A Celebration of the Centre for Brain Research

Te Huinga Hinengaro

Waipapa Taumata Rau, University of Auckland



Te Huinga Hinengaro – Meeting of the Minds

Thank you for helping us on our exciting journey over the last 15 years and for what we will do together in the future.



CBR Waiata

Tēnā koutou e ngā iwi Tēnā koutou katoa Ko mātou kairangahau Tino mīharo o te roro!

Te Huinga Hinengaro Te Huinga Hinengaro

Te oranga mo ngā tangata tātou katoa

Te oranga mo ngā tangata tātou katoa Greetings to you all the people Greetings to everyone We are researchers of The absolutely amazing brain!

Centre for Brain Research Centre for Brain Research For the wellbeing of everyone

For the wellbeing of everyone



TE HUINGA HINENGARO CENTRE FOR BRAIN RESEARCH

15 Milestones in 15 Years

The Centre for Brain Research's world-leading contributions to neuroscience

The "Best Little Brain Bank in the World"

The CBR's extensive collection of tissue from more than 1000 human brains places New Zealand at the centre of global discoveries to treat brain disease, thanks to an incredible 30 years of continuous funding from the Neurological Foundation.

Growing human brain cells

In 2011, CBR researchers achieved the remarkable feat of growing human brain cells from donated brain tissue. In the Hugh Green Biobank, cells are grown to trial potential drugs, test new theories and support ongoing discoveries, thanks to the extraordinary support from the Hugh Green Foundation.

Te Huinga Hinengaro

CBR's te reo name Te Huinga Hinengaro (meeting of the minds) reflects CBR's active engagement with Māori to ensure our brain research embraces the aspirations of all the people of Aotearoa.

From bench to bedside

The Freemasons Neurosurgery Research Unit links the CBR with neurosurgeons at Auckland City Hospital, creating an unprecedented exchange of knowledge that could potentially improve survival and treatment for brain cancer. Creation of the unit was underpinned by a \$2m donation from the Freemasons Foundation in 2013.

The first Alzheimer's sheep

In 2021, CBR scientists with Freemasons and international support bred the world's first Alzheimer's sheep using gene editing techniques. The next goal is to learn how to switch off the faulty gene in the sheep, potentially translating to new treatments for Alzheimer's disease.

Using skin cells to heal brain cells

CBR scientists are turning a patient's skin into healthy brain cells to repair damage from diseases like Parkinson's and Huntington's. These reprogrammed cells are proven in animal models and are moving toward clinical trials.

Singing our praises

Speech problems are a distressing side effect of many neurological conditions. The CBR's CeleBRation Choir has pioneered the use of therapeutic singing groups to give hope to people with aphasia. Similarly, the CBR's More than Words Gavel Club uses the power of public speaking to help people with brain disorders and injury regain their speech.

CatWalk Spinal Cord Research Unit

CBR's innovative partnership with the CatWalk Trust is driving groundbreaking spinal cord research. We are working together toward a common goal of improving lives for those with spinal injuries.

"The research coming out of the Centre for Brain Research in Aotearoa New Zealand is truly outstanding. It has a unique quality because it combines world-class science in partnership with clinicians, families and communities, which characterises their research from the rest of the world."

Anne Young - Distinguished Julieanne Dorn Professor of Neurology, Harvard Medical School & former Chief of Neurology, Massachusetts General Hospital.

Revolutionising stroke treatment

Hundreds of lives have been saved by a new stroke treatment developed with CBR researchers. With support from the Neurological Foundation, the clot retrieval technique introduced by the CBR's Professor Alan Barber is now standard in New Zealand's major hospitals.

Pioneers in Parkinson's disease

Multiple research projects into Parkinson's disease are underway at the CBR, overlapping and adding to extraordinary new discoveries about the condition. A focus is identifying the very early signs of Parkinson's in the hope that one day it can be treated before overt symptoms emerge.

Fellowships for future neuroscientists

Philanthropists are generously supporting the establishment of postdoctoral research fellowships, such as the CBR Dame Rosie Horton Postdoctoral Research Fellowship, for the next generation of brain scientists.

Hope for Kiwis with rare brain disorders

New Zealand patients with rare neurogenetic conditions are among the first in the world to access international clinical trials thanks to the CBR's Neurogenetics Research Clinic. More than 1300 people with rare brain disorders have joined the clinic's registry to enable the study of rare conditions.



Dementia prevention

Hundreds of New Zealanders have taken part in dementia assessments at the CBR's Dementia Prevention Clinics, which are collecting a wealth of information to answer a key question in brain science - why do some people develop dementia and others do not?

