



*Dr Beatriz Martin Fernandez,
visiting Postdoctoral Fellow
from Spain*

Prince Henry's Institute
Newsletter | **Summer 2011**

news

Prince Henry's Institute Foundation launches Discovery Dinner Series



Guest speakers (L - R): Mr Barrie Cassidy, Dr Carolyn Allan and Tim Mathieson

Mr Tim Mathieson, partner of Prime Minister Julia Gillard and Men's Health Ambassador, helped put men's health under the microscope at the launch of the Prince Henry's Institute Foundation's Discovery Dinner series in August.

Over fifty corporate guests including the Mayor and Deputy Mayor of Monash attended the launch, the first of a series of corporate engagement dinners sponsored by Tata Consultancy Services Australia and New Zealand.

Mr John Weste, Chair of the PHI Foundation was pleased with the amount of interest not only in the dinner but future events in the series, which aims to boost corporate engagement and support for PHI.

"The Foundation is delighted with the response to our Discovery Dinner. We plan to have a series of Dinners over the coming years to highlight the world-class research being done at PHI and importantly, to help raise funds to continue our research programs. As always we appreciate the extraordinary contributions of our Dinner sponsor Tata Consultancy Services and our guest speakers and invited guests," Mr Weste said.

Director of Prince Henry's Institute, Professor Matthew Gillespie was also thrilled with the success of the launch dinner; the first step in expanding the Institute's engagement with public and corporate audiences.

"The Discovery Dinner series represents a significant opportunity for the Institute to inform and liaise with corporate audiences we have not been able to reach in the past. We will be using these dinners to raise our profile and showcase PHI's research excellence in the areas of reproductive health and hormones," Professor Gillespie said.

The series will continue in 2012, along with a program of informal events as the Foundation continues its efforts to increase public engagement and introduce the Institute's research to new audiences.

For further information and register your interest in these events, please contact reception@princehenrys.org

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Professor Matthew Gillespie Director, Prince Henry's Institute



Prince Henry's Institute continues to cement its reputation as a leading centre for reproductive health and hormone research. This year many PHI researchers have received national and international recognition for their research, including Dr Amanda Rickard, an early career researcher who was commended in the Premier's Award for Health and Medical Research for her research into the underlying causes of heart disease.

PHI's reputation for research excellence was reflected in the recent round of National Health and Medical Research Council grants. PHI will administer over \$5.25 million in funding from Project grants and Fellowships: other NHMRC funding schemes are still to be announced.

This year's funding included a number of early career researchers, a result of the quality of our emerging research talent and the calibre of leadership across the Institute. I would like to congratulate Dr Eva Dimitriadis on her appointment to the NHMRC Fellowship Scheme. Dr Dimitriadis joins Dr Rob McLachlan and Professor Vincent Harley who were both reappointed. Congratulations to all our NHMRC grant recipients and many thanks

to the PHI staff who contributed to this impressive achievement.

It is important to note that funding such as that provided by the NHMRC represents only part of the resources needed to realise our research objectives. We continue to identify and foster other funding opportunities, as well as relying on community support through our regular appeals.

The successful launch of the PHI Foundation's Discovery Dinner series in August marked a significant milestone for public and corporate engagement at Prince Henry's Institute. The series will continue in 2012. I thank Mr John Weste (Chair) and the Foundation members for

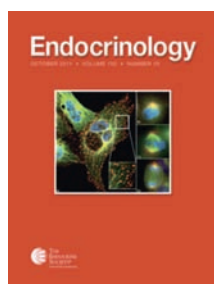
their efforts in developing this series, along with Ms Debra Hadwen from Tata Consultancy Services - Australia and New Zealand who was our principal sponsor and enabled this important engagement opportunity for PHI.

I would like to thank all our supporters who have been so generous throughout 2011. I wish you all a very happy and safe holiday season and look forward to sharing our research with you in 2012.

Matthew Gillespie

General News

PHI Research Attracts Praise



A group of PHI researchers has received high praise after publishing their research in the journal *Endocrinology*. The paper 'Generation of a specific activin antagonist by modification of the

activin A propeptide', was co-written by PHI Researchers Dr Craig Harrison, Dr Yogeshwar Makanji, Dr Kelly Walton and Associate Professor David Robertson, along with Karen Chan and Paul Gregorevic.

Professors Heber C. Neilson and John S. Torday from Tufts University praised the research in their review 'A New Compass for Activin Research – A Triumph for Systems Biology'; calling it 'a model example of the

value and rewards that may be expected from properly applied systems biology thinking in the 21st century'.

