

AuPS News – December 2024

End of Year Report from the President Prof. Livia Hool

It is with much pleasure that I submit my first annual report as President of the Australian Physiological Society. It has been another outstanding year for the society! I continue to be amazed at the commitment of each and every council member, and the contributions by all members of the society working to promote the advancement of the science of Physiology, and dissemination of knowledge through teaching and research.

For those of you who don't know me, I am a career research fellow born and educated in Sydney. I commenced a PhD in patch-clamp electrophysiology with Professor Helge Rasmussen at Royal North Shore Hospital in 1991, the year that the Nobel Prize in Physiology or Medicine was awarded to Bert Sakmann and Erwin Neher for "for their discoveries concerning the function of single ion channels in cells" and for design of the patch-clamp technique. I had to have a piece of this Nobel-prize winning stu

ff and I loved the excitement of measuring the currents and gating of ion channels real time! I then moved to Cleveland, Ohio where I examined the role of the sympathetic nervous system in the regulation of cardiac ion channels at the School of Medicine at Case Western Reserve University. While in the US I was awarded an NHMRC Peter Doherty Fellowship that facilitated my return to Australia at which time I seized the opportunity to establish the Cardiovascular Electrophysiology Laboratory at The University of Western Australia, where I have pioneered the use of patch clamp electrophysiology to study cardiac ion channels in WA. Cardiovascular disease is a global burden and the leading cause of death worldwide. Sudden cardiac death is a tragic and devastating complication of



cardiovascular disease particularly when it impacts the young. A major focus of my work has been the role of the L-type Ca^{2+} channel in cardiovascular health and disease. More recently my team has been working on a novel preventative therapy for the inherited heart disease, hypertrophic cardiomyopathy.

I became a member of AuPS in 2005, served as a member of council from 2006-2009 (with David Adams as President) and then served as a Special Interest Group Leader from 2009-2011. It is true that I follow in the footsteps of leaders who have shaped the society for more than half a century. We will make time to celebrate our 65th year at the AuPS conference next year at The Western Sydney University. I want to acknowledge the leadership of Robyn Murphy as Past President and thank

her for her perseverance as she led us through the COVID pandemic and the years afterwards (and I include Gordon Lynch also as he passed on the baton during that difficult time). Robyn's enormous efforts sorting through the archives at the 2023 meeting must also be recognised, as the documents made for fascinating reading and revealed much about the early days of the society initially as pharmacologists and physiologists and finally as a discipline in our own right. We have also now built significant partnerships internationally with our sister societies in the UK, US, Japan and Europe. I look forward to further strengthening those relationships and continuing to build new partnerships with other societies. Not only can we share and advance knowledge, but we can learn much from other societies as we navigate volatile times of changes in social order and public accountability.

I am particularly grateful for the strong leadership on council supporting me. Severine Lamon has been outstanding to work with as National Secretary and I look forward to continuing to work with her through 2025. Despite being a large conference, BMH 2024 was a great success, and our thanks go to Adam Rose and Robyn Murphy for their incredible work bringing our stream to life. The conference represented an

opportunity to showcase our physiology research and increase our visibility to the other societies. I hope that the conference was a catalyst for many new collaborations! I want to thank the councillors who are retiring, and I welcome our new council members in 2025. We have always had strong interest following calls for nomination to council and I encourage anyone considering nominating to do so when the invitation is sent out because it is a great leadership opportunity.

We continue to provide support for research and education activities, including symposia speaker support, publication awards, travelling fellowships, collaboration awards and prizes particularly during the early years of career development. We will be sending around a survey next year to document the research areas of our membership, and we are keen to further develop any areas that are not currently represented. We are always interested to hear your suggestions.

We celebrate the discipline of physiology as a society! I look forward to working with you all to further our physiology advocacy, research and teaching excellence in 2025!

Member profile

James McNamara

Murdoch Children's Research Institute

Winner of the AK McIntyre Award

What does this award mean to you?

Receiving the AK McIntyre award is an incredible honour and a humbling recognition of my contributions to Australian Physiology and muscle biology. It's particularly meaningful as it not only validates the hard work and dedication I've put into my research, but also provides motivation to continue exploring challenging scientific questions. Beyond personal achievement, this



award underscores the importance of collaboration and mentorship. None of this could have been possible without the support of my incredible mentors, collaborators, and team. I'm excited by future discoveries we will make collectively.

Could you tell us about your position at Murdoch Children's Research Institute and what research you are currently working on?

