36TH
INTERNATIONAL CONFERENCE

AWCBR

Australasian Winter Conference
on Brain Research

2018
Programme and Abstracts

25-29 August 2018
Crowne Plaza Hotel, Queenstown, New Zealand
www.otago.ac.nz/awcbr

NEUROLOGICAL FOUNDATION OF NEW ZEALAND
PROGRESS THROUGH RESEARCH

Australasian Neuroscience Society

Saturday 25 August

3.00-6.00 pm	Registration, Crowne Plaza Hotel
6.00 pm	Opening Reception, Cash Bar and light food
7.00 pm	Opening Remarks
9.35 PM	Rugby: NZ vs Australia Cash bar and light refreshments available

7.15 pm

1. PLENARY LECTURE:

Chair: Ruth Empson

Wendy Imlach, *Monash University, Australia*

Pain pathways - Decoding spinal circuit function in chronic pain

2. Sensory and Motor Systems

Chair: Stephanie hughes

8.00 pm	2.1	**Yiwen Zheng, *University of Otago, New Zealand*** Can metabolic changes in the blood predict changes in the brain in rats following acoustic trauma?
8.15 pm	2.2	**Philip Sanders, *University of Auckland, New Zealand*** Effects of high frequency multisensory stimulation on early visual evoked potentials in young and elderly adults
8.30 pm	2.3	**Cecilie Topp, *Aalborg University, Denmark*** Examining underlying mechanisms of neglect patients' reaction to the Wall method through flash visual evoked potentials
8.45 pm	2.4	**Rosie Melchers, *University of Otago, New Zealand*** Effects of intermittent theta-burst stimulation on interhemispheric inhibition throughout stroke recovery
9.00 pm	2.5	**Kathryn Todd, *University of Auckland, New Zealand*** The subthalamic nucleus modulates striatal dopamine release from a distinct population of dopamine neurons

Sunday 26 August
Morning Session

7.30-8.30 am Light Breakfast Available

3. PLENARY LECTURE:

Chair: Sue Schenk

8.30 am	**Juan Canales, *University of Tasmania, Australia***
	Neurobiology of drug addiction in humans and animal models

9.15 am Tea/Coffee break

Sunday 26 August
Morning Session

4. Disorders of the Nervous System (I)

Chair: Ping Liu

9.30 am	4.1	**Dorothy Oorschot, *University of Otago, New Zealand*** Synaptic triad arrangement within an aversive pathway in the normal uninjured brain
9.45 am	4.2	**Jarred Griffin, *University of Auckland, New Zealand*** ADAMTS4 AAV-gene therapy combined with rehabilitation is therapeutic after spinal cord injury
10.00 am	4.3	**Steve Seo, *University of Otago, New Zealand*** Changes in midbrain dopamine circuitry in the maternal immune activation rat model of schizophrenia
10.15 am	4.4	**Shabah Shadli, *University of Otago, New Zealand*** Ketamine effects on EEG during therapy of treatment-resistant generalized anxiety and social anxiety
10.30 am	4.5	**Gina Forster, *University of Otago, New Zealand*** Glucocorticoid modulation of accumbal dopamine release is disrupted during amphetamine withdrawal

Sunday 26 August
Afternoon Session

2.45-3.45 pm	Neurological Foundation Discussion
	Light refreshments available
3.45-4.15 pm	Afternoon Tea Available

5. Cognition and Behavior

Chair: Andrea Kwakowsky

4.15 pm	5.1	**Reece Roberts, *University of Auckland, New Zealand***
		Reassessing the functional role of fMRI BOLD variability in cognitive performance
4.30 pm	5.2	**David Moreau, *University of Auckland, New Zealand***
		Structural correlates of dyslexia and dyscalculia: Revisiting common assumptions
4.45 pm	5.3	**Kristina Wiebels, *University of Auckland, New Zealand***
		The role of location details in the construction of future events

