

AuPS News – September 2025

Tribute to Peter Gage

By Emeritus Professor Angela Dulhunty



Peter Gage was born in Auckland New Zealand where he lived until attending Medical School at the University of Otago, graduating with an MBChB in 1960. He moved to Australia in 1963 for PhD studies in The Physiology Department at the John Curtin School of Medical Research under the guidance of John Hubbard, a fellow New Zealand Scientist and

the department head, Sir John Eccles. Peter's PhD studies produced cutting-edge insights into excitable tissue's function, leading to six papers in *Nature*, three in the *Journal of Physiology* and one in the *Journal of Pharmacology*.

Peter's ground-breaking electrophysiological studies continued in Durham North Carolina with the development of novel techniques for intracellular measurements of electrical activity in single cells from nerve and muscle. Much of this work was in collaboration with Paul Horowicz, Clay Armstrong and Bob Eisenberg. He returned to Australia in 1968 to the Department of Physiology and Pharmacology at the University of New South Wales, where he established a large and successful electrophysiological laboratory - introducing and refining the latest techniques, particularly in voltage clamp and patch clamp, into Australia. He was an enthusiastic teacher at both undergraduate and postgraduate levels. Many of his PhD and post-doctoral students became well known physiologists and neuroscientists, with the earliest cohorts including myself (Angela Dulhunty); David Adams; Dirk Van Helden; Graham Lamb; Peter Barry and many others.

Peter was an enthusiastic supporter of AuPS from the late 1960s onwards, attending himself and encouraging all members of his laboratory, and indeed the wider physiological community, to attend and present their latest findings at as many conferences as possible. He also made a significant contribution to the Society as a Council Member and President from 2000 – 2004.

The Gage Group moved to the John Curtin School of Medical Research at the Australian National University in 1984, where Peter was appointed to the

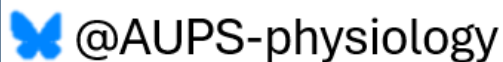
Eccles Chair of Physiology and Head of the Department of Physiology. The Department later became the Division of Neuroscience and later still The Eccles Institute of Neuroscience. His interests were broad and encompassed ion channels' structure and function and the involvement of ion channels in a diversity of physiological processes — initially in neurons and muscle and later in wider areas including secretory processes and viruses. Peter was a dynamic and enthusiastic communicator and dedicated to introducing the latest electrophysiological techniques and advances in associated molecular biology into Australia. He organised numerous patch clamp workshops and “Curtin Conferences” to explore advances in understanding the roles of ion channels in many different tissues. The “Curtin Conferences” were continued following Peter’s untimely death in 2005 and renamed the “Gage Conferences” in his honour.

An indicator of Peter’s impact is the number of citations of his work, reaching 7000 by 2005 and continuing to increase to around 10,000 by 2025.

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Member Profile: Research Fellow Dr Yuqin Wu (Wilson)

Monash University

**Winner of the AuPS student
publication prize**



**Congratulations on the prize!
Can you tell us about your award-winning
publication?**

I am very grateful to the Australian Physiological Society for awarding me the 2024 PhD Student

Publication Prize for our work published in Nature Communications. We set out to answer a surprisingly unresolved question: how does glucagon — a hormone discovered more than a century ago — regulate liver metabolism? While glucagon controls glucose, lipid, and amino acid metabolism and is being explored in therapies for obesity, diabetes, and liver disease, its signalling mechanisms remain much less understood than insulin's.

Using time-resolved phosphoproteomics in perfused rat livers, we mapped glucagon's signalling pathways. Surprisingly, the top enriched pathways were related to membrane trafficking and vesicle-mediated transport. One protein, SEC22B, a vesicle trafficking protein, stood out with phosphorylation at Serine-137 increasing more than 30-fold following glucagon stimulation.

We developed molecular tools and used AAV technology to manipulate SEC22B specifically in hepatocytes of mouse models. These studies revealed that SEC22B and its S137 phosphorylation form a central regulatory node in glucagon action, coordinating glucose, lipid, and amino acid metabolism. This work provides the first evidence that intracellular trafficking directly participates in glucagon signalling, highlighting SEC22B as a critical hepatic signalling node and opening new directions for understanding metabolic disease and glucagon-based therapies.

