



**ANS 2022** AUSTRALASIAN NEUROSCIENCE SOCIETY  
40<sup>TH</sup> ANNUAL SCIENTIFIC MEETING  
**RECONNECT THE NETWORK<sup>2</sup>**

Australasian  
**Neuroscience**  
Society  
Pullman Albert Park,  
Melbourne, Australia  
5-7 December 2022

DAY 1 - MONDAY 5 DECEMBER					
0730 - 1800		Registration Desk Open			
0730 - 0830	1hr	Oxford Nanopore Technologies Breakfast Workshop			
0845 - 0900	15m	Welcome to Country Conference Open			
0900 - 1000	1hr	<b>Plenary 1 - Elspeth McLachlan Plenary (Grand 1-4)</b> Gene-environment interactions modulating brain function within and between generations <b>Professor Anthony Hannan, Florey Institute of Neuroscience and Mental Health, Melbourne</b>			
1000 - 1030	30m	Morning Tea, Exhibition and Poster Display			
1030 - 1230	2hr	<b>SYMPOSIUM/ORAL SESSION 1</b>			
		<b>Symposia 1 - The diverse actions of stress on appetitive and anticipatory behaviour</b> Chair: Prof Chris Dayas, University of Newcastle (NSW, AUS) Room: Grand 1-2	<b>Symposia 2 - New models and research directions for ALS/MND</b> Chairs: Dr Adam Walker, University of Queensland (QLD, AUS) & Dr Catherine Blizzard, University of Tasmania (TAS, AUS) Room: Grand 3-4	<b>Oral Session 1 - Synaptic &amp; Neural Plasticity</b> Chairs: Room: Element	
1030 - 1210	25m	CRH neurons show an innate precautionary response that is scaled by threat <b>Jaideep Bains, Hotchkiss Brain Institute, University of Calgary (Alberta, CAN)</b>	The innate immune pathway for neuroinflammation in ALS <b>A/Prof Seth Masters, The Walter and Eliza Hall Institute of Medical Research (VIC, AUS)</b>	1030 - 1045	Online- and offline-LTP underlying long-term memory <b>Prof Yasunori Hayashi, Kyoto University (Kyoto, JPN)</b>
	25m	Midbrain ghrelin signalling regulates conflict behaviour in the Edinger-Westphal nucleus <b>Dr Leigh Walker, The Florey Institute of Neuroscience and Mental Health (VIC, AUS)</b>	Cortical hyperexcitability drives ALS symptoms and pathology in mice <b>Dr Mouna Haidar, The Florey Institute of Neuroscience and Mental Health (VIC, AUS)</b>	1045 - 1100	Functions of the dual synaptotagmin Ca2+ sensors in synaptic transmission <b>Zhitao Hu, University of Queensland (QLD, AUS)</b>
	25m	Investigating the neural mechanisms underscoring stress-induced binge eating <b>Roberta Anversa, The Florey Institute of Neuroscience and Mental Health (VIC, AUS)</b>	Disease mechanisms and drug discovery in stem cell models of MND: past, present and future <b>A/Prof Lezanne Ooi, University of Wollongong (NSW, AUS)</b>	1100 - 1115	The role of activity-dependent phosphorylation in the presynaptic function of $\alpha$ -synuclein <b>Elysa Carr, The Florey Institute of Neuroscience and Mental Health (VIC, AUS)</b>
	25m	Acute stress suppresses hunger-sensing Agrp neural activity <b>Prof Zane Andrews, Monash Biomedicine Discovery Institute (VIC, AUS)</b>	Advanced patient-derived cell assays to improve pre-clinical and clinical trial drug validation <b>A/Prof Anthony White, Queensland Institute of Medical Research (QLD, AUS)</b>	1115 - 1130	Ubiquitination of the GluA1 subunit of AMPA receptors is required for synaptic plasticity, memory and cognitive flexibility <b>Victor Anggono, Clem Jones Centre for Ageing Dementia Research, Queensland Brain Institute, University of Queensland (QLD, AUS)</b>
1210 - 1230	20m	Blitz 1-4	Blitz 1-4	1130 - 1145	Amino acid transporter NTT4 is necessary for neurotransmitter recycling and normal memory retention <b>Angela Nicoli, Australian National University (ACT, AUS)</b>
