December 2023

Australasian Neuroscience Society

Australasian Neuroscience Society

Newsletter

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www.ans.org.au

Notifications

Become an ANS member or student member!
Please join us by becoming a Member of ANS.
You can join online at any time!
https://tas.currinda.com/register/organisation/172

Check out our website and follow updates on the ANS Twitter account or via our Facebook page.

https://www.ans.org.au

https://twitter.com/AusNeuroSoc

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Message from the President

It is wonderful to see the strong engagement across ANS with our next Annual Scientific Meeting to be held in Brisbane. The number of registrants and breadth of satellite meetings are excellent signs for growth of the Society and its capacity to provide further opportunities for neuroscience researchers and educators across Australia and New Zealand. I look forward to seeing you there.

Professor
Janet Keast

President, ANS
janet.keast@unimelb.edu.au

I have recently looked over the ANS Newsletters over the last five years and was reminded of the many great achievements of our members in each year. Doing this also provided me with a clear indication of the challenges faced by ANS due to the many uncertainties associated with the pandemic, together raising the possibility of a prolonged negative impact on ANS. As a member of the ANS Executive for almost two years, I have now had the privilege of seeing at close range the constructive and creative approach of our energetic Council and Committees, the superb work of Melbourne and Brisbane LOCs and Conference Executive Chairs to build truly great meetings and the continuing commitment and optimism across our membership. Together, these provide me with a high level of confidence in our present and in our future. We are now well placed to address and achieve our goals as summarised in the Vision and Mission Statement of the latest draft of the ANS Strategic Plan:

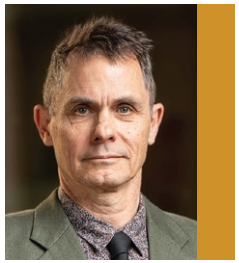
ANS Vision
To lead and foster excellence in neuroscience research, education and the application of discovery for the benefit of society.

ANS Mission Statement
- ANS aims to be the peak body for neuroscience in Australia and New Zealand, and to be internationally recognised as the leading regional body for neuroscience.
- ANS creates opportunities for neuroscience researchers and educators and serves the intellectual and operational needs of its members.
- ANS fosters diversity, equity and inclusion, and aims to provide a welcoming, safe, and enjoyable environment at all ANS activities.

While our primary focus is on the representation and opportunities created for neuroscience researchers and educators in Australia and New Zealand, there is also work to be done to re-establish our international networks. Prior to the pandemic, ANS had formal agreements of various types with other international neuroscience societies. Although these were unable to continue when conferences transitioned to fully online, momentum is growing to re-build these relationships. Strongly relevant to this is the election of the ANS Treasurer, A/Prof Jana Vukovic to membership of the IBRO Asia-Pacific Regional Committee. Congratulations, Jana! We look forward to renewing and extending relationships with our colleagues in the region.

From the Secretary

Corporate memory has always been an issue for the ANS Executive. One way to try to ensure continuity in how the Executive keeps the ANS viable is the "Elect" and "Past" President system.



Michael Lardelli

Secretary, ANS

michael.lardelli@adelaide.edu.au

In the year before taking on the Presidency of our society, the President Elect can observe how the Executive goes about its business. Then, in the year after the current President's term ends, they become the Past President to advise the new incumbent. According to the ANS Constitution, the "Elect" positions also exist for the Executive's Treasurer and Secretary roles but have not been taken up frequently in the past. However, in 2024 we will have both a Treasurer Elect and a Secretary Elect sitting in on our monthly meetings to observe, and even participate in, decision-making. It is very encouraging for the future of ANS that so many people are willing to contribute their time and energy to keeping the good ship afloat.

After a slow start, the applications for our annual ANS Awards were overwhelming this year. (What is it about extended application deadlines that makes them so stimulating?) The entire ANS Council was involved in award assessment. As usual, I was amazed at the quality of the research outputs and other achievements of our Australasian neuroscientists. These were humbling applications to read! I am very much looking forward to the presentations by this year's A.W. Campbell and Nina Kondelos Award winners at the Brisbane ASM, and there are ideas being floated in the ANS Council about finding a way to have all of next year's ANS Award winners make presentations at the 2024 ASM in Perth. Before then, I look forward to seeing you soon in Brisbane – and be sure to attend the Annual General Meeting during the ASM when the winners of all the ANS Awards will be announced!