6. MINI-ORAL INFOBLITZ

CHAIR: IAN KIRK

5.00 pm	6.1	**Marcus Wilson, *University of Waikato, New Zealand*** Using neural fields to model motor evoked potentials due to transcranial magnetic stimulation
5.04 pm	6.2	**Andy Gibson, *University of Canterbury, New Zealand*** Effect of background music and dialect variation on auditory ERPs: Research plan
5.08 pm	6.3	**Catherine Theys, *University of Canterbury, New Zealand*** The neural basis of stuttering: where and when do differences in brain activation occur?
5.12 pm	6.4	**Sonja Muller, *University of Canterbury, New Zealand*** Patterns of brain activation during overt speech production in adults with persistent developmental stuttering
5.16 pm	6.5	**Petra Mossop, *University of Canterbury, New Zealand*** Neurophysiological correlates of stuttered speech: Creating a pipeline for removal of muscle artefacts during overt speech production
5.20 pm	6.6	**Alice Freeman, *University of Otago, New Zealand*** Investigating the role of leptin in arcuate AgRP neuron development

5.24 pm	6.7	**Kristina Aluzaite,** ***University of Otago, New Zealand*** Circadian lights in a hospital setting to improve sleep, recovery and decrease psychological distress: Study concept and pilot baseline assessment results
5.28 pm	6.8	**Jena Macapagal,** ***University of Auckland, New Zealand*** Pericytes can contribute to tumour immune system evasion in glioblastoma multiforme through dampened expression of ICAM-1, VCAM-1 and MCP-1
5.32 pm	6.9	**Florian Kurth,** ***University of Auckland, New Zealand*** Age effects on subareas of the amygdala

Conference Dinner

7.30 pm

Skyline Restaurant

Tickets must be purchased in advance.
The ticket includes return gondola transport to the restaurant.

The Skyline is a licensed restaurant but wine and beer will be provided.
The function room will be open from 7.00 pm,
with dinner commencing at 7.30 pm

Musical entertainment will be provided.

Monday 27 August
Morning Session

7.30-9.00 am — Light Breakfast Available

9.00 am

7. PLENARY LECTURE:

Chair: Victor Dieriks

Ronald Melki, *Paris-Saclay Institute of Neurosciences, France*

Prion-like propagation of alpha-synuclein assemblies in distinct synucleinopathies

9.45 am — Tea/Coffee break

8. Symposia: Parkinson's Disease

Chair: Victor Dieriks

10.00 am	8.1	**Victor Dieriks, *University of Auckland, New Zealand*** Non-neuronal cells enable transmission of α-synuclein in Parkinson's disease
10.15 am	8.2	**Taylor Stevenson, *University of Auckland, New Zealand*** Quantification of non-neuronal cells containing intracellular α-synuclein in the human Parkinson's disease olfactory bulb
10.30 am	8.3	**Campbell Le Heron, *University of Oxford, United Kingdom*** Distinct effects of apathy and dopamine on effort-based decision making in Parkinson's disease
10.45 am	8.4	**Rebekah Blakemore, *University of Otago, New Zealand*** Parkinsonian tremor can be diminished by will power
11.00 am	8.5	**Kyla-Louise Horne, *University of Otago, New Zealand*** Significant-others underreport the impact of hallucinations in Parkinson's disease patients with normal cognition

9. POSTER SESSION

- COMBINED WITH MEDSCI

NB: RYDGES HOTEL

4.00 - 6.00 pm	Presenters will be in attendance during this time and posters can be set up from 3.00 pm. Presenters for odd number posters will be in attendance from 4.00-5.00 pm Presenters for even number posters will be in attendance from 5.00-6.00 pm Poster board numbers shown in brackets
9.1 (A1)	**Adelie Tan, *University of Auckland, New Zealand*** Characterisation of classical Huntington's disease neuropathology in a human tissue microarray
9.2 (A2)	**Alex Maan, *Victoria University of Wellington, New Zealand*** Resistance to extinction following methamphetamine self-administration in rats
9.3 (A3)	**Alice McDouall, *University of Auckland, New Zealand*** Electrochemical and electrophysiological characterisation of L-DOPA-derived dopamine in rat brain slices
9.4 (A4)	**Amy Alder, *Victoria University of Wellington, New Zealand*** Evaluating the side effect profile of the G-Protein biased Mu opioid receptor agonists Kurkinorin and Kurkinol
9.5 (A5)	**Andrea Gu, *University of Auckland, New Zealand*** In vitro wounding models using the Electric Cell-Substrate Impedance Sensing (ECIS)-Zɵ Technology
9.6 (A6)	**Ashwini Hariharan, *University of Otago, New Zealand*** Endothelial nitric oxide synthase deficiency leads to increased urea levels in the brain