Motor neuron disease (MND)

CBR scientists are studying rare MND genetic mutations that are found in New Zealand families. Work is underway to turn this gene 'off', raising hope for the future.

A simple blood test?

Among the cutting-edge research now underway at the CBR are multiple projects analysing patient blood samples to find 'markers' of a disease. Just as a blood test might reveal your risk for high cholesterol or diabetes, it is hoped one day soon it could predict neurological conditions like Alzheimer's disease.

Thank you to the University of Auckland

The support from the University of Auckland in establishing the Centre has been transformational. We are so proud and humbled to be one of the University of Auckland's seven Centres of Research Excellence.



Professor Dawn Freshwater

Vice-Chancellor



Professor Warwick Bagg Dean, Faculty of Medical and Health Sciences



Professor Sarah Young Dean, Faculty of Science



Emeritus Professor Stuart McCutcheon

former Vice-Chancellor



Professor John Hosking

former Dean, Faculty of Science



Professor John Fraser

former Dean, Faculty of Medical and Health Sciences



Professor Iain Martin

former Dean, Faculty of Medical and Health Sciences



Professor Grant Guilford

former Dean, Faculty of Science

Thank You to Our Donors and Community

In 2009 we had a dream to form a world-leading collaborative brain research centre, which would bring together brain scientists in the University with clinicians and doctors in hospitals and whanau in the community.

Today, we are comprised of 92 research groups made up of nearly 400 researchers across the University.

We have come a long way, but our journey continues.

We are extremely grateful to all our donors and supporters for helping us in our journey, and thank you for the support you may lend to us in the future, as we continue to make discoveries and work together to provide a brighter future for people and families living with brain disease.



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Distinguished Professor Sir Richard Faull Te Āti Awa, Ngāti Rāhiri Director, Centre for Brain Research - Te Huinga Hinengaro

Research Impact and Achievements

AL WEN-FRESH FLOE

RESH FROZEN



Neurological Foundation Human Brain Bank

The gift of a brain is an extraordinary act of generosity. Each donation is a precious taonga that tells the story of a life lived.

CBR is incredibly fortunate to house the Neurological Foundation Human Brain Bank. It is New Zealand's only human brain bank and one of the most valuable and extensively characterised collections of human brain tissue in the world.

As of 2024, the Neurological Foundation Human Brain Bank contains tissue from over 1000 brains, encompassing nine different neurological conditions, notably Huntington's disease, Parkinson's disease, frontotemporal dementia, Alzheimer's disease, and motor neuron disease.

Huntington's Disease

For the Centre for Brain Research, Huntington's disease was where it all began. It was in the Huntington's brain more than 30 years ago that University of Auckland researchers led by Sir Richard Faull began to discover large variations in the pattern of cell death associated with the disease.

The finding changed the research approach to understanding Huntington's disease, and potentially finding treatments. The scientists, in collaboration with psychologists led by Professor Lynette Tippett, demonstrated that the variable pathology correlated with the symptoms patients suffered during their illness.



"The family story became the key to understanding the pathology in the brain and that was revolutionary."



Pictured: 1989 Faull lab team.

It illustrated the potentially huge benefit of establishing a centre of research excellence bringing together three pillars - brain scientists in the University, clinicians in the hospitals and families in the community – to better understand brain diseases.

Such a research combination is unmatched internationally, says CBR director Sir Richard Faull. "The family story became the key to understanding the pathology in the brain and that was revolutionary."

The variation in pathology between patients is likely linked to the distribution in the brain of different types of mutant proteins caused by the disease, and the CBR team is now investigating how that happens. "This will help lead us in a much more scientific way to potentially develop new treatments."

Since the first Huntington's brain was given to the University of Auckland in 1981, tissue from about 1000 more brains has been donated to the Neurological Foundation Human Brain Bank, from patients with conditions ranging from Huntington's disease to Parkinson's disease, dementia, frontotemporal dementia, motor neuron disease and cancer.

Other studies on Huntington's brains led to another revolutionary discovery, when Faull and Professor Maurice Curtis found that people with the condition could form new brain cells – a process known as neurogenesis. Their paper, published in 2007 in *Science*, showed that the human brain could repair itself, putting neuroscience research in Aotearoa New Zealand on the world map and increasing momentum for the launch of the Centre for Brain Research two years later.

Parkinson's Disease

Brain tissue donated by people with Parkinson's disease may one day enable the condition to be treated before movement problems emerge. That's the hope of Centre for Brain Research neuroscientist Professor Maurice Curtis, who is heading multiple research projects into the disorder.

