



Interested in a **Vacation
Scholarship, Honours,
Masters or Doctorate**
in Medical Research?

PHI Student Handbook

2009 - 2010

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1 Introduction to PHI

Excellence in Research

Prince Henry's Institute (PHI) is recognised as a world leader in endocrinology, the study of hormones.

Acknowledged as an eminent medical research institute in Victoria and in Australia, PHI is an independent not-for-profit organisation based at Monash Medical Centre in Clayton, Melbourne.

Affiliated with Monash University and Southern Health (Monash Medical Centre), PHI offers extensive postgraduate opportunities for students embarking on a research career.

Our key areas of research include:

- bone, and joint disorders
- disorders of sex development
- heart disease
- hormones and ageing
- male and female fertility
- new contraceptive methods
- obesity
- ovarian, breast and bone cancer

Overview

PHI currently has 53 students studying towards Honours, Masters and PhD degrees.

PHI has a great reputation for postgraduate research and study, combining helpful and encouraging supervision with a high standard of research and expertise.

We encourage you to come and meet our researchers and take a tour of our facilities. Each August we host an Open Day for prospective students however please contact us if you would like to come in for a chat and see what we can offer. We think you will be impressed!

Research Projects

This handbook contains information about current research projects. The handbook also has details about studying at PHI and scholarships available.

Further information:

For enquiries about projects please contact the supervisor listed with each project in this handbook.

As a student at PHI you will be enrolled through a university and the research will be conducted predominately under the auspices of PHI.

Since Prince Henry's is an independent medical research institute there are no limitations as to which university you may enrol.

Why Choose PHI?

Prince Henry's Institute provides students with an excellent start to their research careers, and past students have continued as high achievers in the research world.

Past postgraduate students have prestigious fellowships such as the NHMRC C.J. Martin award and international research grants to work overseas. We have an excellent record in the number of first class Honours degrees awarded to students, and have been fortunate to attract some of the most promising young scientists to study here, offering them a stimulating research environment conducive to developing their research careers.

Scientific Environment

Collaborations between research groups are encouraged by a friendly work environment, exposing staff and students to a wide range of expertise and knowledge.

Since PHI is located at the Monash Medical Centre this provides strong clinical links and facilitates human research studies including clinical trials.

We actively involve students in the life of the Institute and hold weekly seminars, including journal club and works in progress forums, to keep people updated on current research conducted within the Institute.

We also have weekly presentations from invited speakers from other research institutes keeping us up to date with current exciting research from Australia and the rest of the world.

Students have the opportunity to present their research annually at Student Presentation Day, providing experience of scientific presentation and a chance to follow the progress of other students.

All PhD students are additionally given the opportunity to present their work at scientific meetings in their field of interest, including one international conference, usually in the final year of research. Students take this opportunity to visit internationally renowned laboratories where they may obtain postdoctoral positions as well as providing the student with the knowledge and some experience of the possible research directions he/she may wish to consider.

Facilities

We have well equipped laboratories and facilities to undertake study and research.

Students have access to the latest scientific technology, generally housed in shared facility rooms dedicated to specialised equipment.

As a student you will have access to both your University and Monash Medical Centre libraries.

To keep up with the ever advancing scientific world we have the latest technologies and have expertise in specialist techniques including microspectrofluorimetry, neuronal tracing, real time PCR, microarray analysis, phosphoimager, stereology and fluorescence.

Shared facilities on site include Gandel Charitable Trust Sequencing Centre

(NATA accredited). The Centre contains state-of-the-art genetic analysers for DNA sequencing and complementary genomic services which include fragment analysis, gene expression dHPLC, and DNA, RNA & protein analysis.

University Links

Degrees undertaken at PHI are generally awarded by Monash University and students are registered through a department of the University. However, we also have students registered at other universities. Within PHI there are 25 doctoral researchers who also have honorary appointments with Monash University - they can provide expert supervision for your postgraduate degree.

Being just a 10 minute walk from Monash University, we can offer all the advantages of being an off campus dedicated research institute, whilst also having easy access to University facilities.

PHI researchers come from a diverse mix of backgrounds and we have a significant number of students who have come from overseas to study at the Institute.

2 Student Life

Get to know us

Student Life at PHI

At PHI, postgraduate research and study combines a friendly working atmosphere with helpful and encouraging expert supervision.

PHI offers you:

- **Experience** in an internationally renowned medical research institute
- **Expert supervision** from PHI researchers
- **The latest facilities** and technologies for research and study
- **A clinical setting** for human based research projects
- **Collaborations** between research groups
- **Weekly seminars and presentations**
- **Opportunities** to present at national and international scientific meetings
- **Annual PHI Student Symposium**

PHI Students Excel

Novo Nordisk Awards 2008

The 15th PHI Student Symposium was held in November 2008. This showcase, held over 2 consecutive days at Monash

Medical Centre, offers students an opportunity to present their research in a formal environment to the wider research community. It also allows them to practise and develop their communication skills.

Student awards at the Symposium were sponsored by our long standing partner Novo Nordisk. The presentations were judged by an independent panel of academic assessors comprised of PHI senior researchers.

Winners - 2008

Best Overall PhD Presentation
- Jason Liew

Best 1st Year PhD Presentation
- Peter Nicholls

Special Commendation Award
- Amanda Rickard

Best Honours Presentation
- Courtney Simpson

Quantum Scientific Award for Scientific Excellence

During their studies many PHI students also have opportunities to travel to national and international scientific meetings to present their research findings. These presentations are recognised by awards sponsored by Quantum Scientific Ltd.

Winner - Ken Walker: Augmented nephron number and metanephric development in betaglycan heterozygous mice presented at the Queenstown Kidney Biology Meeting, New Zealand. Supervisor: Kaye Stenvers.

Highly Commended - Peter Nicholls: GDF9 and BMP15 are germ-cell regulators of Sertoli cell function presented at the Endocrine Society of Australia / Society for Reproductive Biology Joint Conference, Melbourne. Supervisors: Dr Craig Harrison, Dr Peter Stanton.

Student Profiles



Peter Nicholls is a second year PhD student investigating the hormonal regulation of microRNAs in the testis. He will soon present his work as a finalist in the New Investigator Award session at the Society for Reproduction and Biology's Annual Conference in Adelaide, August 2009:

Why did you choose research in male reproduction?

When I finished my undergrad studies at Monash Uni, I knew that I wanted to begin a research career, but I didn't know what type of research I wanted to pursue. I was really attracted to the reputation of Prince Henry's, and after an Honours year, I decided to continue this research with a PhD in male reproduction. Male health is an area that has lots of potential for basic research with possible clinical outcomes!

