# AuPS News

September 2014




## A.K. McIntyre Award Winner 2013
## Dr Enzo Porrello

**What is your research background? How did you begin your career in Physiology?**
I completed my undergraduate studies, Honours and PhD at The University of Melbourne. My PhD studies focused on the developmental origins of cardiac hypertrophy. Specifically, I worked on a fascinating genetic model of primary cardiac hypertrophy known as the Hypertrophic Heart Rat (HHR), which was developed by Prof Stephen Harrap, Prof Lea Delbridge and others in the Department of Physiology. During my PhD I found that cardiac hypertrophy in the HHR was developmentally programmed and that Hypertrophic Heart Rats actually started out life with fewer cardiomyocytes and smaller hearts. These initial studies in the HHR sparked my interest in the physiological transitions occurring during neonatal life and, in particular, the molecular mechanisms that govern cardiomyocyte proliferative arrest during early post-natal life. I subsequently moved to UT Southwestern Medical Center to undertake postdoctoral studies in Prof Eric Olson's laboratory. During my postdoc I discovered a previously unappreciated developmental window for cardiac regeneration in neonatal mammals. We have been actively pursuing the molecular mechanisms that regulate cardiac regenerative capacity and cardiomyocyte cell cycle withdrawal in neonatal mice ever since, as this may provide new opportunities for the development of cardiac regenerative therapeutics, which are much needed.

**What research are you currently involved with?**
Since establishing my laboratory in the School of Biomedical Sciences at UQ in 2012, our research has primarily focused on the molecular regulation of cardiomyocyte cell cycle withdrawal during the neonatal period. We are currently trying to map the gene regulatory networks that define the cardiac regenerative response in neonatal hearts and we have been particularly interested in the role of epigenetic modifications such as DNA methylation, as well as the role of non-coding RNAs. These studies are beginning to identify key signaling pathways involved in the regulation of cardiac regenerative capacity in neonates. In 2014, I merged laboratories with Dr James Hudson, a stem cell biologist and tissue engineer. We are currently developing a number of platforms using human bioengineered heart tissue as a tool for modeling cardiac developmental and disease processes, as well as for drug screening applications.

**What's the best thing about your lab at the moment?**
Earlier this year Dr James Hudson and I made the strategic decision to merge our laboratories. One of the most enjoyable aspects of our scientific partnership is our

joint passion for cardiac regenerative biology, which we approach with unique perspectives and backgrounds in physiology (myself) and engineering (James). Our lab currently comprises an approximately equal number of students/postdocs working on cardiac developmental and tissue engineering projects. Many of these projects are beginning to intersect at multiple levels and the merging of our scientific disciplines has added real value to our science and has been a really enjoyable experience.

**Which part of research makes it most enjoyable for you?**
One of the great things about a research career is that you get to work with really smart people. I enjoy going to work every day because of the interesting conversations that I get to have with my group members and colleagues. There's never a dull moment in the lab and there's always something to learn from others.

**What is the research direction you would like to take in the next 3-5 years?**
We are really excited about the prospect of using human stem cells and tissue engineering approaches for drug discovery. We are currently developing tools for drug screening in 3D human cardiac microtissues, which provides a number of advantages over screening in standard 2D cultures. Over the next 3-5 years, I hope that we will be able to use this platform to identify novel drug targets for cardiac regeneration, as we ultimately hope to deliver small molecules to promote endogenous regeneration of the adult heart.

**What do you do to relax?**
When I'm not at work, you're likely to find me at the gym or in the kitchen. I have recently taken an interest in cooking, which is kind of interesting because my father is a chef. Being a well looked after Italian boy, I managed to avoid the kitchen for well over 20 years, but the cooking genes appear to have been finally activated!

# A.K. McIntyre Award

Sponsored by SDR Scientific

The Society's prestigious A.K. McIntyre award, named in honour of the Society's first President, is awarded annually to a member of the Society who is judged to have made significant contributions to Australian physiological science over their pre-doctoral and early post-doctoral years.

Applicants must be financial Ordinary Members of the Society, and must normally have completed their doctoral degree not more than 7 years prior to the time of their application (PhD graduation after 1 November 2007). They must be proposed by two financial members of the Society, who should each provide a statement of not more than 500 words summarising their achievements. The applicant should also provide a curriculum vitae which includes any involvement with AuPS, along with a list of published works, including conference proceedings.