Loss of sense of smell is "the canary in the coalmine" in Parkinson's, occurring up to six years before patients develop tremors and rigidity. "It would be great if in future, people could go and have a smell test, find the problem emerging and we get on top of it then."

The abnormal clumps of protein that develop inside nerve cells in Parkinson's – known as Lewy bodies and composed of alpha-synuclein – occur first in the olfactory bulb, before migrating further into the brain. The Neurological Foundation Human Brain Bank has enabled Curtis and his team to study tissue from about 120 patients, and discover that the clumps occur in the bulb mucosa, strengthening the view that this exposure to the external environment – including toxins, viruses or bacteria – might trigger the condition.

The team is now tabulating the medical records of the patients to discover what other conditions they may have been prone to throughout their lives, including colds and flu and, in particular, hypertension. Curtis expects to see a rise in the incidence of Parkinson's about 10 years from now because of the Covid-19 pandemic.

"Some flu viruses that come along may cause neurodegeneration, but many others don't."

Covid-19 was found to reduce brain volume particularly in the memory centres, but that work was done before vaccination was widespread.

Curtis says thanks to the precious brain donations they have received, the CBR team has become pioneers in Parkinson's research because they can see what is actually changing in the brain. Access to the medical records has enhanced that knowledge.



"It is a huge gift, both for science, and for me personally to be able to understand what the person lived with."

Frontotemporal Dementia

Dr Brigid Ryan had just started at university when an Auckland family donated the brain of their beloved grandmother to science in 2006. Today, Brigid is helping the descendants of that donor to better understand the genetically-linked dementia that affected her final years.

After gaining her PhD in neuroscience in 2015, Brigid cold-called Maurice Curtis asking if she could work with him. For Curtis and Sir Richard Faull, it was a serendipitous call – the family of the 2006 donor, who had frontotemporal lobe dementia, wanted to be involved in research but they hadn't yet found the person to lead such a project. With Ryan's arrival, a longitudinal study of 27 of the woman's descendants finally began in 2016, with funding from Brain Research New Zealand. The work has since been supported by the Auckland Medical Research Foundation, the Health Research Council of New Zealand, and the Neurological Foundation of New Zealand.



Ryan's group is looking for biomarkers of disease, performing a wide range of physical, biological and cognitive tests to find out when changes in the brain are occurring, but before symptoms begin.

"Treatments and biomarkers are two sides of the same coin," says Ryan. "Many people around the world are working on treatments, but if we can't identify people early, the treatments won't work."

The researchers have detected subtle differences in language, attention, and processing speed in cognitive tests, and MRI scans have indicated some brain regions are smaller in people that carry the mutation compared to those who don't.

Ryan is moved by the family's dedication to the work and the time they invest in it – the tests involved can take two days at a time. "The selflessness with which they engage in research has been really inspirational to us."

"Many people around the world are working on treatments, but if we can't identify people early, the treatments won't work."

Motor Neuron Disease

Brain tissue from New Zealand patients and those around the world are helping University of Auckland scientists zero-in on a rare genetic mutation that causes motor neuron disease (MND), raising cautious hopes of more treatment options.

Dr Emma Scotter's team has discovered how to distinguish harmful from harmless mutations of a gene called Ubiquilin 2 and now their research has turned towards developing a treatment, by turning off the rogue versions. Such therapy has been in development for more than a decade for cases involving the SOD1 gene.

Tissue from 46 New Zealand patients who died of MND are stored at CBR's Neurological Foundation Human Brain Bank and are vital to the team's research. About 35 genes have been linked with MND, but most cases are not strongly genetic – possible contributors range from environmental toxins to brain injuries. Common to all though, is the toxic clumping of proteins in motor neurons, the cells that help control muscle movement.



"We concentrate on work that will change clinical management, treatment, and quality of life."

About 140 New Zealanders die annually from MND and the time from diagnosis to death can be only two to three years. It makes Scotter conscious that every day counts in her research.

"You have to take on the urgency of people with MND and their families because what kind of advocate are you if you are wasting time on questions that aren't important? We concentrate on work that will change clinical management, treatment, and quality of life."

A relative of a brain donor says his mother told him 60 years ago that one day there would be a cure for MND and now the family's dream of a treatment and cure is "a very close reality" thanks to Emma's team. "Emma does a tremendous job keeping us advised of their research and discoveries. They are achieving fantastic results. Our family holds her, the CBR, their sponsors and supporters in the highest possible regard."







Bottom left: Professor Maurice Curtis with some of the lab technicians and researchers inside the Neurological Foundation Human Brain Bank.

Dementia Prevention Research Clinic

Discovering why some people with memory problems progress to dementia - mate wareware, while others do not, is a key question in brain science and the Centre for Brain Research is at the forefront of that work.