ANS 2023 Conference

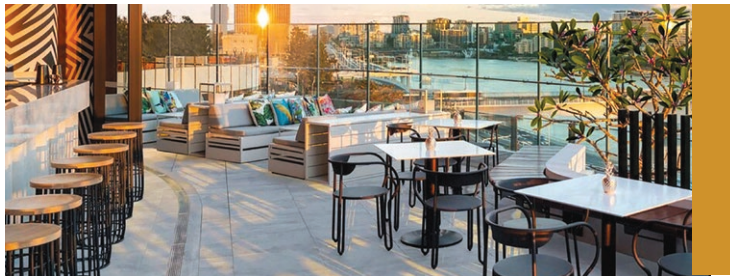
ANS 2023 AUSTRALASIAN NEUROSCIENCE SOCIETY 41ST ANNUAL SCIENTIFIC MEETING

4-7 December 2023 | W, Brisbane, Queensland

EXCITING THE NETWORK

Australasian Neuroscience Society

We are excited to be welcoming our members and guests to the luxurious W Brisbane, a premier hotel with stunning views over the Brisbane River.



The conference will kick off with casual welcome drinks on the Monday evening, followed by a retro beach themed Welcome Party on the beautiful rooftops of W Brisbane, with canapés, live cooking stations and band entertainment, on the Wednesday evening.

ANS 2023 AUSTRALASIAN NEUROSCIENCE SOCIETY 41ST ANNUAL SCIENTIFIC MEETING

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EXCITING THE NETWORK

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Marcello Rosa


George Paxinos


Michael Breakspear


Lizzie Coulson


Saul Villeda

A stimulating 3-day scientific program is in the works, with internationally acclaimed A/Prof Saul Villeda from the University of California, San Francisco confirmed as our international plenary speaker, as well as renowned national speakers, including Prof Elizabeth Coulson (University of Queensland), Prof Marcello Rosa (Monash University), Prof Michael Breakspear (University of Newcastle), and Prof George Paxinos AO (NeuRA). Read more on our plenary speakers here. The symposia for the ASM were recently announced – you can read the full profiles of symposium speakers and chairs, including symposium presentations, on the ANS website.

Satellite Meetings

We are delighted to confirm five Satellite Meetings which will be held in partnership with the ANS 2023 Conference:

- CAMAND Conference
- RNA In Brain Function and Disease
- Australasian Society for Autonomic Neuroscience
- Australasian Neurotrauma Symposium (ANTS)
- Australasian Human Microbiome Research Network Symposium

For more information on these satellite meetings, including how to register, please visit the ANS website.

Satellite Meeting organisers are entitled to claim $20 per meeting registrant in subsidy, up to a maximum of $1,000 for the purpose of reducing the meeting registration fees. The ANS ASM Satellite Meeting Policy is available here.

ANS Student – EMCR Networking Event

ANS 2023 AUSTRALASIAN NEUROSCIENCE SOCIETY 41ST ANNUAL SCIENTIFIC MEETING
4-7 December 2023 | W, Brisbane, Queensland
EXCITING THE NETWORK
Australasian Neuroscience Society

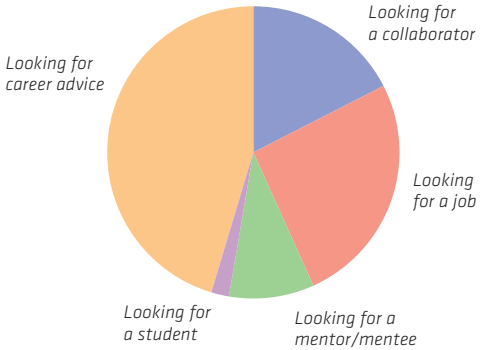
Rebecca San Gil

On behalf of the ANS SBC and EMCR committee's

Dear students and postdocs,

Thank you to those who have registered to attend the ANS Student-EMCR Networking Event during the Australasian Neuroscience Society 41st Annual Scientific Meeting. We have a full house with 100 people attending!

You were are asked to consider what "goal" you would like to achieve during the event and we had a great spread of responses with *Looking for career advice* as the top answer.



Date and time:

Wednesday, 6 December 2023
6pm – 7pm local time

(Welcome Party to follow)

Location:

Exhibition Foyer
The W Brisbane

* If you can no longer attend please let us know as places are limited (r.sangil@uq.edu.au).

Looking forward to seeing you there!

The Australian and New Zealand Brain Bee Finals: The Ultimate Battle of Young Minds in Neuroscience

The 2023 finals of the Australian and New Zealand Brain Bee are being held in conjunction with the ANS Annual Meeting in Brisbane. The final round, where 10 regional finalists battle it out, will be held live onstage at the W Brisbane, from 12-1pm on 5th December.

