



AuPS Scientific Meeting 2021

Hosted by Griffith University

CONFERENCE PROGRAMME

Attendance at the Gold Coast

Griffith University, Gold Coast Campus: Parklands Drive, Southport (G03 building)

For those attending the Gold Coast, please register at the reception desk outside G03 Theatre 1 and 2.

Conference Hubs

For delegates joining us from a conference hub, the live stream will commence on Monday 22nd November at 9am.

You can join the AuPS Welcome and Historic Symposium at 5pm on Sunday directly via the online platform.

Your hub leader (listed below) will be in contact with you in the lead up to and during the conference, please let them know if you have any questions.

Western Australia (Perth)	Erin Lloyd (UWA)	Erin.lloyd@research.uwa.edu.au
Victoria (Melbourne)	Nolan Hoffman (ACU) Cassandra Smith (VU)	Nolan.Hoffman@acu.edu.au Cassandra.Smith@live.vu.edu.au
Tasmania (Hobart)	Renee Ross (UTAS)	Renee.Ross@utas.edu.au
South Australia (Adelaide)	Kelsi Dodds (Flinders Uni) Sam Henderson (Adelaide Uni) Saeed Nourmohammadi (Adelaide Uni)	Kelsi.Dodds@flinders.edu.au Sam.Henderson@adelaide.edu.au Saeed.Nourmohammadi@adelaide.edu.au
New South Wales (Sydney)	Melissa Cameron (Uni Syd) Fred von Wegner (UNSW)	Melissa.Cameron@sydney.edu.au f.vonwegner@unsw.edu.au
ACT (Canberra)	Stephen Fairweather (ANU)	Stephen.Fairweather@anu.edu.au

Physiology Education Stream

The Education Stream will be facilitated from the Gold Coast (G01_3.35) or you may stream this via the online platform

(Please note this will NOT be streamed through the hubs, you will need to join the platform directly)

Please contact the AuPS Education officer A/Prof Andrew Moorhouse if you have any questions (a.moorhouse@unsw.edu.au)

Poster Presentations & Prizes

Presentations: Every poster presentation will have an associated 3min vimeo that will be available for all conference delegates to view via the online platform. In addition, there will be a poster session ('live') at the Gold Coast and each hub on Monday at 1pm. Presenters, please stand by your printed poster during this time, so that you can present your work and answer questions.

Prizes: The judges will view the 3min vimeo presentations and rank the top eight videos. These eight finalists will attend the poster session on Tuesday where their vimeo will be streamed to all hubs followed by a 5min live Q&A with each presenter. The poster prize winners will be determined from this session.

Please note that all times below are for the Gold Coast AEST, UTC/GMT + 10hrs (+1 for Hobart/Melbourne/ Sydney, +30min for Adelaide, -2 for Perth)
* denotes Speaker at GC.

Sunday, 21st November

17:00

Welcome & AuPS Historical Symposium

Location: G03_theatre 2 or streamed via the online platform

17:00
AEST (GC)

Chair: Robyn Murphy

Pioneers of the Australian Physiological Society

Roger Dampney

European Influences on Australian Physiology

John Carmody

Women in physiology

Judith Whitworth

Highlights of Australian Physiology in the 21st century

Angela Dulhunty

19:00

Welcome Reception at the Gold Coast (G07)

Monday, 22nd November

Please note that all times below are for the Gold Coast AEST, UTC/GMT + 10hrs (+1 for Hobart/Melbourne/ Sydney, +30min for Adelaide, -2 for Perth)
* denotes Speaker at GC.

9:00	AuPS Invited Lecture Location: G03_theatre 1		
AEST (GC)	Chair: Robyn Murphy		
9:00	Deconvoluting metabolism at the lipid droplet	Prof Matthew Watt	

