Australian Physiological Society

THE PROFESSIONAL ASSOCIATION FOR AUSTRALIAN PHYSIOLOGISTS

December 2025

End of Year Report from the President

Prof. Livia Hool

It is with much pleasure that I submit my second report as President of the Australian Physiological Society. It has been another outstanding year for the society! I give my thanks again for the commitment 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.

This year has been one of celebrating firsts! We have just returned from an outstanding annual scientific meeting at the Western Sydney University and our thanks go to the local organizing committee members Ben Perry, Nathan Absalom and Kayte Jenkin. The inaugural Mollie Holman Lecture was held on Sunday evening opening the meeting, given by Andrew Moorhouse who presented a fabulous and entertaining talk sharing his career highlights. This was previously known as the AuPS Invited Lecture and following discussions by council and some detective work tracking down Mollie's sister Jo MacLean, we were delighted that she agreed to name the lecture after her sister, honoring Mollie's outstanding contributions to Physiology over several decades. Mollie Holman was an electrophysiologist whose research focused on autonomic regulation of smooth muscle, in particular how nerves initiate smooth muscle contraction in digestion and blood pressure control. She completed a Bachelor of Science at the University of Melbourne in 1952 and a Master of Science in 1955. She then moved to England where she completed a doctorate in pharmacology in 1957 at Oxford University. One of the comments documented in her contributions states that, while at Oxford University she often worked into the night to avoid the unwanted vibrations from passing daytime traffic that interfered with her fine electrode recordings. She moved to Monash University in 1963 as a senior lecturer in physiology and was promoted to Professor in 1970. She was a Fellow of the Australian Academy of Science, and the first woman to be appointed to the executive of CSIRO. She was awarded an Officer of the Order of Australia (AO) in 1998 for her service and contributions to scientific research.

Consistent with the theme of celebration, was the presentation of the 65th Anniversary Historical Symposium at the annual meeting, that included reflections on some of the pioneering research in Australia over previous decades in neurophysiology, fetal development and women's health, skeletal muscle research, education and teaching excellence,

cardiovascular research and membrane and ion transport. Our thanks go to all the speakers including Simon Gandevia, Eugenie Lumbers, Gordon Lynch, Trevor Lewis, David Allen and David Adams, for an outstanding session.

One of my objectives this year has been to further strengthen the society's relationships with our international partners. We welcomed the East African Society of Physiological Sciences (EASPS) last year who have been participating in education webinars with our AuPS members. We look forward to continuing this partnership and thank Kay Colthorpe and our AuPS Education officers for their time facilitating these sessions. This year I met with the President of the American Physiological Society, Dr Robert Hester from the University of Mississippi Medical Centre, to discuss opportunities for collaboration and exchange of speakers between the US and Australia. He will visit Australia in 2026 and plans to meet and progress the discussions. In addition, Dr Sue Bodine who collaborates with several of the AuPS membership and is well known to many of you, will be succeeding him as President-Elect of the American Physiological Society in 2026. I look forward to following up with Dr Bodine. This year we reconnected with the UK Physiological Society and following discussions with the Chief Editor, Dr Kim Barrett, our AuPS members who organize and lead a symposium, have been invited to submit articles for publication in the Journal of Physiology (London) following the 2025 meeting in Western Sydney. I am keen to continue this opportunity in 2026 for symposia organizers at the AuPS conference in Brisbane.

I have also been keen to develop and expand the Special Interest Groups in the society. Following completion of a survey to the membership, I am delighted to announce that the members who indicated an interest in leading a Special Interest Group have enthusiastically agreed following invitation! We now have leaders of 9 Special Interest Groups who have been tasked with recruiting further membership and encouraging submissions of symposia following the call in February for the 2026 meeting in Brisbane.

I congratulate the following leaders!

Leaders	Special Interest Group
Trevor Lewis & Suzanne Estaphan	Teaching/Education/ Scholarship
Amy Hanna & Kristy Swiderski	Skeletal Muscle (& Exercise Physiology)
Carlie Bauer & Craig Goodman	Exercise Physiology (&Skeletal Muscle)
Helena Parkington & Hollie Speer	Reproductive (&Endocrine)
Vandana Gulati	Metabolism/Nutrition
Vijay Rajagopal & Robin Grolaux	Bioinformatics, Machine Learning, AI & Digital Physiology group.
David Adams & Linlin Ma	Membrane and Ion Transport
Kim Mellor & Simon Green	Cardiovascular
Kayte Jenkin & Charlotte Phelps	Renal
Joanne Caldwell	Environmental & Climate Physiology
Narges Mahdavian	Gastroenterology

This has been another busy year and there is much business that occurs behind the scenes that keeps the society running smoothly to benefit its members. I am again grateful for the strong leadership on council supporting me. I wish to thank Severine Lamon for her amazing energy and commitment to the society as she retires as National Secretary, and I welcome Renee Ross into the role and look forward to working with her in 2026. Our thanks also to our Student Representative Carlie Bauer who has completed her term, and we welcome Emily Haber onto council. 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 2026!

