A national research effort to address a growing global problem: neurological disorders of the ageing brain

Neurodiscovery – Genes, cells & networks
We aim to understand the mechanisms of brain ageing and associated neurological disorders. This understanding informs the development of new preventative interventions, treatments and novel therapy delivery systems.

Neuroplasticity – Brain changes & adaptations
We aim to expand our understanding of neuroplasticity during ageing, and its application to rehabilitation therapies and technologies for those affected by ageing and neurological conditions.

Prevention, intervention & delivery
We are developing and building capacity for community outreach throughout New Zealand.

Neurobiomarkers – Disease indicators
We use health informatics, longitudinal and cross-sectional studies, in order to identify early biomarkers of ageing-related neurological disorders.

- Huntington’s Disease
- Stroke
- Alzheimer’s Disease
- Parkinson’s Disease
- Dementia
67 research groups from all over New Zealand are joining forces for the very first time.

It’s a dynamic and world-leading collaboration between pre-eminent researchers based at the Universities of Otago, Auckland, AUT and Canterbury; along with clinicians in hospitals. We’re working hard to stem the tide of neurological diseases of the ageing brain.

[L-R] BRNZ Principal Investigator Associate Professor Cathy Stinear along with Dr Suzanne Ackerley look after a patient at the Brain Research Clinic at Auckland Hospital.
The International Scientific Advisory Committee are a dynamic collective of global experts in the neurosciences and neurology.

They meet regularly with BRNZ to provide advice from an international perspective; and to ensure that all appropriate research opportunities are being fully realised.

The insights and feedback gleaned from the meeting will provide a strong impetus for BRNZ to fulfill its goals.
Professor Emeritus David Smith
Emeritus Professor, University of Oxford. Founding Director of Oxford Project to Investigate Memory and Ageing.

Professor John Rothwell
Head of the Physiology and Pathophysiology of Human Motor Control Lab at the Institute of Neurology, University College London.

Professor Mark Bear
Investigator at the Howard Hughes Medical Institute, and Picower Professor of Neuroscience, Massachusetts Institute of Technology.

Emeritus Professor John Rostas
Emeritus Professor, University of Newcastle. Founding Executive Director of the Hunter Medical Research Institute. Former President of the Australasian Neuroscience Society.

Professor Stephen Davis (Chair)
Professor of Translational Neuroscience and Director of the Melbourne Brain Centre at the Royal Melbourne Hospital and the University of Melbourne. President of the World Stroke Organization.
Can electrical stimulation harness the natural power of the human brain?

BRNZ was thrilled to present one of our International Scientific Advisory Committee Professor John Rothwell of University College London. Professor Rothwell is a pre-eminent global authority on Transcranial magnetic stimulation (TMS).

How can Transcranial magnetic stimulation (TMS) be used to transform lives?
- To speed up learning.
- For stroke recovery.

Download the public lecture notes

About Professor Rothwell
A world leader in non-invasive brain stimulation techniques, Professor John Rothwell has over 400 peer-reviewed publications. He is credited with pioneering the use of Transcranial Magnetic Stimulation as a research tool for human physiology.
Can we prevent Alzheimer’s Disease?

Professor Smith posed one provocative question: Can we prevent Alzheimer’s Disease? The answer, presented with supporting evidence, was a resounding “yes we can!” During his lecture, he alternated between calling the problem ‘Alzheimer’s’ and ‘dementia’, because the most common kind of dementia is Alzheimer’s disease.

Professor Smith exploded many myths about dementia

Myth #1: Dementia is an inevitable part of ageing.
Myth #2: It’s all in the genes.

Download the public lecture fact sheet and the presentation notes

About Professor Emeritus David Smith

Professor Emeritus A. David Smith is a world-leader in pioneering novel treatments and techniques for Alzheimer’s Disease and Dementia. He is Professor Emeritus of Pharmacology at the University of Oxford. He brings a wealth of expertise to BRNZ’s International Scientific Advisory Committee.
BRNZ Seminar: Professor Emeritus David Smith

BRNZ proudly sponsored this researcher-only seminar at the University of Auckland

Slowing disease progression in Mild Cognitive Impairment. The role of B vitamins and omega-3 fatty acids: the VITACOG trial

Download the factsheet for Professor Smith’s public lecture

Download the presentation notes from the public lecture
Molecular Targeting of CaMKII in ischaemia-induced neuronal cell death: a new therapeutic opportunity in stroke.

