



AuPS News

September 2017

A.K. McIntyre Award Winner 2016 Dr Kim Mellor, University of Auckland

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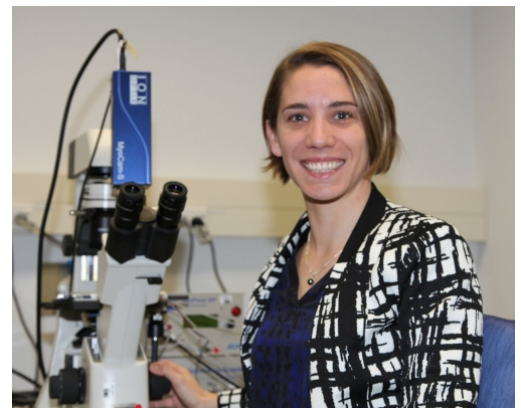
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What is your current position/role?

Senior Lecturer in the Department of Physiology, University of Auckland, New Zealand. I lead the Cellular & Molecular Cardiology group focused on understanding the mechanisms of cardiac dysfunction in settings of diabetes and heart failure.



How did you begin your career in Physiology?

After completing my undergraduate Bachelor of Biomedical Science in Physiology at the University of Otago, NZ, I moved to the University of Melbourne to undertake a BSc(Hons) research year with Prof Lea Delbridge in Physiology. It was in Melbourne where I caught the 'research bug' and continued into a PhD in the same laboratory.

What research are you currently involved with?

Since establishing my laboratory in the Department of Physiology at the University of Auckland in 2013, our research has primarily focused on investigating the mechanisms of heart failure in the hope of identifying new targets of therapeutic value. We have a particular interest in diabetes-associated heart failure – a condition with no specific treatment strategy. Heart abnormalities in diabetic patients are distinctive from those observed in non-diabetes. We have made some new discoveries relating to the process of glucose management in diabetic heart muscle cells and have studies underway addressing new questions about glucose storage and availability in the diabetic heart. Diabetes prevalence has been linked with excess dietary intake of fructose, and our studies suggest that fructose sugar may be a key instigator of heart damage in diabetes. Very little is known about fructose metabolism in heart muscle cells and our studies are examining the intracellular fructose damage pathways and testing novel intervention strategies. Our pre-clinical investigations include assessment of heart function at the 'whole organ' and 'single cell' level. We link functional outcomes to molecular signalling measurements and use gene manipulation techniques to interrogate the proposed mechanisms.

What is the research direction you would like to take in the next 3-5 years?

I would like to advance our work using cardiac-specific gene manipulation to identify the mechanisms of heart dysfunction. We have great opportunity to interrogate the role of specific molecular pathways in the heart to reveal novel targets for intervention. Our Australia-NZ collaborations are very robust and productive, I would like to see these connections continue and develop over the coming years. In particular I would like to foster these links through working with AuPS and looking for opportunities to support ECRs to benefit from working across the trans-Tasman ditch.

What's the best thing about your lab at the moment?

We have a fantastic group of people in the lab who are engaged with the science and enjoyable to work with. There are always interesting science discussions to be had and new findings to interpret. I feel very privileged to lead this group of committed researchers - to have the opportunity to learn from them, and enable others to learn and grow as scientists.

Which part of research makes it most enjoyable for you?

I love working and interacting with people on a daily basis who are passionate about what they are doing. We have some excellent collaborations and I enjoy working closely with other lab groups. A research career is a lifetime of learning and moving forward with new technologies - it is exciting to think about the possibilities of the future!

What do you like to do in your spare time?

When it is possible to get away for a long weekend, I enjoy going camping and hiking, and visiting family.

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 2010). 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 Melbourne in November.

The application deadline is 27th October 2017.

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

Please email applications to the National Secretary, Deanne Skelly secretary@aups.org.au

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

AuPS Student Member Research Networking Initiative 2017

This year the AuPS announced the Student Member Research Networking Initiative. The aim of this program is to support the development of student members and provide a national networking opportunity. The inaugural program was hosted on August 1st and 2nd by Professor Gary Housley, University of New South Wales Sydney. Following a competitive application process, six students were selected for the program and were awarded funds to cover travel and accommodation by the AuPS. Congratulations to Giselle Allsop (Deakin University), Stephen Fairweather (Australian National University), Joshua Fisher, Pierre Hofstee (both Griffith University), Mitchell Lock (University of South Australia) and Gabriela Morales-Scholz (Deakin University) for winning a place on the program.

