

AuPS News – June 2019

Mid-Year Update from the National Secretary: Dr Deanne Skelly, Griffith University

2019 has been a busy and productive year for AuPS. The successful Sydney meeting in 2018, hosted by The University of Sydney was well received by all. The excellent quality of the science from our society, with a special mention of our student and ECR members, demonstrates the strengths of our field as a whole. Sincere thanks to Bill Philips and his very enthusiastic team for the seamless running of the meeting. The meeting was certainly a highlight for the society in 2018.

At the end of 2018 we had some new members join the council. James Cuffe (University of Queensland) joined us as the new membership officer for AuPS, and Renee Ross (University of Tasmania) was formally voted on to council. I am very pleased by the number of people we have had nominated to join council over the last 2 years and we appreciate diverse representation on our council. Our current council consists of early-career, mid-career and more senior physiologists. Giselle Allsopp (Deakin University) and Magsue Jacques (Victoria University) are the current student members on council. Nomination for a new student member on council will be announced soon, due to Giselle entering the final stages of her PhD before submission! AuPS will be also be advertising PhD grants again this year. Please consider these when the call comes.

In 2019, we will be conducting our annual meeting at Australian National University in Canberra, from Sunday 1st December to Wednesday 4th of December. This meeting is co-hosted with the



University of Canberra, and is a joint AuPS/ASB meeting. This beautiful campus is easily accessible from downtown Canberra. The program includes a broad range of topics focused on a number of different areas including sex-differences in metabolism, mitochondria in health and disease, ion channels and calcium handling in myofilament modifications. We are particularly pleased that our colleagues from the Japanese Physiological Society will be joining us at a joint symposium, which has

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been organised by Andrew Moorhouse (University of New South Wales).

We are delighted that Robyn Murphy (La Trobe University) will be presenting the AuPS Invited Lecture in Canberra this year. Robyn is excited to discuss her research, and many will remember Robyns' significant contribution to the society's council. For the free communications and poster presentations for the meeting, we will be calling for abstracts in the next few months. Please keep an eye out for the email.

We are excited about the upcoming 60th Diamond Jubilee meeting for the society, which will be held in Southport (Gold Coast) in late November 2020. This meeting will be hosted by Griffith University and I will be the local organising chair.

Our annual prizes for Michael Roberts Teaching Award, AK McIntyre Award, the Post-Doctoral and PhD publication prizes will also be towards the end of this year. I welcome any members considering these prizes to nominate.

This is my last newsletter report, as I will be stepping down from this role in December. I look forward to seeing as many of you as possible in Canberra in December

Dr Deanne Skelly

Australian Physiological Society National Secretary

Email: d.skelly@griffith.edu.au

Are you following AuPS yet??



We are communicating our achievements to the wider world with our AuPS Twitter account.

So what are you waiting for? Follow us and use our twitter handle to communicate the achievements of our members [@AuPhysiolSoc](https://twitter.com/AuPhysiolSoc)

Member Profile:

Dr Séverine Lamon, Deakin University



Can you tell us about your current position?

I was a self-funded research fellow until 2017 and I am now a senior lecturer in nutrition and exercise physiology at Deakin University. I am also a HDR coordinator in my school.

How did you begin your career in Physiology?

I am a molecular biologist by training. I graduated in 2003 and did not really know what I wanted to do with my life at that stage. I picked up a Masters project in the area of muscle physiology a bit randomly, and I thoroughly enjoyed it. As I was starting to think about a PhD, a position came up in the field of anti-doping, which is something I had always had an interest for. So as some people know, I ended up developing an EPO detection test during my PhD!

I then applied for a post-doctoral fellowship from the Swiss National Science Foundation, which would allow me to spend two years overseas. I chose to come to Australia and to pursue my interest in muscle physiology. This was nearly 10 years ago, and the rest is history...

What do you enjoy most about physiology research and teaching?

I am fundamentally interested in the research process, and I have always thought that I could be passionate about a completely different topic if things had turned out differently (like hormones in plants... I like to think of this example as this is what my first university back in Switzerland was known for!). I used to enjoy lab work a lot, but these days, nothing makes me happier (from a work perspective!) than a massive spreadsheet of data to analyse, interpret and write up.

As for exercise physiology, I find it fascinating to understand what is going on in my body when I ride my bike for example. Sometimes I get lost in my thoughts, and I imagine the different molecular pathways being activated in my muscle, or things like that... On the other hand, I get very annoyed at gym instructors who do not get it right! I guess I enjoy physiology research and teaching as it applies to everyone and underlies human health.

Can you tell us about the research you are currently focusing on, and what direction you would like to take in the next 3-5 years?