At its Dementia Prevention Research Clinic (DPRC) in Auckland, and associated clinics in Christchurch and Dunedin, specialist clinicians and researchers have provided expert assessments for hundreds of New Zealanders while collecting a wealth of valuable data from clinical history, brain scans, cognitive tests and blood analyses. This underpins a range of cutting-edge research projects now underway, ranging from identifying early blood biomarkers in Alzheimer's disease (AD) to using brain scans to determine the role of cerebrovascular health in AD, and the role of sleep and exercise.





Top: Graeme Newton, one of the first patients to join the DPRC studies **Bottom left:** Members of the NZ Dementia Prevention Trust **Bottom right:** Brain scans are among valuable data collected from DPRC volunteer patients.



The impact of the clinics is often life-changing for participants, says co-director Professor Lynette Tippett. For them, the greatest benefit comes from meaningful interactions in an environment in which they're understood and valued.

"This kind of science is about people and to really learn, we have to be in a genuine and caring partnership with these generous and brave New Zealanders."

It's an inspirational mission, she says, and ideally fits participants – more than 400 so far – to join clinical trials that aim to slow or prevent dementia.

A number of generous donors have supported the clinics' work. "But more support is needed to ensure the future of the longitudinal research. Studies of this complexity and richness are hugely expensive," says Lynette.

Expensive, but so worthwhile. Graeme Newton, one of the first patients to join the clinics with mild cognitive impairment in 2016, says the team's knowledge has been vital as his condition has progressed to dementia. "They are my go-to people. They understand, and very few other people fully understand where I'm at."

"This kind of science is about people and to really learn, we have to be in a genuine and caring partnership with these generous and brave New Zealanders."



Neurogenetics Research Clinic

New Zealand patients with rare neurogenetic conditions are among the first in the world to access new treatments, thanks in large part to a collaboration between clinicians and researchers fostered by the Centre for Brain Research.

In 2023, nine Kiwis with myotonic dystrophy – which affects about 300 New Zealanders – became the first to receive a genetic treatment developed by US-based Dyne Therapeutics which targets the so-called "toxic" RNA that causes the disease. Early results are promising, the company says.

Associate Professor Richard Roxburgh, who heads CBR's Neurogenetics Research Clinic, says the exciting developments are built on years of co-operation between University of Auckland researchers, Auckland City Hospital clinicians and, more recently, Clinical Research New Zealand, a private trials company with state-of-the-art facilities adjacent to the hospital.

But it was the creation 12 years ago of a registry for those with neurogenetic conditions that has attracted companies such as Dyne Therapeutics to New Zealand. About 1300 people of around 4000 in New Zealand with the conditions are on the register. They have had their histories and progress charted – vital background information against which researchers can measure trial outcomes.

Two physiotherapists have joined the team, and Richard says the aim is to build expertise to share nationally. "The awful thing when you've got a rare disorder is having to teach your therapist or doctors about your condition. We want to become a resource to people around the country." Richard says the trials themselves, let alone the encouraging early results, are a source of hope for patients.

"They're excited that finally something's happening. Many have seen a parent get sick or die of their condition. They're noticing that they can do less this year than they could last year. While their first hope is to see that they don't continue to deteriorate, some of the trials suggest they might improve. The idea that young people might get stronger... now that's really exciting."



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Stroke Clinic

A technique that has already saved lives and prevented the debilitating effects of major strokes is about to get even better, thanks to the research efforts of Centre for Brain Research scientists.

When CBR's deputy director Professor Alan Barber started neurology training, stroke patients were the last people seen on the ward round. "People came into the emergency department with stroke and there was nothing we could do to stop the damage happening, let alone try to reverse it. It was terrible being powerless to do anything apart from supportive care."

Now, stroke patients are whisked to the angiography suite within minutes and are treated with stroke clot retrieval, regarded as the biggest advance in stroke treatment in 25 years. Before the procedure was introduced in 2015, patients were treated with the intravenous "clot-busting" drug alteplase, which aims to dissolve the clot that's causing the stroke. The problem is that alteplase is not good at dissolving the larger clots that cause the bigger strokes. A newer generation of the drug, tenecteplase, is 10% more effective but still doesn't shift the majority of large clots.

Now, a number of new studies funded by the Neurological Foundation of New Zealand are aimed at further refining clot retrieval treatment. Can brain damage be slowed by cooling the brain while people are being transferred for clot retrieval from other centres (currently 85% of all patients)? Are there people who are more likely to benefit? And are there better ways to manage blood pressure during and immediately after the procedure?