				1145 - 1200	BoNT/A targets Synaptotagmin 1-ganglioside-SV2 plasma membrane nanoclusters for synaptic vesicle entry and neurotoxication <b>Merja Joensuu, Queensland Brain Institute, Clem Jones Centre for Ageing Dementia Research, Australian Institute for Bioengineering and Nanotechnology, University of Queensland (QLD, AUS)</b>
				1200 - 1215	A novel zebrafish axotomy model to study microglia morphophysiological diversity and its implications for the CNS <b>Andres Vidal-Itriago, Macquarie University (NSW, AUS)</b>
				1215 - 1230	Modelling of a KCNQ2 variant causing early onset epileptic encephalopathy using human iPSC-derived neurons and mouse <b>Miaomiao Mao, The Florey Institute of Neuroscience and Mental Health (VIC, AUS)</b>
1230 - 1330	1hr	Lunch, Exhibition and Poster Display			
1330 - 1530	2hr	<b>SYMPOSIUM/ORAL SESSION 2</b>			
		<b>Symposia 3 - Breaking New Ground: The brain, its development and disease</b> Chairs: Sarah Stephenson, Murdoch Children's Research Institute (VIC, AUS) & Dad Abu-Bonsrah, The Florey Institute of Neuroscience and Mental Health (VIC, AUS) Room: Grand 1-2	<b>Symposia 4 - Glial dysfunction and morphological changes in neurodegenerative and neuroinflammatory diseases</b> Chair: Dr Erika Gyengesi, Western Sydney University (NSW, AUS) Room: Grand 4-5	<b>Oral Session 2 - Neuropsychiatric disorders &amp; Mechanisms</b> Chairs: Room: Element	
1330 - 1510	25m	Modelling Autism and Intellectual Disability disorders in Drosophila – of mechanisms and treatment strategies <b>Prof Annette Schenck, Donders Institute for Brain, Cognition and Behaviour, Radboud University Medical Center (Nijmegen, NL)</b>	Deciphering the intricate glial response in Alzheimer's disease: evidence from preclinical models. <b>Dr Caterina Scuderi, Sapienza University of Rome (Rome, IT)</b>	1330 - 1345	Constructing aversive emotional representations in the brain <b>Prof Joshua Johansen, RIKEN Center for Brain Science (Saitama, JPN)</b>
	25m	Cellular and molecular dynamics of the developing human prefrontal cortex <b>Prof Ryan Lister, Harry Perkins Institute of Medical Research (WA, AUS)</b>	The cytokines interleukin-6 and interferon- $\alpha$ induce distinct microglia phenotypes <b>Dr Markus Hofer, University of Sydney (NSW, AUS)</b>	1345 - 1400	Shifted Parvalbumin Interneuron States Elicit Posttraumatic Stress Disorder-like Memory in Autism <b>Shaam Al Abed, Australian National University (ACT, AUS)</b>
	25m	3D organoids to study human brain development and disease <b>A/Prof Silvia Velasco, Murdoch Children's Research Institute (VIC, AUS)</b>	Transcriptional profiling of human microglia and astrocytes in Alzheimer's disease. <b>Dr Amy Smith, University of Auckland (Auckland, NZ)</b>	1400 - 1415	Discovery of synapse-specific RNA N6-methyladenosine readers associated with the consolidation of fear extinction memory <b>Sachithrani Madugalle, Queensland Brain Institute (QLD, AUS)</b>
	25m	Timing shapes the cerebral cortex during development and evolution <b>Dr Laura Fenlon, University of Queensland (QLD, AUS)</b>	Can we limit CNS neuroinflammation by targeting Wnt signalling in oligodendroglia? <b>Dr David Gonsalvez, Monash University (VIC, AUS)</b>	1415 - 1430	The role of the infralimbic cortex in social recognition <b>Prof Yong-Seok Lee, Seoul National University (Seoul, KR)</b>
1510 - 1530	20m	Blitz 1-4	Blitz 1-4	1430 - 1445	Projection-targeted photopharmacology reveals anxiolytic effects of mGluR2-mediated presynaptic inhibition of cortical inputs to the basolateral amygdala <b>Hermany Munguba, Weill Cornell Medicine (NY, US)</b>
				1445 - 1500	lncRNA as a therapeutic target in psychiatric disorders: A focus on antisense BDNF and addiction <b>Kelly Clemens, University of New South Wales (NSW, AUS)</b>
