



The Physiological Society of New Zealand Newsletter

MedSci 2011 Update

This year saw the Medical Sciences Congress (MedSci) participate in the Queenstown Research Week - a week dedicated to New Zealand's bioscience community - which also included the Queenstown Molecular Biology meeting, the Australasian Winter Conference on Brain Research and nine satellite meetings. The cross-meeting registration enabled attendees to attend sessions of interest at the other meetings being held concurrently and interact with scientists from other disciplines, making for a collaborative and interesting week.

The much-anticipated Queenstown Molecular Biology Nobel Laureate speaker, Professor Barry Marshall, gave an inspiring and entertaining talk on his work with *Helicobacter pylori* to an overflowing auditorium. The MedSci plenary speakers, Professor Gary Sieck and Professor Michael Cowley, also gave insightful talks to packed audiences. In addition to these plenary lectures, MedSci had a record number of keynote lectures at individual sessions.

All in all, the MedSci conference was a great success and saw 160 participants enjoying the beautiful surrounds that Queenstown has to offer, with the MedSci dinner being held at the Tatler Restaurant (along with the annual prize giving ceremony - details of award winners below).



The move from December to August was welcomed by the ski-bunnies, especially after the "polar blast" topped up the snow cover on the slopes. Queenstown was looking picture-postcard perfect with a layer of snow on The Remarkables.

Professor Allan Herbison Awarded the Triennial Medal

The Triennial Medal is the most prestigious award granted by the Physiological Society of New Zealand (PSNZ). The Medal is awarded to a member of our Society who has made distinguished contributions to the international physiological community over the previous five

years and has actively participated in the PSNZ. The Medal is awarded once every three years. This year, the members of the PSNZ were proud to present the award to Professor Allan Herbison of the Department of Physiology at the University of Otago, Dunedin, NZ.

Prof. Herbison is an international leader in the field of neuroendocrinology. Specifically, the Herbison Laboratory (one of the Centres of Excellence of the Center for Neuroendocrinology at Otago) is a world-leader in bringing new insights into the properties and functioning of gonadotropin-releasing neurons, which are responsible for the initiation of puberty and maintenance of subsequent reproductive function. The lab has pioneered the development of novel transgenic technologies that enable their high-impact discoveries. In more recent years the group has made significant advances in our understanding of the role of a newly discovered neuropeptide, kisspeptin, in the regulation of reproduction. This work has been published in high-impact journals such as *Neuron*, *Journal of Neuroscience* and *PNAS*, as well as the highly regarded journal of *Endocrinology*. The group has attracted over 500 citations each year.



Professor Herbison is regularly invited to speak at international meetings with 20 such invitations in the past 5 years. He was awarded Otago School of Medical Sciences Researcher of the year in 2007 as well as the University of Otago's highest research honour, the Distinguished Research Medal 2011. He also won the Liley Medal from the Health Research Council in 2009 for outstanding contributions to the field of neuroscience and neuroendocrinology. He was elected a Fellow of the Royal Society of New Zealand in 2007 and now serves on its Nomination Committee. A regular and strong contributor to PSNZ, he organized the 2009 MedSci Congress at COMBIO as well as participating as chair of symposia of the MedSci Congress over the years. Topping these accolades off, he was also awarded a prize for best postgraduate supervision in 2010 through nomination by his students.

The members of PSNZ Council would like all of its members to join them in congratulating Professor Herbison on his great achievements. Highlighting his group's work, two of his students, Shel Hwa Yeo and Simon de Croft, have kindly offered a summary of their research, which can be found on our website at: <http://physoc.org.nz/news/physiology-in-focus/kisspeptin-neurons>.

2011 Hubbard Prize Winner in Profile - Rachel Cheong

Rachel Cheong, winner of the 2011 John Hubbard Memorial Prize for Excellence in Studies towards a PhD, tells us how she got to where she is:

Born and educated in Singapore, I came to New Zealand in 2004 to begin tertiary education and graduated with a biomedical science degree with first class honours at the University of Otago. My first encounter with research came from a three-month studentship at the Institute of Molecular and Cell Biology in Singapore during my undergraduate days. I undertook an Honours project in 2008 with Dr. István Ábrahám and Prof. Allan Herbison at the Department of Physiology, University of Otago. After the Honours year and my studentship, it was clear to me

that I wanted a research career in science. I was amazed by complex physiological processes functioning in synergy and our intricately wired central nervous system. My interests in neurophysiology as well as reproductive biology have influenced and fueled my decision to further my PhD studies in the neuroendocrinology field.

My PhD project jointly supervised by Dr. István Ábrahám and Prof. Allan Herbison, focuses on investigating the role of estrogen on the brain's control of reproduction. I'm particularly interested in the gonadotropin-releasing hormone (GnRH) neurons, located within the hypothalamus of the mammalian brain, established as the key output cells mediating all influences that control fertility. Understanding the mechanisms underlying feedback actions of estrogen upon the GnRH neuronal network are of considerable interest to reproductive neurobiologists. The main aim of this project was to decipher and investigate the role of estrogen receptors and rapid estrogen signaling in mediating estrogen negative feedback on GnRH neurons, thereby furthering our understanding of its role in the regulation of fertility. The results from this work suggest a new estrogen pathway mediating estrogen negative feedback in GnRH neurons that could have a major impact upon our understanding of the neural control of reproduction.