What is your current position/role?

I'm a Postdoctoral Fellow in the Nutrient Metabolism and Signalling Lab at Monash University, where I study how glucagon regulates liver metabolism. Building on our discovery of SEC22B as a key signalling hub, I'm exploring how it shapes lipid and amino acid metabolism, how these effects contribute to liver disease and obesity, and how it controls subcellular protein trafficking as part of glucagon action in the liver.

What inspired you to pursue a career in research, and where do you see yourself heading professionally?

I've always been curious about how what we eat affects our bodies, which led me from an undergraduate degree in Animal Science to a Master's in Animal Nutrition. To truly understand metabolism, I moved into medical research during my PhD, studying liver metabolism using mouse models. Working under my mentor, A/Prof Adam Rose, I became fascinated by glucagon — a century-old hormone that still holds many mysteries. My goal is to advance translational research in metabolism, uncovering mechanisms that can guide the development of therapies for obesity, diabetes, and other metabolic disorders.

Outside of work/research, what do you do to relax?

Outside the lab, I enjoy table tennis and badminton, and spending time with dogs, which I find especially relaxing. I also enjoy hiking, fishing, and any activity that gets me outdoors and connected with nature. These activities help me recharge and often spark fresh ideas for my research.

Global Connections in Physiology Education: Showcasing AuPS Members' Outreach and Impact.

By

Ass. Prof. Kay Colthorpe

Prof. Kathy Tangelakis

Ass. Prof. Jennie Cederholm

Dr. Suzanne Estaphan

This article highlights the international education outreach efforts of AuPS members, showcasing symposia and workshops led at global forums such as IUPS and PPS-19. Each contributor shares their experience, goals, and reflections on engaging with the international physiology education community.

2025 IUPS Teaching Workshop – Lowenstein, Germany



Associate Professor Kay Colthorpe said:

Since 1983, the International Union of Physiological Sciences (IUPS) Teaching Workshop has been a much-anticipated feature of each IUPS Congress, bringing together physiology educators from around the world every four years. These two-day workshops,

held in association with the main congress at a nearby venue, offer a unique space for sharing ideas, exploring innovative teaching practices, and building global collaborations — all while living and learning side by side.

This year's Teaching Workshop took place in the picturesque town of Lowenstein, Germany, drawing 94 participants from 27 countries — including four representatives from Australia. The packed program featured an engaging plenary session, two lively panel discussions, and 17 hands-on workshops. Attendees also engaged with 31 posters, including one by AuPS member **Kathy Tangelakis**, who showcased her work on “*Engaging students in learning within Victoria University's block model.*” which was awarded the First Best Poster in the Research Category.



Our AuPS members played a leading role throughout the event. **Andrew Moorhouse**, together with his

colleague from the US, delivered an engaging workshop on using analogies and function diagrams to demystify complex physiological principles. **Kay Colthorpe** contributed to two workshop sessions: one, co-led with colleagues from Brazil and Pakistan, explored “*Hands-on, hybrid, high-tech*” strategies for blended learning; the other brought together educators from Japan, Poland, Indonesia, Taiwan and Australia to discuss how to choose the most impactful topics and effectively assess learners’ progress in physiology education.

A true highlight of the workshop was the evening cultural celebration, which honoured the Teaching Workshop’s rich history — beginning with the inaugural event chaired by Ann Sefton at the 1983 Sydney IUPS Congress. The night was a joyful showcase of music, dance, and traditions from around the world, capped off by an Australian crowd-pleaser: a spirited(!) karaoke performance of “Down Under.” More than just entertainment, the evening captured the heart of the IUPS Teaching Workshops — a celebration of global collegiality, shared passion for education, and the lasting collaborations that grow from them.



Professor Kathy Tangalakis added:

At the recent International Union of Physiological Societies (IUPS)–Europhysiology Congress, held

in Frankfurt, Germany (11–14 September 2025), one symposium was dedicated entirely to education. Selected from nearly 80 proposals, the session focused on “*Competency-Based Education: Core Concepts and Skills*.”

