**	**9,676,862**

3. Remuneration of auditors

Victorian Auditor General's Office		
Audit of the financial report	9,800	10,875

4. Receivables

	2006 $	2005 $
Current		
Monash Medical Health Research Precinct	-	602,636
National Health Medical Research Council – Long Service Leave *	335,915	-
Other receivables	1,770,813	1,649,160
	2,106,728	**2,251,796**
Non-current		
National Health Medical Research Council – Long Service Leave *	-	399,145
	-	399,145
Total Receivables	**2,106,728**	**2,650,941**

*The Institute has submitted a claim for long service entitlements to the National Health and Medical Research Council (NHMRC) for employees whose research work was funded by NHMRC for the period to 2002. The Institute received a payment for $335,915 in respect of the claim. An amount of $63,230, reflecting the reduction in the previously reported debtor, was recognised as an expense to employee benefits in the Operating Statement. This difference relates to a variance in the conditions on which an employee's long service leave entitlements are calculated. The Institute is continuing discussions with the NHMRC to have recognised the conditions on which long service leave is paid to the Institute employees.

5. Inventories

	2006 $	2005 $
Supplies and consumables for Institute operations	64,331	39,366
	64,331	39,366

6. Investments in listed companies

Balance at beginning of financial year (at cost)	5,007,809	4,648,613
Movement in market value of shares on adoption of AASB 139 from 1 July 2005	1,668,970	-
	6,676,779	4.648,613
Purchase / sale of shares at cost during the financial year	133,464	359,196
Movement in fair value of shares held for the financial year	641,064	-
Balance at end of the financial year	**7,451,307**	**5,007,809**

Note 2005 comparative figures are at cost.

7. Other assets

Prepayments	38,390	35,156
	38,390	35,156

8. Investments in associate using the equity method of accounting

In 2002 the Institute entered into an agreement with the Commonwealth Government of Australia, acting through and represented by the Department of Health and Ageing, in which the Government agreed to fund the construction of research laboratories for the Institute at the Monash Health Research Precinct ("the Precinct") located at the Monash Medical Centre campus of Southern Health. In accordance with the Agreement, the Commonwealth provided funding of $4,500,000 towards the construction of a building to house the research laboratories with a further $1,000,000 provided to complete the fit-out of those laboratories.

These funds were pooled with other grant funds and bank loans to enable the construction of a new research facility to accommodate not only the Institute, but also certain activities of Monash University represented by Monash Institute of Medical Research ("MIMR") and the Monash Institute of Health Services Research ("MIHSR").

Monash Health Research Precinct Pty Ltd ("MHRP") was established to facilitate the above and specifically for the purpose of the following:

- constructing a new research facility at the Precinct:
- ensuring the company remains solvent; and
- allocating to the shareholders the costs and expenses of any shared resources and facilities of the Precinct.

Southern Health, Monash University and the Institute are each shareholders of MHRP. As at 30 June 2006, the issued capital of MHRP totalled 15,338,478 shares of $1.00 each (2005: 13,690,229 shares at $1.00 each). These shares were held by the following entities:

- Monash University holds 6,591,579 shares (43%) (2005: 5,991,570);
- Prince Henry's Institute of Medical Research holds 5,628,709 shares (37%) (2005: 4,580,469); and
- Southern Health holds 3,118,190 shares (20%) (2005: 3,118,190).

The table below details the Institute's investment in the Monash Health Research Precinct Pty Ltd:

	PHIMR share		MHRP 100%	
	2006 $	2005 $	2006 $	2005 $
Current assets	1,145,488	934,575	3,104,573	2,791,443
Non-current assets	6,871,124	5,700,313	18,622,545	17,026,027
Share of total assets	8,016,612	6,634,888	21,727,118	19,817,470
Current liabilities	154,249	2,078,508	352,767	6,210,166
Non-current liabilities	2,220,726	-	6,018,750	-
Share of total liabilities	2,374,975	2,078,508	6,371,517	6,210,166
Net assets	**5,641,638**	**4,556,380**	**15,355,601**	**13,607,304**
Revenue	387,834	28,177	1,048,200	84,365
Net Profit	37,017	(24,089)	100,047	(72,123)

8. Investments in associate using the equity method of accounting (cont.)

During June 2005 the Institute entered into a 21 year lease with MHRP commencing 1 September 2005, for the use of the laboratories. The Institute's financial commitment in respect of the lease is detailed in Note 12. Comparative information is limited to this note and as such the balance of $4,580,469 as reflected in the Balance Sheet as at 30 June 2005 represents the historical cost of the Institute's investment in MHRP. The Institute's share of the accumulated result to 30 June 2006 has been reflected in the Operating Statement for the financial year ending 30 June 2006.