9.7 (A7)	**Bede Byers, *University of Otago, New Zealand*** Generalisation of an anxiety process biomarker from speeded response to bimanual fixed time responding
9.8 (A8)	**Benjamin Austin, *University of Queensland, Australia*** A neurocognitive model to explain the relationship between occupational stress in physicians and adverse patient outcomes
9.9 (A9)	**Beth Elias, *University of Canterbury, New Zealand*** Autobiographical memory in Parkinson's disease
9.10 (A10)	**Blake Highet, *University of Auckland, New Zealand*** Presence of genetic disease-specific aggregates in the anterior olfactory nucleus of the human olfactory bulb
9.11 (A11)	**Brittney Black, *University of Auckland, New Zealand*** Receptor studies in the human globus pallidus
9.12 (A12)	**Catherine Theys, *University of Canterbury, New Zealand*** Comparison of usability of three AAC systems: EyeLink, eye tracking camera and P300 speller
9.13 (A13)	**Chitra Vinnakota, University of Auckland, New Zealand** Extrasynaptic Alpha 5 Type GABAA receptors as therapeutic targets For Alzheimer's disease
9.14 (A14)	**Chloe Rayner, *University of Auckland, New Zealand*** Astrocyte-specific GFAP-AAV Vector-mediated secretion of chondroitinase ABC as a potential therapy following spinal injury
9.15 (A15)	**Connor Clemett, *University of Auckland, New Zealand*** Tumour necrosis factor receptor 1 acts partially through the PI3K/Akt pathway to induce pro-inflammatory phenotypes within the cerebral endothelium
9.16 (A16)	**Doreen Hansmann, *University of Canterbury, New Zealand*** Hearing, seeing, and feeling speech: A pilot EEG study

Poster Session

9.17 (A17)	**Emma Peterson,** ***University of Canterbury, New Zealand*** Oddball event-related potentials in Parkinson's disease patients with normal cognition
9.18 (A18)	**Emmett Power,** ***University of Otago, New Zealand*** Population plasticity at the cerebellar Parallel fibre to Purkinje neuron synapse
9.19 (A19)	**Faezeh Tashakori-Sabzevar,** ***University of Otago, New Zealand*** Functional circuitry of basal forebrain underlying enhanced attention by reward anticipation
9.20 (A20)	**Farah Khokhar,** ***University of Waikato, New Zealand*** Designing, measuring and modelling a small-scale coil and stimulation circuit for Transcranial Magnetic Stimulation
9.21 (A21)	**Grace Fitzallen,** ***University of Queensland, Australia*** Preterm birth and childhood psychopathology: Linking neonatal neurological alterations with the preterm behavioural phenotype
9.22 (A22)	**Harriet Lawford,** ***University of Queensland, Australia*** Utility of acoustic cry characteristics assessment as a potential marker of neurological integrity in high-risk infants
9.23 (A23)	**Jayarjun Ethiraj,** ***University of Auckland, New Zealand*** Age- and gender-specific changes of the GABA signalling components in the human hippocampus
9.24 (A24)	**Jessy Zhang,** ***University of Otago, New Zealand*** Maternal immune activation affects hippocampal nNOS immunoreactivity and microglia in postnatal day 35 rat offspring
9.25 (A25)	**Joyeeta Roy,** ***University of Otago, New Zealand*** MicroRNA expression in the diagnosis of Parkinson's disease
9.26 (A26)	**Julia Newland,** ***University of Auckland, New Zealand*** Investigating liposomes for local drug delivery in SCI

9.27 (A27)

Laverne Robilliard, *University of Auckland, New Zealand*

The importance of multi-frequency impedance sensing of endothelial barrier formation using ECIS technology for the generation of a strong and durable paracellular barrier

9.28 (A28)

Lewis Forrester, *University of Otago, New Zealand*

The role of maternal obesity during oligodendrocyte development in the offspring amygdala

9.29 (A29)

Maize Cao, *University of Auckland, New Zealand*

The effect of AAV mediated knockdown of xylosyltransferase-1 in reactive astrocytes

9.30 (A30)

Megan Livingstone, *University of Canterbury, New Zealand*

Theory of mind in Parkinson's disease: A longitudinal follow-up

9.31 (A31)

Meyrick Kidwell, *Victoria University of Wellington, New Zealand*

Reduced HRV in SERT knockout rats: Further translational validity as an animal model of depression and anxiety

9.32 (A32)