A special thanks to Prof Gary Housley and his colleagues at UNSW Sydney for hosting this successful event. You can read more about the experience of the participants in the report below.

The University of New South Wales (UNSW) experience

By Joshua Fisher and Pierre Hofstee, Griffith University

Upon arriving in the lobby of the new Wallace Wurth Building at UNSW we were introduced to our fellow AuPS student members from various universities around Australia (Deakin University, University of South Australia, and Australian National University) and our host for the morning's session, Andrew Moorhouse. After introductions, we proceeded on a guided tour of the teaching and translational physiological research facilities. We were then introduced to Gary Housley and Georg Von Jonquieres for the first session of the day with focus on cochlear implants and gene therapy vectors.



Participants in the UNSW student visit. Pictured from left to right (Pierre Hofstee, Steven Fairweather, Gabriela Morales-Scholz, Mitchell Lock, Giselle Allsop, Joshua Fisher, John Power and Gary Housley).

Following a lunch with fellow PhD students from the translational neuroscience facility we were introduced to techniques such as *in vivo* models of epilepsy, patch clamping and *in vivo* somatosensory brain region recordings used in respective fields with Andrew Moorhouse, Kate Poole and Jason Potas. A social dinner concluded the day, and the informal setting enabled a relaxed environment to further discuss our research interests and career progression.

The second day commenced with a tour of the animal facilities and introduction into neuropathic pain treatment with Gila Moalem-Taylor, Justin Lees and Preet Singh, preceded by a demonstration of pressure myography on mesenchymal arteries with Tim Murphy. The morning session concluded with a tour of the UNSW Museum of Human Disease and of the institute of Neuroscience research Australia (NeuRA) with Richard Vickery and his work on sensory processes and human perception and

performance. Lunch provided an opportunity to discuss professional development, collaborating opportunities and intellectual property with Gary and Richard. Before conclusion of the student visit, John Power showed us his work on neurophysiology associated in memory and addiction.

The visits and introduction to new research and complex techniques within physiological sciences at UNSW was both inspiring and motivational. The vast array of studies and the complexity of experimentation exhibited provided valuable insight into the potential of research within the Australian Physiology Society (AuPS). On behalf all the students granted the UNSW student visit, we would like to thank the organisers and all researchers for a fantastic two days, as well as AuPS for organising such an invaluable experience.

Joshua Fisher

I am currently in the second year of my PhD at Griffith University Gold Coast (GUGC), investigating interactions between mitochondria and endoplasmic reticulum in the physiology and progression of pregnancy disorders. These include intrauterine growth restriction (IUGR), gestational diabetes mellitus (GDM) and preeclampsia. I have optimised a protocol which could be disseminated across multiple disciplines assessing mitochondrial function within cellular compartments of tissues both fresh and frozen. I am heavily involved in education and teaching through lab tutoring, guest lecturing and community outreach and am always looking to progress my teaching abilities. My passion however is in research and understanding the mechanistic causes behind pathologies which involve mitochondrial dysfunction and endoplasmic reticular (ER) stress.

I thought this would be a great opportunity to experience and learn techniques I had not seen or considered in my own research. While also gaining an insight into how other labs operate and conduct their research within the field of physiology. Finally I was excited to establish connections with fellow students at similar stages of their PhD's, and academics alike, providing potential for future collaborations and career development.

Pierre Hofstee

I am also currently 18 months into my PhD at GUGC where I am investigating the influence of maternal micronutrient perturbations on pregnancy as well as placental, fetal and offspring development. This research embodies my interests in developmental origins of health and disease (DOHaD), with specific focus on nutrition, pregnancy complications, fetal programming and endocrinology. I am also interested in characterising sex specific and intergenerational outcomes of programming and whether exercise behaviour and performance are altered by developmental insults.