9. Property Plant and Equipment

	2006 $	2005 $
Leasehold improvements at valuation	236,000	710,000
Accumulated amortisation	-	-
	236,000	**710,000**
Plant and equipment at cost	5,778,425	5,578,876
Accumulated depreciation	(4,011,324)	(3,868,842)
	1,767,101	**1,710,034**
Total property, plant and equipment	6,014,425	6,288,876
Accumulated depreciation and amortisation	(4,011,324)	(3,868,842)
Total Property, Plant and Equipment	**2,003,101**	**2,420,034**

Movements in Carrying Amounts

	Leasehold improvements $	Plant and equipment $	Total $
Balance at beginning of financial year	710,000	1,710,034	2,420,034
Additions	-	568,815	568,815
Disposals	-	(48,246)	(48,246)
Depreciation expense	(65,193)	(463,502)	(528,695)
Write back depreciation on revaluation	65,193	-	65,193
Revaluation decrement – operating statement	(90,390)	-	(90,390)
Revaluation decrement – Asset Revaluation Reserve	(191,610)	-	(191,610)
Asset impairment	(192,000)	-	(192,000)
Carrying amount at end of financial year	***236,000**	**1,767,101**	**2,003,101**

In 1995 the Institute signed a 21 year lease for the use of a property at Werribee in order to perform research activities. In December 2005 the research associated with the Werribee site ceased. On 5 June 2006 a valuation on the leasehold improvements situated at the leased property at Werribee was undertaken by Egan National Valuers. The basis of the valuation was in accordance with AASB 116 'Property, Plant and Equipment'. As a result of the valuation leasehold improvements were written down in aggregate by $282,000. Of this total write-down an amount of $191,610 was off set against the balance of previous increments recorded in the Asset Revaluation Reserve and the remaining amount of $90,390 expensed to the Operating Statement.
The Institute is negotiating a sub-lease for the Werribee for the remaining 10 years of the lease. An in principle agreement has been reached with the prospective tenant, with legal documents expected to be exchanged in September 2006. The Institute has revised the value of the leasehold improvements against the expected future cash flows of the sub-lease and assessed the value leasehold to be impaired by $192,000.

10. Payables

	2006 $	2005 $
Current		
Goods and Services Tax - ATO	18,096	-
Grants – Nephrology Body Composition	516,853	547,786
Trade suppliers	889,747	715,824
Employee benefits payable	278,138	-
	1,702,834	**1,263,610**

11. Provisions

Current		
Employee benefits – salaries and wages accrued	-	210,202
Employee benefits - annual leave		
– short term payable within 12 months	344,584	317,924
– long term payable beyond 12 months	40,584	64,844
Employee benefits - long service leave		
– short term payable within 12 months	80,690	102,624
– long term payable beyond 12 months	945,384	805,557
	1,411,242	**1,501,151**
Non-Current		
Employee benefits - long service leave	130,668	147,912
Total Provisions	**1,541,910**	**1,649,063**
Institute employees as at 30 June	107	108

Note 1(d) details the basis on which employee benefits are calculated in the financial statements. Consistent with AASB 101 para 60 (d) the Institute does not have unconditional right to defer settlement of the employee benefits liabilities at the time the entitlement becomes an employee right. Provisions made in respect of employee benefits are categorised between current and non-current on the basis of the employees' right to access the entitlements. Provisions made in respect of employee benefits expected to be settled within 12 months, are measured at their nominal values using the remuneration rate expected to apply at the time of settlement. Provisions made in respect of employee benefits which are not expected to be settled within 12 months are measured as the present value of the estimated future cash outflows to be made by the Institute in respect of services provided by employees up to reporting date.

11. Provisions (cont.)

	2006 $	2005 $
Movement in long service leave:		
Balance at beginning of financial year	1,056,093	913,227
Provision made during the financial year	212,556	248,851
Settlement made during the financial year	(111,907)	(105,985)
Balance and end of financial year	**1,156,742**	**1,056,093**

12. Leases

Aggregate lease expenditure contracted at balance date:

	2006 $	2005 $
Operating Lease – Werribee Property		
Not later than one year	2,000	2,000
Later than one year but not later than five years	8,000	8,000
Later than five years	10,000	12,000
	20,000	**22,000**

Operating Lease – Monash Health Research Precinct:

The Institute has entered into a lease agreement for the provision of laboratory facilities at the Monash Health Research Precinct. Provisions of the lease require a per annum lease payment of $289,300, increasing at the rate of 3% per annum. The lease commenced on 1 September 2005.

	2006 $	2005 $
Not later than one year	296,533	241,083
Later than one year but not later than five years	1,277,798	1,240,582
Later than five years	6,480,693	6,814,442
	8,055,024	**8,296,107**

13. Economic Dependency

The Institute is reliant upon grants from the National Health and Medical Research Council for approximately 44% (2005: 44%) of operating expenditure and the Victorian Government for approximately 11% (2005: 13%) of operating expenditure for support of its basic research activities.

14. Responsible Persons

a) Responsible Minister

The Hon. J. Brumby in his capacity as Minister for Innovation.