"This major advance has revolutionised the treatment of stroke and has saved hundreds of Kiwis from death or disability."





Pictured: Advances continue to be made in treating stroke.

Auckland City Hospital was one of the first centres in the world to study clot retrieval more than a decade ago. That trial found that for every 2.7 people treated, one more patient went home able to live independently compared to those treated with alteplase alone - an enormous advance when at the time half of people with major stroke died, and those who survived had a 50-70% chance of being dependent on others for daily living.

"I'm a stroke neurologist, so it's not a surprise that I'm excited," says Alan. "But trust me, this major advance has revolutionised the treatment of stroke and has saved hundreds of Kiwis from death or disability."

Hugh Green Biobank

Brain and brain cancer cells grown at the Hugh Green Biobank are being used to discover new treatments in world-leading research. Biobank director Professor Mike Dragunow says this is only possible because of the amazing support from the Hugh Green Foundation, and from Hugh himself 14 years ago, to establish the biobank. "It was an honour to show Hugh and his family what we were up to, and he was very supportive from day one."

The initial vision was to work closely with patients, their families and doctors, to establish methods to grow a range of human brain and brain cancer cells to use for research into the causes of brain diseases and cancers, and most importantly, for developing treatments. This goal was achieved with great success and has shifted the strategic direction of the Biobank to focussing on drug discovery and development.

The Hugh Green Biobank is unique in that the initial screening of drugs, to help identify new medicines, is performed on patient-derived brain cells. These cells are generously donated from patients undergoing neurosurgery at Auckland City Hospital, as well as from donors who have gifted their brains for research to the Neurological Foundation Human Brain Bank.

Multiple collaborators are involved in the Biobank's drug discovery, speeding up the process of finding potential treatments. Experts in molecular biology, computer modelling, and artificial intelligence work together, using powerful computers to screen millions of chemicals to identify the best candidates to test as potential drug treatments. They are then modified by medicinal chemists to improve their efficacy, before they are tested on the precious human brain cells donated to the CBR.



Pictured: Dr Thomas Park and Professor Mike Dragunow in the Hugh Green Biobank.

Creating a cutting edge research facility like the Biobank takes time, and has only been possible thanks to 15 years of support and nearly \$14 million in donations from the Hugh Green Foundation - the CBR's biggest philanthropic supporter. It is not only changing the research landscape for scientists in exciting new ways, but also creating an enduring legacy for Green's family.

Although construction pioneer and philanthropist Hugh Green did not live to see the fulfilment of his dreams for the Biobank, his son John knows he would be impressed with its work.

"They were totally engrossed, and we thought these are the people we want to be involved with. The causes are great, but really you are investing in the people."

Freemasons Neurosurgery Research Unit

Combining the skills of neurosurgeons and neuroscientists is paving the way for better diagnosis and treatment for patients with brain tumours.

The CBR's Freemasons Neurosurgical Research Unit, co-directed by neuroscientist Professor Mike Dragunow and neurosurgeon Mr Jason Correia, is encouraging an unprecedented level of collaboration between the two specialties.

With outcomes for brain cancer patients remaining poor – survival averages just 15 months – Jason says research is critical. His work has focused on using artificial intelligence to assist in predicting brain tumour growth patterns and in diagnosis.

The CBR and Auckland City Hospital neurosurgery department have a long history of collaboration in basic science but more recently they've introduced clinical and translational research with many new and exciting projects and the appointment of project managers/senior research nurses Catherine Tanumihardja and Awhina Walters.

Mike says the neurosurgeons have sharpened CBR's focus in several areas, including drug development for meningioma, a cancer which is twice as prevalent in Māori and Pacific people as in Europeans. "The neurosurgeons know the important questions that need to be answered in the lab from the patients they see."

Two research fellows have been appointed – neurosurgical registrar and now PhD student Sam Cutfield is the CBR Freemasons Clinical Research Fellow in Neurosurgery and Dr Zoe Woolf is the Douglas Neurosurgery Unit Research Fellow. Sam is investigating Raman Spectroscopy, a technique using a laser that could allow non-invasive diagnosis of tissue during brain surgery, while Zoe is studying the causes of brain tumours, in particular meningioma.

The Freemasons have supported brain research at the University of Auckland since the 1990s and have donated generously to CBR since its inception.

Freemasons Foundation chair Mark Winger says the Freemasons support institutions and innovators at the leading edge of world developments in their field whose work will benefit people not only in New Zealand but internationally. "In this context, CBR ticks every box."



Pictured: Neurosurgery being performed at Auckland City Hospital.

CatWalk Spinal Cord Research Unit

An innovative partnership with The CatWalk Spinal Cord Injury Trust is giving scientists an unprecedented opportunity to develop groundbreaking treatments.