- **Emeritus Professor Rostas** is on the Brain Research New Zealand International Scientific Advisory Committee.
- He is an internationally recognised neuroscientist with a distinguished research record in the study of molecular mechanisms of synaptic plasticity and brain development.
- He maintains a multidisciplinary approach to research and has many active collaborations with colleagues in different disciplines both in Australia and overseas.
- He was the Founding Executive Director of the Hunter Medical Research Institute (HMRI) (1999-2006) and Deputy Head (Research) of the Faculty of Health and Medicine, University of Newcastle (2006-2013).
- He was the President of the Australasian Neuroscience Society (2012-2014) and a former Member of Council of the International Brain Research Organisation, the International Society for Neurochemistry, and the Asian-Pacific Society for Neurochemistry.

**Read more about Emeritus Professor John Rostas**
BRNZ Early Career Workshops in Christchurch

[Click image to download larger version]
3 February, Christchurch

**BRNZ Early Career Researcher Workshops**

Brain Research New Zealand hosted their inaugural two day workshops for early career researchers in Christchurch.

This was an outstanding success with many new connections made amongst BRNZ’s younger members.

These workshops foster strong collaborative dynamics and encourage leadership qualities for BRNZ researchers all over the country.

The workshops took place over two days in Christchurch. They are the first of many planned for young and emerging researchers and featured technical and professional development insights by external experts, senior researchers within the BRNZ and members of our International Scientific Advisory Committee.
Professor Anderson talked about the new clinical diagnostic criteria for Parkinson’s Disease.

**About Professor Tim Anderson**

Professor Anderson is the Clinical Director of the New Zealand Brain Research Institute in Christchurch and Professor at the Department of Medicine, University of Otago in Christchurch.

He is a neurologist specialising in movement disorders including: Parkinson’s, Huntington’s disease and botulinum toxin therapy. He undertakes two specialty clinics in movement disorders per week.

**Research interests & expertise**

- Establishing biomarkers of cognitive decline to mild cognitive impairment (MCI) and dementia, particularly advanced MRI markers in Parkinson’s disease but also other dementias.
- Eye movements in PD and other neurological disorders, in collaboration with Dr M MacAskill.
- Clinical biomarkers of progression in Huntington’s disease.
- Speech and swallowing disorders in health and neurological disorders.
**BRNZ Early Career Workshop:**

**Professor Donna Rose Addis & Dr Tracy Melzer**

*Professor Donna Rose Addis & Dr Tracy Melzer are a formidable research team who use the insights they gain from MRI scans for interventions in Parkinson's Disease and Dementia. Their seminar was about interpreting different MRI scans.*

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**About Professor Donna Rose Addis**

Professor Donna Rose Addis is a cognitive neuroscientist based in the School of Psychology at The University of Auckland where she leads the Memory Lab. She’s a principle investigator for BRNZ and the Centre for Brain Research. Last year she won the ACNS Young Investigator of the Year award. Over the past decade she has received many prestigious prizes and including the inaugural Rutherford Discovery Fellowship and the Prime Minister’s MacDiarmid Emerging Scientist Prize.

**About Dr Tracy Melzer**

BRNZ Principal Investigator Dr Tracy Melzer works in the Department of Medicine at the University of Otago in Christchurch and is the fMRI Research Manager at New Zealand Brain Research Institute (NZBRI). His research focuses on the development and application of fMRI techniques to treatments and interventions for Parkinson’s Disease, along with other neurodegenerative disorders.
Stay empowered and well-informed by joining us for BRNZ community events and seminars

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[Left] BRNZ Principal Investigator Professor Suzanne Purdy researches auditory function and speech discrimination. She's the director of the CeleBRation Choir: choral singing therapy for people with neurological disorders such as Aphasia and Parkinson's Disease.