(b) Directors

The Directors of the Institute during the year were:
John Robinson *(Chair)*
Evan R. Simpson *(Institute Director and Accountable Officer)*
Russell J. Fynmore AO *(Deputy Chair)*
Lisa Hinrichsen *(Treasurer)*
Jane Bell
Michael Burn (resigned 9 Feb 2006)
Edward Byrne AO
Anne Ellis
Margaret Lothian
Trevor J. Montgomery
Nicos Nicola AO
David Pisker
Linda Sorrell (resigned 20 Feb 2006)
Bob Stensholt MP
Anne Molyneux (appointed 23 August 2005)
Richard Amos (appointed 15 June 2006)
Denise Heinjus (appointed 15 June 2006)

	2006 $	2005 $
(c) Remuneration of Directors		
Remuneration received or due and receivable by Non-executive Directors	-	-
Insurance to indemnify liabilities whilst acting as a Director	20,024	20,410
Retirement benefits to Non-executive Directors	-	-
Loans to Non-executive Directors	-	-
Transactions to Non-executive Directors	-	-
Superannuation paid for Non-executive Directors	-	-
Remuneration paid / payable to the Institute Director	204,986	191,044

Related party transactions involving organisations with which the directors are associated are detailed in Note 18.

15. Remuneration of executives

The number of the Institute's senior officers and their total remuneration during the financial year are shown in the first two columns in the table below in their relevant income bands. The base remuneration of executive officers is shown in the third and fourth columns. Base remuneration is exclusive of bonus payments, long-service leave payments, redundancy payments and retirement benefits.

15. Remuneration of executives (cont.)

Several factors have affected total remuneration payable to senior officers over the year. A number of the senior officers received bonus payments during the year. These bonus payments depend on the terms of individual employment contracts and are dependent on achievement of outcomes.

	Total Remuneration		Base Remuneration	
	2006 No.	2005 No.	2006 No.	2005 No.
$100,000 – 109,999	2	2	1	-
$110,000 – 119,999	1	-	3	2
$120,000 – 129,999	1	1	-	1
$130,000 – 139,999	-	1	1	-
$140,000 – 149,999	1	1	-	-
$150,000 – 159,999	1	-	-	-
$160,000 – 169,999	-	-	-	-
$190,000 – 199,999	-	-	-	-
$200,000 - $209,999	-	1	-	-
Total numbers	**6**	**6**	**5**	**3**
Total amount	**$758,714**	**$818,175**	**$582,989**	**$356,688**

Note: Comparative information previously included the salaries of three senior officers who were ineligible to be classified as executives. The salary of the Institute Director is detailed in Note 14 and therefore excluded from the table. The changes have reduced the comparative figure by an amount of $471,400.

16. Superannuation

The majority of employees of the Institute are members of VicSuper Pty Ltd, which is a defined contribution fund. Institute contributions are calculated at rates of a minimum of 9% to a maximum of 17% of the employee's salary.

	2006 $	2005 $
Employer Contributions		
VicSuper Pty Ltd	598,215	603,146
Uni Super Management Pty Ltd	61,241	46,415
Other	42,439	24,072
	701,895	**673,633**
The above includes outstanding employer contributions at 30 June of:		
VicSuper Pty Ltd	64,835	-
Uni Super Management Pty Ltd	7,537	-
Other	5,775	-
	78,147	**-**

17. Capital commitments

	2006 $	2005 $
Commitments for capital expenditure not provided for in the accounts:		
Plant and equipment		
– contracted within twelve months	**110,594**	**-**

18. Related party transactions

Transactions between affiliated entities are on normal commercial terms and conditions no more favourable than those available to other parties.

	2006 $	2005 $
Other Transactions of responsible persons and their related entities		
Ms Linda Sorrell (Director) – Chief Executive of Southern Health Southern Health has provided services to the Institute for several years on normal commercial terms and conditions.		
Consumables, Telephone and Diagnostic Services	244,100	223,128
The Institute has provided services to Southern Health for several years on normal commercial terms and conditions.		
Medical and Nursing Services	36,638	32,350
Professor E. Byrne (Director) – Dean Faculty of Medicine Monash University Monash has provided services to the Institute for many years on normal commercial terms and conditions.		
Animal Services, Maintenance, Network and Training Services	1,093,061	662,845
The Institute has provided services to Monash University for several years on normal commercial terms and conditions		
Research and Animal Services	213,125	744,334
Mr T. Montgomery (Director) – Employed at Goldman Sachs J B Were, who are the Institute's Stockbrokers. Goldman Sachs J B Were has provided services for several years on normal commercial terms and conditions.		
Purchase and Sale of Investments – Brokerage Fees Paid	20,893	10,342

19. Subsequent events

There were no significant events after balance date.

20. Contingent Assets and Liabilities

As at 30 June 2006 there were no Contingent Assets or Liabilities (2005: $Nil).