Prof. Dee Silverthorn (University of Texas, USA) opened the symposium with a presentation on designing and mapping competency-based (CB) physiology curricula. She described how CB learning outcomes (LOs) can be developed using backward design, and how each LO can be systematically tagged with a predefined set of skills and core physiological concepts and then mapped to a program and subjects [HAPS Physiology Learning Outcomes - Human Anatomy and Physiology Society \(HAPS\)](#)

Next, Prof. Faadiel Essop (Stellenbosch University, South Africa) discussed the development of competency-based physiology curriculum guidelines for African universities through the *PhysioCAFUN* initiative. His presentation highlighted efforts to promote not only knowledge acquisition but also the cultivation of essential professional skills and behaviours in physiology education ([PhysioCAFUN.pdf](#)).

Prof. Kathy Tangalakis (Victoria University, Australia) then outlined how a national consensus was achieved on seven core concepts of physiology within Australian higher education. Each concept was unpacked and validated by a dedicated task force, published, and made available on the Australian Physiological Society’s website ([AuPS Education](#)), along with their icons. Ongoing work involves mapping these core concepts across university curricula and developing higher-order assessments to evaluate students’ mastery of them. This initiative aims to consolidate essential physiology knowledge and establish a unified framework for teaching, learning, and assessment across institutions.

Finally, Prof. Derek Scott (University of Aberdeen, UK) presented on the use of Objective Structured Practical Examinations (OSPEs) to assess students' practical and professional competencies. These multi-station assessments require students to rotate through tasks that test theoretical knowledge, laboratory techniques, and transferable skills such as communication, ethics, numeracy, and data interpretation.

Together, these contributions highlighted international efforts to unify physiology education through pedagogical approaches that integrate knowledge, skills, core concepts and professional behaviours.



PPS-19 pre-conference workshops – Online

Associate Professor Jennie Cederholm said,

I had the privilege and honour of being invited by Professor Samina Malik, President of the South Asian Association of Physiologists (SAAP), to lead two pre-conference Master Classes at the 19th Biennial International Conference of Pakistan Physiological Society (PPS-19). The overall title was “Innovative Teaching Strategies in Physiology Education: An Australian Perspective”.

Both Master Classes were inspired by current teaching practices in the Department of

Physiology, School of Biomedical Sciences (SBMS), where I serve as Head of Teaching, and by strategic educational projects underway at UNSW Sydney through the Nexus Program.



19th International Pakistan Physiological Society Conference 2025
PRE-CONFERENCE Masterclass
Class 1 (8th September)
 • Collaborative Learning with Peer Evaluation
Class 2 (9th September)
 • Belonging & Wellbeing in Health Education
2 CPD Hours
 To promote inclusive, supportive, and collaborative learning environments in health education that foster critical thinking, self-reflection, teamwork, and student wellbeing.
Moderator:
Prof. Dr. Samina Malik
 (Chair PCWs PPS-19)
Dr. Jennie Cederholm
 (MSc, PhD, FHEA)
 Dr. Jennie is an Associate Professor and Head of Teaching (Physiology), specializing in auditory neuroscience, electrophysiology, and gene regulation. She is an award-winning educator and active leader in research, equity, and neuroscience outreach.
Register Now:
<https://forms.gle/97ru3yq2RbtykxEF8>
 Queries: 0316-1035508 (Whatsapp only)

The first Master Class, “Collaborative Learning with Peer Evaluation” showcased examples from our department’s teaching pedagogy and practice, and together we explored how collaborative learning using different types of peer evaluation not only fosters teamwork but also essential skills such as constructive conflict resolution, shared leadership, accountability and self-reflection.

The second Master Class, “Belonging & Wellbeing in Health Education”, focused on one of the six themes of the Nexus program and a major project within SBMS. We explored how curriculum design can intentionally support student wellbeing and retention, and how fostering a sense of belonging is critical to student success.

While both sessions addressed curriculum design and teaching strategies, they also emphasised the importance of mutual trust, adaptability and respect between students and academic staff. Above all, I encouraged kindness, to students and ourselves, as our own wellbeing is essential to supporting theirs.