10:00 - 10:30 Morning tea

	Session 1: G03_theatre 1	Session 2: G03_theatre 2	Session 3: G01_3.35 (online)
AEST (GC)	Symposium: Sex differences in Physiology Chair: Livia Hool		
10:30	Sex differences in hypertension Heddwen Brooks	Free Communication: Substrate metabolism Chair: Magsue Jacques	Physiology Education Free Communication 1: Academic and Student Experiences Chair: Christian Moro
11:00	Molecular Sex differences in response to exercise Nir Eynon	10:30 Disruption of the circadian clock component BMAL1 elicits an endocrine adaption that impacts on insulin sensitivity and liver disease *Benjamin Weger	10:30 New to an academic position - bridging the gap between researchers and teachers Severine Lamon
11:30	Sexual dimorphism and the role of sex steroids in modulating brown adipose tissue activity in adults Belinda Henry	10:45 The impact of hypothyroidism during pregnancy on maternal and fetal outcomes *Nykola Kent	10:45 Academics' experiences of students with mental health issues: challenges and changes in teaching practice Julia Choate
12:00	Gender Differences in Neurological Disease *Pamela McCombe	11:00 Therapeutic blockade of ER-Stress and inflammation regresses diet-induced NASH, without markedly altering lipids, in mice. Ebru Bolsem	11:00 Easing transition burden for 1st year physiology students: Biology Bridging Resource Betty Exintaris and Nilushi Karunaratne
		11:15 Mesenteric lymphatic dysfunction promotes insulin resistance and represents a potential treatment target in obesity Enyuan Cao	11:15 A Lightboard video supports numeracy skills in 1st year cell biology students *Ann Parkinson
		11:30 Identification of Transforming Growth Factor- β Stimulated Clone 22 Domain 1 (Tsc22D1) is a possible novel therapeutic target for NASH mediated HCC. Benoit Smeuninx	11:30 Can we reduce the impact of the Covid pandemic on teaching and clinical research in medical sciences? Fatima Shad Kaneez
		11:45 Metformin confers cardio-protection in type 1 diabetes Kurt Hemphill	11:45 A faculty approach for creating an inclusive and connected community campus environment for international students during the COVID-19 pandemic Betty Exintaris and Nilushi Karunaratne
		12:00 A nutrient-hormone axis affecting movement economy. Adam Rose	

12:30-13:00 LUNCH

13:00 Poster Session (live at each hub)

14:00	AuPS Michael Roberts Prize Lectures Location: G03_theatre 1		
AEST (GC)	Chair: Glenn Wadley		
14:00	2019 Prize Winner How can we effectively clear the hurdles to reach the Physiology finals?	A/ Prof Andrew Moorhouse	
14:30	2020 Prize Winner Maintaining an Individualised Student-Centred Experience in Blended, technology-Enhanced Learning	Dr Charles Sevigny	

15:00 - 15:30 Afternoon Tea

	Session 1: G03_theatre 1	Session 2: G03_theatre 2	Session 3: G01_3.35 (online)
AEST (GC)	Symposium: Is evolutionary loss our gain? The effects of alpha-actinin-3 deficiency in health and disease Chair: Peter Houweling		
15:30	ACTN3 genotype influences androgen receptor signalling in skeletal muscle Kelly Roeszler	Free Communication: Across the membrane Chairs: Daniel Singh & Angus Lindsay	Physiology Education Workshop Chair: Kathy Tangalakis & Andrew Moorhouse
16:00	ACTN3 genotype influences skeletal muscle mass regulation and the response to dexamethasone Jane Seto	15:30 Ryanodine receptor Ca ²⁺ leak regulates Ca ²⁺ redistribution across the SR, cytoplasm and mitochondria in slow-twitch muscle fibres *Crystal Seng	15:30 Core Concepts in Physiology Education: Developing Assessments and Curricula Activities A set of seven Core Concepts in Physiology Education have recently been developed by Australian Educators, adapted from those published by the American Physiological Society and the Physiological Society UK. Teams of academics are currently 'unpacking' each core concept into subthemes and the National Biosciences Assessment Collaboration has incorporated them into an Assessment Framework which will allow us to map to assessments. In this workshop we will form small teams to develop learning and assessment activities aligned to these unpacked concepts that can be used as a resource in the different courses in which Physiology content is taught. This will be an online and hands-on workshop with further details sent to registered participants.
16:30	Skeletal muscle fiber type modifies our response to acute cold exposure - an explanation of the evolutionary selection of the ACTN3 557X allele in humans Victoria Wyckelsma	15:45 Study of the pathological role of TRPM2 channel in Neuroinflammation in Parkinson's disease *Linlin Ma	
17:00	Impact of cold exposure and ACTN3 R577X. Peter Houweling	16:00 Comparing sarcoplasmic reticulum calcium release mechanisms: insights for muscle based thermogenesis *Luke Pearce	
		16:15 ORAI1-dependant IL6 Gene Regulation via Store-operated Calcium Entry in Triple-negative Breast Cancer *Shao Ming Chan	
		16:30 A GC-MS/Single-cell Method to Evaluate Membrane Transporter Substrate Specificity and Signalling Stephen Fairweather	
		16:45 The contribution of intestinal ceramides to whole-body metabolic dysfunction Michael Mah	