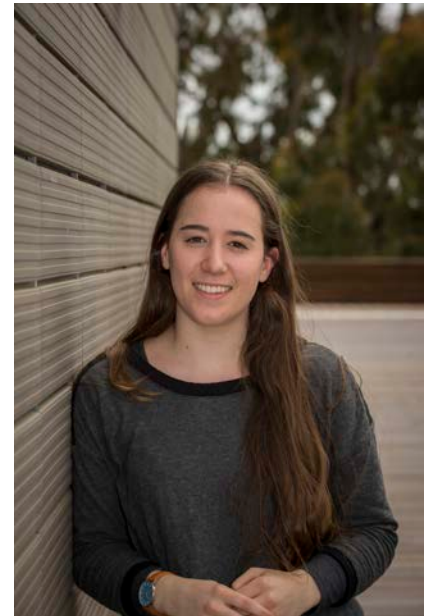
I have recently become a member of AuPS and will attend the annual meeting this year. Through the UNSW student visit, I was able to disseminate and expand my research network and meet fellow early career researchers in my field. My research is multifaceted and incorporates several modalities, including cell based studies, animal models and human studies. The student visit aided my understanding of different techniques that I may possibly incorporate in my research. It also allowed me to meet potential collaborators, with the communal goal of promoting the advancement of physiological sciences and the understanding of animal and human physiological systems. The student visit was professional and unique and I believe it was an indispensable experience, promoting both interprofessional communications and research development.

Student Representative Profile – Giselle Allsop, Deakin University

Giselle Allsop is PhD candidate in the School of Exercise and Nutrition Sciences, Deakin University Geelong. Giselle is the newly appointed student representative on the AuPS council.

What is your current position?

I am in the second year of my PhD at Deakin University, under the supervision of Professor Aaron Russell and Dr Craig Wright. My research broadly focuses on the regulation of skeletal muscle mass and exploring novel exercise programs that optimise muscle growth. My research involves a clinical trial that examines the skeletal muscle responses of older adults to resistance exercise in hypoxia (a simulated variation of moderate altitude). Evidence shows that young adults gain more muscle mass and strength in response to resistance exercise in hypoxia, and my research aims to extrapolate the study to older adults. My research is focused on both the skeletal muscle and immune responses to hypoxic training, in addition to broader health and body composition responses.



What is your research background? How did you begin your career in Physiology?

I always had an interest in human physiology and sports performance, and completed a bachelor of Exercise and Sports Science at Deakin University. During my undergraduate studies I enjoyed the complexity and relevance of exercise physiology, particularly the molecular mechanisms mediating responses to exercise and disease. I pursued the area of physiology through an honours degree, examining the role of Selenoprotein S in skeletal muscle structure, function and inflammation. The complex nature of skeletal muscle function, and its importance in maintaining health and mobility sparked my appetite for pursuing a doctoral degree in the field.

What is the research direction you would like to take in the next 3-5 years?

I've really enjoyed my time researching regulators of skeletal muscle mass and how exercise can modulate muscle mass and health. I've gained experience in research with cell, animal and human populations, and am currently working to expand my repertoire of experimental techniques that can apply to broader areas of physiology. After submitting my PhD thesis, I'm open to continuing my research in skeletal muscle and exercise physiology, or trying my hand at broader areas of physiology research in a post-doctoral position. I'd also love to spend some time in a research lab abroad before the completion of my doctoral studies.

Why did you apply for the student member role, and what do you hope to bring to the role/think is important for student members?

I applied for the student member position to learn from key leaders in Australian physiology research, and to help PhD students get the most out of their membership with the AuPS. Meeting physiologists from different Universities and research backgrounds helps to broaden our understanding of the field and emerging research methods, and is key for graduating as a well-rounded PhD student. I hope to increase the engagement of AuPS student members with other students and researchers, and keep students informed of new jobs and opportunities for career development.

What do you like to do in your spare time?

When I'm not working on my PhD, teaching or working in the admin department of my school, I enjoy playing netball, surfing and skiing.

AuPS CONFERENCE

19 -22 Nov 2017



Photo: Impress Air; VisitVictoria

We invite you to attend the

AUSTRALIAN PHYSIOLOGICAL SOCIETY 2017 CONFERENCE

Hosted by the Monash Institute of Pharmaceutical Sciences,
Melbourne, VIC

Sunday 19th to Wednesday 22nd November.