I am Team Leader of the Muscle Signalling team within the Heart Disease Group at the Murdoch Children's Research Institute (MCRI). My research focuses on understanding the molecular mechanisms of genetic heart diseases, with an emphasis on how genetic variants disrupt heart muscle function. Genetic heart diseases affect up to 30 million people worldwide, and there are very limited treatment options for these patients. My team is particularly interested in leveraging human induced pluripotent stem cell models to study cardiomyopathies and explore potential therapeutic interventions in a human model.

One of our major projects investigates the role of ALPK3, a gene that was recently implicated as a cardiomyopathy gene. We recently identified ALPK3 as a critical regulator of heart muscle signalling. I think this is a fascinating gene that has gone under the radar in the 30 years since genetic cardiomyopathies were first defined. There is almost nothing known about this gene relative to other cardiomyopathy genes so there is a lot to discover! We are working hard to understand its function and possible therapeutic applications.

How did you begin your career in Physiology? What got you interested in the first place?

My whole life I have been fascinated by movement. It's incredible to me that muscles are responsible for every movement that there has ever been. My interest in the heart started from a young age when both my grandparents had heart attacks. I was amazed by the doctors that helped bring them back to health. At university, I loved my cardiac physiology lectures and knew I wanted to work in this space. I pursued my PhD in cardiac physiology and biophysics at the University of Sydney, where I investigated the molecular regulation of cardiac muscle contraction at the molecular level. The rest is history!

Which part of research makes it most enjoyable for you?

For me, the most rewarding aspect of research is the opportunity to discover something completely new about how the human body works, especially when those discoveries have the potential to improve patient outcomes. I have always loved that feeling of discovering something completely new, that for a period of time you are the only person in the world who knows this one little piece of information. I also enjoy the collaborative nature of science—working with brilliant colleagues across disciplines to solve complex problems. Working at MCRI, which is an incredibly multidisciplinary Research Institute, has shown me further the importance of this. Having begun to mentor the next generation of scientists is another deeply fulfilling aspect of my role. Seeing students and junior researchers develop their skills and contribute their own unique insights to a project is incredibly satisfying. I am really looking forward to developing my skills further to provide the best mentorship for my team.

What are the biggest challenges of being an ECR?

As an ECR, you're simultaneously building your scientific reputation, learning to manage a team, and juggling new administrative responsibilities, all while ensuring your research continues to progress. Often while also learning to parent at the same time! I have found it challenging to balance progressing my research program while having taken close to a year of parental leave over the last three years. I'm very lucky to have a great team and an incredibly supportive wife! While I don't think these challenges are particularly new or unique to biomedical science, the current funding climate does make it harder!

Where do you see your research and/or career going in the next 3-5 years?

Over the next 3-5 years, I hope to establish my independent research program to understand the signalling mechanisms that drive cardiomyopathy. Ultimately, my vision is to establish a world-class research program that not only advances our fundamental understanding of cardiac biology but also delivers meaningful benefits to patients and their families.

Member profile

Betty Exintaris

Monash University

Winner of the 2024 Michael Roberts Excellence in Physiology Education Award

Can you tell us about your career in Physiology Research and Education to date?

I completed both my Honours degree and PhD in the Department of Physiology, Monash University many moons ago! I became a trained electrophysiologist in the lab of Profs Helena Parkington and Harry Coleman. Helena Parkington was both an educator and one of the best electrophysiologists in the country, so I was very lucky to be trained by her. I was also fortunate to be part of a wider research group that included Prof. Mollie Holman and many other fabulous electrophysiologists. Helena also gave me lots of opportunities to teach undergraduate students in Physiology prac. classes. I took my electrophysiology skills to the lab of Prof. Rick Lang, where I completed my PhD, also in the Department of Physiology. My area of research was the smooth muscle of the urogenital system and continued to be for many years. At the conclusion of my PhD, I was lucky enough to be appointed as a junior lecturer at the (then) Victorian College of Pharmacy (now Monash Institute of Pharmaceutical Sciences / Faculty of Pharmacy and Pharmaceutical Sciences) in the same year that I graduated-2000. Since then, I have been teaching, coordinating units and have had opportunities to design Physiology curriculum. My ultimate goal as an educator in those units has been to upskill Pharmacy and Pharmaceutical Science students so that they understand the human body, as well as pathophysiological conditions and are equipped to therefore understand how medicines / biologicals, vaccines work to prevent, cure or attenuate disease.

Can you describe your achievements and teaching innovations for which you received the award?

Over my 24-year career (soon to be 25 years!), I have developed many innovative, student-centred practices that shape future leaders in physiology and healthcare. Several achievements include designing and leading a physiology unit, and co-developing a therapeutic unit with pharmacy practitioners, both of which integrate active learning and real-world application. My teaching evaluations remain consistently high (average 90), even during the pandemic, underscoring my ability to inspire and connect with students.