21. Notes to cash flow statement

(a) Reconciliation of net result for the financial year

	2006 $	2005 $
Net result for the financial year	617,093	2,558,821
(Gain)/loss on sale or disposal of non-current assets	(9,756)	(1,924)
Depreciation and amortisation of non-current assets	553,892	373,285
Capital donations in kind	-	(344,000)
Loss on sale of investments	219,561	211,245
Share of profit from associate using the equity method of accounting	(12,928)	-
Impairment of non-current assets	192,000	-
	1,559,862	**2,797,427**
Changes in net assets and liabilities		
(Increase)/decrease in assets:		
Current receivables	145,068	(1,126,184)
Current inventories	(24,965)	(39,366)
Other current assets	(3,234)	(35,156)
Non-current receivables	399,145	11,747
Increase/(decrease) in liabilities:		
Current payables	439,226	210,581
Current provisions	(89,912)	173,443
Non-current provisions	(17,244)	-
Net Cash from operating activities	**2,407,946**	**1,992,492**

(b) Cash and cash equivalents

	2006 $	2005 $
Cash on hand and at bank	112,019	212,338
Investments at call	1,875,245	1,279,057
	1,987,264	**1,491,395**

22. Financial instruments

(a) Financial risk management objectives

The Institute's activities expose it primarily to the financial risks of changes in foreign currency exchange rates and interest rates. The Institute does not enter into derivative financial instruments to manage its exposure to interest rate and foreign currency risk.

The Institute does not enter into or trade financial instruments, including derivative financial instruments, for speculative purposes. The use of financial derivatives is governed by the Institute's policies approved by the board of directors, which provide written principles on the use of financial derivatives.
The policies for managing these risks are discussed in more detail below.

(b) Significant accounting policies

Details of the significant accounting policies and methods adopted, including the criteria for recognition, the basis of measurement and the basis on which income and expenses are recognised, in respect of each class of financial asset, financial liability and equity instrument are disclosed in note 1 to the financial statements.

(c) Significant terms and conditions

The Institute holds a significant portion of its investment funds in share equities and managed funds. The value of these investments is subject to market trading conditions. These funds are primarily utilized to supplement the operating and capital investment requirements of the Institute. A Board sub-committee manages the exposure of these investments ensuring the risk profile of the portfolio operates within the investment policy to provide adequate diversification, capital growth and income. The policy defines asset categories and market weightings within each industry sector.

22. Financial instruments (cont.)

(d) Interest rate risk

The following table details the Institute's exposure to interest rate risk as at 30 June 2006:

	Weighted average effective interest rate	Variable interest rate	Maturity dates					Non interest bearing	Total
			Less than 1 year	1-2 years	2-3 years	3-4 years	4+ years		
2006	**%**		**$**	**$**	**$**	**$**	**$**	**$**	**$**
Financial assets:									
Cash and cash equivalents	5.23%	1,875,245	-	-	-	-	-	112,019	1,987,264
Trade and other receivables		-	-	-	-	-	-	2,106,728	2,106,728
Investments in listed companies		-	-	-	-	-	-	7,451,307	7,451,307
		1,875,245	**-**	**-**	**-**	**-**	**-**	**9,670,054**	**11,545,299**
Financial liabilities:									
Trade and other payables		-	-	-	-	-	-	1,702,834	1,702,834
Provisions		-	425,274	985,968	130,688	-	-	-	1,541,910
		-	**454,274**	**985,968**	**130,688**	**-**	**-**	**1,702,834**	**3,244,744**

The following table details the Institute's exposure to interest rate risk as at 30 June 2005:

	Weighted average effective interest rate	Variable interest rate	Maturity dates			Non interest bearing	Total
			Less than 1 year	1-5 years	More than 5 years		
2005	**%**		**$**	**$**	**$**	**$**	**$**
Financial assets:							
Cash and cash equivalents	5.14%	1,279,057	-	-	-	212,338	1,491,395
Trade and other receivables		-	-	-	-	2,251,796	2,251,796
Investments in listed companies		-	-	-	-	5,007,809	5,007,809
		1,279,057	**-**	**-**	**-**	**7,471,943**	**8,751,000**
Financial liabilities:							
Trade and other payables		-	-	-	-	1,263,610	1,263,610
Provisions		-	592,970	908,181	147,912	-	1,649,063
		-	**592,970**	**908,181**	**147,912**	**1,263,610**	**2,912,673**

(e) Credit risk

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in financial loss to the Institute. The Institute has adopted a policy of only dealing with creditworthy counterparties and obtaining sufficient collateral where appropriate, as a means of mitigating the risk of financial loss from defaults. The Institute measures credit risk on a fair value basis.

The Institute does not have any significant credit risk exposure to any single counterparty or any group of counterparties having similar characteristics. The credit risk on liquid funds and derivative financial instruments is limited because the counterparties are banks with high credit-ratings assigned by international credit-rating agencies.

(f) Fair value

The Institute considers that the carrying amount of the net financial assets and financial liabilities recorded in the financial statements approximates their fair values.

The fair values and net fair values of financial assets and financial liabilities are determined as follows:

- the fair value of financial assets and financial liabilities with standard terms and conditions and traded on active liquid markets are determined with reference to quoted market prices; and
- the fair value of other financial assets and financial liabilities are determined in accordance with generally accepted pricing models based on discounted cash flow analysis.
- the fair value of derivative instruments, included in hedging assets and liabilities, are calculated using quoted prices. Where such prices are not available use is made of discounted cash flow analysis using the applicable yield curve for the duration of the instruments.

Transaction costs are included in the determination of net fair value.