Tuesday, 23rd November

Please note that all times below are for the Gold Coast AEST, UTC/GMT + 10hrs (+1 for Hobart/Melbourne/ Sydney, +30min for Adelaide, -2 for Perth)
* denotes Speaker at GC.

8:30	Session 1: G03_theatre 1	Session 2: G03_theatre 2	Session 3: G01_3.35 (online)
AEST (GC)	<p>Symposium: The liver at the centre stage of metabolic regulation</p> <p><i>Chair: Matthew Watt</i></p>	<p>Symposium: New insights into mechanisms of heart disease and dysfunction</p> <p><i>Chair: Kim Mellor</i></p>	<p>Physiology Education Symposium: Innovations in Physiology Education</p> <p><i>Chair: Julia Choate</i></p>
8:30	The liver as an endocrine organ – Understanding hepatokine secretion during the development of non-alcoholic fatty liver disease Magdalene Montgomery	8:30 Regulation of glucose transport during cardiac diseases and diabetes Véronique Lacombe	8:30 Embedding employability across the physiology degree: Integration versus a stand-alone course *Deanne Hryciw
9:00	Exercise-induced metabolic adaptations in the liver John Thyfault	9:00 Resolving the basis of calcium channel leak in arrhythmia Michelle Munro	9:00 Supporting innovations in physiology education through staff reflection Kate Carrol & Sharon Fleknoe
9:30	Boosting mitochondrial metabolism in the liver - implications for metabolic disorders and aging Nigel Turner	9:30 A Novel Human Pluripotent Stem Cell Model Demonstrates Sympathetic Neuronal Hyperactivity in Long QT Syndrome Type 1 Annika Winbo	9:30 Absent but still engaged: Connecting with diverse student cohorts around threshold concepts using interactive, online modules Sarah Etherington
10:00	Liver-derived small extracellular vesicles regulate glycemic control through increased insulin secretion Paula Miotto	10:00 Cellular mechanisms of cardiomyopathy in diabetes – novel insights of glycophagy involvement Lea Delbridge	10:00 Less is more: Teaching using core physiology concepts and competencies Dee Silverthorn

10:30 - 11:00 Morning tea

11:00	Session 1: G03_theatre 1	Session 2: G03_theatre 2	Session 3: G01_3.35 (online)
AEST (GC)	<p>Symposium: Maternal influences on fetal development</p> <p><i>Chair: Deanne Hryciw</i></p>	<p>Free communication: Signalling and Metabolism</p> <p><i>Chair: Ben Perry</i></p>	<p>Physiology Education Free communication 2: Virtual vs Face to Face Teaching Activities</p> <p><i>Chair: Puspha Sinnayah</i></p>
11:00	Mitochondrial reprogramming as a putative therapeutic target in metabolic syndrome and hypertension of fetal origin Julie Y.H. Chan	11:00 Piezo1 regulates shear-dependent nitric oxide production in human erythrocytes *Lennart Kuck	11:00 Comparing the Effectiveness of Online and Face-to-Face Practicals Using a Learning Outcome Framework. *Yit Chiun Lim
11:30	Maternal obesity and offspring outcomes Jodie Dodd	11:15 Skeletal muscle thermogenesis regulated by ryanodine receptor 1 Ca ²⁺ leak. *Aldo Meizoso	11:15 Equally engaging both face to face and online students during live lectures with interactive polling. *Christian Moro
12:00	Fetal alcohol spectrum disorder: a disorder affecting the brain, body, or both? Karen Moritz	11:30 CRISPR/Cas9 and lentiviral rescue methods to study ORAI1 function in transcription activation *Melanie Robitaille	11:30 Students' perceptions of challenges in internal and external delivery modes of a physiology course *Kay Colthorpe
12:30	Epigenetic Regulation and Chronic Kidney Disease Sonia Saad	11:45 Blocking IL-6 trans-signalling does not diminish the efficacy of IC7Fc as a treatment for diet induced metabolic disease in mice Jingjing Zhao	11:45 Adapting to blended learning: Does strategy choice or engagement impact performance? *Louise Ainscough
		12:00 Long non-coding RNA Tug1 modulates mitochondrial and myogenic responses to exercise in skeletal muscle Adam Trewin	12:00 Are Virtual Physiology Laboratories Effective for Student Learning Compared with Traditional In-Person Laboratories? Ari Pinar
		12:15 Compound Fuling granule (CFG) inhibits endometrial cancer progression and invasion in vitro Sidra Khan	12:15 The face-to-face teaching of Gross Anatomy following COVID-19 from a student's perspective Rudi Klein
		12:30 Quantitative modelling of amino acid transport and homeostasis in mammalian cells Gregory Gauthier-Coles	12:30 Students want lectures: Survey of student perception of learning experience during CoVID19 lockdown Joseph Rathner