I am also deeply committed to advancing education through initiatives such as the PIES Program, which supports international students and promotes their sense of belonging. This program has hosted over 50 engagement events and has been expanded university-wide through a Monash Inter-Faculty Transformation Grant. Additionally, my leadership in developing teamwork and resilience curricula has been recognised nationally, including securing grants to cultivate essential skills in health and science students.

My contributions extend beyond teaching into educational research, with publications on teamwork, metacognition, and resilience in academia, as well as numerous conference presentations and invited workshops.

What does the society and award mean to you?

AuPS means a lot to me, as this is the 30-year anniversary since I attended my first scientific meeting which was AuPS (then APPS) in Brisbane in 1994. I remember being quite nervous (terrified?) about delivering my first oral presentation as an Honours student about to embark on my PhD. Interestingly APPS really supported my 2 scientific passions: physiology and pharmacology which I teach to this very day! I remember at that first AuPS meeting, being in awe of the scientific greats: Helena Parkington (my then supervisor), Peter Gage, George Stephenson etc...

I have been teaching Physiology both as a PhD student, and then lecturer to science students, biomed students, nursing students, med students, pharmacy and pharmaceutical science students since I began my PhD, 30 years ago! I have coordinated first year physiology for 24 consecutive years - I am absolutely humbled and

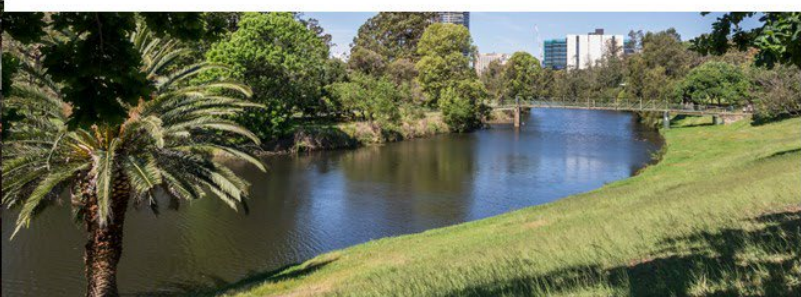
absolutely thrilled to receive the 2024 AuPS Michael Roberts Excellence in Physiology teaching award.

What are your plans or teaching practice in the future?

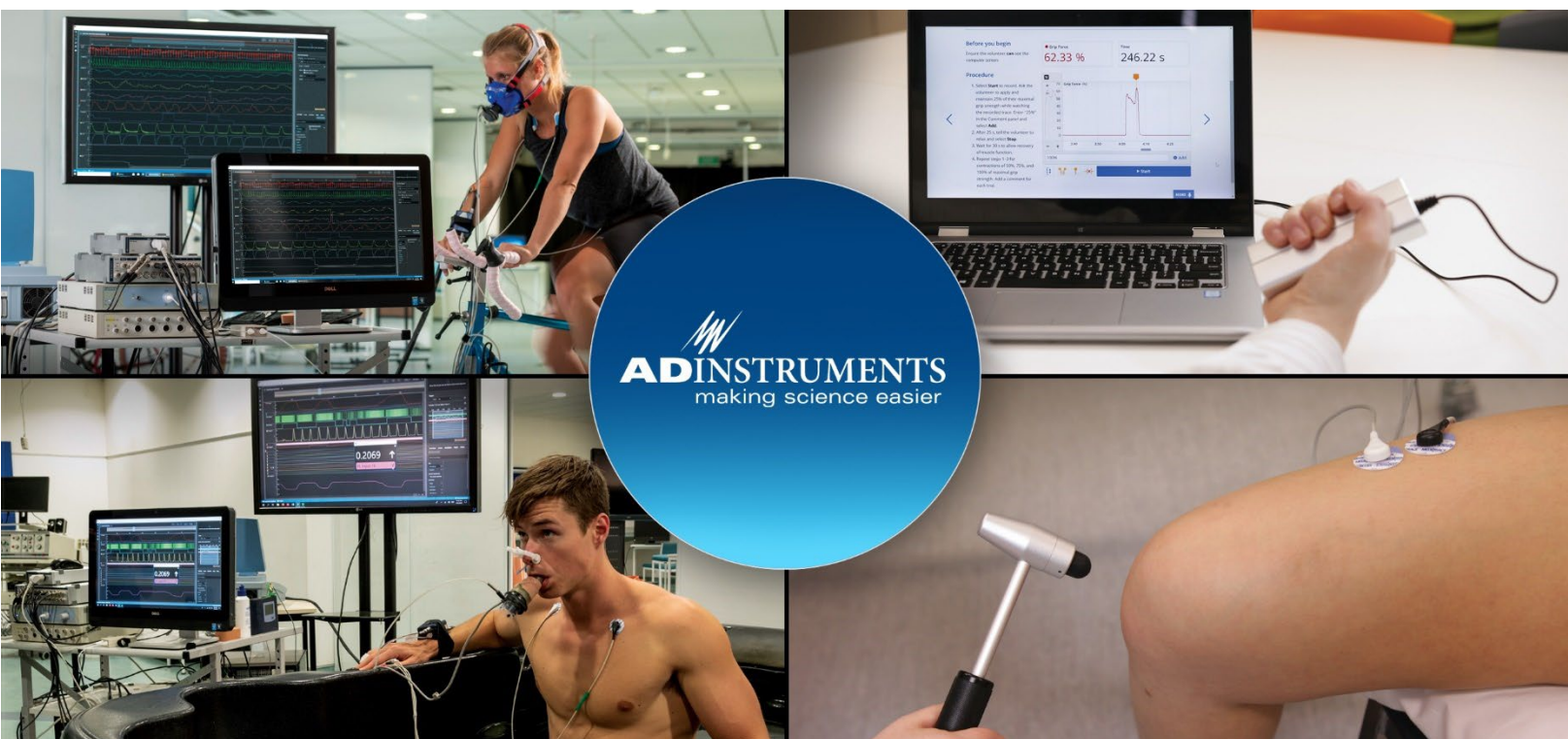
I am currently Associate Dean of learning and teaching. I absolutely love my role, and my plan is to integrate generative AI purposefully into learning and teaching. This includes rethinking assessment design and fostering digital literacy among staff and students, aiming to prepare them for the rapidly evolving digital landscape. My other role is Associate Dean of EDI and my plans are centred around the continued and expanded support of CALD students (through the PIES Program – an engagement program for international students which I’ve presented at AuPS) and staff (through MOSAIC - the Faculty’s Multicultural Outreach and Support program for Advocacy, Inclusion and Community). My primary goal is to foster an inclusive, psychologically safe environment, where staff and students belong and are able to grow within the broader university environment.