23. Impacts of the adoption of Australian equivalents to International Financial Reporting Standards

The Institute changed its accounting policies, other than its accounting policies for financial instruments, on 1 July 2004 to comply with A-IFRS. The Institute changed its accounting policies for financial instruments, on 1 July 2005 (refer note 1(r)). The transition to A-IFRS is accounted for in accordance with Accounting Standard AASB 1 'First-time Adoption of Australian Equivalents to International Financial Reporting Standards', with 1 July 2004 as the date of transition.

An explanation of how the transition from superseded policies to A-IFRS has affected the Institute's financial position, financial performance and cash flows is set out in the following tables and the notes that accompany the tables.

		1 July 2004			30 June 2005		
	Note	GAAP $	Effect of transition to A-IFRS $	A-IFRS $	GAAP $	Effect of transition to A-IFRS $	A-IFRS $
Current assets							
Cash and cash equivalents		111,751	-	111,751	1,491,395	-	1,491,395
Receivables		1,125,621	-	1,125,621	2,251,796	-	2,251,796
Inventories		-	-	-	39,366	-	39,366
Investments in listed companies		9,600,225	-	9,600,225	5,007,809	-	5,007,809
Other		-	-	-	35,156	-	35,156
Total current assets		**10,837,597**	**-**	**10,837,597**	**8,825,522**	**-**	**8,825,522**
Non-current assets							
Receivables		410,892	-	410,892	399,145	-	399,145
Investments in non-listed companies		14,000	-	14,000	14,000	-	14,000
Investments in associate using the equity method of accounting		-	-	-	4,580,469	-	4,580,469
Property, plant and equipment		1,969,075	-	1,969,075	2,420,034	-	2,420,034
Total non-current assets		**2,393,967**	**-**	**2,393,967**	**7,413,648**	**-**	**7,413,648**
Total assets		**13,231,564**	**-**	**13,231,564**	**16,239,170**	**-**	**16,239,170**
Current liabilities							
Payables		1,053,029	-	1,053,029	1,263,610	-	1,263,610
Provisions	23(a)	653,716	672,302	1,326,018	647,465	853,686	1,501,151
Total current liabilities		**1,706,745**	**672,302**	**2,379,047**	**1,911,075**	**853,686**	**2,764,761**
Non-current liabilities							
Provisions	23(a)	821,904	(684,177)	137,727	1,044,879	(896,967)	147,912
Total non-current liabilities		**821,904**	**(684,177)**	**137,727**	**1,044,879**	**(896,967)**	**147,912**
Total liabilities		**2,528,649**	**(11,875)**	**2,516,774**	**2,955,954**	**(43,281)**	**2,912,673**
Net assets		**10,702,915**	**11,875**	**10,714,790**	**13,283,216**	**43,281**	**13,326,497**
Equity							
Contributed capital		5,711,063	-	5,711,063	5,711,063	-	5,711,063
Asset revaluation reserve		126,849	-	126,849	191,610	-	191,610
Specific purpose reserve		3,629,483	-	3,629,483	12,427	-	12,427
Accumulated surplus		1,235,520	11,875	1,247,395	7,368,116	43,281	7,411,397
		10,702,915	**11,875**	**10,714,790**	**13,283,216**	**43,281**	**13,326,497**

23. Impacts of the adoption of Australian equivalents to International Financial Reporting Standards (cont.)

		30 June 2005		
	Note	Previous GAAP $	Effect of transition to A-IFRS $	A-IFRS $
Revenue		8,757,612	-	8,757,612
Other income		3,478,071	-	3,478,071
Share of profits of associates accounted for using the equity method		-	-	-
Expenses	23(a)	(9,346,858)	43,281	(9,303,577)
Depreciation and amortisation expense		(373,285)	-	(373,285)
Net result for the financial year		**2,515,540**	**43,281**	**2,558,821**

Effect of A-IFRS on the statement of cash flows for the financial year ended 30 June 2005
There are no material differences between the statement of cash flows presented under A-IFRS and the statement of cash flows presented under previous Generally Accepted Accounting Principles (GAAP).

Notes to the reconciliations of income and equity
(a) Employee benefits
The Institute elected to measure employee benefits on transition to A-IFRS in accordance with AASB 101 "Presentation of Financial Statements" and AASB 116 "Employee Benefits".

AASB 101 para 60(b) requires employee benefits, where the Institute does not have an unconditional right to defer settlement of the liability for at least twelve months after the reporting date to be treated as a current liability. At the date of transition an amount of $672,304 was reclassified from non-current provision to current provisions. At 30 June 2005 the amount reclassified from non-current provisions to current provisions was $853,686.

AASB 116 requires provisions made in respect of employee benefits which are not expected to be settled within 12 months to be measured at the present value of the estimated future cash outflows to be made by the Institute in respect of services provided by employees up to reporting date. At the date of transition an amount of $11,875 was recognised as a reduction in the employee benefits expense with a corresponding decrease in the liability balance At 30 June 2005 the reduction to employee benefits expense was $43,281 with a corresponding decrease in the liability balance.

24. Changes to accounting standards

The following Australian Accounting Standards issued or amended which are applicable to the Institute are yet to be effective and have not been adopted in the preparation of the financial statements at reporting date.