				1500 - 1515	Effects of psychiatric disease and aging on FKBP5/1 expression are specific to cortical supragranular neurons <b>Natalie Matosin, University of Wollongong (NSW, AUS)</b>
				1515 - 1530	A critical mechanism for saturated free fatty acids in memory and learning <b>Tristan Wallis, Queensland Brain Institute (QLD, AUS)</b>
1530 -1600	30m	Afternoon Tea, Exhibition and Poster Display			
1600 -1625	25m	A.W. Campbell Award Presentation (Grand 1-4)			
1625 - 1650	25m	Nina Kondelos Award Presentation (Grand 1-4)			
1650 - 1700	10m	Illumina Neurogenomics Research Award Presentation (Grand 1-4)			
1700 - 1800	1hr	<b>Plenary 2 - International Plenary (Grand 1-4)</b> Imaging synaptic changes in Alzheimer's disease <b>Professor Tara Spies-Jones, University of Edinburgh</b>			
1800 - 2000	2hr	Welcome Reception (including General Poster Session and Trade Display)			
2000 - 2200	2hr	Early Career Quiz Night (Element)			

DAY 2 - TUESDAY 6 DECEMBER					
0730 - 1930		Registration Desk Open			
0900 - 1000	1hr	<b>Plenary 3 - Lawrie Austin Plenary (Grand 1-4)</b> Understanding the brain through the nose <b>Professor John Bekkers, Eccles Institute of Neuroscience, Australian National University</b>			
1000 - 1030	30m	Morning Tea, Exhibition and Poster Display			
1030 - 1230	2hr	<b>SYMPOSIUM/ORAL SESSION 3</b>			
		<b>Symposia 5 - Adaptation: neural basis of context-dependent sensory processing</b> Chairs: Diasuke Shimaoka, Monash University (VIC, AUS) & Maureen Hagan, Monash University (VIC, AUS) Room: Grand 1-2	<b>Symposia 6 - Seedlings to forests: Growing a collaborative cerebrovascular research pipeline from the ground up. The StrokeCORE model.</b> Chairs: Dr Michelle Rank, University of Melbourne (VIC, AUS) & Dr Kirsten Coupland, University of Newcastle (NSW, AUS) Room: Grand 3-4	<b>Oral Session 3 - Brain Injury &amp; Repair</b> Chairs: Room: Element	
1030 - 1210	25m	Context-dependent sensory processing in larval zebrafish <b>Prof Ethan Scott, Queensland Brain Institute, University of Queensland (QLD, AUS)</b>	Selenium supplementation rescues the cognitive and motor deficits observed in mouse models of stroke <b>Dr Tara Walker, Queensland Brain Institute, University of Queensland (QLD, AUS)</b>	1030 - 1045	Music as a novel and non-invasive rehabilitative paradigm to promote motor, affect, and cognitive recovery after experimental traumatic brain injury <b>Anthony Kline, University of Pittsburgh (PA, US)</b>
	25m	Modulation of somatosensory cortex by the superior colliculus <b>Dr Saba Gharaei, Eccles Institute of Neuroscience, Australian National University (ACT, AUS)</b>	Trials and tribulations of translational stroke research: the importance of large animal models <b>Annabel Sorby-Adams, University of Cambridge (Cambridge, UK)</b>	1045 - 1100	Targeting IL-6 trans-signalling to repair the injured brain <b>Emily Willis, University of Queensland (QLD, AUS)</b>
	25m	Evidence for two subcortical routes for visual motion perception in healthy adults <b>Elise Rowe, University of Melbourne (VIC, AUS)</b>	Development of PSD95 inhibitors for acute ischemic stroke: From target discovery to Phase 3 trials <b>Prof Michael Tymianski, Krembil Research Institute, Toronto Western Hospital, University of Toronto (Ontario, CAN)</b>	1100 - 1115	Lack of the Sez6 protein, or inhibition of Sez6 ectodomain shedding, attenuates cocaine relapse <b>Kathleen Teng, The Florey Institute of Neuroscience and Mental Health, University of Melbourne (VIC, AUS)</b>