EDUCATION

- Workshop
- Symposia
- Prize Lecture
- Free Communications
- Poster Presentations

RESEARCH

- Invited lecture
- Plenary Lecture
- 11 Symposia
- Free Communications
- Poster Presentations

FUNCTIONS

- Welcome Reception
- Conference Dinner at the Melbourne Museum
- Student and ECR events

REGISTRATION & ABSTRACT SUBMISSIONS ARE OPEN

(Early-bird registration and abstract submissions close 22nd Sept 2017).

For registration and further information
please visit www.aups.org.au



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 2017 will receive a medal and a cash award, which will be presented at the Conference dinner at this year's AuPS Adelaide Meeting, and will be invited to deliver a lecture during the Educational Symposium at the 2018 AuPS Melbourne Meeting.

The application deadline is 27th October 2017.

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

Please email applications to the National Secretary, Deanne Skelly 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 Adelaide in December. The paper must be published (on paper or online) between 30th September 2016 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 27th October 2017.

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

Please email applications to the National Secretary, Deanne Skelly 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 Adelaide in December. The paper must be published (on paper or online) between 30th September 2016 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 27th October 2017.

Eligibility and selection criteria can be found here:

<http://aups.org.au/Prizes/PhDpublication.html>

Please email applications to the National Secretary, Deanne Skelly secretary@aups.org.au

EMBL Australia PhD Travel Grants Program

Train at one of EMBL's five European facilities, go to a conference or take a short course.

EMBL Australia will sponsor ten of the best PhD students in Australia to train at the prestigious European Molecular Biology Laboratory.

With an EMBL Australia PhD travel grant, you could take a short course, attend a conference or work alongside some of the world's best young researchers at EMBL's five facilities: in Heidelberg and Hamburg in Germany; Grenoble in France; Hinxton in Cambridgeshire, England; or Monterotondo in Rome, Italy.

EMBL offers courses on a range of topics, including next-generation sequencing and bioinformatics. For a full list of upcoming events, visit: www.embl.de/training/events.

Apply now for travel in 2018.

Grant value: You can apply for financial support of up to \$2,000 for a short visit of up to six weeks.

Closing date: Applications close on 31 October 2017 (for travel during the period 1 January to 30 June 2018).

The travel grants are open to students in biology, chemistry, physics, mathematics, informatics, engineering and molecular medicine who are currently enrolled in a PhD program at any Australian university, and have not yet submitted a thesis.

To apply, and for more information on these grants and our other student programs, visit the EMBL Australia website: www.emblaustralia.org/careers-education.

For enquiries, contact student.admin@emblaustralia.org.



About EMBL Australia

EMBL Australia is a life science network that maximises the benefits of Australia's associate membership of The European Molecular Biology Laboratory (EMBL).

Officially launched in 2010, EMBL Australia aims to strengthen the nation's global position in life sciences by creating opportunities for:

- internationalising Australian research via the EMBL Australia Partner Laboratory Network
- training the best students and early-career researchers, and
- accessing key international infrastructure.

For more information on all of EMBL Australia's programs head to www.emblaustralia.org.



The Australian Society for Medical Research invites you to the 56th ASMR National Scientific Conference, Charles Perkins Centre, Sydney, from November 14th-15th, 2017

“Science and Survival – Equipping you with the tools to further your research career”

This year’s cutting edge and interactive program will help you develop a professional persona to stand out in an increasingly crowded competitive environment and gain the winning edge

At this uniquely tailored event, you will learn fundamental skills needed to advance your career and stand out from the crowd

Featuring two specialist workshops: *“Mock grant review panel – Lifting the GRP Curtain”* and *“The Politics of Promotion”*,

For the first time, the ASMR will host *“Inside the Scientist’s Studio”*. Hosted by Australian journalist and broadcaster, Dr Norman Swan, attendees will be given a compelling insight into the mind of Australian Nobel Laureate, Professor Peter Doherty.