Come along and marvel at the depth and breadth of these teenagers' knowledge!

Bring your lab-mates and cheer on your local finalist!

We guarantee you will be on the edge of your seat right up to the last question!

The Australian and New Zealand Brain Bee has been running since 2007 and to date has involved roughly 85,000 high school (year 10) students across Australia and New Zealand. Bringing these outstanding students together in person and celebrating their achievements at our Neuroscience conference is an amazing way to recognise their talent and hopefully encourage the scientists and clinicians of the future.

In 2023, nearly 3000 students participated in the Brain Bee, and 10 finalists were selected based on their outstanding performance in the state/territory/island rounds. These finalists are listed at the top right of this page with the state coordinators who facilitated the regional competitions.

	State Coordinator	Finalist
ACT	John Bekkers	Shreepurvajaa ("Shree") Jonnalagadda
NSW	Jennie Cederholme, Cherylea Brown	Jeremy Zhang
NT	Bruno van Swinderen	Riley Stanley
QLD	Bruno van Swinderen	Samantha Conias
SA	Elysia Sokolenko, Sarah Cohen-Woods	Andrew Krashos
TAS	James Crane	Jingjie Zheng
VIC	Cherry Mao, Sarah Whittle	Alicia Park
WA	Jenny Rodger	Samuel Richards
North Island	Deborah Young	Xin-Xin Zhu
South Island	Stephanie Hughes	Brianna Searle

In the lead up to the finals, Professor Charles Watson and Matt Kirkcaldie are providing weekly webinars on neuroanatomy, medical diagnosis and neurophysiology to all of the finalists.

Professor Charles Watson said:

> *"The Brain Bee encourages some extremely talented young people. For example, Peter Susanto, the Australian Champion in 2020 came third in the International Brain Bee Competition and was just named NT Young Australian of the Year for 2024."*

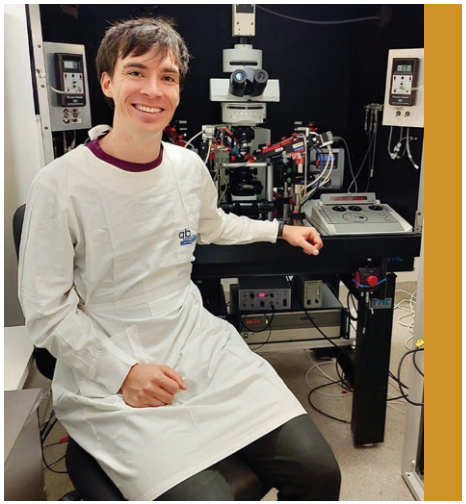
https://cms.australianoftheyear.org.au/recipients/peter-susanto

The finals are being coordinated jointly by Dr Matthew Kirkcaldie, Prof Bruno van Swinderen and A/Prof Jenny Rodger.

(The Australian and New Zealand Brain Bee Finals: ... continued)

Images from previous Brain Bee events.
Left: Finalists from 2019 in Adelaide.
Right: Finalist from 2016 in Hobart

Researcher Profile: Dr Lee Fletcher



Dr Lee Norman Fletcher

Queensland Brain Institute,
The University of Queensland

My research aims to help understand how neurons integrate information to perform sophisticated computations, and how such computations may vary with context. I carry out my research alongside Professor Stephen Williams at UQ, returning to Australia from Cambridge, UK last year. I am incoming co-director of the ANS-run Australasian Course in Advanced Neuroscience (ACAN), having taught and helped organise the course since 2015 after attending myself in 2013. I also help run a UK charity as Trustee, called the Biodiversity and Environmental Education Society (BEES). I did my PhD at the University of Queensland and undergraduate at University of Western Australia, and grew up in Perth with Australia's best beaches, ocean sunsets, and fantastic natural spaces.