	25m	Balanced, Orientation-Dependent Dichoptic Masking in Visual Cortex Measured Using Electroencephalography (EEG) <b>Luke Hallum, University of Auckland (Auckland, NZ)</b>	Smart nanomaterials and fusion molecules for targeted thrombolysis <b>Prof Christoph Hagemeyer, Australian Centre for Blood Diseases, Monash University (VIC, AUS)</b>	1115 - 1130	Spectrin forms a periodic cytoskeleton within the epidermis to preserve axonal integrity <b>Sean Coakley, University of Queensland (QLD, AUS)</b>
1210 - 1230	20m	Blitz 1-4	Blitz 1-4	1130 - 1145	The precision medicine ORG 34167 restores channel voltage dependence, normalises neuronal dysfunction and reduces epileptiform brain activity in an HCN1 developmental and epileptic encephalopathy <b>Lauren Bleakley, The Florey Institute of Neuroscience and Mental Health (VIC, AUS)</b>
				1145 - 1200	Molecular Neuropathologies from Altered RNA Splicing Mediated by Muscleblind-Like 2 During Brain Development in Mouse Model of Myotonic Dystrophy <b>Chia-Wei Huang, National Yang Ming Chiao Tung University (Taipei, TW)</b>
				1200 - 1215	Microglia dynamically interact with pericytes in the healthy and inflamed brain <b>Catherine Foster, University of Tasmania (TAS, AUS)</b>
				1215 - 1230	Thermal burn injury induces inflammatory and maladaptive neural plasticity processes in the brain <b>Alex Tang, Perron Institute for Neurological and Translational Science, University of Western Australia (WA, AUS)</b>
1230 - 1330	1hr	Lunch, Exhibition and Poster Display Brain Bee Final TBC (Element)			
1330 - 1530	2hr	<b>SYMPOSIUM/ORAL SESSION 4</b>			
		<b>Symposia 7 - Neuroscience Teaching</b> Chair: Prof Kay Double, Brain and Mind Centre, University of Sydney (NSW, AUS) Room: Grand 1-2	<b>Symposia 8 - Advances in Neurogenetic Techniques</b> Chairs: Nick Spencer, Flinders University (SA, AUS) & Wendy Imlach, Monash University (VIC, AUS) Room: Grand 3-4	<b>Oral Session 4 - Cognition &amp; Memory</b> Chairs: Room: Element	
1330 - 1510	25m	Australian Neuroscience Teaching in Higher Education – Learnings From a National Survey <b>Prof Gabrielle Todd, University of South Australia (SA, AUS)</b>	Optogenetic repair in a genetic model of Parkinson's disease <b>Prof Harald Janovjak, Flinders University (SA, AUS)</b>	1330 - 1345	CA2 circuit mediating hippocampal modulation of cholinergic tone <b>Prof Thomas McHugh, RIKEN Center for Brain Science (Saitama, JPN)</b>
	25m	BioLab Collective - an Australian Laboratory Skills Video Library for the Molecular Biosciences <b>A/Prof Jack Wang, University of Queensland (QLD, AUS)</b>	Development of optogenetic approaches to functionally dissect neuronal circuits. <b>Dr Mariana Del Rosso De Melo, University of Melbourne (VIC, AUS)</b>	1345 - 1400	Distinct prefrontal cortex activity in fear memory consolidation <b>Roger Marek, Queensland Brain Institute (QLD, AUS)</b>
	25m	How to enhance learning and engagement in neuroscience education: a showcase of open-access digital resources <b>Dr Lila Landowski, University of Tasmania (TAS, AUS)</b>	Hybrid optical/electrical neural modulation <b>A/Prof Rachael Richardson, Bionics Institute (VIC, AUS)</b>	1400 - 1415	Learning and metalearning in the cerebellum <b>Prof Jennifer Raymond, Stanford University (CA, US)</b>
	25m	NeuroLab – Integrated digital platform for lab delivery and education in cognitive and brain sciences <b>Bianca De Witt, Macquarie University (NSW, AUS)</b>	Optogenetic dissection of spinal sensory circuits <b>A/Prof Brett Graham, University of Newcastle, Hunter Medical Research Institute (NSW, AUS)</b>	1415 - 1430	Multisensory Integration in the Mouse Hippocampus Using Widefield Calcium Imaging <b>Dechuan Sun, University of Melbourne (VIC, AUS)</b>