Vale Peter H Barry (1941-2024)

Edited from UNSW Faculty newsletter by Professor Andrew Moorhouse

Figure 1. Peter Barry with his beloved UNSW tie.

With sadness we note the peaceful death of Peter H. Barry on 15th November 2024, succumbing to dementia that had been gradually worsening over the past 2 years. Peter was an Honorary Life Member of AuPS, an eminent Membrane Biophysicist and esteemed academic at UNSW Sydney where he dedicated over 40 years with the Department of Physiology and School of Biomedical Sciences within the Faculty of Medicine and Health. Peter joined UNSW in 1972 as a Queen Elizabeth II Research Fellow, was appointed as a Lecturer in Physiology and Pharmacology in 1974, awarded a DSc in 1991, was promoted to Professor of Physiology in 1994 and became Emeritus (Conjoint) Professor in 2003.

Peter began his scientific journey with a BSc at The University of Sydney, majoring in Physics and Geology, followed there by a PhD in plant biophysics under Alex Hope. Postdoctoral stints at UCLA with Jared Diamond and at Cambridge University with Richard Adrian investigating membrane transport processes in gall bladder epithelia and frog muscle. Upon joining UNSW, Peter continued to research membrane transport processes, initially working alongside Peter Gage at the Nerve and Muscle Research Centre (one of the first ARC Centres of Excellence). Later as Head of the Membrane Biophysics Lab, he was joined at different times by current AuPS members Andrew Moorhouse (from 1996), Trevor Lewis (from 2005) and Jennie Cederholm (1998-2000). For nearly fifty years, Peter's primary research focus was the mechanisms by which ions permeate cell membranes through protein ion channels, a process critical to physiological phenomena such as muscle contraction, secretion and absorption across glands and epithelia, and nerve signalling. Peter's passion and talent lay in his analytical approach to the experimental data, using mathematical modelling to interpret how ion channels select for specific ion species.

Collaborating with Peter Gage and colleagues (Angela Dulhunty, David Adams, Dirk van Helden) and with his first PhD students, Ken Takeda then Nino Quartarino, Peter initially focused on muscle nicotinic acetylcholine receptors. Next, with PhD student and subsequent postdoctoral colleague Joe Lynch and other students (Sundran Rajendra, Mervat Hallani, Wei Qu, Sarada Balasubramanian) he extended his research to investigating ion channels in olfactory receptor neurons. Together with Andrew, Trevor, and others (Kaneez Fatima Shad, Angelo Keramidas, Jane Carland, Joe Lynch, Sundran Rajendra, Chris French, Sugiharto, David Lee), he applied his expertise to neuronal GABA and glycine receptors. When the molecular era revolutionalized the ion channel field, Peter formed a powerful collaboration with Peter Schofield's Neurobiology Program at the Garvan Institute. This enabled the role of specific amino acids in ion channel pores to be identified and manipulated through mutagenesis. Peter's lab defined the ion channel selectivity filter with unprecedented resolution making significant impact in the field. A reviewer of a paper published in 2000 in the *Biophysics Journal* commented that it "will come to be recognized as one of the key

experiments in the field of ionic selectivity pertaining to the family of ligand-gated ion channels".

In a collaboration with Shin-Ho Chung and Megan O'Mara from the ANU Physics department, Peter combined the structural models and experimental data with dynamic simulations of ion permeation and selectivity. Moving beyond the earlier "black-box" membrane transport models, Peter could now specifically identify the molecular determinants of the chemical and steric factors influencing ion selectivity. This gave him great satisfaction as the field evolved.

A hallmark of Peter's scientific approach was his meticulous and rigorous methodology. One of his enduring legacies is the insight he brought to identifying and correcting for voltage offsets in electrophysiological experiments, which could otherwise lead to inaccurate interpretations. Peter became a leading authority on "unstirred layers" and "liquid junction potentials", with publications in this field among his most highly cited articles. Peter also developed a software program, JPCalc, which enabled electrophysiologists to readily calculate liquid junction potentials for their experiments. JPCalc was bought by Axon Instruments and was incorporated into their widely used patch clamp software – an example of impactful innovation arising naturally from fundamental biophysical research. Peter also wrote simulation software for cellular physiology teaching, and his programs Artmem, Mempot and Memcable have been used by thousands of students at UNSW and beyond since the 1970s.