CatWalk now supports the Cure Programme, a team of 12 multidisciplinary researchers they're calling the Spine Squad. It allows multiple strands of research to be brought together in a cohesive research effort to achieve functional improvements for people with a spinal cord injury. It runs alongside CatWalk's commitment to the CBR-based Spinal Cord Injury Research Facility, run by Dr Simon O'Carroll, which they have supported since 2011.

Professor Darren Svirskis, from the School of Pharmacy, who heads the Cure Programme, says what's most exciting about the latest partnership with CatWalk is its sole focus on improving lives rather than "doing science for science's sake".

He says CatWalk, which was founded in 2005 by equestrian Catriona Williams after she was paralysed in a riding accident, supports researchers to do what is needed to develop regenerative treatments for spinal cord injuries. "The partnership allows us to secure the multidisciplinary team and take a coordinated and agile approach to outcomes-focused research."

The new funding brings together four research strands. Three involve regenerating nerves in the spinal cord using bioelectric implants, medicines or ultrasound waves, while the fourth is therapy to replace critical cells that are lost when the injury occurs.

Darren explains a "cure" for spinal injury will come in incremental steps. "Any improvement, for example allowing people to grip with their hands or have better control of their bowels, would make a massive difference to a large number of people. This is what excites me. We believe the avenues we're exploring now all show great promise. The CatWalk Cure Programme allows us to be agile and to pivot to direct our resources to the most promising avenue, or combination of avenues to achieve the greatest benefit for those who have had a spinal cord injury."



"We believe the avenues we're exploring now all show great promise."

Stem Cell Research

On any given day, the Centre for Brain Research achieves one of modern science's greatest feats - transforming skin cells into brain cells.

The discovery that mature cells can be genetically reprogrammed to become stem cells – which are capable of developing into any tissue of the body – won the Nobel Prize in 2012.

Professor Bronwen Connor, the scientist who heads the CBR's Neural Reprogramming and Repair Laboratory says it's "still very sci-fi in my mind".



Science, yes, but no longer fiction. Bronwen's team has added its own twist to the discovery. They didn't want to produce stem cells, which can also develop into tumour cells. Instead, they added two genes, SOX2 and PAX6, to the adult human skin cells to create a brain precursor cell. SOX2 and PAX6 are the first two genes turned on in the embryo when the neural tube is being formed.

They now use different chemical cues to make different sorts of brain cells – dopamine-producing neurons involved in Parkinson's disease, the GABA neurons lost in Huntington's and cortical neurons affected in autism. Bronwen's team has shown that the skin-derived brain cells mature after being transplanted into the brains of rat models of Huntington's or Parkinson's, restoring motor and sensory function. Bronwen is now preparing to take this research to clinical trial – potentially resulting in patients' own skin being used to generate the replacement brain cells.

Being able to take skin cells from patients with neurological diseases, particularly inherited conditions, gives scientists a unique opportunity to study living human brain cells to better understand the cause of the diseases and develop new treatments.

Few drugs to date have succeeded in clinical trials, mainly because they've previously been tested only in rats. "Cell reprogramming allows us to have little human patients in a dish, potentially giving better results."

"Cell reprogramming allows us to have little human patients in a dish, potentially giving better results."

Sheep Models of Brain Disease

Sheep farming is a \$2.5 billion a year industry in New Zealand, but scientists at the Centre for Brain Research believe sheep could be just as valuable in helping them to discover treatments for Alzheimer's disease.

Gene editing in a 100-strong flock on rolling hillside near the Barossa Valley in Adelaide, partly owned by the University of Auckland, could revolutionise brain research, says CBR geneticist Professor Russell Snell.

Sheep with the genetic mutation that produces Huntington's disease were born there 20 years ago, but more recently, Alzheimer's genes have been introduced into the flock.

In 2024, the project became the first New Zealand research to receive financial support from the US-based Cure Alzheimer's Fund, with a grant to develop the animal models for preclinical drug development with similar funding possible in the future depending on progress.

The first sheep to carry Presenilin 1 - the most common mutation involved in early-onset Alzheimer's and the APP gene, also linked to Alzheimer's, were born in 2021.

As expected, the sheep show no disease symptoms as yet, however blood markers indicate they are progressing along the same path as humans, Russell says.



This is transformative for Alzheimer's... I think we have arrived at the right time – I don't think we could be in a better position, and it's pretty unique. Honestly, it's a dream come true and it's been a long dream."





Pictured: CBR scientists hope to switch the Alzheimer's gene 'off' in a flock of sheep.