Micah Austria, *University of Auckland, New Zealand*

Cerebellar degeneration correlates with motor symptoms in Huntington's disease

9.33 (A33)

Miran Mrkela, *University of Auckland, New Zealand*

The effect of Tonabersat in reducing chronic inflammation following spinal cord injury

9.34 (A34)

Nikita Potemkin, *University of Otago, New Zealand*

Amyloid-β increases SH-SY5Y neuroblastoma cell viability

9.35 (A35)

Oluwatobi Eboda, *University of Otago, New Zealand*

ATP13A2: Characterization of novel human iPS cell models of Parkinson's and Batten's disease

9.36 (A36) **Panzao Yang, *University of Auckland, New Zealand***

Effects of connexin hemichannel blockade on cortical interneurons after global cerebral ischaemia in term-equivalent fetal sheep

9.37 (A37) **Petra White, *University of Auckland, New Zealand***

Validation of NODDI-MRI for detection of cortical brain injury following peripheral inflammation in neonatal rats

9.38 (A38) **Quenten Highgate, *Victoria University of Wellington, New Zealand***

A comparison of the effects of abstinence on MDMA and cocaine self-administration in rats

9.39 (A39) **Reza Shoorangiz, *University of Canterbury, New Zealand***

EEG-based resting-state functional connectivity in Parkinson's disease with normal cognition

9.40 (A40) **Rhys Livingstone, *University of Otago, New Zealand***

Arc protein expression in response to secreted amyloid precursor protein-α in primary hippocampal cultures

9.41 (A41) **Ross van de Wetering, *Victoria University of Wellington, New Zealand***

Regional ΔFosB expression associated with chronic MDMA self-administration

9.42 (A42) **Sanduni Malluwawadu, *University of Waikato, New Zealand***

Modelling the spiking behaviour of neurons in human cortex

9.43 (A43) **Nitthiya Siva Subramaniam, *University of Adelaide, Australia***

Non-radioactive isotope labelled breath test for potential early diagnosis of Huntington's disease

9.44 (A44) **Sivaporn Tasananukorn, *University of Canterbury, New Zealand***

Impaired spatial memory, reduced exploration and increased hippocampal microglia density are associated with senescence but are not reduced by a connexin hemichannel blocker

Poster Session

9.45 (A45)	**Sophie Mathiesen,** ***University of Otago, New Zealand*** Assessing the efficacy of adeno-associated viral vectors in targeting the brain
9.46 (A46)	**Susanna Szakats,** ***University of Otago, New Zealand*** Brain development and the Amh locus
9.47 (A47)	**Yashna Sagar,** ***University of Queensland, Australia*** Functional neuroimaging correlates of executive function following preterm birth
9.48 (A48)	**Young-Ho Lee,** ***Hanyang University Medical Center, Korea*** Prognostic factors to G-CSF with stem cell therapy for the children with cerebral palsy

7.00 pm Posters to be removed at this time

Monday 27 August
Evening Session

10. Opening of Queenstown Research Week

Venue: Rydges Hotel

6.00 pm	Opening Address **Peter Shepherd** ***University of Auckland, New Zealand***
6.10 pm	Official Opening **Juliet Gerrard** ***Prime Minister's Chief Science Adviser***
6.25 pm	Nobel Lecture **Elizabeth Blackburn** ***University of California, San Francisco, United States of America*** 2009 Nobel Prize in Physiology or Medicine for discovery of how chromosomes are protected by telomeres and the enzyme telomerase
7.30 pm	QRW Social
8.00 pm	AWCBR Student Dinner Venue: Smiths Craft Beer House ANS Sponsored Student Quiz

Tuesday 28 August
Morning Session

7.30-8.30 am — Light Breakfast Available

11. Symposia:
The Basal Ganglia in Health and in PD:
Making and Breaking Habits of a Lifetime

Chair: John Reynolds

8.30 am	11.1	**Peter Redgrave, *University of Sheffield, United Kingdom*** Parkinson's disease: Where did all my habits go?
9.00 am	11.2	**Christine Arasaratnam, *University of Auckland, New Zealand*** Contrasting changes in DARPP-32 and calbindin immunoreactivity in medium spiny neurons in Parkinson's disease
9.15 am	11.3	**Nico Vautrelle, *University of Otago, New Zealand*** Development of a minimally-invasive technology for spatially- and temporally-controlled drug delivery into the brain
9.30 am	11.4	**Mariana Leriche, *University of Otago, New Zealand*** Failure of the habit system in Parkinson's disease
9.45 am	11.5	**Peter Freestone, *University of Auckland, New Zealand*** An optogenetic Channelrhodopsin-assisted mapping investigation of network organization within the subthalamic nucleus
10.00 am	11.6	**Louise Parr-Brownlie, *University of Otago, New Zealand*** Anatomical and physiological changes at basal ganglia-motor thalamus synapses in rat model of Parkinson's disease