Even after Peter's official "retirement" in 2002, he remained active in research and discipline activities. The first decade of the 21st century saw the pinnacle of ion selectivity studies of the glycine receptor, with Peter authoring papers, responding to reviewers, and delivering conference presentations. He was deeply involved in professional organisations: the Australian Physiological Society (AuPS), the Australian Society of Biophysics (ASB), and the Institute for the Study of Christianity in an Age of Science and Technology (ISCAST).

As funding for basic science became increasingly challenging and as Andrew and Trevor pursued other directions, Peter donned the lab coat and safety glasses and returned to lab bench - carefully measuring the small liquid junction potentials between very precise known concentrations of different salt solutions. Andrew fondly recalls Peter's meticulous precision in preparing agar salt bridge electrodes and designing stable apparatus for electrical measurements. With Trevor, he resolved inconsistencies in the literature related to the use of methanesulphonate salts in patch clamp experiments. Peter's final publication was in 2013 in the *European Biophysics Journal*, detailing optimized techniques for quantifying liquid junction potentials.
Peter was a kind, patient, and thoughtful colleague, and we extend our condolences to his children (Sarah, Mark and Andrew) and their families. Rest in Peace.

Written by Andrew Moorhouse, David Adams, Margaret Morris and Karen Gibson (16th December, 2024)

Figure 2. Some earlier photos of Peter. Left: After the award of the Nerve–Muscle Research Centre in 1982, with Peter Gage and Angela Dulhunty (*Historical Records of Australian Science*, 2009, **20**, 233–254); Centre: outside a pub at Kensington circa 1985, left to right – David Adams, Peter Barry, Peter Gage, Owen Hamill (*courtesy David Adams*); right: Demonstrating computer software at an UNSW Open Day, circa 1990s).

Join Us for the 2026 Physiology Education Webinar Series

We are excited to announce a new series of webinars in 2026, in collaboration with the American Physiological Society's Center for Physiology Education (CPE). Throughout the year, the CPE will have guest speakers discussing hot topics and educational research published in *Advances in Physiology Education*. Due to the time difference between the USA and Australia, the webinars will be rebroadcast in Australia on the fourth Thursday at 4 PM (Melbourne time), with a local facilitator to focus the discussion on the Australian context.

The first speaker will be Professor Dee Silverthorn who will discuss 'hands-on small group activities' and the webinar will be rebroadcast in Australia on Thursday 22nd January 4pm AEDT.

This will be followed by a webinar on AI with Professor Josef Brandauer on March 26th 4pm AEDT.

The zoom link will be shared via our social media channels or by emailing Professor Kathy Tangalakis or Dr Suzanne Estaphan.

Keep up-to-date with AuPS news and events by following us on:

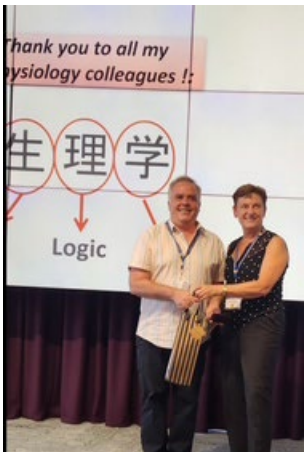
@AuPS **@AuPS-physiology** **@AUPHYSIOLSOC**

AuPS Conference 2025
23-26 November Paramatta, NSW

The 2025 conference brought together researchers at Western Sydney University for four days of vibrant scientific exchange featuring nine symposia, invited lectures, free communications, workshops and a strong physiology education stream. As always, the Student and ECR events, welcome reception, and conference dinner fostered a strong sense of community and collaboration across the Society, and keep members returning each year! Enjoy some photos from the event, and join us in Brisbane for the 2026 conference!

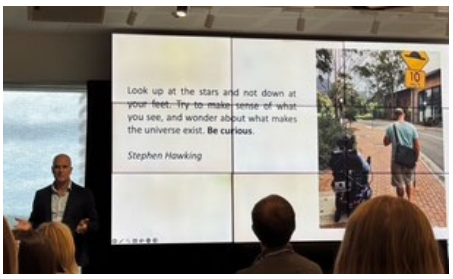
More Photos from the AuPS Dinner are available here: AuPS Dinner 2025

Our LOC (Ben Perry, Kayte Jenkin and Nathan Absolom) enjoying a well-earned wine at the conference dinner with friends and colleagues



Prof Andrew Moorhouse delivering the 2025 AuPS Mollie Holman Invited Lecture

The last official duties for AuPS Secretary Prof Severine Lamon - Thanks Sev!