What do you enjoy about your research?

I really enjoy the challenge of research and the variety that comes with it. The potential for finding or describing something new is very motivating!

Why did you choose to study at PHI?

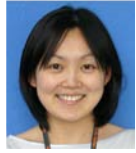
I chose Prince Henry's Institute for the reputation and quality of the research. The supervisors are full time researchers rather than lecturers and always there to support and mentor me through my career. Prince Henry's has all the benefits of an independent research institute while still being close enough to Monash University to enjoy all the benefits as a student.

Describe a typical day as a student at PHI:

Postgrad research is extremely varied and challenging. At Prince Henry's, you are given the opportunity to participate in every step of your research, from the hypothesis, to the planning, experimentation, interpretation and presentation of results. No two days are ever the same!

Do you participate in any extra-curricular activities?

One of the great things about medical research is the flexibility in working hours, which lets you plan your research around your social life, rather than the other way around! Apart from study, a typical week includes playing competitive sport with the PHI social club, mountain biking, music and socialising.



Jun Yang is a medical graduate, currently an endocrine fellow at Monash Medical Centre. She was recently awarded an NHMRC

Medical Postgraduate Research Scholarship to enable her to undertake PhD studies at PHI:

Why did you choose cardiovascular research?

Actually, I didn't at the very beginning! I wanted to further my understanding of hormone receptors and chose the mineralocorticoid receptor (MR) because it appeared to be the "Cinderella" amongst the steroid hormone receptors. It is "under-studied" and "under-reported" in literature, yet there is so much to learn about its molecular signaling pathways. I became aware of its cardiovascular significance after further reading and am now very excited by the prospect of using MR modulation to combat heart failure.

What do you enjoy about your research?

I love the challenge of working with a difficult receptor and the anticipation for surprising results each week! It is very satisfying to think that this humble receptor may one day be modulated to combat one of the biggest killers in Western societies (ie. heart failure). I also enjoy learning from my supervisors and other supportive scientists at PHI – it is a luxury being a student!

Why did you choose to study at PHI?

I have worked at Monash Medical Centre for many years, so have always heard about PHI and its excellence

in hormone-related research. The proximity to the hospital also allows me to fulfill a clinical role without time-consuming interruptions to my laboratory work. Another good reason to study at PHI is its people (fellow students, research assistants, senior scientists, supporting staff, etc), who are amazingly generous with their time and knowledge. This was very important for me as a clinician entering the laboratory for the first time.

Describe a typical day as a student at PHI:

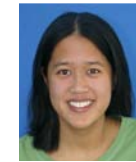
I usually write out a weekly plan with tasks for each day so that first thing in the morning I can relax and prepare experiments for that day. Then I race around the corridors to finish everything on time! I attend endocrinology outpatient clinics twice a week, so experiments with long incubation periods are planned for those days. There are also lab meetings, lunchtime journal clubs, student progress meetings and afternoon forums to hear about cutting edge research from renowned scientists. One of my favorites is cake day – every member of the lab has his/her birthday celebrated with a cake and a very merry afternoon.

Do you participate in any extra-curricular activities?

I wish I could participate in more student activities at PHI, but it is rather difficult with a 2 year old toddler around! My main extracurricular role is the treasurer of the Australian Chinese Medical Association and its conference convener for the past four years.

Anything else?

PHI is a fantastic place to carry out your research, and you are bound to find something of interest given its wide repertoire of research topics. For the clinicians out there, don't be afraid to venture into the world of science – there are endless clinically-relevant puzzles to be solved!



Sarah To is a first year PhD student in the Sex Hormone Biology Laboratory identifying new mechanisms that regulate oestrogen production

in breast cancer. She will present her findings as a finalist in the Novartis Junior Scientist Award session of the upcoming Endocrine Society of Australia annual meeting:

Why did you choose cancer research?

Cancer is a disease that affects so many people, nearly everyone knows of somebody who has been diagnosed at some point in their lives. I wanted to do my bit to help understand the molecular basis of cancer so that better diagnostic and treatment options may become available.

What do you enjoy about your research?

The work is intellectually stimulating, and you get to explore lots of different ideas. It's nice to know that you're contributing to the fight against cancer.

Why did you choose to study at PHI?

I wanted to get out of the comfort zone that a university campus offered and

challenge myself to a new environment where academics are fully dedicated to research and don't have teaching commitments to take up their time. PHI also has a great reputation to world-class facilities, staff and research.

Describe a typical day as a student at PHI:

Most days are spent carrying out experiments, analysing data, reading the latest literature or planning future directions. There are also weekly lab meetings, supervisor meetings and seminars you attend where you learn about other areas of science or the latest techniques in research. Every day is different!

Do you participate in any extra-curricular activities?

I play the trumpet in a concert band and orchestra based as Monash Uni Clayton (the Monash University Philharmonic Society), and am also an active committee member for the society. I am actively involved in social aspects at PHI too, attending social club functions and playing in the PHI netball team. I also demonstrate undergraduate labs at Monash University. It's good to mix it up a little to get out of the lab sometimes.

Quick Guide -

Research themes and laboratories

CANCER

- Cancer Drug Discovery
- Metabolism & Cancer
- Ovarian Cancer Biomarkers
- Bone, Joint & Cancer
- Reproductive Development
- Steroid Receptor Biology

CARDIOVASCULAR DISEASE

- Cardiovascular Endocrinology
- Steroid Receptor Biology
- Clinical Andrology

GENES & HEALTHY DEVELOPMENT

- Sex Determination & Gonadal Development
- Bone, Joint & Cancer
- Reproductive Development & Cancer
- Embryo Implantation
- Implantation & Placental Development
- Endometrial Remodelling
- Brain & Gender
- Growth Factor Signalling
- Clinical Andrology

MEN'S HEALTH

- Clinical Andrology
- Male Fertility Regulation
- Brain & Gender
- Reproductive Development & Cancer

WOMEN'S HEALTH

- Cancer Drug Discovery
- Ovarian Cancer Biomarkers
- Reproductive Hormones
- Ovarian Biology
- Implantation & Placental Development
- Endometrial Remodelling
- Embryo Implantation
- Reproductive Development & Cancer

3 Research Projects

BONE, JOINT AND CANCER

Laboratory Head

Professor Matthew Gillespie PhD

About this Laboratory

Bone diseases such as osteoporosis, arthritis and most cancers of bone all result in a reduction in bone mass, that can lead to fractures. We seek to identify the pathways that are required to build bone and/or limit bone destruction, and how the cells in the bone microenvironment communicate with each other. Ultimately, we aim to identify new factors or ways to promote bone formation.