Our recently published research aimed to understand how inputs arriving into the dendrites of the giant cholinergic interneurons of the striatum are integrated and drive action potential output. These neurons are less than 3% of striatal neurons in the rodent but form a dense web of cholinergic axons innervating the striatum, hosting one of the most abundant sources of acetylcholine in the brain. Cholinergic interneurons modulate striatal activity and are thought to be important for goal-directed behaviour and adaptive learning. We used simultaneous somatic and dendritic whole-cell patch clamp recordings and morphology reconstructed from high resolution microscopy to show that action potentials are initiated first in the dendrite, because the axon arises from one of the dendrites rather than the cell body. This resulted in input into this axon-bearing dendrite being far more capable in generating action potentials than inputs into other dendrites. This input is therefore privileged. Using a suite of different patch clamp techniques from somatic and dendritic sites, we found that this was due to the very large size of the soma and a high density of dendritic voltage-gated potassium channels. These factors caused excitatory input to be quickly suppressed and absorbed by the cell unless these inputs occurred on the privileged, axon-bearing dendrite. We found that this discrepancy or imbalance in privilege, could be further enhanced if the neuron was in a hyperpolarised state – a state triggered in vivo by salient sensory or motivational cues. Next, using these patch-clamp techniques and pharmacology, we found that this privilege could be essentially neutralised by Substance P, a neuropeptide released by the major striatal output neuron, D1-medial spiny neurons, during periods of high activity. As such, in the presence of Substance P, input to the non-axon bearing dendrite was far more apt at triggering action potential firing, even in the hyperpolarised state. This was caused by shifting the activation of the dendritic voltage-gated potassium channels. Therefore, the efficacy of synaptic input and their integration within these striatal interneurons depends on the dendritic domain they impinge, the activity state of the neuron, and the neuropeptidergic environment determined by network activity. These data suggest that the striatum's role in action and learning are contributed to by contextually dependent computations performed by cholinergic interneurons.

*My recent publication *:*
Williams, S.R., Zhou, X., and Fletcher, L.N. (2023). Compartment-specific dendritic information processing in striatal cholinergic interneurons is reconfigured by peptide neuromodulation. Neuron 111, 1933-1951.e3. 10.1016/j.neuron.2023.03.038.
** Featured on front cover of Neuron*

December 2023

Inaugural Online Neuroscience Education and Outreach Symposium

The NEO Committee held the first of what we plan to be a series of online workshops designed to support Neuroscience Education and Outreach on October 12.

The aim of the online platform is to make it easier for those with significant teaching commitments to attend. Our first session was highly successful with 32 attendees from across Australia and NZ. Thanks to our speakers Dr Christina Maher (University of Sydney) and Dr Jack Auty (University of Tasmania) for highly informative and engaging talks which triggered lots of robust discussion.

We plan to make this a regular event, so please email catherine.leamey@sydney.edu.au if you would like to be added to our mailing list or have suggestions/requests for topics or speakers.

Or please check this space for updates and new events and updates on how to find us at the annual meeting: https://www.ans.org.au/meetings-events/neuroscience-education-and-outreach-committee

A/ Prof Catherine Leamey

on behalf of the Neuroscience Education and Outreach Committee

Symposium of Western Australian Neuroscience

The 41st Symposium of Western Australian Neuroscience (SWAN) was held on the 17th of November. This year, ANS was a Gold sponsor of SWAN.

There were more than 100 registrants, with plenary speakers in Prof Chris Sobey (La Trobe University), who spoke about amniotic epithelial cells in the treatment of stroke; and Dr Natalie Matosin (University of Wollongong), whose lecture focused on the impacts of stress on human cortical glia.

Professor Hamid R. Sohrabi

Director of the Centre for Healthy Ageing and Professor of Psychology and Neuroscience, School of Psychology, Murdoch University, Western Australia

Impressions from the Symposium of Western Australian Neuroscience Symposium

December 2023

Communications

Is there information you would like included in our ANS Newsletter, published in our monthly online Bulletin, posted on our website, or Facebook page, or tweeted?

ANS has a Communications Committee to help members disseminate information and assist the Society in publicising its activities to Members and the public. This committee is co-chaired by Dr Nathalie Dehorter (Australian National University) and A/Prof Marco Morsch (Macquarie University). It oversees the production of the newsletter and ensures that current content is posted on the ANS website, published in our monthly online Bulletin prepared by the ANS Secretariat, posted on the ANS Facebook page (curated by Dr Nathalie Dehorter) and disseminated through postings on the ANS Twitter account (by Dr Lila Landowski, University of Tasmania) and LinkedIn (curated by Prof Thomas Fath, Macquarie University).

http://www.ans.org.au

https://twitter.com/AusNeuroSoc

https://www.facebook.com/AusNeuroSoc

https://www.linkedin.com/groups/8362021/

If you have content for us, please email Marco Morsch (marco.morsch@mq.edu.au).

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Policy

ANS Policy on Requests for Publicity via Email Circulation:
The policy of ANS is to minimise email traffic to members. Advertisements for meetings and other significant announcements such as job vacancies can be added to the website and included in the newsletter and monthly bulletin if appropriate. Such requests should be directed to the ANS Secretary.

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