Thank you to *The Physiological Society* for their sponsorship and support of this symposium.

13:00-13:30 LUNCH

13:30 ADI research/product presentation followed by Poster finalists session (streamed via online platform)

14:45	Session 1: G03_theatre 1	Session 2: G03_theatre 2	Session 3: G01_3.35 (online)
AEST (GC)	<p>Symposium: Non-coding RNAs in metabolic tissues</p> <p><i>Chair: Severine Lamon</i></p>	<p>Symposium: Supplements...some might actually do something - lessons from vascular biology</p> <p><i>Chair: Shaun Sandow</i></p>	<p>Physiology Education Free communication 3: Teaching Methods and Learning Strategies</p> <p><i>Chair Louise Ainscough</i></p>
14:45	Trials and tribulations of microRNA cardiac targeted therapies Bianca Bernardo	14:45 3 novel therapies for peripheral arterial disease: targeting natriuretic peptide receptor 3, beta-3 adrenergic receptor, and omega-3 fatty acids Kristen Bubb	14:45 Effective Methods Utilised by Biomedical Science Students to Improve Science Communication *Luli Faber
15:15	Sex-specific differences in the microRNA profile of skeletal muscle Danielle Hiam	15:15 Exploring the "fishy" tail: Omega-3 Polyunsaturated fatty acids (n-3 PUFAs) evoke vascular relaxation by targeting specific smooth muscle cell potassium channels. Alister McNeish	15:00 Embedding art into histology: Visual Thinking Strategies (VTS) to enhance visual literacy. *Jordan Patti
15:45	Human thermogenic adipocyte regulation by the long noncoding RNA LINC00473 Søren Nielsen	15:45 Dietary nicotinamide mononucleotide (NMN) improves endothelial function and vascular stiffness in aged murine skeletal muscle arteries. Timothy Murphy	15:15 Professional identity of biomedical science students: the interplay between skills, attributes, and self-esteem *Emma Richards
16:15	Role of microRNAs in chemotherapy-induced muscle wasting in cancer cachexia Kate Murphy	16:15 Effect of omega-3 polyunsaturated fatty acids on oxidative stress in patients with small abdominal aortic aneurysm *Fraser Russell	15:30 Peer Evaluation in collaborative assessments in Physiology using Buddycheck Puspha Sinnayah
			15:45 Bring on Blended Learning: Student's evaluation of their online learning resources. Kristina Anevska
			16:00 Online Collaborative Team work: Can it really work or are we Zooming towards disaster? Angelica Fong

17:00 AuPS Plenary Lecture

Location: G03_theatre 1

Chair: Deanne Hryciw

Analgesic α -conotoxins: Role of peripheral GABAB receptors, calcium and potassium channels in neuron excitability and nociception.
Prof David Adams

19:00 Conference Dinner at Skypoint
SkyPoint is located at the top of the Q1 Building (Surfers Paradise Boulevard)

Wednesday, 24th November

Please note that all times below are for the Gold Coast AEST, UTC/GMT + 10hrs (+1 for Hobart/Melbourne/ Sydney, +30min for Adelaide, -2 for Perth)
* denotes Speaker at GC.