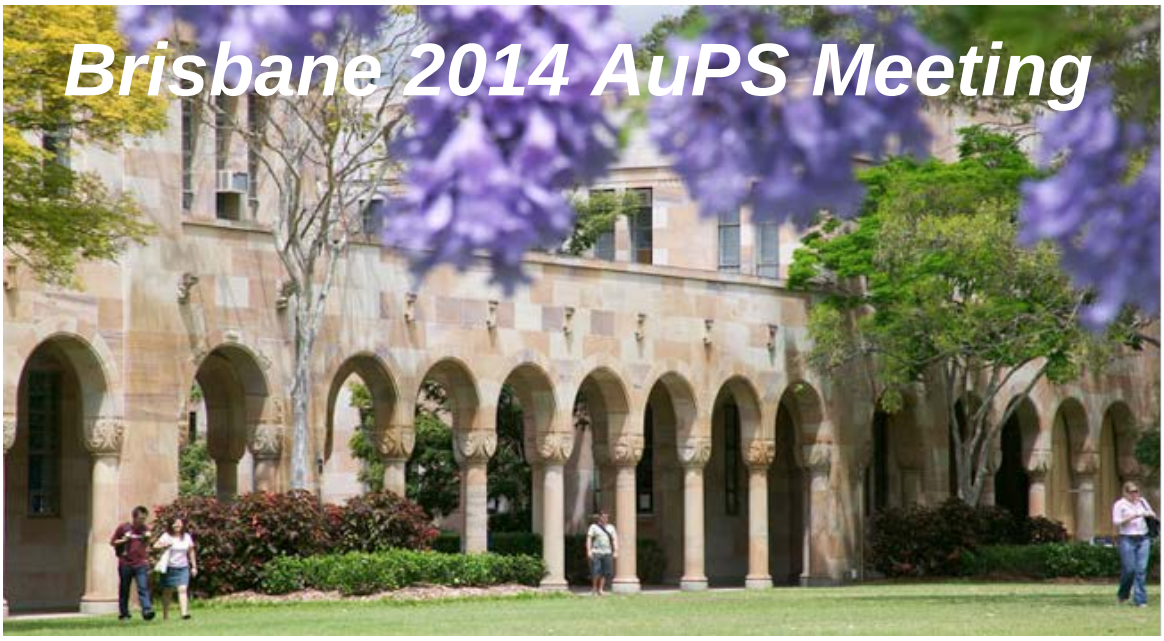
The Prize consists of a medal and the sum of $1000. The prize winner will be announced at the AuPS meeting in Brisbane in December.

**The application deadline is 31st October 2014**.

Eligibility and selection criteria can be found here: http://aups.org.au/Prizes/McIntyre.html

Please email applications to the National Secretary, Matthew Watt secretary@aups.org.au

***Details of other AuPS prizes can be found at the back of this newsletter and on our website.***




## The University of Queensland, 30 November to 3 December

***AuPS Invited Plenary Lecturer:*** **Prof Jamie Vandenberg**
Victor Chang Cardiac Research Institute, *Getting to the heart of ectopic beats*

***Invited Plenary Speakers:***
**Prof Robert Parton**, The University of Queensland, *Plasma membrane and caveolae.*
**Prof Don Bers,** UC Davis, *Calmodulin and CAMKII signalling in the heart.*

***Michael Roberts Education Award Lecture (winner 2013)***
**Dr Kay Colthorpe,** The University of Queensland, *From active learning to self-regulated learning.*

***Research Symposia (with over 9 international speakers!)***

- Cardiomyocate Ca2+ and Na+ signalling – new mechanistic insights
- Interaction of metabolic balance and growth hormone
- Cardiac metabolic stressors and sensors
- Early life environment as an indicator of health; outcomes and prevention
- Frontiers of molecular mechanisms of ligand recognition and activation of receptor channels
- Ion channels and pathophysiological changes in ionic regulation
- New insights into exercise and insulin sensitivity
- Placental development and function: effects of maternal perturbations during pregnancy
- Can we age well?
- Mechanisms and treatments for muscle wasting
- Genetics influences on skeletal muscle physiology and athletic performance
- Exocytosis

***Physiology Education Symposium***

- Teaching and learning within undergraduate research experiences in physiology

***Conference Dinner:*** Customs House, Riverside
***Student and Early Career mixer for fun, networking and more***

For the latest meeting info go to: AuPS Brisbane 2014
Local contact: Dr Bradley Launikonis, b.launikonis@uq.edu.au
**Abstract/registration commences: 1st September 2014**
**Deadline/end of early-bird registration: 26th September 2014**

# Student member profile – Chris Brander
# Deakin University

This is a collection of photos taken from a recent trip overseas. The pictures on the right side (top and bottom) are of me presenting work at the National Strength and Conditioning Association (NSCA) International conference which was held in Murcia, Spain. As you can see, the location was absolutely beautiful! Couldn't believe my luck presenting on the main stage which was held in a Cathedral on the University campus. I also had the opportunity to catch Le Tour de France in London, that's me pictured on the right with the London Eye!