Congratulations to our 2025 AuPS Award, Grant and Prize Winners

AK McIntyre Award Winner:
Paula Miotto (University of Melbourne)

Paula Miotto with past winners of the AK McIntyre award.

ECR and Student Grants & Prizes

Peter Gage student collaborative grant:
Wayne Du (University of Melbourne)

Wayne Du receiving his award from President Prof Livia Hool, Secretary Prof Severine Lamon and Prof Dirk van Helden

Post-Doctoral Publication Prize:
Aldo Meizoso Huesca
(University of Queensland)

Publication: Meizoso-Huesca A, Lamboley CR, Krycer JR, Hodson MP, Hudson JE, Launikonis BS. Muscle-specific Ryanodine receptor 1 properties underlie limb-girdle muscular dystrophy 2B/R2 progression. Nat Commun. 2025 Mar 28;16(1):3056

PhD student publication prize:
Annabel Critchlow (Deakin University)

Publication: Critchlow AJ, Alexander SE, Hiam DS, Ferrucci L, Scott D, Lamon S. Associations Between Female Sex Hormones and Skeletal Muscle Ageing: The Baltimore Longitudinal Study of Aging. J Cachexia Sarcopenia Muscle. 2025 Jun;16(3):e13786

Harry Cutler receiving his award from President Prof Livia Hool, Secretary Prof Severine Lamon

Conference Presentation Prizes
Oral Presentation Prize: Harry Cutler (winner) and Cameron Adly (runner-up)

Education Awards and Grants

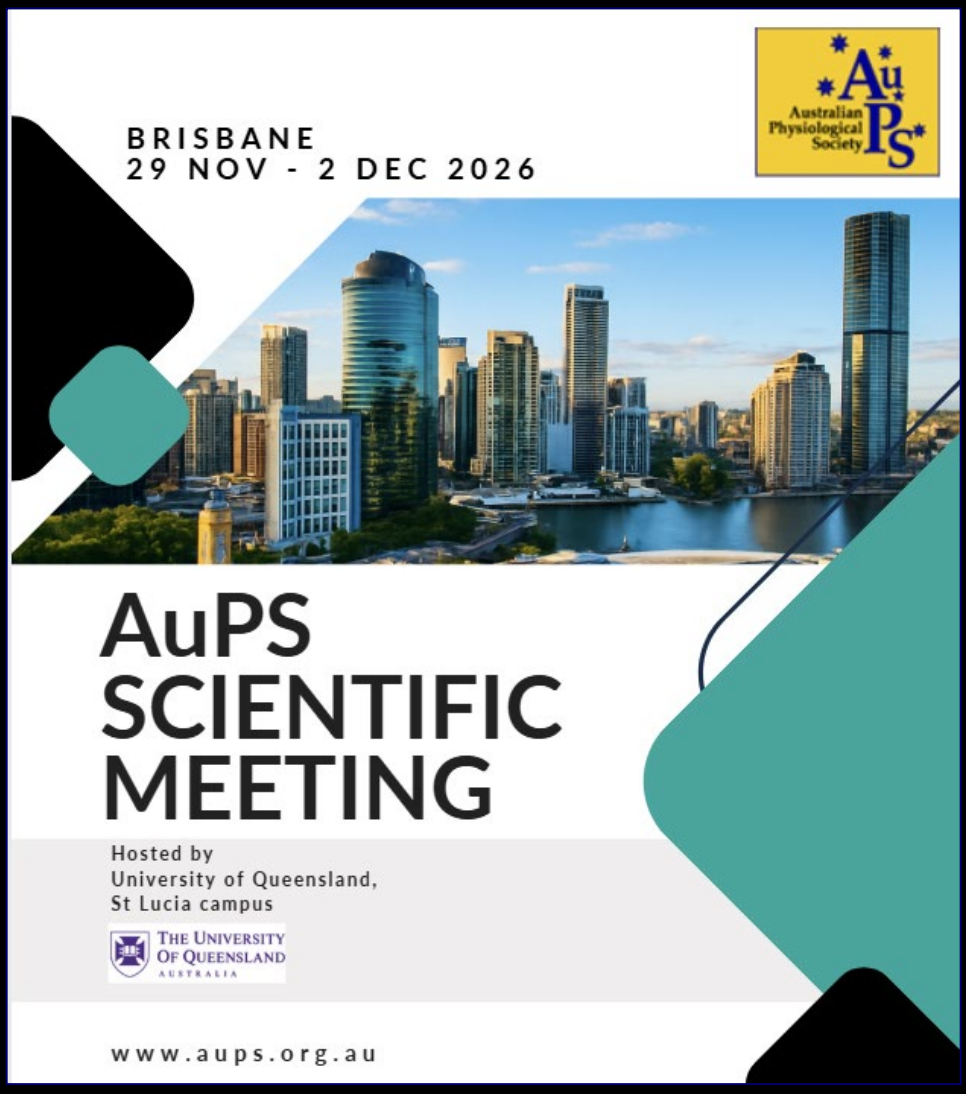
Michael Roberts Excellence in Physiology Education Award:
Surah Etherington (Murdoch University)