1510 - 1530	20m	Blitz 1-4	Blitz 1-4	1430 - 1445	Stimulus structure impacts neural population codes for motion in marmoset V1 and MT <b>Elizabeth Zavitz, Monash University (VIC, AUS)</b>
				1445 - 1500	Activation of M1 cholinergic receptors in mouse somatosensory cortex enhances neuronal responses and improves detection behaviour <b>Wricha Mishra, Australian Research Council Centre of Excellence for Integrative Brain Function, Australian National University (ACT, AUS)</b>
				1500 - 1515	The synaptic engram <b>Prof Bong-Kiun Kaang, Seoul National University (Seoul, KR)</b>
				1515 - 1530	Germline variants in tumor suppressor FBXW7 lead to impaired ubiquitination and a novel neurodevelopmental syndrome <b>Sarah Stephenson, Murdoch Children's Research Institute, University of Melbourne (VIC, AUS)</b>
1530 - 1600	30m	Afternoon Tea, Exhibition and Poster Display			
1600 - 1700	1hr	<b>Plenary 4 - Eccles Plenary (Grand 1-4)</b> Neurosurgery on the experimental spectrum <b>Professor Christopher Lind, University of Western Australia</b>			
1700 - 1800	1hr	ANS Annual General Meeting (Element)			
1800 - 1900	1hr	Break			
1900 - 1930	30m	Pre Dinner Drinks			
1930 - 2300	3.5 hr	Conference Dinner (Grand Ballroom 1-4)			

**DAY 3 - WEDNESDAY 7 DECEMBER**

1000 - 1600	Registration Desk Open				
0930 - 1130	2hr	SYMPOSIUM/ORAL SESSION 5			
Symposia 9 - The new era of psychedelic neuroscience and pharmacotherapy: A multidisciplinary perspective Chairs: Kyna Conn, Biomedicine Discovery Institute, Monash University (VIC, AUS) & Devon Stoliker, Turner Institute for Brain and Mental Health, Monash University (VIC, AUS) Room: Grand 1-2		Symposia 10 - Advances in autonomic control of visceral organs Chairs: Prof John Furness, University of Melbourne, The Florey Institute of Neuroscience and Mental Health (VIC, AUS) & Dr Kelsi Dodds, Flinders Health and Medical Research Institute, Flinders University (SA, AUS) Room: Grand 3-4			
		Oral Session 5 - Neurodegenerative Disorders & Treatment Chairs: Room: Element			
0930 - 1110	25m	Mechanisms and levels of explanation in psychedelic therapy Dr Chris Letheby, University of Western Australia (WA, AUS)	Do bladder sensory neurons have rhythm? TRP over their interaction with cannabinoids Dr Stewart Christie, Flinders Health and Medical Research Institute, Flinders University (SA, AUS)		
	25m	Neural mechanisms of psychedelic-induced altered states of consciousness A/Prof Adeel Razi, Turner Institute for Brain and Mental Health and Monash Biomedical Imaging, Monash University (VIC, AUS)	Impact of long-term hypercapnia on peptidergic transmission in brain chemoreceptor regions Dr Natasha Kumar, University of New South Wales (NSW, AUS)		
	25m	Psilocybin-Assisted Psychotherapy for Treatment-Resistant Anorexia Nervosa – PANOREXIA Trial Sarah-Catherine Rodan, Brain and Mind Centre & InsideOut Institute for Eating Disorders, University of Sydney (NSW, AUS)	Chlamydia alters smooth muscle motility and sensory pathways in the female reproductive tract A/Prof Phil Jobling, University of Newcastle, Hunter Medical Research Institute (NSW, AUS)		
	25m	Psilocybin improves cognitive flexibility and prevents pathological weight loss in female rats Dr Claire Foldi, Monash Biomedicine Discovery Institute (VIC, AUS)	Understanding and manipulating the 'sacral vagus': a multi-functional nerve essential for pelvic organ regulation Prof Janet Keast, University of Melbourne (VIC, AUS)		
1110 - 1130	20m	Blitz 1-4	Blitz 1-4		