The next exciting step, though not yet funded, involves testing a one-time treatment to prevent the disease by inactivating the mutation in these sheep. "We all have two copies of genes, and we can use precise editing to target the bad copy." Humans can function perfectly well with only one copy of a gene, and so can sheep, he says.

He believes gene editing is increasingly acceptable socially, especially for conditions with no other treatment options. "This is transformative for Alzheimer's," he says. "I think we have arrived at the right time – I don't think we could be in a better position, and it's pretty unique. Honestly, it's a dream come true and it's been a long dream."

Changing Lives, Building Communities



Community Outreach

Strong ties to the community are part of the fabric and culture of the Centre for Brain Research. The CBR spearheads various community initiatives, such as the CeleBRation Choir and Gavel Club, to engage the public in its research, and actively promote brain health. Involving the people who live with and are affected by brain disease ensures its work translates to meaningful benefits for individuals and families.



Pictured: CeleBRation Choir recording

CeleBRation Choir and Gavel Club

Stroke, Parkinson's disease and other brain injuries stole their words - now, thanks to the Centre for Brain Research programmes, singing, and even public speaking is giving them back.

The CeleBRation choir, launched in 2009, is an example of a CBR community initiative that is changing lives. It is led by music therapist Celia Moore and Toastmasters mentor Claire Read, with the support of Professor Suzanne Purdy.

About 20 people attend each group every week, with hundreds having benefited over the years (even continuing online throughout Auckland's COVID lockdowns) thanks to the commitment of organisers and participants.

Associate Professor Clare McCann, head of Speech Science at the University of Auckland, says that public speaking and singing builds confidence and new skills for people living with a neurological condition.

The choir is helping people such as Perise Perise who suffered a traumatic brain injury about five years ago. "When my ACC case worker suggested the choir, I was jumping up and down with excitement," he says. "I have a music background but I lost everything through my brain injury. Coming here keeps me going."

Decorated actor Rawiri Paratene, one of the roughly 30% of patients who have aphasia after a stroke, is one of the regulars at the Gavel Club, now run by Sylvia Leão. He had a series of strokes in 2018 which robbed him not only of his speech, but also his confidence. He says thanks to the club, he has regained both his words and his self-assurance.

"I like challenges," he says. "For me, this is my work now."

A documentary film about the choir appeared in the 2020 Doc Edge Festival.



Pictured: The choir is helping patients like Perise Perise regain their words.

Māori Outreach

Tē Pūtahi kairangahau Te Huinga Hinengaro hei aranatawai hononga ā mate wareware mō ngā iwi Māori ō Aotearoa.

The Centre for Brain Research assesses and connects with Māori with dementia throughout New Zealand.

The Centre for Brain Research Te Huinga Hinengaro (CBR) is deeply committed to strengthening connections with Māori.

Its most significant partnership is with Te Hau Ora o Ngāpuhi in Te Tai Tokerau, where a special relationship has been formed that combines indigenous wisdom with scientific inquiry.

In 2022 the CBR set up a trailblazing clinic at Ngāpuhi's Roma Marae focussing on dementia - mate wareware, one of the biggest health challenges facing Māori.

The initiative has been such a huge success that the CBR has begun expanding the dementia - mate wareware clinics to marae throughout Aotearoa.

Remarkably, in the space of two years, the CBR has visited 17 marae from Te Rarawa in the North to Ngāi Tahu in the South, laying the foundation for future collaboration.





Top: The CBR on a visit to Roma Marae in Northland, where it has established a dementia - mate wareware clinic, **Bottom left:** Sir Richard Faull and Ngāpuhi kaumātua John Patai, **Bottom right:** Māori outreach at CBR.



The CBR's ethos is to embrace all Māoridom and it is driven by Māori scientists, including Dr Makarena Dudley (Te Rarawa, Ngāti Kahu), a long-time researcher of mate wareware, who is passionate about better health outcomes for indigenous communities.

By centring clinics on a marae, rather than in a research lab or medical setting, Māori can engage authentically with brain health research, she says.

"Research into mate wareware - dementia has previously lacked a Māori worldview. For instance, all of our work with Māori takes into account the sacred essence of the head, a cornerstone of Māori belief that is lost in clinical settings."

There is an urgent need to improve dementia - mate wareware care for Māori. By 2026, up to 4,500 Māori in Aotearoa will live with mate wareware, and Māori have worse odds for developing mate wareware than non-Māori.

Providing support for carers, whānau, and kaumātua living with mate wareware is vital as cases rise. Alongside its research, the clinics help to provide support through group discussions and expert guests.

"We know the burden on our kaitiaki caregivers can be significant and often they need support to take care of themselves before they can take care of their people."