Related to Research Themes

Cancer, Genes & Healthy Development, Women's Health

Current Research

1. Spread of cancers to bone. We aim to identify why some cancers, particularly those of the breast, have a predilection to bone, and determine mechanisms to limit tumour growth in bone.

Supervisors: Dr Steve Bouralex and Prof Matthew Gillespie

Contact:

Steve.Bouralex@princehenrys.org

Suitability: Honours or PhD student

2. Role of osteoprotegerin in breast cancer growth. We identified that osteoprotegerin expression by breast cancers enhances their growth in the breast and bone. We aim to identify how osteoprotegerin enhances tumor growth and the role of stromal cells in this process.

Supervisors: Dr Steve Bouralex and Prof Matthew Gillespie

Contact: Steve.Bouralex@princehenrys.org

Suitability: Honours or PhD student

3. Apo2L/TRAIL as a regulator of cell death in transformed cells. We have identified that PTHrP expression by breast cancers modulates tumor response to TRAIL. We aim to identify the mechanism by which PTHrP confers enhanced TRAIL sensitivity.

Supervisors: Dr Steve Bouralex and Prof Matthew Gillespie

Contact:

Steve.Bouralex@princehenrys.org

Suitability: Honours or PhD student

4. Inhibition of osteoclasts to block cancer and inflammation induced bone loss. We have defined several factors that inhibit osteoclast formation and wish to identify their mechanism of

action and their function upon other cells in bone. This will advance knowledge about the biology of the osteoclast and mechanism to reduce bone loss.

Supervisors: Dr Julian Quinn and Prof Matthew Gillespie

Contact:
Julian.Quinn@princehenrys.org

Suitability: Honours or PhD student

5. Factors affecting osteoblast differentiation. PTH is currently the best available drug to build new bone. We have identified several osteoblast targets of PTH action and determined their ability to influence osteoblast differentiation and maturation with the view to assess these for their ability to build new bone.

Supervisors: Dr Vicky Kartsogiannis and Prof Matthew Gillespie

Contact:
vicky.kartsogiannis@princehenrys.org

Suitability: Honours or PhD student

BRAIN AND GENDER

Laboratory Head
Joohyung Lee PhD

About this Laboratory

Our laboratory uses combined biochemical, anatomical, and behavioural approaches to determine the mechanisms underlying differences in the male and the female brain.

There are two areas of particular interest:

- the male sex-determining gene SRY, and the role it plays in the normal and

diseased male brain such as Parkinson's disease and Schizophrenia

- the genetic basis of male and female gender identity

Related to Research Themes

Genes & Healthy Development, Men's Health

Current Research

6. Cognitive effects of SRY inhibition in the brain. The male sex-determination gene SRY is widely expressed in the male brain, found in the ventral tegmental area (VTA), the substantia nigra (SN), and the medial mammillary bodies (MMB). We are interested in assessing the effect of SRY knockdown in these brain regions on cognitive function. This project will provide novel insights into the neurogenetic mechanisms of sexually dimorphic behaviours.

Supervisors: Dr Joohyung Lee, Assoc. Prof. Vincent Harley

Contact:
Joohyung.Lee@princehenrys.org

Suitability: Summer Student; Honours or PhD student

7. Role of the male-specific gene SRY in Parkinson's disease. We are testing the novel concept that the male sex-determination gene SRY is a factor involved in the susceptibility of males to Parkinson's disease. We will address this by determining i) whether SRY levels are altered in Parkinson's disease and ii) whether inhibition of SRY function can

reduce the progression of Parkinson's disease using animal models.

Supervisors: Dr Joohyung Lee & A/Prof Vincent Harley

Contact:
Joohyung.Lee@princehenrys.org

Suitability: Summer Student; Honours or PhD student

8. Sexual dimorphism in neurological disorders. We are interested in understanding the genetic factors that underlie gender differences in susceptibility to neurological disorders. We aim to test whether abnormal SRY function, and therefore abnormal regulation of dopamine, may increase the susceptibility of men to these neurological disorders such as schizophrenia, and drug addiction.

Supervisors: Dr Joohyung Lee, Assoc. Prof. Vincent Harley

Contact:
joohyung.lee@princehenrys.org

Suitability: Summer Student; Honours or PhD student

CANCER DRUG DISCOVERY

Laboratory Head
Colin Clyne PhD

About this Laboratory

This laboratory investigates the mechanisms regulating proliferation of breast cancer cells, with particular emphasis on the role of hormones and their effects on gene expression.

Related to Research Themes
Cancer, Women's Health

Current Research

9. Nuclear receptor pharmacology. Oestrogen receptor blockers are very successful breast cancer treatments; however, not all patients respond to these drugs and many that do eventually become resistant to their effects. We are identifying alternative molecules related to the oestrogen receptor that could be exploited as novel breast cancer therapeutics.

Supervisors: Drs Colin Clyne and Ashwini Chand

Contact: colin.clyne@princehenrys.org

Suitability: Summer Student; Honours or PhD student

10. Breast-specific anti-oestrogens. This research aims to inhibit oestrogen production specifically in breast tissue, in order to reduce the side-effects associated with current anti-oestrogen treatments for breast cancer.

Supervisors: Drs Colin Clyne and Ashwini Chand

Contact: colin.clyne@princehenrys.org

Suitability: Summer Student; Honours or PhD student

11. Oestrogen regulation in breast cancer. Local oestrogen production within the breast is critically important for breast cancer progression. While the genetic factors that contribute to oestrogen production are fairly well

understood, epigenetic factors are much less well studied.

Supervisors: Dr Kevin Knowler

Contact:
kevin.knowler@princehenrys.org

Suitability: Summer Student; Honours or PhD student

12. Aromatase and post-transcriptional regulation.

Our laboratory has identified the transcription factors LRH-1/NR5A1 and SF-1/NR5A2 as critical regulators of aromatase expression and these provide new avenues for the development of cancer therapies. This project is focussed on the characterisation of the post-transcriptional regulation of LRH-1 and SF-1 and its significance for aromatase expression.

Supervisors: Dr Nick Fleming

Contact:
nick.fleming@princehenrys.org

Suitability: Summer Student; Honours or PhD student

CARDIOVASCULAR ENDOCRINOLOGY

Laboratory Head
Morag Young PhD

About this Laboratory

One of our major research goals is to provide a better understanding of cardiac failure and hypertension by studying the function of the mineralocorticoid receptor (MR) in these disorders.