Australian Physiological Society Meeting
Parramatta, NSW
November 2025

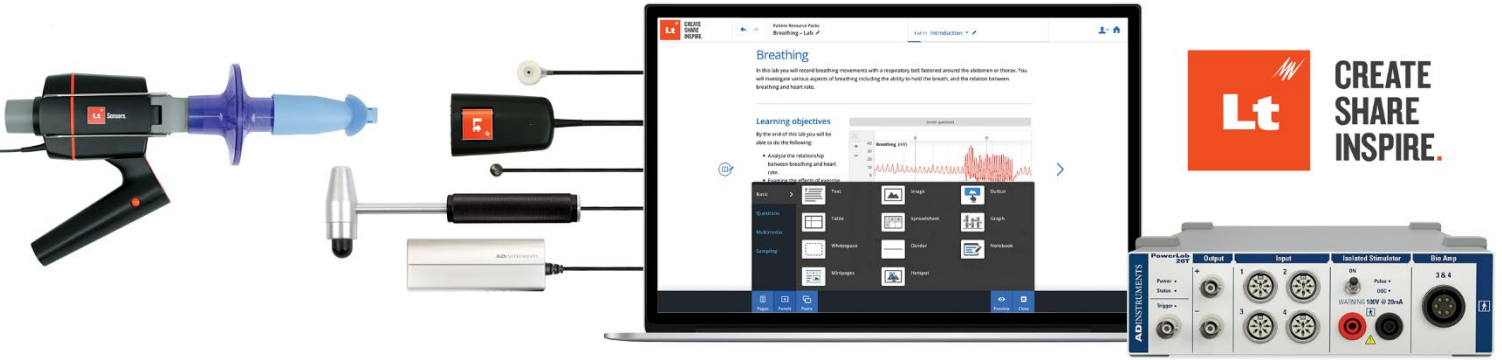


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The University of Western Australia
president@auaps.org.au

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Deakin University
secretary@auaps.org.au

Treasurer

A/Prof Bradley Launikonis
University of Queensland
treasurer@auaps.org.au

Production Editor

Vacant
editor@auaps.org.au

Associate Editor

Dr Danielle Hiam
Deakin University
associateeditor@auaps.org.au

Membership Officer

Dr Dino Premilovac
University of Tasmania
membershipofficer@auaps.org.au

Education Officer

A/Prof Kay Colthroe
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educationofficer@auaps.org.au

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IT Manager

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