I was overwhelmed with the fantastic feedback I received from participants, and I could feel the enthusiasm in the online room. Professor Samina Malik described the Master Classes as the hallmark of the pre-conference workshops, and an unsolicited reflection shared on LinkedIn by an attendee beautifully summarised the classes, reinforcing the value of collaborative learning, peer evaluation as a powerful metacognitive tool and wellbeing as a key predictor of student success.

The PPS-19 platform was incredibly welcoming and inspirational. These classes and the discussions and questions they generated reminded me of the power of global collaboration in enhancing teaching practices and supporting our students. We all left the classes enriched by shared insights and renewed enthusiasm.

Dr. Suzanne Estaphan said,

As an educator deeply passionate about innovation and global collaboration, I was honoured to lead a pre-conference workshop at the 19th Biennial International Conference of Pakistan Physiological Society (PPS-19) titled “AI-Assisted Student Assignments: Challenges, Skills, and Solutions.” This session was inspired by my recent publication in *Advances in Physiology Education* journal and designed to spark meaningful dialogue among educators navigating the evolving role of AI in higher education.



19th International Pakistan Physiological Society Conference 2025

Pre-conference Workshop

TITLE:
Navigating the Frontier of AI-Assisted Student Assignments: Challenges, Skills, and Solutions

Dated: 19th September 2025
Time: 08:00AM TO 10:30AM PST

MODERATOR:
PROF. DR. SAMINA MALIK
(CHAIR PCWS PPS-19)

FACILITATOR:

DR. SUZANNE ESTAPHAN
(MBCCH, MSC, PHD, SFHEA)
SENIOR LECTURER IN MEDICAL SCIENCE (PHYSIOLOGY)

2 CPD HOURS

LEARNING OBJECTIVES

OPPORTUNITIES	INTEGRITY	ETHICS	COLLABORATION
Identify opportunities and challenges posed by generative AI in assessments.	Explore solutions to maintain academic integrity and critical thinking.	Apply a structured framework for ethical, AI-aware assessment design.	Design AI-aware assignments that foster authentic learning and human-AI collaboration.

Queries: 0316-1035508 (Whatsapp only)

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SCAN QR



The workshop was more than a presentation — it was a shared space of curiosity, concern, and hope. Together, we explored the tensions between academic integrity and technological advancement, and the opportunities to scaffold deeper learning through formative feedback and metacognitive strategies.



Workshop Objectives

1. Identify opportunities and challenges posed by generative AI in assessments.
2. Explore solutions to maintain academic integrity and critical thinking.
3. Apply a structured framework for ethical, AI-aware assessment design.
4. Design AI-aware assignments that foster authentic learning and human-AI collaboration



Australian National University

The central message was clear:
“Adapt, don’t abandon.”

One of the most moving moments came from an unsolicited reflection on LinkedIn shared by an attendee, who described the session as a 'highly engaging workshop' and clearly reiterated the key messages. Their thoughtful summary — touching on academic integrity, scaffolding, metacognition, and authentic assessment — was a powerful testimony that the framework and conclusions resonated with educators across borders.

I’m grateful to the Pakistan Physiological Society and Dr. Samina Malik for creating such a vibrant and welcoming platform. The energy in the room reminded me why international educator outreach matters — it builds bridges, inspires change, and reminds us that we’re part of a global learning community.



Read the full paper: [Navigating the frontier of AI-assisted student assignments: challenges, skills, and solutions](#)

Featured on Future Campus: [Handy AI- framework for take home assignments - Future Campus](#)

2025 marks the 65th anniversary of the AuPS and we are looking forward to celebrating at our annual meeting to be held at the University of Western Sydney (Parramatta) on 23 - 26 November 2025.



**Australian Physiological
Society Meeting**
Parramatta, NSW
November 2025



[Australian Physiological Society - 2025 Registration](#)

The Australian Physiological Society is planning to introduce Interest Groups to help members connect, collaborate, and co-create the future of physiology in Australia. These groups will be informal, inclusive, and driven by your interests. Please complete this short survey to guide our next steps.

<https://form.jotform.com/251720950910856>

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This issue of AuPS News was compiled by **Suzanne Estaphan** with many thanks to the generous contributors.

The next issue of AuPS News will be distributed to members in December 2025.

All contributions for AuPS News should be sent to: suzanne.estaphan@anu.edu.au before the end of November.

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