US Department of Defense Breast Cancer Era of Hope Meeting

Dr Kevin Knowler and Dr Ashwini Chand from PHI's Cancer Drug Discovery



Laboratory were members of a small but distinguished contingent of Australians to attend and present at this year's DoD Breast Cancer Era of Hope meeting in Florida. Dr Knowler was awarded best poster presentation in the postdoctoral category at the meeting, which was attended by DoD research grant recipients, as well as clinicians and consumers (breast cancer survivors, family members and advocates).

Combined Endocrine Society Australia and Australian Paediatric Endocrine Group Scientific meeting 2011

PHI walked away with six awards from this year's meeting in Perth, including Dr Stefan Bagheri-Fam winner of the ESA Servier Award and Dr Jun Yang winner of the Novartis Junior Investigator and Women in Endocrinology Awards. Congratulations also to Drs Stacey Jamieson, Kevin Knowler and Kristy Brown were recipients of the ESA/IPSSEN International Travel Grants.



Metabolism & Cancer Laboratory in new research collaboration

Robert Frost may have told us that fences make good neighbours, but for medical scientists it is what's on the other side that can often be a source of inspiration and the vital spark to progress their research. Professor of Experimental Endocrinology at Rotterdam's Erasmus University in The Netherlands, Axel Themmen agrees.

Professor Axel Themmen

"Expertise tends to run very deep and very narrow. Sometimes you need to be able to look over the hedges into other areas of expertise and share ideas and approaches," he said.

Professor Themmen is head of one of two research groups currently interested in collaborating with Prince Henry's Institute's Metabolism and Cancer Laboratory, co-headed by Professor Evan Simpson and Dr Kristy Brown. They have been attracting worldwide attention for their research into the production of estrogen in adipose or fatty tissue and their investigation into the use of Metformin, a diabetes drug, as an alternative to traditional inhibitors used to treat estrogen sensitive breast tumours. Their work has attracted interest from researchers in Scotland, as well as Professor Themmen's team in the Netherlands.



Professor Simpson recently returned from the UK, after spending two months working with researchers at the Queen's Medical Research Institute (QMRI) at Edinburgh University, including Professor Hillary Critchley, head of Obstetrics and Gynaecology and Dr Kerry McInnes, who has also worked closely with co-head Dr Kristy Brown. Researchers at QMRI are interested in expanding the current Metformin project to include other estrogen sensitive conditions such as, endometrial cancer and endometriosis. Metformin, a diabetes drug is thought to offer an alternative to traditional estrogen inhibitors, which impact other areas of the body causing side effects such as, bone thinning and cognitive dysfunction.

Professor Simpson believes such collaborations are greatly beneficial particularly for smaller scientific communities such as Australia. He sees the opportunity to go on sabbaticals and nurture collaboration as vital to the cross-fertilisation of ideas and innovation.

"Medical Science is an international community and sabbaticals offer the opportunity to be stimulated and inspired by other people's work, and to stimulate and inspire them," he said.

Professor Themmen is hoping to discover a synergy between the Metabolism and Cancer Laboratory's research into estrogen and adipose or fatty tissue and his team's current research to identify the factors involved in the vicious

cycle between obesity and Polycystic Ovarian Syndrome (PCOS). PCOS is an estrogen sensitive condition affecting between 5 – 10 per cent of women causing long-term fertility issues. Many sufferers are overweight as result of the disease, which exacerbates their condition further. To address the link between obesity and PCOS, Professor Themmen's team is interested in obesity in women and has established an animal model of PCOS, which shows both the infertility and the metabolic characteristics found in women with PCOS. Professor Themmen feels the Metabolism and Cancer's work, especially on the regulation of sex steroid production in adipose tissue, may be able to shed light on his team's investigation.

"Our expertise combined with the expertise at PHI might achieve synergism in the investigation of sex specific obesity," he said.

This would be his team's second collaboration with Prince Henry's Institute, the only Institute they have approached in Australia. Professor Themmen is currently also working with the Institute's Reproductive Hormones team, headed by Professor David Robertson to investigate the Anti-Mullerian Hormone.

"We have been collaborating with Professor Robertson's laboratory for about a year focusing on the Anti-Mullerian Hormone, which is highly increased in women with PCOS." He explains.

As the Metabolism and Cancer Laboratory continues to nurture its international relationships, with planning underway for QMRI researchers to spend time at PHI in 2012 and Professor Themmen's visit continuing, it seems PHI is set to prove Robert Frost wrong.