We aim to determine the cell types in the heart in which the MR is critical for the development of heart failure and identify the ideal features of tissue-selective blockers of the receptor.

Related to Research Themes
Cardiovascular Disease

Current Research

Cellular localization of mineralocorticoid receptor-mediated vascular inflammation and cardiac fibrosis.

We have used the Cre-Lox technique to delete MR expression (i.e. gene knockout) in a cell-specific manner in the cardiovascular system to identify the cells types critical for the development of vascular inflammation and cardiac fibrosis. Identification of the critical cell types will allow a focused investigation of the cellular mechanisms involved in the establishment and progression of this pathology. We have shown that MR signalling in the context of high salt leads to inflammation, fibrosis and ultimately heart failure. The cardiovascular remodelling is a direct effect of MR activation in the heart and blood vessels.

Our first study in tissue-selective MR knockout mice has shown that deleting the MR gene knockout in macrophages (immune cells) prevents the development of cardiovascular disease and surprisingly hypertension as well. A current research theme is to further investigate the novel role of MR in macrophages.

There are 3 specific projects in this section and each can be tailored for an honours or PhD project.

13. Determine the cardiovascular responses to tissue selective knockout of the MR in the DOC/salt model of heart failure. This will involve the molecular and immunohistochemical analysis of mice already generated by a specific breeding program. The other gene knockout lines currently being investigated are endothelial cell-specific and myocyte-specific.

Supervisors: Dr Morag Young and Professor Peter Fuller

Contact:
morag.young@princehenrys.org

Suitability: Honours or PhD student

14. Identification of cell signalling pathways that regulate MR activation in response to pathological stimuli.

This cell culture-based project aims to determine and characterise, in those cell types shown to be critical in the development of cardiac fibrosis, the specific MR response to inactivation of the MR-protective enzyme 11 β HSD2, oxidative stress, hypoxia and high salt. These studies aim to determine the important cellular signalling pathways that are regulated by the MR and other environmental factors that lead to cardiovascular disease.

Supervisors: Dr Morag Young and Professor Peter Fuller

Contact:
morag.young@princehenrys.org

Suitability: Honours or PhD student

15. The role of the MR in macrophage function. This is a combined animal and cell culture study. Given that we have shown that gene knockout of the MR in macrophages protects animals from heart disease and changes the normal physiological profile of macrophage specific markers, we wish to fully characterise the response of these macrophages, compared to wild type (normal) macrophages, under normal and stimulated (LPS, oxidative stress etc) conditions using primary cell culture and FACs analysis. We will further examine the effect of gene knockout of the MR in macrophages in other models of heart disease to determine in the protection is more 'general' rather than specific to a particular model. Animal work, primary cell culture, cell lines, immunohistochemistry and RT-PCR are some techniques that will be involved in this work.

Supervisors: Dr Morag Young and Professor Peter Fuller

Contact:
morag.young@princehenrys.org

Suitability: Honours or PhD student

EMBRYO IMPLANTATION

Laboratory Head
Eva Dimitriadis PhD

About this Laboratory

This laboratory is understanding how infertility and how a health placenta develops. further, it is exploring woman based contraceptives that can also prevent sexually transmitted diseases.

Related to Research Themes
Cancer, Genes & Healthy Development, Women's Health

Current Research

16. Endometrial-placental interactions & healthy pregnancy.

The failure of a human embryo to implant in an adequately prepared maternal endometrium results in infertility, while impaired implantation leads to inadequate placentation. Currently there is no way of diagnosing endometrial infertility in women. Our lab is trying to define the critical molecules that are required for the establishment of pregnancy in women.

Supervisors: Drs Eva Dimitriadis & Ellen Menkhorst

Contact:
evdokia.dimitriadis@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

17. Implantation factors, fertility and IVF.

Implantation of the embryo into the endometrium is an essential step for pregnancy. We have identified critical endometrial factors that prepare the endometrium for implantation of an embryo. We are now investigating precisely how these proteins regulate receptivity.

Supervisors: Drs Eva Dimitriadis & Ellen Menkhorst

Contact:
evdokia.dimitriadis@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

18. Female contraceptives that also block STDs.

We have demonstrated that blocking the action of two cytokines with unique inhibitors results in total pregnancy failure in mice. We are currently investigating the effect of delivering these cytokine inhibitors with agents that also block sexually transmitted diseases including HIV on pregnancy outcome.

Supervisors: Drs Eva Dimitriadis & Ellen Menkhorst

Contact: evdokia.dimitriadis@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

19. Investigating novel treatments for endometrial cancer.

Endometrial cancer is the most common gynaecological malignancy. It ranks fourth in incidence among invasive tumours in women. It is typically a disease affecting postmenopausal women however women aged 40 and on have a significant increased risk. A key point is that the incidence and mortality of endometrial cancer is significantly higher than cervical cancer. Unfortunately, there is no screening test for the detection of endometrial cancer. The primary treatment is total abdominal hysterectomy, with and without pelvic lymph node dissection and follow-up radiotherapy. Since the majority of relapses develop in distant sites pharmacological treatment plays a major role for the management of recurrent disease.

We have identified that endometrial proteins or cytokines may play a critical role in endometrial cancer progression. In collaboration with Industry partners we have compounds that inhibit cytokines that will be tested to determine their effect on the development of endometrial cancer.

There are currently two projects one will utilize *in vitro* cell culture models while the other project will utilize *in vivo* animal models. Both projects will utilize histopathology, cell imaging, biochemical and molecular biology techniques.

The project will aid in determining the role of cytokines in endometrial cancer and also whether novel cytokine blockers may be useful as treatments for endometrial cancer.

Supervisors: Drs Eva Dimitriadis & Ellen Menkhorst

Contact:
evdokia.dimitriadis@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

ENDOMETRIAL REMODELLING

Laboratory Head

Professor Lois Salamonsen PhD

About this Laboratory

The lining of the uterus, the endometrium, undergoes continual remodelling throughout a woman's reproductive years. It is shed and restored during each menstrual cycle in preparation for implantation of the embryo should the cycle be one in which conception occurs.

Disturbances to this remodelling can result in abnormal uterine bleeding, in infertility, endometriosis and endometrial cancer. We seek to understand the underlying causes for these disorders with a long term view on translation of our findings to the clinic in terms of diagnosis and treatments.