AuPS Physiology Education Grant:
Judit Kibedi (University of Queensland)

Honorary Members

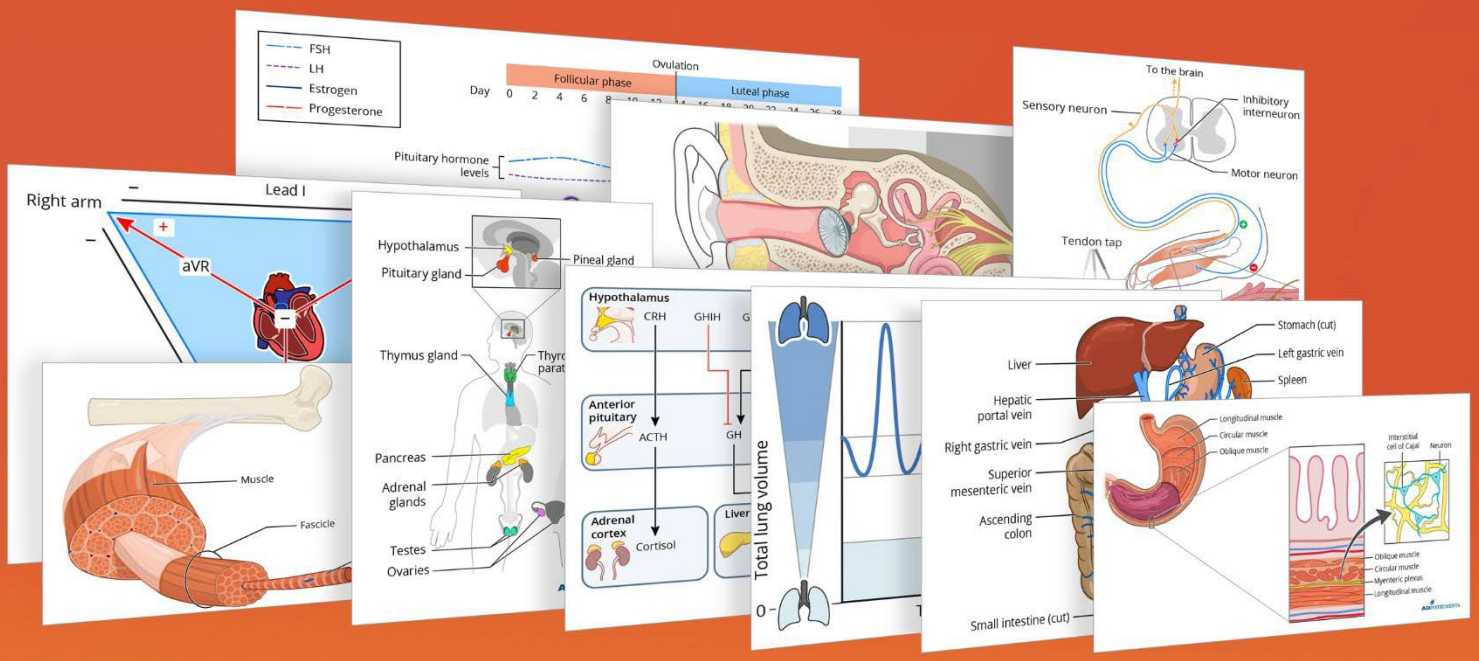
Congratulations to Distinguished Professor David Adams and Professor Philip Poronnik

New Honorary Member Distinguished Prof. David Adams, (center) with AuPS President elect Prof Stefan Bröer and Honorary member Prof Dirk van Helden.



Teaching Resource

10 Free Physiology Images



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with many thanks to the generous contributors.

The next issue of AuPS News will be distributed to members in March 2026.
All contributions for AuPS News should be sent to: **suzanne.estaphan@anu.edu.au**
before the end of February.

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