Visiting PHI

PHI regularly hosts international researchers; current visitors include Dr Konstantina Stamou (University Hospital of Crete), Dr Makoto Ono (Tokyo Medical and Dental University in Japan) and Dr Beatriz Martin Fernandez (recent graduate from Complutense University of Madrid). To read interviews with Drs Ono and Fernandez visit, www.princehenrys.org

PHI under the Microscope

During 2011 PHI has focused on some of Australia's greatest health challenges, including cardiovascular disease, cancer and reproductive health. As we near the end of another year, we put our researchers under the microscope to see how they are addressing these issues.

Heart disease is the leading cause of death in Australia. The Cardiovascular Endocrinology laboratory is investigating the role of the mineralocorticoid receptor (MR) in heart disease. With their earlier studies showing that activation of the MR specifically in macrophages was critical for the development of cardiac fibrosis, PHI researchers have now found that removing the MR selectively from cardiomyocytes (heart muscle cells) also protects the heart from fibrosis. These studies highlight the value of combining MR inhibitors with existing therapies to improve treatment for cardiovascular disease, and research into tissue-selective MR antagonists is continuing.

With approximately 88,000 Australians diagnosed each year, cancer remains a key focus for many teams at PHI. The Cancer Drug Discovery laboratory is exploring ways to improve treatments for estrogen-sensitive cancers.

Researchers are targeting LHR-1, a nuclear receptor elevated in breast tumours, and has a critical role in estrogen production and tumour growth. Clinical studies are underway in the Metabolism and Cancer laboratory to see

whether a diabetes drug, Metformin, can also be effective against breast cancer by inhibiting estrogen production only in the breast.

In collaboration with researchers at Baker IDI, the Growth Factor Signalling laboratory is developing therapies to block signalling proteins elevated in cancer and linked to muscle wasting. Muscle loss often occurs in people with advanced cancer that limits treatment options.

This laboratory is also investigating whether genetic mutations are associated with premature ovarian failure, a disease where women lose ovarian function.

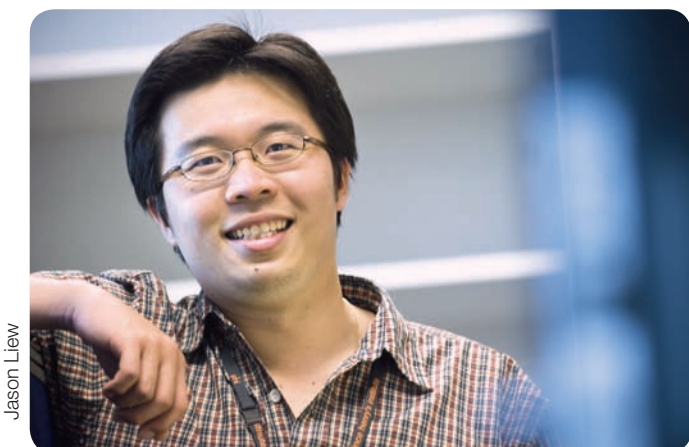
Reproductive health remains a key area of focus for researchers. Young women, diagnosed with cancer, risk infertility because of oocyte, or egg cell, death as a result of cancer treatments. Collaborating with researchers at Monash University and the Walter and Eliza Hall Institute, the Ovarian Biology laboratory has been able to preserve a small, healthy number of oocytes after radiation treatment. They are currently investigating strategies to preserve fertility by inhibiting oocyte death.

PHI's Growth Factor Signalling laboratory is developing therapies to block signalling proteins elevated in cancer and linked to muscle wasting

While fertility issues are more readily associated with women, male infertility affects about 1 in 20 men. Studies by the Male Fertility Regulation laboratory established a new concept in sperm development. They found that testosterone and FSH, key hormones involved in sperm production, also regulate micro-RNAs in the testes, providing further insight into restoring fertility in men.

Exciting discoveries were made this year by our researchers, and they will continue to tackle the health issues that affect all Australians.

Five minutes with...



Jason Liew

Jason Liew, Research Officer Ovarian Biology Laboratory

What are you currently working on?

The number and quality of eggs stored in the ovaries determines female fertility and menopausal age. We are currently working to identify the factors that impact development and death of egg cells in the ovaries, so we can develop therapies to prolong female fertility and delay the risk of many post-menopausal conditions.

I am also working on research to understand why many anti-cancer treatments trigger infertility and early menopause in young women. We hope we may be able to prevent egg death during treatment to preserve the fertility of young women undergoing cancer treatment.

Tell us about a day in your laboratory...