Historically I have done a lot of work around the role of non-coding RNAs (starting with microRNAs, and more recently with long non-coding RNAs) in the regulation of skeletal muscle mass and function. Glenn Wadley and I have an exciting project at the moment, which looks at how these molecular regulators are also acting and maybe being produced

in the mitochondria. Over the last few years, I have established that I preferred working with human models rather than animal models, even if human subjects makes everything more complicated. One of the areas that has been blatantly overlooked in our field, and exercise physiology in particular, is female physiology (as apparently we make everything even more complicated!). But as I said earlier, I enjoy physiology as it applies to everyone. So I have recently started a very cool project on the molecular regulation of skeletal muscle mass in females and this is something I would like to turn into a research program in the next few years.

Can you tell us about your role within AuPS?

I have not missed an AuPS conference since 2011! More seriously, AuPS was the first conference I attended in Australia, and it is still my favourite one. People are friendly, its size makes networking easy and there is always a session I am interested in. I was co-opted on the AuPS council in 2015, where I was the membership officer for 3 years. So by now, I pretty much know every AuPS member by their name... which is handy, and also, as a foreigner, helped me feel fully integrated in the Australian physiology community!

In 2018, I was elected to the treasurer position and will assume this role over the next 2 years. What I find the most rewarding in these various roles are the several initiatives we have put together for students and ECRs over the last few years, including the recent student research visit we organised at Deakin University in Waurin Ponds this year. I think it is great to be able to contribute to help motivated young researchers to reach their career goals.



What do you like to do in your spare time?

I swim, cycle and run (with various success these days)! I read way too many books instead of sleeping at night and I play the piano. I am also very good at combining work trips with visits to my family in Switzerland.

AuPS PhD Student Grant Winners – 2018

In 2018, the AuPS initiated a competitive grant scheme for student members. The aim of this scheme is to provide additional opportunities for student members to develop their CV's and provide experience in preparing grant applications. The funds can be used to develop the students' PhD research programmes through the purchase of equipment or consumables or to attend further training opportunities.

The following reports are provided by the 2018 award recipients Greg Quaife-Ryan and Paris Papagianis.



Greg Quaife-Ryan - University of Queensland

It was a great honour to be awarded the AuPS PhD Student Grant and a great opportunity to get some experience writing an (albeit shorter) grant application. I wanted to express my thanks to the AuPS for the support. I'm very grateful

Can you describe how the grant contributed to your program of PhD work?

The inability of the adult mammalian heart to regenerate following cardiac injury represents a major limitation in heart failure management. In comparison, the neonatal mouse heart regenerates following myocardial infarction. I recently compared the multicellular transcriptomes of neonatal and adult

hearts following MI and uncovered a cardiomyocyte regenerative gene-network associated with Wnt/ β -catenin signalling. We demonstrated constitutively-active β -catenin (caBCAT) drives human ESC derived cardiomyocyte and neonatal mouse cardiomyocyte proliferation. However, caBCAT did not induce adult mouse cardiomyocyte proliferation and instead deployed a distinct cardioprotective gene program. *Therefore, β -catenin drives distinct transcriptional programs in regenerative and non-regenerative cardiomyocytes.* We bioinformatically predicted that a transcription factor, Foxo3, redirected β -catenin in adult mouse cardiomyocytes from proliferative gene targets to cardioprotective gene targets. I was awarded the AuPS student grant to determine whether overexpression of Foxo3 in human cardiomyocytes redirected β -catenin from proliferative targets to cardioprotective targets.

What were the outcomes of this work?

Unfortunately, like most things I bioinformatically predict, this hypothesis was incorrect. Foxo3 overexpression did not alter the expression of β -catenin target genes. Another hypothesis bites the dust, but I still contend it was pretty cool/gnarly.

What are the next steps in this line of research?

The above experiment was the final experiment in the project. So next step is to hopefully get it published.

What is the next step in your own career path?

My stunning bioinformatic success has convinced me to finish my medical degree... and maybe become a clinician scientist... and maybe convince someone to employ me... and maybe never do bioinformatics again. I am confident that my girlfriend will one day not have to pay for us to eat out... one day.



Paris Papagianis - RMIT University

Can you describe how the grant contributed to your program of PhD work?

The AuPS grant contributed to the final studies for my PhD. These were novel experiments using Fluidigm TaqMan Assays to analyse gene expression in the lungs of preterm lambs born after exposure to prenatal inflammation and ventilated for 7 days.

My PhD investigated the role of anti-inflammatory therapies in reducing lung injury associated with chorioamnionitis and postnatal ventilation. We used a preterm lamb model to investigate postnatal steroids and human amnion epithelial cells in reducing lung injury and inflammation, in a facility in Perth called the perinatal intensive care unit (PICRU). This facility is the only one of its kind in the southern hemisphere and allows us to care for preterm lambs in an identical intensive care unit to that of a hospital.

The AuPS grant funded experiments which helped inform a phase 2 clinical trial at Monash medical centre for the use of amnion epithelial cells in preterm infants.