The traditional scientific program will feature the:

- ✓ **Edwards Oration by Professor Jagadish**, Distinguished Professor and Head of Semiconductor Optoelectronics and Nanotechnology, and
- ✓ **Firkin Oration by Dr Bon-Kyoung Koo**, a world leader in stem cell biology and organoid culture technology

Opportunities are also available for free abstract and poster presentations. Showcase your latest research findings in a relaxed and friendly environment, identify new collaborative opportunities and build your professional networks.

Deadline for abstract submission (both oral and poster) and early bird registration has been extended until 30th September.

For more details, including program and registration information, please visit <https://asmr.org.au/asmr-nsc/nsc-welcome/>

This conference has been organised by the Australian Society for Medical Research as part of its commitment to the ongoing professional development of Australia’s up and coming researchers.

We look forward to seeing you in Sydney!

LYMPHATICS SYMPOSIUM 2017

This one day Symposium hosted by the Peter MacCallum Cancer Centre and Monash University Institute of Pharmaceutical Sciences aims to provide a forum to explore the role played by the lymphatic network in biology and disease.



Research over the past decade has demonstrated the dynamic nature of lymphatic vessels, allowed the characterisation of key molecular and cellular components and shown the potential for vessels to be targeted in human disease or used more effectively for the administration of drugs.

The Symposium brings together leading researchers from Australia and overseas to present their findings and discuss the future directions of a field that has implications for many human diseases.

Contact us

For more information, please contact:

- **Steven Stacker**
Peter MacCallum Cancer Centre
Email: steven.stacker@petermac.org
- **Natalie Trevaskis**
Monash University Institute of Pharmaceutical Sciences
Email: natalie.trevaskis@monash.edu

<https://www.petermac.org/events/lymphatics-symposium-2017>



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Heroes come in many forms

Professor Damian Bailey

Director of the Research Institute of Science and Health,
University of South Wales, UK

"We are interested in how the ageing human brain functions across the spectrum of health and disease, from super-fit athletes to super-sick patients. Our research focuses on the mechanisms that control oxygen transport to the brain, quite simply how we get the most important molecule in the world to the most important organ in the body."

Pushing the limits of human performance to understand the ageing brain.

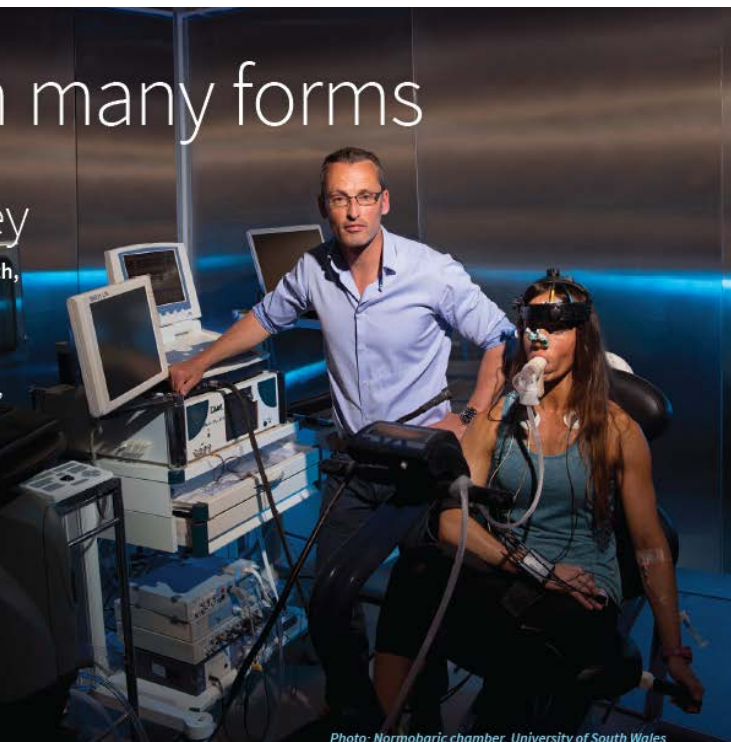


Photo: Normobaric chamber, University of South Wales



Read Damian's story to find out more at www.adinstruments.com/heroes

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The next issue of AuPS News will be distributed to members in December 2017. All contributions for AuPS News should be sent to: newsletter@ups.org.au before the end of November.