Contrary to the popular belief, life in the lab is anything but boring and mundane; every time I run an experiment the end result may be unpredictable. Multi-tasking is also a part of my daily routine, as I can be running experiments and collecting ovaries from mice at the same time. A lot of time is also spent organising and analysing data. The challenge is not so much completing the experiments but to make sense of what we find.

Did you always want to be a medical researcher?

I first got into research during my undergraduate study when I was placed at PHI for an eight week mini project. During my post-graduate years, I met some of the most talented people in the field, which inspired me to pursue a further career in research. Although being a researcher is not as glamorous as portrayed in science fiction, it is rewarding when your work is acknowledged by the scientific community and one can always hope for a significant discovery... someday.

Awards & Prizes

Graduates in 2011

Justine Olcorn (Honours, Deakin University), Lorraine Lin (Masters, Monash University), Amy Herlihy (PhD, Monash University), Stacey Jamieson (PhD, Monash University), Jason Liew (PhD, Monash University), Kenneth Walker (PhD, Monash University).

Student Investigator Prize for PHI Student

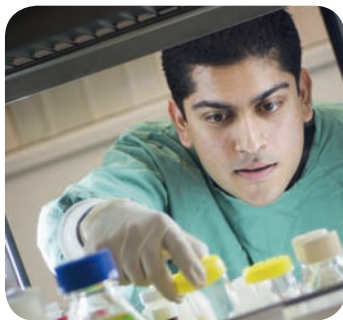
PhD student, Ms Laura Bienvenu was awarded the ISHR/CSANZ student investigator prize for best mini-oral presentation at the Cardiac Society of Australia and New Zealand's Annual Meeting in Perth for her work '*Macrophage Mineralocorticoid Receptor Mediated Inflammation and Fibrosis in the Heart*' co-authored by Bienvenu L, Morgan J, Cranston G, Fletcher E, Delbridge LM, and Young MJ.

ASMR Student Symposium 2011

PhD student, Ms Sarah To was awarded a Poster Prize at the 2011 ASMR Student Symposium in June, for her poster '*A new role for the Early Growth Response genes in the TNF-alpha mediated regulation of Aromatase in the breast*'.

Alumni News

Yogeshwar Makanji



Endo Boston 2011 - Eugenia Rosemberg Abstract Award

Dr Yogeshwar Makanji, was one of three recipients of the Eugenia Rosemberg Abstract Travel Award at the Endocrine Society's 2011 conference in Boston for his abstract 'Generation of a specific Activin antagonist by modification of the Activin A propeptide'.

Dr Makanji, who is currently

completing a NHMRC Overseas Fellowship in the US, won the award for research he completed while working with PHI's Growth Factor Signalling laboratory under Dr Craig Harrison.

Former PHI Researcher commended in Premier's award

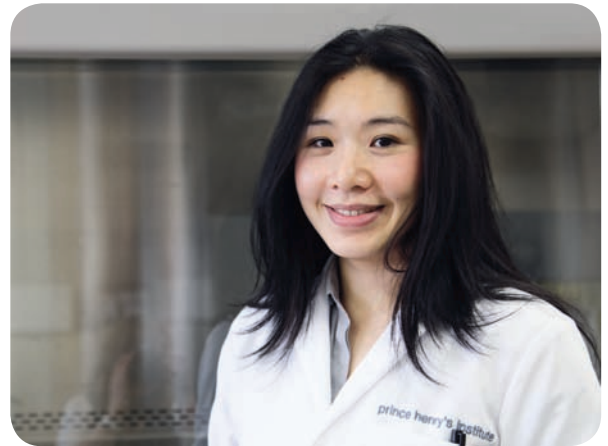
Dr Amanda Rickard was one of three researchers commended at the 2011 Premier's Award in June. Dr Rickard, who is currently in Paris on a NHMRC Overseas Biomedical Training Fellowship, received her award for her internationally acclaimed research on the underlying causes of heart failure, which she completed at PHI. For full coverage visit www.princehenrys.org

PHI would like to hear from other Alumni. Please email your news to reception@princehenrys.org

Amanda Rickard



Five minutes with...



Vanessa Cheung

Vanessa Cheung, PhD student with the Bone, Joint and Cancer Laboratory

What project/s are you currently working on?

I am investigating the role of two proteins in breast cancers – PTHrP and Apo2L/TRAIL. We've found that tumours with high levels of PTHrP are more sensitive to Apo2L/TRAIL treatment, which kills cancer cells whilst sparing normal cells. Breast cancer cells genetically modified to enhance PTHrP production have also exhibited a sensitisation to Apo2L/TRAIL. These findings could potentially lead to new treatments for breast cancer.