Related to Research Themes

Genes & Healthy Development, Women's Health

Current Research

20. The proteome of uterine fluid: importance for fertility in women.

Using state of the art proteomics techniques and multiplex analyses we have identified a number of proteins in the uterine cavity throughout the menstrual cycle and in women with infertility and other endometrial disorders. Validation by Western blot and immunohistochemistry will identify the cellular sources of these proteins. Extension of the work will determine functions for uterine fluid proteins on embryo development and uterine receptivity for implantation.

Supervisors: Prof Lois Salamonsen

Contact:
lois.salamonsen@princehenrys.org

Suitability: Honours of PhD student

21. Endometrial repair after menstruation: implications for bleeding problems in women.

Endometrial remodelling and repair occurs rapidly after the initiation of menstruation in the absence of steroid hormone support. Using tissues from

both our mouse model of menstruation and repair and human endometrial tissues, we are determining the molecular mechanisms of repair of the endometrium immediately after menstruation. In order to understand the uterine micro-environment at the time of repair we will assess the composition of menstrual fluid and its effect on repair. We hypothesise that disturbances of repair result in abnormal uterine bleeding.

Supervisors: Prof Lois Salamonsen

Contact:
lois.salamonsen@princehenrys.org

Suitability: Honours of PhD student

22. Defining uterine receptivity for embryo implantation.

The endometrium allows implantation of an embryo for only a few days in each menstrual cycle: if this 'receptivity' is not established the woman will be infertile. It is also a major reason for failure of IVF. Our proteomics approach is defining the receptive endometrium and identifying discriminative markers for infertility.

Supervisors: Prof Lois Salamonsen

Contact:
lois.salamonsen@princehenrys.org

Suitability: Honours of PhD student

23. Effects of IVF on the endometrium.

During IVF, exogenous hormones are given to women to stimulate ovarian egg production. The effects these hormones have on endometrial receptivity are largely unknown. Assessment of potential

markers of endometrial receptivity in addition to hormone receptor dynamics and function in endometrium stimulated for IVF will help to understand the effects of exogenous hormones on the endometrium and may assist in modifying clinical IVF protocols.

Supervisors: Prof Lois Salamonsen

Contact:
lois.salamonsen@princehenrys.org

Suitability: Honours of PhD student

GROWTH FACTOR SIGNALLING

Laboratory Head

Craig Harrison PhD

About this Laboratory

The TGF- β family of proteins plays crucial roles throughout development and in the maintenance of tissue homeostasis in adult life. Our group is exploring the mechanisms that govern the availability of active TGF- β ligands and the consequences of dysregulated TGF- β signalling.

Related to Research Themes

Cancer, Genes & Healthy Development

Current Research

24. Inhibin A and B in the reproductive system.

Inhibin A and inhibin B, members of the TGF β family, are essential regulatory factors in mammalian reproduction. This program aims to determine their mechanisms of action.

Supervisor: Dr Craig Harrison

Contact:
craig.harrison@princehenrys.org

Suitability: Honours or PhD student

25. TGF- β signalling pathway disorders.

Transforming growth factor- β 2 (TGF- β 2), a member of the TGF- β superfamily, plays important roles in diverse developmental and homeostatic processes. Targeted disruption of TGF- β 2 results in perinatal lethality and a wide range of developmental defects. In this project, we are focusing on the molecular interactions that mediate the assembly, secretion, ECM localisation and activation of TGF- β 2.

Supervisors: Drs Craig Harrison & Kelly Walton

Contact:
craig.harrison@princehenrys.org

Suitability: Honours or PhD student

26. Myostatin and muscular dystrophy.

The use of broad-spectrum TGF- β antagonists will be an effective strategy for promoting muscle growth in a variety of myopathies, including Duchenne muscular dystrophy.

Supervisor: Dr Craig Harrison

Contact:
craig.harrison@princehenrys.org

Suitability: Honours or PhD student

IMPLANTATION & PLACENTAL DEVELOPMENT

Laboratory Head

Guiying Nie PhD

About this Laboratory

The uterus provides a "fertile soil" for the embryo to grow. We are using a number of strategies to understand what makes the uterus receptive for embryo implantation and how the uterus regulates the development of a functional placenta. A particular emphasis is in translating these research outcomes into clinically useful discoveries.

Related to Research Themes

Cancer, Cardiovascular Disease, Genes & Healthy Development, Men's Health, Women's Health

Current Research

27. Role of PC6 in regulating embryo implantation and fertility.

We are determining the molecular mechanisms of PC6 action in the uterus for embryo implantation. We are also investigating the clinical implications of uterine PC6 expression in evaluating uterine receptivity, uterine fertility and infertility.

Supervisors: Drs Guiying Nie and Sarah Paule

Contact: guiying.nie@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

28. PC6, a target for developing a dual-role female contraception.

Our studies suggest that PC6 is a novel target for the development of new female contraception which could also protect women from HIV infection. Our current research is developing various ways of inhibiting PC6 to prevent embryo implantation in animals and in cell models relevant to human implantation.

Supervisors: Dr Guiying Nie

Contact: guiying.nie@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

29. HtrA3 in placental development and pregnancy disorders.

We have discovered and cloned a new gene, HtrA3, in the mouse and human, and identified that it is a previously unrecognized factor important for placental development and function. We are investigating the molecular mechanisms of HtrA3 action during placentation, and the contribution of HtrA3 dys-regulation in pregnancy disorders such as pre-eclampsia and intra-uterine growth restrictions.

Supervisors: Drs Guiying Nie & Harmeet Singh

Contact: guiying.nie@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

30. HtrA3 in cancer and ageing. We have discovered and cloned a new gene, HtrA3, in the mouse and human, and identified that it is a previously unrecognized factor important for placental development and function. We have also established that HtrA3 is a potential tumor suppressor. We are characterizing the biochemical properties of HtrA3 and investigating its role in cancer progression.

Supervisors: Drs Guiying Nie & Harmeet Singh

Contact: guiying.nie@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

MALE FERTILITY REGULATION

Laboratory Head
Peter Stanton PhD

About this Laboratory

Our overall aim is to identify how hormones control sperm production, or spermatogenesis. We approach this problem by first identifying the key hormone-regulated cell types in the testis, and then finding the key proteins and molecules within these cells. This research is central to finding new mechanisms of contraception in men and also in understanding causes of male infertility.

Related to Research Themes
Men's Health

Current Research**31. Proteomic discovery programme in male reproduction.**

We aim to identify serum protein markers that reflect cellular processes, such as germ cell differentiation or response to hormones, for use in basic and clinical research in andrology.