Being a recipient of the prestigious John Hubbard Memorial Prize for excellence in studies towards a PhD is a tremendous honour and this award would not have been possible if not for the guidance and support from department and colleagues in the Abraham and Herbison laboratories who have been instrumental in my development as a scientist. I would like to express my deepest appreciation and gratitude to Dr. István Ábrahám and Prof. Allan Herbison for their unwavering support and dedication. It is in such a supportive and nurturing environment that I've truly grown as a scientist

and as a person, in each step of the journey in the PhD pursuit. This has been an amazing journey and the plans for the immediate future will be keeping my nose to the grindstone, completing experimental work and writing up the thesis while, after that, I hope to gain overseas post-doctoral research experience.



Our Student Presentation Prize Winners

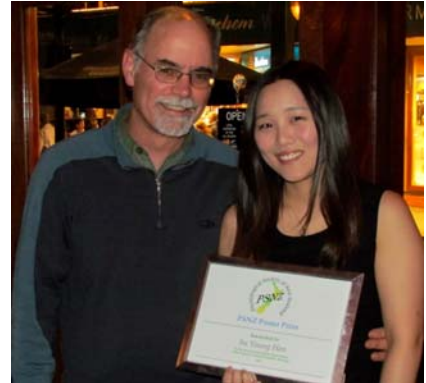
Mary Bullivant Prize for Best Oral Presentation:



Yimin Yao from the University of Otago won the award for best oral presentation this year, presenting his research on treating diabetic kidney disease using chronic bilateral renal denervation (BRD) under the supervision of Drs. Ivan Sammut, Ged Davis and Joanne Harrison. His work focussed on the effect of BRD on the progression of diabetic renal injury. His work showed that animals treated with BRD showed reduced diabetes-induced glomerular damage as well as reduced production of plasma urates, which can lead to problems such as kidney stones.

PSNZ Prize for Best Poster Presentation:

Su Young Han from the University of Otago (Physiology and Centre for Neuroendocrinology) was awarded the best poster prize for her work on investigating the potential role of vasopressin neurons in the development of hypertension. Vasopressin is a hormone that plays a role in regulating blood pressure through its actions on arterial resistance and kidney function. Su started her PhD in April 2010 working with Drs Colin Brown and Daryl Schwenke on Cyp1a1Ren2 rats that have been genetically modified to respond to a specific trigger chemical in their diet by releasing Angiotensin II to induce hypertension. Her research has shown that the induction of moderate hypertension in these rats paradoxically increases the firing rate of vasopressin neurons, which will exacerbate hypertension via increased vasopressin (antidiuretic hormone) secretion to promote water retention in the kidney. Her PhD is now focussed on determining the cellular mechanisms that underpin the inappropriate increase in vasopressin neuron activity during the development of hypertension.



PSNZ Council

In 2011, nominations were sought to add some new blood to the PSNZ council via email. Society members were asked to vote their preferences and we now have an updated list of council members that covers the breadth of the country and the career stages that make up our society. Our 13 council members including its officers are:

President: Professor Peter Hunter

(reappointed for 2 more years)
2008 - 2013



Auckland Bioengineering Institute
University of Auckland, Private Bag 92019, Auckland
p.hunter@auckland.ac.nz

Treasurer: Associate Professor Ian LeGrice

(1 more year)
2008 - 2012



Department of Physiology
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Secretary: Dr Kirk Hamilton

(reappointed for 2 more years)
2008 - 2013



Department of Physiology
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Proceedings Editor: Associate Professor Chris Charles (co-opted)

2005 - 2012



Department of Medicine
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Student Representative: Ms Jonna Terkildsen

2010 - 2013



Auckland Bioengineering Institute
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Dr Pete Jones

2011 - 2014



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Website and Newsletter Editor: Dr. Vijay Rajagopal

(2 year appointment)

2009 - 2012



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University of Auckland, Private Bag 92019, Auckland
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Dr Carolyn Barrett

2011-2014



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Dr Kevin Stewart

2008-2013



Science and Primary Industries
Waikato Institute of Technology,
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Dr Daryl Schwenke

2011-2014



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Dr Colin Brown

2011-2014



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Professor Laura Bennet

2011-2014



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Professor Peter Larsen

2011-2014



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Associate Professor Merryn Tawhai

2011-2014



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Save the Date!

The 2012 MedSci congress will be held during Queenstown Research Week (25-31 August 2012). Please note, however, that the Physiological Society of New Zealand annual meeting will be held in conjunction with the Australian Physiological Society from 2nd to 5th December in Sydney, Australia. So start planning and make 2012 as good an event as this year!

The Newsletter

This is the first of what we hope to be a quarterly newsletter to update our community of the physiological activity in our neighbourhood. We would value your feedback, suggestions and any input you may be able to provide. You can contact the editors of this newsletter via email: Vijay Rajagopal (v.rajagopal@auckland.ac.nz) and Jonna Terkildsen (j.terkildsen@auckland.ac.nz).