Why did you choose to study medical science?

I have always been interested in science and am curious about how things work. I also like the idea of being able to contribute to something to benefit society. I was actually trying to choose between science and advertising at university. In the end science won out and I did a science arts degree. Science can still be creative, as you need to think outside the box to find solutions.

Why do you enjoy being a student at PHI?

The atmosphere at PHI is good. It is a dynamic environment with a lot very supportive and helpful people. They also do a lot of great science at the Institute.

As a medical researcher I hope to...

Contribute to the underlying scientific knowledge needed to find improved treatments for patients diagnosed with cancer.

What do you see as the biggest challenge facing medical research students in Australia?

Funding! There is not enough funding. We also have a continuing challenge to keep younger students engaged and interested in pursuing science as a career.

PHI Purchases xCELLigence™ TRCA DP

PHI researchers working to improve the diagnosis and treatment of cancer can now monitor cells in real time thanks to the recent purchase of an xCELLigence TRCA DP™ system funded by the Harold and Cora Brennan Trust and L.E.W. Carty Charitable Foundation, along with money raised by this year's Ride4PHI team.

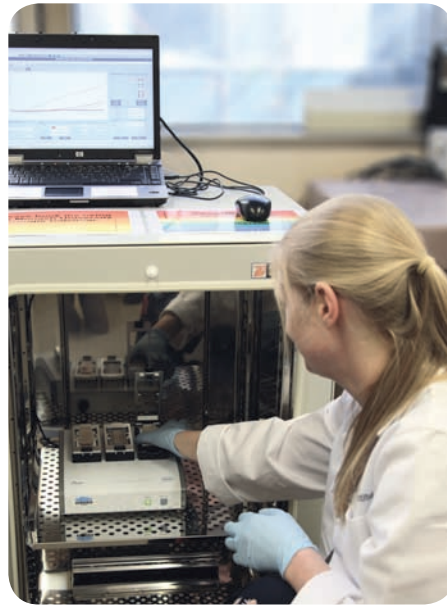
The system provides scientists with a platform for high throughput screening, which enables analysis of cellular behaviour and interactions to determine the effectiveness of millions of compounds identified as potential cancer therapies.

As well as reducing time and cost, this equipment will assist researchers to isolate effective therapies to stop the growth and spread of tumours such as, endometrial, bone, breast and ovarian cancers.

Mr A W Gould

Prince Henry's Institute sends its deepest condolences to the family of Mr Albert Wesley (Wes) Gould. An honorary life member of Prince Henry's Hospital, Mr Gould supported the Institute for over thirty years. First becoming involved through his association with Professor Henry Burger, Director of Research at Prince Henry's Hospital at the time, he remained a loyal supporter of Prince Henry's Institute following the amalgamation of the hospital into Monash Medical Centre.

PHI recently presented Mrs Gould with a certificate of appreciation for her husband's contribution to the Institute and its continued research into the role of hormones in disease.



Dr Ellen Menkhorst, Senior Research Officer, working with PHI's new xCELLigence system

Ted Billson

Prince Henry's Institute would like to thank Mr Ted Billson for his continued generosity in support of its research. Mr Billson is a long-term supporter of the Institute and has contributed significantly to the funding of vital equipment needed to progress medical research into some of Australia's biggest health challenges. Thank you Mr Billson.

Life on the up for Foundation Member

PHI Foundation member, Ronnie Atlas, has proven there is no downhill in life. He has headed off to Kathmandu, to help a friend mark his fiftieth birthday by realising a life-long dream to climb to Mt Everest's base camp. The friends prepared for their adventure with altitude training, as well as weekly treks to ensure they were ready to tackle at least part of the world's highest peak.

Recent Supporters

Prince Henry's Institute would like to thank the following supporters for their generous contribution to our research:

- Miss Mary Padbury (Blake Dawson)
- Mrs Jill Loton
- Harold and Cora Brennan Benevolent Trust
- L.E.W. Carty Charitable Fund
- The Marian and E.H. Flack Trust
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Thank you to all our donors, who have supported Prince Henry's Institute during 2011. Your support has enabled us to continue our research to improve the quality of life and outcomes for patients diagnosed with cancer, obesity, cardiovascular disease, osteoporosis and Parkinson's disease.

Support our research

Donate now to help improve the diagnosis, treatment and prevention of many serious diseases. Complete and return the attached form or visit www.princehenrys.org

Other ways to help

As well as becoming a regular donor, there are many ways to support medical research at PHI.

Foster talent:

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