				1030 - 1045	Bruton's Tyrosine Kinase inhibition to target multiple neuropathological processes in Parkinson's disease Richard Gordon, University of Queensland, Royal Brisbane and Women's Hospital, Brisbane (QLD, AUS)
				1045 - 1100	Choroid plexus defects in Down syndrome brain organoids enhance neurotropism of SARS-CoV-2 Mohammed Shaker, University of Queensland (QLD, AUS)
				1100 - 1115	Secretory organelles and Golgi outpost structures in dendrites of human iPSC-derived neurons Jingqi Wang, University of Melbourne (VIC, AUS)
1115 - 1130	SARS-CoV-2 drives NLRP3 inflammasome activation in human microglia Eduardo Albornoz Balmaceda, University of Queensland (QLD, AUS)				
1130 - 1200	30m	Equity & Diversity Committee Panel			
1200 - 1300	1hr	Lunch, Exhibition and Poster Display			
1300 - 1500	2hr	SYMPOSIUM/ORAL SESSION 6			
Symposia 11 - Restructuring the striatal mosaic: macro and micro-circuit interactions in learning-related plasticity Chairs: Bernard Balleine, Decision Neuroscience Laboratory, University of New South Wales (NSW, AUS) Room: Grand 1-2		Symposia 12 - Gene therapy for neurological disorders Chairs: Cliff Abraham, University of Otago (Dunedin, NZ) & Lucia Schweitzer, University of Otago (Dunedin, NZ) Room: Grand 3-4			
		Oral Session 6 - New Developments in Neuroscience Chairs: Room: Element			
1300 - 1440	25m	Amygdala-cortical control of striatal plasticity drives the acquisition of goal-directed action. Dr Simon Fisher, The Florey Institute of Neuroscience and Mental Health (VIC, AUS)	From gene therapy to neuroinflammation - human pluripotent stem cell-derived brain organoids as tools for modelling human neurological disease Sam Nayler, Queensland Institute of Medical Research (QLD, AUS)		
	25m	Local D2- to D1-neuron transmodulation in the striatum and its role in goal-directed learning Dr Miriam Matamalas, Decision Neuroscience Laboratory, University of New South Wales (NSW, AUS)	Gene therapy approaches in mouse models of Alzheimer's disease Sophie Mathiesen, University of Otago (Dunedin, NZ)		
	25m	Serotonergic modulation of striatal circuits: from cell signaling to behavior Raffaella Tonini, Istituto Italiano di Tecnologia (Genova, IT)	Can we develop better gene therapy strategies by casting a wider cell net? Debbie Young, University of Auckland (Auckland, NZ)		
	25m	Monitoring the monitors: how cholinergic interneuron activity is controlled throughout striatal development. Nathalie Dehorter, Eccles Institute of Neuroscience, Australian National University (ACT, AUS)	Retinal gene therapy: current and future applications Tom Edwards, University of Melbourne (VIC, AUS)		
1440 - 1500	20m	Blitz 1-4	Blitz 1-4		
				1400 - 1415	Fluorophore-free optrodes: a new technique for sensing biopotentials Amr Al Abed, Australian National University (ACT, AUS)
				1415 - 1430	Proximity-labelling identifies targets of tau in glutamate receptor trafficking and memory formation Emmanuel Prikas, Flinders University (SA, AUS)
				1430 - 1445	Synthetic Biological Intelligence: evidence of in vitro goal-directed learning within a simulated game-world Brett Kagan, Cortical Labs (VIC, AUS)
1445 - 1500	An in vitro neuronal computing module displays self-organised critical dynamics on complex task acquisition Forough Habibollahi Saatlou, University of Melbourne (VIC, AUS)				
1500 - 1530	30m	Afternoon Tea, Exhibition and Poster Display			
1530 - 1630	1hr	Plenary 5 - ANS Plenary (Grand 1-4) Deciphering the role of autism genes in cortical development: from stem cells to synapses Professor Helen Cooper, Queensland Brain Institute			
1630 - 1700	30m	Presentation of Awards and Conference Close (Grand 1-4)			