10.30 am — **ANNUAL GENERAL MEETING**
All conference participants are invited to attend
Tea/Coffee will be available for AGM attendees

Tuesday 28 August
Afternoon Session

3.30-4.00 pm Afternoon Tea Available

12. Disorders of the Nervous System (II)

Chair: Emma Scotter

4.00 pm	12.1	**Chris Shaw, *King's College London, United Kingdom*** ARPP21 mutations reveal the role of RNA granule dysfunction in ALS and FTD
4.20 pm	12.2	**Ping Liu, *University of Otago, New Zealand*** Altered arginine metabolism in the frontal cortex of patients with major depression
4.35 pm	12.3	**Helen Murray, *University of Auckland, New Zealand*** Multiplex Immunohistochemistry of 10+ markers to assess unfolded protein response activation in the Alzheimer's disease olfactory bulb
4.50 pm	12.4	**Phil Heyward, *University of Otago, New Zealand*** Activity-dependent actions of Li+ in brain network connectivity

13. SYMPOSIA:

NEURODEVELOPMENT OF HIGH-RISK NEWBORNS

CHAIR: SAMUDRAGUPTA BORA

5.05 pm	13.1	**Jacki Henderson, *University of Canterbury, New Zealand*** Development of behavioural self-regulation in preschool-age children prenatally exposed to methadone
5.20 pm	13.2	**Victoria Gill, *University of Queensland, Australia*** Confirmed vs suspected neonatal infection: associations with neonatal neurological abnormalities following preterm birth
5.35 pm	13.3	**Theresa Chin, *University of Queensland, Australia*** Characterising the impacts of complex and simple congenital heart defects on executive function
5.50 pm	13.4	**Maddie Pascoe, *New Zealand Brain Research Institute, New Zealand*** Adults born with very-low-birth-weight demonstrate alterations in grey matter volume, perfusion, and White Matter integrity, and associations with birth weight

Wednesday 29 August
Morning Session

7.30-8.30 am — Light Breakfast Available

14. PLENARY LECTURE:

Chair: Juliette Cheyne

8.30 am	14	**Karen Zito, *University of California, United States of America*** Sculpting the nervous system: Cellular and molecular mechanisms of neural circuit refinement
9.15 am		Tea/Coffee break

15. Symposia: Development and Autism Spectrum Disorders

Chair: Juliette Cheyne

9.30 am	15.1	**Anthony Hannan, *University of Melbourne, Australia*** Gene-environment interactions in mouse models of neurodevelopmental and cognitive disorders
9.45 am	15.2	**Yukti Vyas, *University of Auckland, New Zealand*** Influence of maternal high zinc diet on the development of autism-associated behaviours
10.00 am	15.3	**Maya Wilde, *University of Auckland, New Zealand*** Tonotopic mapping in a mouse model of autism spectrum disorder
10.15 am	15.4	**Rodrigo Suárez, *University of Queensland, Australia*** Investigating the development and evolution of cortical circuits using in vivo assays in marsupials

16. Symposia: Computational Neuroscience

Chair: Tim David

10.30 am	16.1	**Soroush Safaei,** ***University of Auckland, New Zealand*** Using bond graphs to provide a consistent framework for coupling cerebral circulation with tissue exchange mechanisms
10.45 am	16.2	**Tim David,** ***University of Canterbury, New Zealand*** Integrated models of neurovascular coupling and BOLD signals
11.00 am	16.3	**Stewart Dowding,** ***University of Canterbury, New Zealand*** The Astrocyte-Neuron Lactate Shuttle's role in neurovascular coupling
11.15 am	16.4	**Allanah Kenny,** ***University of Canterbury, New Zealand*** Large scale tissue slice simulations of cortical spreading depression

11.30 am Closing Remarks and Student Prize Presentation

Light Lunch Atrium, Crowne Plaza

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