**What is your research background – how did you get interested in Physiology?**
After completing my Bachelor of Exercise Science and Human Movement of Victoria University in 2009, I knew that I had to continue studying if I was going to break into Elite Sports/High Performance. In 2010 I completed my Honours at Deakin University with Dr. Stuart Warmington, where we looked at the effect cold water immersion has on acclimatization to exercise in the heat. I had always enjoyed working with people (and athletes), and was hoping to begin a PhD that more aligned with my interests. So, in 2011 I began my PhD at Deakin under Dr. Warmington and Dr. Dawson Kidgell looking at a novel form of resistance exercise.

**What are your current research interests?**
My Doctoral thesis focuses on the physiological adaptations to blood flow restriction (BFR) resistance exercise/training in comparison to the responses from more traditional methods such as heavy-load and light-light resistance exercise/training. Specifically, I have investigated the corticomotor and cardiovascular responses to a single bout of BFR. I have just finished

data collection where we looked at the training related adaptations of the corticomotor and cardiovascular systems following an 8 week training and 4 week de-training programme.

**What is the research direction you would like to take in the next 3-5 years?**
BFR is a relatively new mode of exercise, so there is still much to look in to. Our group at Deakin has been extensively investigating the cardiovascular responses to BFR during aerobic (walking) and resistance exercise and training. I would like to measure the efficacy of its use in elite/trained athletes, either as a primary mode of resistance exercise to increase performance, or as a rehabilitation tool.

**What do you do to relax?**
At this stage, I don't have much time to relax! I am aiming to finish the write up of my thesis by the end of October so everything is full steam ahead! I have also accepted a position at Aspire Sports Academy in Qatar as a Talent Identification Officer, which will begin around the same time, so that has given me extra motivation to finish on time.

---

Dear Student Members,

We are excited to connect with you through social media!! A new student and early career researchers member page has been developed on Facebook! The page is titled: **Australian Physiological Society - Students and Early Career Researchers**. The aim of this page is to provide another means to inform our student members and ECR's about upcoming events and awards/scholarships that are available. We will also aim to post new information about jobs and postdoc positions that are circulated to members, as well as highlight our student member of the month with some information about their area of research and accomplishments!

**Privacy:** It is important to note that, as Facebook is a social media page, your profile will be accessible to the page administrators, Tahnee Kennedy and Nicole Vargas (your current student representatives). The page will, in no way, be used for determining awards/scholarships, council positions and the like. Also, note that while your profile will be open to page administrators, other individuals who like the page will not have access to your page, unless your privacy settings allow it.

At this time, we would love to ask you to 'like' our Facebook page if you are a student member or early career researcher!! We are very excited to open these lines of communication and hope that they will keep everyone in the loop!

Thanks for your support and we'll see you on Facebook!!

Kind Regards,

Tahnee Kennedy and Nicole Vargas
AuPS student representatives

# Student member profile – Upasna Varma
# The University of Melbourne

**What is your research background – how did you get interested in Physiology?**
Science has always been a passion of mine, so applying for a Bachelor of Science was a no brainer! As I progressed through my degree I was drawn to the biomedical sciences and eventually majored in Physiology. I was offered an Honours position in Clive May's lab, co-supervised by Dr Colleen Thomas and Prof Lea Delbridge, investigating therapeutic interventions to combat ischemia-reperfusion injury in sheep hearts. It involved open heart surgery, which was very exciting!

**What are your current research interests?**
After my honours degree I was offered a position as a Research Assistant at the Cardiac Phenomics Laboratory in the Department of Physiology, University of Melbourne. This fuelled my interest in research, exposing me to many different aspects of cardiac physiology and biochemistry. I developed our primary cardiac cell culture protocol and learnt that there's nothing like looking at your first successful culture under a microscope! This work laid the foundation for my PhD, and having successfully applied for a scholarship, I am now in my second year. I am investigating the role of glycogen specific autophagy in cardiac cells under metabolic stress, under the guidance of Prof Lea Delbridge, Dr Kim Mellor and Dr James Bell.