9:00	Session 1: G03_theatre 1	Session 2: G03_theatre 2	
AEST (GC)	<p>Symposium: Developmental and pregnancy physiology - roles in health and disease <i>Chair: Olivia Holland</i></p> <p>9:00 Associations between COVID-19 lockdown and post-lockdown on the mental health of pregnant women, postpartum women and their partners from the Queensland Family Cohort prospective study *Vicki Clifton</p> <p>9:30 Sulphate deficiency and adverse developmental outcomes *Paul Dawson</p> <p>10:00 Events at birth - Implications and strategies for treating newborn brain damage *Tracey Bjorkman</p> <p>10:30 Transthyretin; a transport system for delivery of hormones and proteins to the placenta and fetus *Kerry Richard</p> <div style="text-align: center;">  <p>The Physiological Society</p> </div> <p>Thank you to The Physiological Society for their sponsorship and support of this symposium.</p>	<p>Joint symposium: Physiological Society of Japan/AUPS Microglia and Neuronal Interactions in Brain Plasticity <i>Chairs: Andrew Moorhouse & Hiroaki Wake</i></p> <p>9:00 Microglial regulation of peripheral nerve injury-induced synaptic remodeling in the thalamus Yoshifumi Ueta</p> <p>9:30 Sex differences in spinal cord microglia following nerve injury Gila Moalem-Taylor</p> <p>10:00 In vivo microglia dynamics and circuit plasticity in learning Ako Ikegami</p> <p>10:30 Repopulating microglia promote brain repair in an interleukin-6 dependent manner *Emily Willis</p>	

11:00-11:30 Morning tea

11:30	Session 1: G03_theatre 1	Session 2: G03_theatre 2	
AEST (GC)	<p>Symposium: Ion channels as biological targets for diseases <i>Chair: Linlin Ma</i></p> <p>11:30 Ion channels: The cause of and solution to chronic visceral pain? Stuart Brierley</p> <p>12:00 Mechanistic insights from a mouse model of HCN1 developmental and epileptic encephalopathy Christopher A Reid</p> <p>12:30 Aquaporin-1 ion channels: The answer to a long-standing mystery in Sickle Cell Disease Andrea Yool</p> <p>13:00 ASICs are more than a shoe brand: targeting ASIC1a to protect against ischemic injury of the heart and brain *Glenn F King</p>	<p>Free communication: All things muscle <i>Chair: Kevin Watt</i></p> <p>11:30 Identifying novel mediators of contraction within the urinary bladder urothelium and lamina propria tissue layers. Charlotte Phelps</p> <p>11:45 Prevention of heart failure by expression of neuregulin-1-β1 in cardiomyocytes using adeno-associated virus. Melissa Reichelt</p> <p>12:00 Exercise training improves long term memory, irrespective of obesity, in mice. Olivier Fuller</p> <p>12:15 Multi OMCs integration of exercise responses in human skeletal muscle Macsue Jacques</p> <p>12:30 Neuromuscular remodeling and perturbed BMP signalling promote muscle wasting in cancer cachexia Adam Hagg</p> <p>12:45 Cardiomyocyte cross-bridge derived stiffness is elevated in diet-induced cardiometabolic disease Johannes Janssens</p> <p>13:00 STBD1 deficiency disrupts homeostatic glycogen regulation and impairs cardiac function. Sarah Hayes</p>	

13:30-14:00 LUNCH

14:00 AGM
Location: G03_theatre 1

AEST (GC) AuPS AGM and AuPS student prizes

15:00	Session 1: G03_theatre 1	Session 2: G03_theatre 2	
AEST (GC)	<p>Symposium: Intercellular communication axes in cardiac health and disease <i>Chair: Lea Delbridge</i></p> <p>15:00 Arrhythmogenic consequences of cardiac adipose-cardiomyocyte communication James Bell</p> <p>15:30 Modulated autonomic innervation of the diabetic heart Carol Bussey</p> <p>16:00 Exosome mediated protection in myocardial ischaemia/reperfusion Sean Davidson</p> <p>16:30 Extracellular vesicles in (cardiac) cell remodelling and regenerative medicine David Greening</p>	<p>Symposium: Women Bridging the Valley of Death <i>Chairs: Emma Rybalka, Nicole Stupka, Cara Timpani</i></p> <p>15:00 A Life in Industry and Academia: The Value of Physiology to the Pharmaceutical Industry Eva Chin</p> <p>15:30 The Eteplirsen® Story: From research through commercialisation, to the next challenge Sue Fletcher</p> <p>16:00 Translational Time Travel: What I Known Now and What I Wish I Had Known About Translational Research When I Was at the Bench Nicky Konstantopoulos</p> <p>16:30 Targeting Nrf2 to treat Duchenne Muscular Dystrophy: A Translational Approach Emma Rybalka</p>	