AASB Standard Affected	Nature of change in Accounting Policy and Impact	Application Date of the Standard	Application Date for the company
AASB 7 Financial Instruments Disclosure	No change, no impact	1 January 2007	1 July 2007

PRINCE HENRY'S INSTITUTE OF MEDICAL RESEARCH

ACCOUNTABLE OFFICER, CHIEF FINANCE AND ACCOUNTING OFFICER'S AND DIRECTOR'S DECLARATION

We certify that the attached Financial Statements and notes for Prince Henry's Institute of Medical Research have been prepared in accordance with Standing Direction 4.2 of the *Financial Management Act* 1994, applicable Financial Reporting Directions, Australian Accounting Standards and other mandatory professional reporting requirements.

In our opinion, the information set out in the Operating Statement, Balance Sheet, Statement of Changes in Equity, Cash Flow Statement and notes to and forming part of the Financial Statements, presents fairly the financial transactions during the year ended 30 June 2006 and financial position of Prince Henry's Institute of Medical Research as at 30 June 2006.

At the time of signing the Financial Statements, we are not aware of any circumstances which would render any particulars included in the Financial Statements to be misleading or inaccurate.

R. Fynmore AO
Director, Deputy Chair
Prince Henry's Institute of Medical Research
Melbourne
24 August 2006

E Simpson
Accountable Officer
Prince Henry's Institute of Medical Research
Melbourne
24 August 2006

T Haining
Chief Finance and Accounting Officer
Prince Henry's Institute of Medical Research
Melbourne
24 August 2006

AUDITOR GENERAL
VICTORIA

INDEPENDENT AUDIT REPORT

Prince Henry's Institute of Medical Research

To the Members of the Parliament of Victoria and Members of the Board of the Institute

Matters Relating to the Electronic Presentation of the Audited Financial Report

This audit report for the financial year ended 30 June 2006 relates to the financial report of Prince Henry's Institute of Medical Research included on its web site. The Board of the Prince Henry's Institute of Medical Research is responsible for the integrity of the web site. I have not been engaged to report on the integrity of the web site. The audit report refers only to the statements named below. An opinion is not provided on any other information which may have been hyperlinked to or from these statements. If users of this report are concerned with the inherent risks arising from electronic data communications, they are advised to refer to the hard copy of the audited financial report to confirm the information included in the audited financial report presented on this web site.

Scope

The Financial Report

The accompanying financial report for the year ended 30 June 2006 of Prince Henry's Institute of Medical Research consists of the operating statement, balance sheet, statement of changes in equity, cash flow statement, notes to and forming part of the financial report, and the accountable officer's, chief finance and accounting officer's and director's declaration.

Members' Responsibility

The Members of the Board of Prince Henry's Institute of Medical Research are responsible for:

- the preparation and presentation of the financial report and the information it contains, including accounting policies and accounting estimates
- the maintenance of adequate accounting records and internal controls that are designed to record its transactions and affairs, and prevent and detect fraud and errors.

Audit Approach

As required by the *Audit Act 1994*, an independent audit has been carried out in order to express an opinion on the financial report. The audit has been conducted in accordance with Australian Auditing Standards to provide reasonable assurance as to whether the financial report is free of material misstatement.

Victorian Auditor-General's Office Level 34, 140 William Street, Melbourne Victoria 3000
Telephone (03) 8601 7000 Facsimile (03) 8601 7010 Email comments@audit vic gov au Website www audit vic gov au

AUDITOR GENERAL
VICTORIA

Independent Audit Report (continued)

The audit procedures included:

- examining information on a test basis to provide evidence supporting the amounts and disclosures in the financial report
- assessing the appropriateness of the accounting policies and disclosures used, and the reasonableness of significant accounting estimates made by the members
- obtaining written confirmation regarding the material representations made in conjunction with the audit
- reviewing the overall presentation of information in the financial report.

These procedures have been undertaken to form an opinion as to whether the financial report is presented in all material respects fairly in accordance with Accounting Standards and other mandatory professional reporting requirements in Australia, and the financial reporting requirements of the *Financial Management Act* 1994, so as to present a view which is consistent with my understanding of the Institute's financial position, and its financial performance and cash flows.

The audit opinion expressed in this report has been formed on the above basis.

Independence

The Auditor-General's independence is established by the *Constitution Act 1975*. The Auditor-General is not subject to direction by any person about the way in which his powers and responsibilities are to be exercised. The Auditor-General and his staff and delegates comply with all applicable independence requirements of the Australian accounting profession.

Audit Opinion

In my opinion, the financial report presents fairly in accordance with applicable Accounting Standards and other mandatory professional reporting requirements in Australia, and the financial reporting requirements of the *Financial Management Act* 1994, the financial position of Prince Henry's Institute of Medical Research as at 30 June 2006 and its financial performance and cash flows for the year then ended.