**What is the research direction you would like to take in the next 3-5 years?**
In the next 3-5 years I aim to complete my PhD and head overseas with a fellowship. I am keen to continue to explore autophagic signalling in metabolic stress, focusing on both mechanistic insights and functional changes. My long term research aspirations are to work towards translating research findings to clinically relevant therapeutic interventions.

The AUPS has provided a great channel to meet and interact with Australian researchers from all across the country and the world. I think networking with fellow students and senior academics is an important step to foster collaborations later in our careers. It would great to get the students more involved in the society and I am eager to contribute!

# Michael Roberts Award

Sponsored by Wiley-Blackwell

The Michael Roberts Excellence in Physiology Education Award is an award bestowed periodically by the Australian Physiological Society in memory of Professor Michael Roberts who was a lifelong passionate and dedicated advocate of physiology teaching and education. The award is intended to recognise AuPS members who have demonstrated a sustained performance of excellence in the delivery of physiology education at the tertiary level, and make a contribution to the teaching activities of AuPS.

The recipient of this Award in 2014 will receive a medal and a cash award, which will be presented at the Conference dinner at this year's AuPS Brisbane Meeting, and will be invited to deliver a lecture during the Educational Symposium at the 2015 AuPS Hobart Meeting.

**The application deadline is 30th September 2014**.

Eligibility and selection criteria can be found here: http://aups.org.au/Prizes/Roberts.html

Please email applications to the National Secretary, Matthew Watt secretary@aups.org.au

# AuPS PhD student publication prize

Sponsored by SDR Scientific

An annual award for the best original paper published by an AuPS member during the course of their PhD studies.

The Prize consists of a $500 cheque. The prize winner will be announced at the AuPS meeting in Brisbane in December. The paper must be published (on paper or online) between 30th September 2013 and 1st October this year. The award must be used to present work at a conference. Winners will be reimbursed after providing a copy of an invoice of conference expenses.

**The application deadline is 31st October 2014**.

Eligibility and selection criteria can be found here:
http://aups.org.au/Prizes/PhDpublication.html

Please email applications to the National Secretary, Matthew Watt secretary@aups.org.au

# AuPS Postdoctoral publication prize

Sponsored by SDR Scientific

An annual award for the best original paper published by an AuPS member during their first 4 postdoctoral years.

The Prize consists of a $500 cheque. The prize winner will be announced at the AuPS meeting in Brisbane in December. The paper must be published (on paper or online) between 30th September 2013 and 1st October this year. The award must be used to present work at a conference. Winners will be reimbursed after providing a copy of an invoice of conference expenses.

**The application deadline is 31st October 2014**.

Eligibility and selection criteria http://aups.org.au/Prizes/PostDocPublication.html

Please email applications to the National Secretary, Matthew Watt secretary@aups.org.au

# AuPS Council Elections

The next Annual General Meeting (to be held in Brisbane, 3 December 2014) will look to fill the following vacancies on Council: two ordinary members.

*The National Secretary, Matthew Watt, is now seeking nominations for the Councillor positions (ordinary member – 3 years). These will be due Friday 3rd October 2014 and the election date will be 22nd October – 5th November 2014. Newly elected Councillors will assume their positions from the 2014 AGM. Send nominations to secretary@aups.org.au. The email nomination should be accompanied by a statement from three (3) nominators and by the person nominated to indicate the willingness of that person to stand (a group email will suffice).*

Please take the time to consider offering your services to the AuPS Council. If you would like to know more, please feel free to contact any current Councillors – contact details can be found on the website (http://aups.org.au/About/council.html) or in the Newsletters.

***Check out the new IUPS website: http://iups.org/***

OXFORD SYDNEY 2014

Respiratory and Cardiovascular

OXFORD BREATHING MEETING

**DATE**: Sunday 26 - Friday 31 October 2014. Conference opens on Sunday 26 October 1500-1800

The key international meeting on central cardiorespiratory control.

More details at OXFORD_BREATHING_MEETING or contact Paul Pilowsky: paul.pilowsky@hri.org.au

## AuPS Supporters



This issue of AuPS News was compiled by Glenn Wadley and with many thanks to the generous contributors.

The next issue of AuPS News will be distributed to members in December 2014.
All contributions for AuPS News should be sent to: newsletter@aups.org.au before the end of November.