What were the outcomes of this work?

These results demonstrated a pro-reparative effect of hAECs in preventing lung injury following prenatal inflammation and postnatal ventilation. Messenger RNA expression of injury and anti-inflammatory markers were upregulated in the lungs of preterm lambs receiving hAECs. These data are important as a phase II dose escalation trial for the efficacy of hAECs in preterm infants is about to begin at Monash Medical Centre and the Royal Women's Hospital in Melbourne. The Fluidigm data obtained with the AuPS grant outlines the efficacy and timing of hAEC administration in preterm lambs and directly feeds into the phase II trial.

What are the next step in this line of research – and in your own career path?

Since receiving this AuPS grant, I have completed my PhD. This work is in manuscript format and ready for submission.

I have since moved on from Monash and I am now working at RMIT University as a Postdoctoral Research Fellow. In my new role I analyse different cell types in the lungs, specifically mesenchymal stem cell populations and different epithelial cells populations. I study how mesenchymal and epithelial cell types interact with each other during healing after fibrotic lung injury in mice.

AuPS PhD Grant Scheme 2019 now open!

The AuPS PhD Grant Scheme is now accepting applications from student members currently enrolled in a physiology-related PhD programme in Australia.

Applications must be submitted through e-mail to the AuPS national secretary (d.skelly@griffith.edu.au) applications close - July 8th, 5:00 pm.

For more details see the [AuPS website](#).



2019 SCIENTIFIC MEETING

A JOINT MEETING OF

**THE AUSTRALIAN PHYSIOLOGICAL SOCIETY
&
THE AUSTRALIAN SOCIETY FOR BIOPHYSICS**

Hosted by The Australian National University
Canberra, ACT

1st - 4th DECEMBER 2019

Abstract submission open 13th August – 23rd September

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**39th Congress of the International Union of Physiological Sciences
(IUPS)
Marvels of Life – Integration and Translation
Beijing, China
August 20-24, 2021**



CALL FOR PLENARY AND KEYNOTE SPEAKERS

June 06, 2019

Dear Physiologists,

We are pleased to announce that the 39th Congress of the International Union of Physiological Sciences, IUPS-2021 will be held in Beijing, China, at the China National Convention Center from August 20 to 24, 2021, hosted by The Chinese Association for Physiological Sciences (CAPS).

With the congress theme “**Marvels of Life – Integration and Translation**”, IUPS-2021 will provide a perfect opportunity for physiologists from around the world to gather and share discoveries of physiological principles and how these are integrated in life and translated into techniques and tools that improve health outcomes.

At this point we invite you and your colleagues to submit nominations of speakers for the **Plenary and Keynote Lectures** at the Congress. Plenaries should be ideally of common interest for all physiologists, whereas keynote speakers might be more focused on special sub-disciplines.

Nominations are accepted until **July 31, 2019**. Please submit nominations to either the Congress Website (www.iups2021.com) or mail your suggestions directly to the chairs of the program committee: upohl@lmu.de or yschan@hku.hk using the attached PDF file. All nominations will be considered by the International Scientific Program Committee (ISPC, see list of members below). Announcement of the selected Plenary Speakers and Keynotes Speakers will be made in the last quarter of 2019.

For your information, the call for proposals for **Symposia and Workshops** will be issued in the second half of 2019.

Sincerely yours,
Ying-Shing Chan & Ulrich Pohl
Co-Chair, ISPC of the IUPS-2021 Congress

For more information on IUPS 2019 and full details on how to nominate plenary and keynote lectures see the conference [website](#).



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This year's theme of *Ebbs and Flows* aims to chart the future of Australia's health, and explore how trans-disciplinary collaboration can improve the pursuit of scientific discovery.

We have built an exciting program, featuring multiple speaking opportunities for EMCRs, networking, and professional development events, *Ebbs and Flows* promises to leave you with the skills and tools you need to enhance your research career.



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President

Prof Gordon Lynch
The University of Melbourne
president@auaps.org.au

National Secretary

Dr Deanne Skelly
Griffith University
secretary@auaps.org.au

Treasurer

Dr Séverine Lamon
Deakin University
treasurer@auaps.org.au

Editor

Prof. David Allen
The University of Sydney
editor@auaps.org.au

IT Manager & Production Editor

Hon A/Prof Dave Davey
ITmanager@auaps.org.au

Webmaster

Dr Renee Ross
University of Tasmania
webmaster@auaps.org.au

Associate Editor

Dr Chris Shaw
Deakin University
newsletter@auaps.org.au

Membership Officer

Dr James Cuffe
Deakin University
membershipofficer@auaps.org.au

Education Officer

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The next issue of AuPS News will be distributed to members in September 2019.

All contributions for AuPS News should be sent to: newsletter@auaps.org.au before the end of August.

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