Poster presentations:

All posters are available to view as video recordings. Speakers will also be present at either GC or their Conference Hubs

Intrinsic mechanosensitivity and widespread coupling discovered in non-neural cells of spiral ganglion cultures	Yahdiel Abihu - UNSW
The efficacy of a home-based resistance training program to increase muscular outcomes in young females	Sarah Alexander - Deakin University
CHARACTERISATION OF PERICYTE CHANGES IN HEALTHY AND TYPE 2 DIABETIC MUSCLES	Emily Attrill - UTAS
Revealing a new cause of Parkinson's disease through a novel gene discovery – the pathological role of Kir4.2 channel	Xiaoyi Chen - Griffith Uni
The maternal microbiota has an influential role on the developing offspring's enteric nervous system	Benjamin Czapla - Uni Melbourne
Redox ratio in the left ventricle of the growth restricted fetus is linked to cardiac output	Catherine Dimasi - UniSA
Tracking mitochondrial Ca ²⁺ changes during repetitive Ca ²⁺ waves in muscle fibres from a RYR1 gain-of-function mutant mouse.	Rhayanna Gaglianone - UQ
Investigating the Relationship Between Intramuscular Testosterone and Skeletal Muscle Adaptations in Pre-Menopausal Females Undertaking a 12-Week Resistance Training Program	Briana Gatto - Deakin Uni
Therapeutic effect of spermidine supplementation on the mdx mouse phenotype	Nicholas Giourmas - VU
Ischemic preconditioning improves the anaerobic threshold in healthy males and females	Matthew Goldsmith - Western Sydney Uni
Use of genetically-encoded calcium indicators to measure intracellular calcium signalling dynamics between cell-in-cell structures	Ellen Janke - UQ
The future is female: A framework to design female physiology research	Olivia Knowles - Deakin Uni
Vitamin D Receptor protein expression in murine and human skeletal muscle	Hannah Lalunio - Uni Melbourne
Redistribution of calcium content in skeletal muscle fibres mediated by SR Ca ²⁺ leak	Cedric Lambole - UQ
Effects of hypochlorous acid and hydrogen peroxide on skeletal muscle function: implications for the pathophysiology of Duchenne muscular dystrophy	Thomas Lea - UWA
Acute exercise increases serum lipocalin-2 and attenuates the postprandial decrease in osteoglycin and lipocalin-2 in young men.	Lewan Parker - Deakin Uni
Transgene targeting of inner ear sensory neuron subpopulations	Lily Pearson - UNSW
Transient Receptor Potential Canonical Channel is active in the tubular (t-) system of muscle fibres with mutant RYR1.	Quyhn Phan
Cardiac lipid accumulation contributes to severe diastolic dysfunction in female Heart Failure with preserved Ejection Fraction (HFpEF) and diabetic comorbidity.	Hanneke Raaijmakers - Uni Melbourne
Aerobic exercise strategies for fatty liver disease: a systematic review and meta-analysis	Angelo Sabag - Uni Western Sydney
Optimizing Small RNA-Sequencing Library Preparation from Mitochondrial RNA	Jessica Silver - Deakin Uni
Development and validation of a single fibre malignant hyperthermia diagnostic assay	Daniel Singh - UQ
Characterising cerebrovascular changes in obesity and type 2 diabetes	Nicole Sumargo - UTAS
Mucopolysaccharidosis Type I mice exhibit global skeletal muscle weakness	Irene Tsioutsias - UWA
Liver one-carbon metabolism affects gene expression independent from protein lysine methylation	Yuquin Wu - Monash Uni
THE EFFECTS OF METFORMIN AND INSULIN TREATMENT DURING PREGNANCY ON ONE-CARBON METABOLISM	Dayna Zimmerman - UQ
Altered placental stress response in gestational diabetes	Olivia Holland - Griffith