Supervisors: Dr Peter Stanton

Contact:
peter.stanton@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

32. Regulation of Sertoli cell junctions.

We are investigating the ways in which hormones control junctions between cells in the testis, as these are potential sites of action of male hormonal contraception.

Supervisors: Dr Peter Stanton

Contact:
peter.stanton@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

33. Regulation of sperm release.

We are investigating the process of sperm release to aid in the discovery of new, non-hormone-based contraceptives and to better understand some forms of male infertility.

Supervisors: Dr Peter Stanton

Contact:
peter.stanton@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

METABOLISM AND CANCER LABORATORY**Laboratory Head**

Professor Evan Simpson PhD

About this Laboratory

Our goal is to understand how dysregulation of metabolism leads to increased risk of breast cancer and specifically the role of obesity and aging in increased breast cancer risk. We believe that this association is mediated in large part through the regulation of aromatase expression within the human breast.

This effort builds on our previous work to understand the regulation of aromatase expression within the postmenopausal breast, this being the major source of oestrogen driving breast cancer development in the postmenopausal woman.

Related to Research Themes

Cancer, Genes & Healthy Development, Women's Health

Current Research**34. Obesity and breast cancer risk.**

We have provided detailed evidence that the association of obesity with increased breast cancer risk is mediated via the adipokines leptin and adiponectin through the LKB-1/AMP kinase pathway.

Supervisors: Prof Evan Simpson & Dr Kristy Brown

Contacts:

evan.simpson@princehenrys.org
kristy.brown@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

35. SIRT in the regulation of aromatase expression in breast cancer.

SIRT in and particularly SIRT1 are implicated in the regulation of energy metabolism, longevity and oncogenesis. Work by others has shown that SIRT1 stimulates LKB-1 activity by deacetylation. We are currently investigating if SIRT in can influence the expression of aromatase expression in human breast adipose stromal cells.

Supervisors: Prof Evan Simpson & Dr Kristy Brown

Contacts:

evan.simpson@princehenrys.org
kristy.brown@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

36. Hypoxia inducible factors, aromatase & breast cancer.

Hypoxia inducible factors (HIFs) play a leading role in the regulation of intermediary metabolism and overexpression of HIF plays an important role in many aspects of tumourigenesis. We predict that HIFs will have a direct role to play in the regulation of aromatase expression in the human breast and are currently pursuing this hypothesis.

Supervisors: Prof Evan Simpson & Dr Kristy Brown

Contacts:

evan.simpson@princehenrys.org
kristy.brown@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

37. Regulation of Sertoli & Spermatogonial stem cell development and function in the healthy and diseased testis.

Sertoli and spermatogonial stem cells do not develop and function properly in some syndromes of infertility and in men where spermatogenesis has been interrupted by suppression of hormones by a male hormonal contraceptive. How these cells are triggered to divert from their 'normal' activity remains, in many cases, a mystery.

Supervisors: Dr Sarah Meachem

Contact:

sarah.meachem@princehenrys.org

Suitability: Honours or PhD student

38. Steroidogenic control of somatic cells.

Steroids control somatic cell differentiation in the ovary and the testis. These cells are critical for reproduction and fertility.

Supervisors: Dr Sarah Meachem

Contact:

sarah.meachem@princehenrys.org

Suitability: Honours or PhD student

OVARIAN BIOLOGY LABORATORY**Laboratory Head**

Professor Jock Findlay AO PhD DSc

About this Laboratory

Our laboratory is broadly interested in the roles that hormones and TGFbeta superfamily members play in regulating ovarian development, function, and disease. Our overall aims are to contribute to the understanding of female reproductive biology and to develop novel contraceptive methods and treatments for infertility and ovarian cancers.

Related to Research Themes

Cancer, Genes & Healthy Development, Women's Health

Current Research**39. Hormonal regulation of folliculogenesis.**

Our current work is determining the detailed mechanisms of how hormones and local ovarian factors interact to regulate ovulation.

Supervisor: Dr Ann Drummond

Contact:

ann.drummond@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

40. Developmental origins of infertility disorders and ovarian disease.

The focus of this project is determining the regulatory factors that control the development of immature oocytes and the establishment of the

primordial follicular pool, both of which impact upon adult reproductive capacity.

Supervisors: Prof Jock Findlay, Dr Karla Hutt, A/Prof Jeff Kerr

Contact: karla.hutt@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

OVARIAN CANCER BIOMARKERS**Laboratory Head**

Andrew Stephens PhD

About this Laboratory

Ovarian cancer is one of the most lethal gynaecological cancers, owing to a lack of recognizable symptoms and subsequent late-stage diagnosis in many cases. Our laboratory is applying proteomics technologies to identify proteins that may be useful in the development of an early stage screening test for ovarian cancer.

Related to Research Themes

Cancer, Women's Health

Current Research**41. Circulating markers of ovarian cancer.**

We are seeking to identify and characterise cancer-specific proteins circulating in plasma.

Technologies being used include multiplexed protein labelling, protein fractionation and mass spectrometry. Ongoing work includes identification and validation studies for development of a screening test to detect early-stage cancers.

Supervisors: Drs Andrew Stephens and Katie Meehan.

Contacts:

andrew.stephens@princehenrys.org
katie.meehan@princehenrys.org

Suitability: Honours student.

42. Nanoparticle technology for the identification of novel cancer markers.

Our team has developed a novel nanoparticle technology which is being applied to samples such as human plasma, urine and cell extracts to capture and comparatively analyse small proteins as potential cancer markers.

Supervisors: Drs Andrew Stephens and Adam Rainczuk

Contacts:

andrew.stephens@princehenrys.org
adam.rainczuk@princehenrys.org

Suitability: Honours student.

REPRODUCTIVE CANCER & DEVELOPMENT

Laboratory Head

Kaye Stenvers PhD

About this Laboratory

Our laboratory uses combined molecular and cellular approaches to determine the mechanisms underlying cell growth and migration in the ovary and testis, both during normal foetal development and during cancer progression.

Related to Research Themes

Cancer, Genes & Healthy Development, Men's Health, Women's Health

Current Research

43. Mechanisms of ovarian cancer metastasis.

Our current work is determining the detailed mechanisms underlying the spread of cancerous ovarian granulosa cells in order to develop new therapeutic strategies to block tumour metastasis.