MELBOURNE
24 August 2006

for JW CAMERON
Auditor-General

Victorian Auditor-General's Office Level 34, 140 William Street, Melbourne Victoria 3000
Telephone (03) 8601 7000 Facsimile (03) 8601 7010 Email comments@audit vic gov au Website www audit vic gov au

Peter Wilson, Research Assistant,
Sex Hormones in Action group

support us

Our research would not be possible without support from individuals, businesses and community groups. You can support Prince Henry's Institute in a number of ways

Donations

Your donation, however big or small, will help fund important research discoveries, new cutting edge technologies, and contribute to the education of our students. You can make a donation to PHI by using the attached slip or make an online donation at www.princehenrys.org.

Donations can also be made as a memorial gift in memory of a friend or loved one, or as a celebration gift in lieu of birthdays, weddings or anniversaries. Gift certificates are available on request.

Named funds

Capital donations or named funds are a vital component of the Institute's funding. Whether it is in memory of a loved one or on behalf of a business or community group, we invite you to support our dedicated team. A named fund can be established as a fellowship, scholarship or award for students, scientists or administrative staff.

Bequests

Support medical research beyond your lifetime by making a bequest to PHI. Your bequest may contribute to a specific area of research or provide funding for a fellowship, scholarship or award. You may also wish to help fund a laboratory or purchase equipment.

Bequests can be a specific sum, a percentage, a residual bequest, real estate, shares, jewellery or other assets.

We recommend that you seek advice from a solicitor to ensure that the wording of your will reflects your exact wishes. A conventional bequest could be worded as follows:

"I,_____ of _____ State _____ Postcode _____ hereby give and bequeath to Prince Henry's Institute of Medical Research (or its legal successor) the sum of $ _____ (OR - the residue, percentage etc) and declare that the receipt of the Institute's Treasurer or proper officer shall be sufficient discharge to my Trustee/s."

Corporate support

PHI welcomes corporate support through donations, sponsorships and pro-bono services. Corporate support can involve funding a fellowship, scholarship or award, purchasing state-of-the-art equipment or funding a laboratory. Corporate partners are also invited to sponsor a fundraising event or initiate fundraising on behalf of PHI within their company.

Volunteer support

Show your support for the Institute by offering your time and services. As a not for profit organisation, we welcome volunteer support from all members of the community.

For more information please contact:

Ingelise Jones, Development & Communications Officer
Prince Henry's Institute
PO Box 5152 Clayton VIC 3168
Tel: +61 3 9594 4303 Email: ingelise.jones@princehenrys.org

donation slip

Yes, I would like to support research at Prince Henry's Institute

Mr/Mrs/Ms/Dr/Prof

Name_____

Address _____

_____ Postcode_____

Phone _____

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Donation ❑$20 ❑$50 ❑$100 ❑$200

❑$ _____ *(other)*

❑ Cheque/Money Order (*payable to Prince Henry's Institute of Medical Research*)

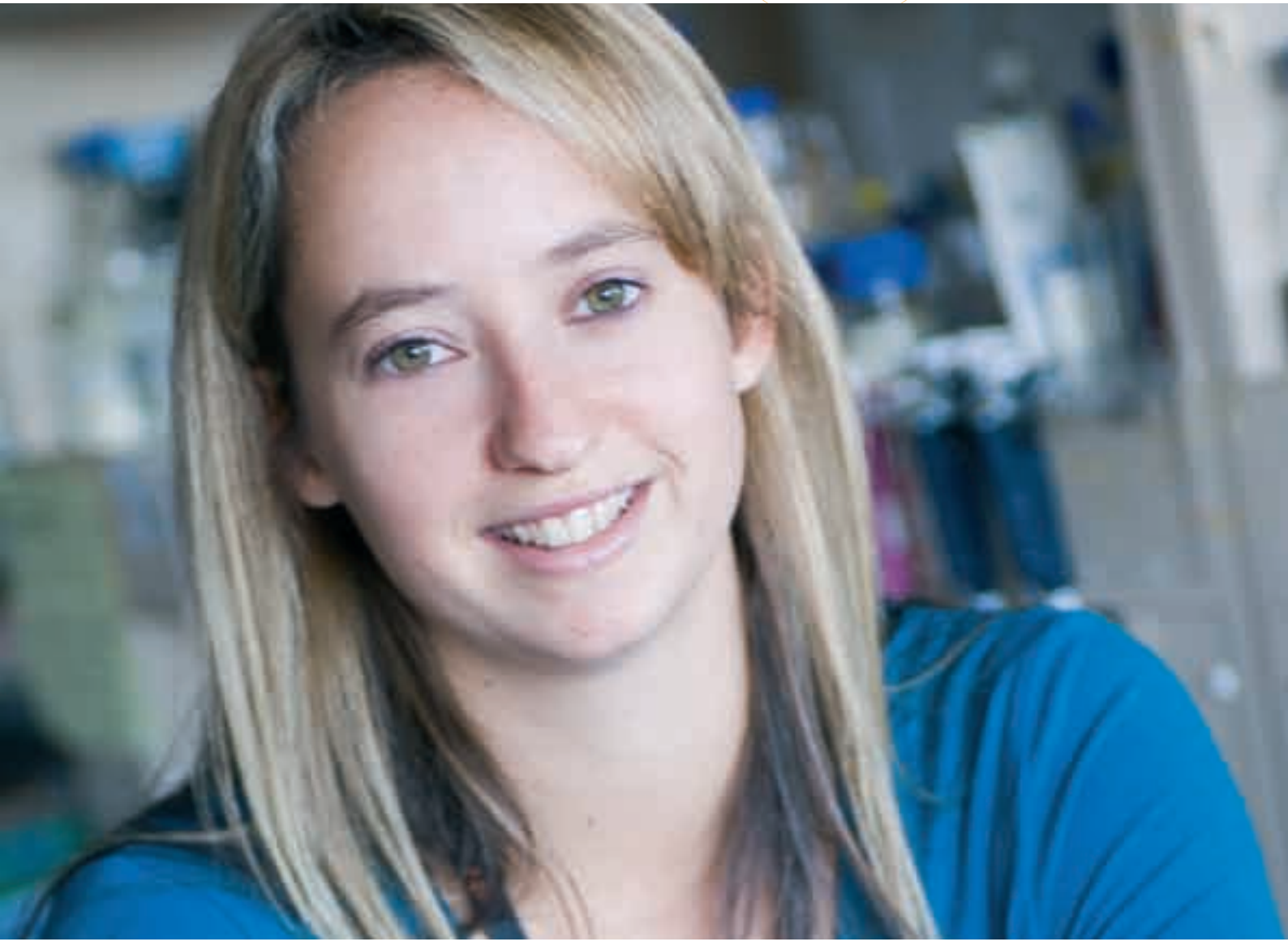
Donations over $2 are tax deductable. ABN 77 601 754 678