Supervisors: Drs. Maree Bilandzic & Kaye Stenvers

Contacts:

maree.bilandzic@princehenrys.org
kaye.stenvers@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

44. Mechanisms of foetal urogenital system development.

We study genetically modified mice to determine the roles of particular genes in the formation of the foetal ovary, testis, and kidney. Information gained from these studies is integral to the development of better therapies and treatments for reproductive tract.

Supervisors: Drs. Mai Sarraj & Kaye Stenvers

Contacts:

kaye.stenvers@princehenrys.org
mai.sarraj@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

SEX DETERMINATION & GONADAL DEVELOPMENT

Laboratory Head

Associate Professor Vincent Harley PhD

About this Laboratory

This group is investigating the role of three human genes involved in the formation and function of the testis (SRY and SOX9), bone (SOX9) and the pancreas (SOX13). Disruption of the normal function of these genes cause disease. Therefore, analysing them could potentially lead to the development of new treatments for the diseases that they are involved in.

Related to Research Themes

Genes & Healthy Development

Current Research

45. ATR-X syndrome & gonadal development.

The ATR-X syndrome, an X-linked recessive developmental disorder affecting males, belongs to a growing list of disorders of sex development (DSD) which affect 1% of all newborns. Clinical features include mental retardation, alpha-thalassemia and skeletal and genital abnormalities. The focus of our work is to investigate the role of ATRX in gonadal development.

Supervisors: A/Prof Vincent Harley & Drs Anthony Argentaro & Stefan Bagheri-Fam

Contacts:

vincent.harley@princehenrys.org
anthony.argentaro@princehenrys.org

Suitability: Honours or PhD student

46. Genetic mechanisms underlying hypospadias.

Hypospadias is one of the most common birth defects in humans affecting 1 in 250 boys in which the opening of the urethra is not at the end of the penis but along the shaft. We are exploring the genetic mechanisms underlying hypospadias by the generation of mouse models.

Supervisors: A/Prof Vincent Harley & Drs Anthony Argentaro & Stefan Bagheri-Fam

Contacts:

vincent.harley@princehenrys.org
anthony.argentaro@princehenrys.org

Suitability: Honours or PhD student

47. Identification of novel genes required for gonadal development.

Our aim is to identify the underlying molecular and cellular events that cause human disorders of sexual development. As one approach, we are undertaking an ENU mutagenesis screen to identify novel genes involved in gonad development. We have identified several mutant strains affecting testis development which are currently under investigation.

Supervisors: A/Prof Vincent Harley & Dr Stefan Bagheri-Fam

Contacts:

vincent.harley@princehenrys.org
stefan.bagheri-fam@princehenrys.org

Suitability: Honours

48. Discovering new genes responsible for disorders of sex development. Our project aims to identify new genetics factors involved in rare disorders of human gonadal development using Array Comparative Genomic Hybridization (CGH).

Supervisors: A/Prof Vincent Harley & Dr Pascal Bernard

Contacts:
vincent.harley@princehenrys.org
pascal.bernard@princehenrys.org

Suitability: Honours or PhD student

49. Wnt/b-catenin, SOX signaling & sex determination. While male and female gonadal development have been considered as independent, sex determination is regulated by opposing signals, (XY) tipped toward maleness by the presence of SRY. In females R-Spondin 1 (a Wnt agonist) is the earliest driving force. Using cell and molecular biology techniques, this project aims to understand the mechanisms of action of these two opposing pathways.

Supervisors: A/Prof Vincent Harley & Dr Pascal Bernard

Contacts:
vincent.harley@princehenrys.org
pascal.bernard@princehenrys.org

Suitability: Honours or PhD student

50. Functional characterisation of the chromatin-remodelling protein, ATRX. The ATR-X syndrome is a severe developmental disorder resulting in a mental retardation, characteristic

facial and skeletal abnormalities, alpha thalassaemia and urogenital abnormalities. The ATRX protein comprises two highly conserved domains; a N-terminal PHD-like domain and a C-terminal helicase-like domain which shares homology to the SNF2 family of chromatin remodelling proteins. The functional importance of these domains is highlighted by the fact that the majority of the clinical mutations are located within these domains.

Mutations which arise in a third domain located in the extreme C-terminus almost always results in complete XY sex reversal in patients suggesting that this region plays an important role in urogenital development.

This project will focus in identifying and characterising proteins which interact with the C-terminal domain of the ATRX protein which will elucidate the functional role of ATRX in urogenital development

Supervisors: Dr Anthony Argentaro & A/Prof Vincent Harley

Contacts:
vincent.harley@princehenrys.org
anthony.argentaro@princehenrys.org

Suitability: Honours or PhD student

51. SOX9, Fgfr2 & testis development. We have shown that SOX9 and FGFR2 are key proteins during male sex determination. To identify the molecular pathways that SOX9 and FGFR2 act through, we are undertaking gene/protein expression analyses in Sox9 and Fgfr2 knockout gonads. We are also exploring the function of FGFR2 after the sex determination phase.

Supervisors: A/Prof Vincent Harley & Dr Stefan Bagheri-Fam

Contacts:
vincent.harley@princehenrys.org
stefan.bagheri-fam@princehenrys.org

Suitability: Honours or PhD student

STEROID RECEPTOR BIOLOGY

Laboratory Head

Professor Peter Fuller MBBS, PhD, FRACP

About this Laboratory

The group is currently focussed on two principle themes, that of the mechanism of action of the adrenal steroid hormone aldosterone and the molecular pathogenesis of granulosa cell tumours of the ovary. The laboratory uses the techniques of molecular biology and mouse genetics to address these topics.

Related to Research Themes

Cancer, Cardiovascular Disease

Current Research

52. Molecular pathogenesis of granulosa cell tumours of the ovary.

Granulosa cell tumours (GCT) of the ovary are endocrine tumours of the ovary that both make hormones and respond to hormones. The group seeks to understand the molecular events that lead to the development of the tumours. Areas of interest include the role of nuclear receptors including ER, the significance of the inverse actions of the NFkB pathway observed in two GCT derived cell lines and the use of

microarray analysis to identify paths and profiles of gene expression.

Supervisors: Prof Peter Fuller & Dr Simon Chu

Contacts:
peter.fuller@princehenrys.org
simon.chu@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

53. Structure - function relationships of the mineralcorticoid receptor.

The mineralcorticoid receptor (MR) is an important therapeutic target in cardiovascular disease. We have identified interactions of the receptor that differ between the physiological ligands. Understanding these interactions and their structural basis may lead to the development new therapeutic agents. The studies involved the use of yeast-2-hybrid screens, transactivation assays, structural analysis, mutation detection and transgenic mouse models.

Supervisor: Professor Peter Fuller

Contact:
peter.fuller@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

54. Mineralcorticoid receptor regulation of gene expression.

The mineralcorticoid receptor (MR) principally acts by regulating the expression on its target genes. We have identified a number of genes that are directly regulated by the MR and are

seeking to understand the mechanism of that regulation in vitro and in vivo.

Supervisor: Professor Peter Fuller

Contact:
peter.fuller@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

55. Hormonal regulation of folliculogenesis. Our current work is determining the detailed mechanisms of how hormones and local ovarian factors interact to regulate ovulation. Our goal is to elucidate the local control of ovarian follicular development in order to obtain a better understanding of, and treatments for, infertility, premature menopause and ovarian cancer.

Supervisor: Dr Ann Drummond

Contact:
ann.drummond@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

56. Role of ERB in folliculogenesis. It is our hypothesis that oestrogen action, via ER β , limits GC proliferation by opposing pro-proliferative, anti-apoptotic signals such as the NF κ B pathway and by promoting their differentiation into luteal cells. Thus activation of ER β may contribute to the selection of the dominant follicle and/or recruit follicles to enter the FSH-dependent differentiation phase. We plan to identify genes and proteins specifically activated by ER β and elucidate their biological role in ovarian function.

Supervisors: Drs Ann Drummond & Simon Chu

Contacts:
ann.drummond@princehenrys.org
simon.chu@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

57. Ovarian phenotype of the Ikk β conditional knockout mouse. These studies will investigate the importance of the NF κ B signalling pathway to ovarian function. By deleting IKK β from the ovarian cells of mice we prevent activation of the NF κ B signalling pathway. These conditional knockout mice will be investigated in a range of studies. Histological analyses of ovaries at different stages of development, serum hormone analyses and gene expression studies will be undertaken to characterise the ovarian phenotype. We expect these studies to yield novel data regarding ovarian function.

Supervisors: Dr Ann Drummond

Contact:
ann.drummond@princehenrys.org

Suitability: Project can be tailored to suit student (PhD, Honours, EPRD, Vacation Scholar)

4 Scholarships

PHI Scholarships

Initial enquiries to study at Prince Henry's Institute of Medical Research should be directed to the relevant research project supervisor, or research group leader. This handbook summarises each research project and includes contact details for the relevant supervisor.

Application forms

Application forms can be found on our website at:
www.princehenrys.org/students

Vacation scholarships

Vacation scholarships are available for students to carry out a research project at the institute over the summer vacation. The scholarship provides a stipend for up to 6 weeks at \$250.00 per week. Applications close on October 16.

Postgraduate Scholarships

For these scholarships, which are to carry out a study leading to the degree of Doctor of Philosophy, students must be suitably qualified [at least BSc (Hons), BMedSci or MBBS or equivalent degrees].

Please work with your Prince Henry's supervisor to finalise a project before submitting an application form.

PHI Top-Up Postgraduate Scholarships

These scholarships are available to students newly arrived at PHI and who have recently enrolled in a postgraduate research degree (typically a PhD).

PHI Postgraduate Top-Up scholars receive additional support on top of an existing scholarship stipend (at APA level).

Please visit the PHI Postgraduate Top-Up award page from more information. Applications close October 16.

Other Postgraduate Scholarships

From time to time special scholarships are also available through Prince Henry's Institute. Up to date information about these can be obtained only by direct contact with the Director of the Institute.

For information relating the following scholarships please go to our website.

PhD Scholarship in Reproductive Biology

Our knowledge of the factors that regulate the supply, activation and growth of ovarian follicles is important for an understanding of conditions such as premature ovarian failure, polycystic ovarian syndrome, and anovulation all of which impact fertility in women.

A PhD research project is available in 2008 for studies of the factors that regulate the establishment, activation, development, and growth of ovarian follicles in a range of animal models that alter gene activity, follicle supply, and the actions of estrogens in the fetal and postnatal ovary. The controversial notion that follicles may self-renew from as yet unidentified stem cell populations from intra- or extra ovarian sources will form part of these studies. Techniques will include: gene expression, histology, immunocytochemistry, confocal and stereological analysis, electron microscopy, 2-D and 3-D biomapping, animal surgery, data analysis and publication.

Chief Investigators/Supervisors for this project are Prof Jock Findlay (Prince Henry's Institute of Medical Research) and Assoc Prof Jeff Kerr (Anatomy & Developmental Biology, Monash University). The work will be conducted in both sites which are 10 min apart by car.

Award

The scholarship is for a period of 3 years, stipend up to \$25,000 per annum (tax free). A 6 month extension may be available. Allowances for travel and support for thesis preparation will apply.

Eligibility

Full-time. Honours 1 or 2A or equivalent.

Availability

From 2009

Enquiries

Assoc Prof Jeff Kerr

E: jeff.kerr@med.monash.edu.au

T: 03-99052723 F: 03-99052766

Applications

In writing or email to: Assoc Prof Jeff Kerr, Dept of Anatomy & Developmental Biology, School of Biomedical Sciences, Faculty of Medicine, Monash University, VIC 3800

Include CV, academic record, contact details for 2 or 3 referees.

Australian Postgraduate Award (APA)

This scholarship is awarded through Monash University and is awarded for a period of 3 years.

For study at Prince Henry's Institute, the application must be filled out in consultation with a Prince Henry's Institute supervisor. Overseas students are not eligible. Applications close October 31.

Monash Graduate Scholarship (MGS)

This scholarship is awarded through Monash University for a period of 3 years. For study at Prince Henry's Institute, the application must be filled out in consultation with a Prince Henry's Institute supervisor. Overseas students are eligible. Applications close October 31.

Cancer Council of Victoria Postgraduate Scholarship

Prince Henry's Institute is an approved institution to carry out a project in a cancer related area under the Anti Cancer Council of Victoria Scheme. Applications usually close in early November. Contact the Cancer Council for the current closing date for applications.

Further Study options

Education Program in Reproduction and Development (EPRD)

The Education Program in Reproduction and Development (EPRD) aims to foster education and research into reproductive biology and embryology for domestic and international postgraduate students.

The EPRD program is a joint venture between Prince Henry's Institute 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 EPRD through the MIMR. 36 students, including 29 international students, were enrolled in these courses in 2008.

PHI plays a key role in the coordination and teaching of the EPRD program and helps to promote its activities. Many of the Institute's scientists assist in the development of course units, lecture and facilitate practical sessions.

PHI researchers also supervise students undertaking research projects in the Master of Reproductive Sciences.

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