❑ BANKCARD ❑ VISA ❑ MASTERCARD

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Signature _____ Expiry Date _____

Please forward to:
Prince Henry's Institute
PO Box 5152, Clayton, Vic 3168



Rachel Hill, PhD student, Sex Hormones in Action group

your support inspires our research

Prince Henry's Institute would like to thank the following supporters:

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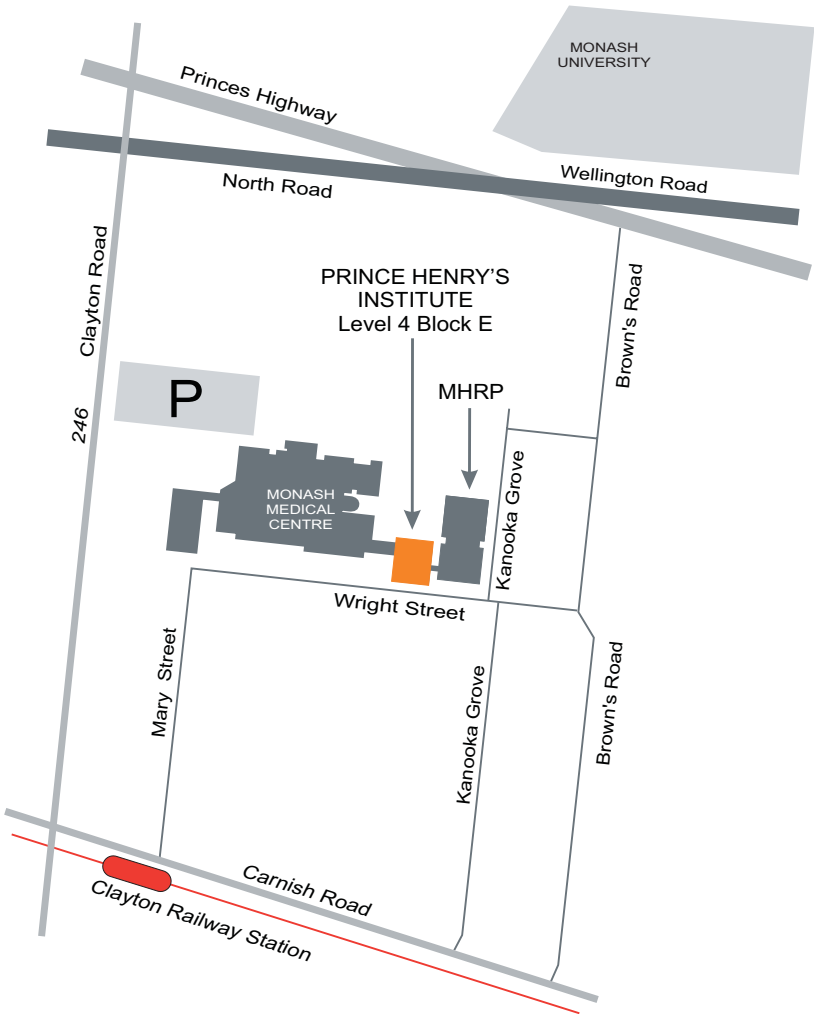

Prince Henry's Institute

Reception
Level 4, Block E, Monash Medical Centre
246 Clayton Road, Clayton, Victoria

Tel 03 9594 4372
Fax 03 9594 6125

Monash Health Research Precinct (MHRP)
Level 4, 43-51 Kanooka Grove, Clayton

Tel 03 9594 4372
Fax 03 9594 7909

PO Box 5152 Clayton VIC 3168 Australia

ABN 77 601 754 678

www.princehenrys.org