Ultimately the Marae-based clinics will help inform a culturally-appropriate model of dementia care that weaves tikanga Māori with the CBR's cutting edge research into mate wareware.

It also creates opportunities for all CBR researchers to engage with Māori, and it is hoped will encourage more Māori graduate students in neuroscience.

A complementary initiative is also being developed by the CBR's Dementia Prevention Research Clinic (DPRC). The DPRC has engaged with the National Hauora Coalition to co-create a clinic that embraces both western science and Māori knowledge. This clinic will be driven by Māori values and principles to conduct research in a way that is meaningful for Māori.

"Our ambition is to have true Māori involvement and participation right across the CBR," Makarena says.

"Our ambition is to have true Māori involvement and participation right across the CBR."

Our Partnerships with Iwi

Māori Advisory Board

Dr Makarena Dudley (Chair)	Te Rarawa, Te Aupōuri, Ngāti Kahu
Distinguished Professor Sir Richard Faull	Ngāti Rahiri, Te Atiawa
The Venerable Lloyd Popata	Ngāti Kahu
Sonny Niha	Te Orewai, Ngāti Hine, Ngāpuhi
Whaea Kaanga Skipper	Tainui
Dame Naida Glavish	Ngāti Whātua, Ngāti Hine, Ngāpuhi
Dr Waiora Port Te	e Aupōuri, Ngāti Pinaki; Te Rarawa, Ngāti Maroki
Professor Papaarangi Reid	Te Rawara
Matua John Paitai	Ngāti Kahu, Ngāpuhi
Associate Professor Marama Muru-Lann	ng Ngāti Maniapoto and Ngāti Whātua
Whaea Julie Wade	Tainui
Whaea Dolly Paul	Tainui
Dr Geremy Hema	Ngāti Paoa, Te Rarawa
Professor Suzanne Purdy	Ngai Tākoto, Te Rarawa
Mere Mangu	Ngāpuhi
Anah Wara	Ngāpuhi



Education Outreach

Engaging young people, particularly high school students, in the wonders of the human brain is crucial to foster the next generation of brain researchers. New Zealand faces a shortage of neuroscientists, making it essential to attract bright young minds to the field and inspire the talent needed to advance our understanding of the brain into the future.



Pictured: Associate Professor Angus Grey introduces secondary students to the wonders of the human brain at a CBR education outreach event.

Brain Bee and Being Brainy

Brain Bee and Being Brainy - two CBR programmes to nurture the love of science in school pupils are keeping students buzzing and encouraging some to pursue careers in the field.

Brain Bee is an annual brain science quiz for year 11 students that culminates in a final held in Australia in December, while Professor Bronwen Connor's brainchild Being Brainy, launched in 2017, is an eightweek course in neuroscience for primary and intermediate pupils. More than 400 schools have signed up for Being Brainy, and students from more than 50 schools compete annually in Brain Bee.

Associate Professor Deborah Young says some former Brain Bee competitors have gone on to study science at university level. Dr Connor Clemett, who won the South Island contest in 2011, later did his PhD at the Centre for Brain Research on the physiology of spinal injury before co-founding TransAxon, a company working on brain-computer interfaces.

From 2023-24, the Neurological Foundation of New Zealand has funded internships for 20 students, allowing them to spend a day at CBR or at the University of Otago, and then stay in touch with the neuroscientists in their senior years at high school. Several university students have told her the Brain Bee fostered their passion for science. "It's opening their eyes to potential careers in neuroscience, but also science in general."

Bronwen developed Being Brainy after being concerned about the relative lack of science education offered to her two young sons. The programme will soon be extended to New South Wales primary schools and it's hoped a version incorporating tikanga Māori and Te Whare Tapa Whā will be available from next year.

The feedback from teachers and students is all positive. "What I want is to have students say, 'Wow that was really cool, fun and different and I learnt a lot.' Hopefully, it turns them on to the idea of science."



Pictured: Primary School students participating in Being Brainy.



Brain Day

The Centre for Brain Research has been hosting Brain Day events since 2010 with the support of the Neurological Foundation of New Zealand. Brain Day is also made possible by the many community organisations and volunteers who contribute to the event.

Auckland Brain Day is part of international Brain Awareness Week, aiming to raise understanding of brain health and research.

The event has been held variously at the Sir Owen G Glenn Building, Tamaki Campus and Grafton Campus, and invites the public into the University for a day of brain-focused research seminars, panel discussions, talks by community groups, a community expo, interactive science, and games and activities for all ages.

Children and adults have also taken the opportunity to look at brain anatomy displays and participate in games and demonstrations that form Being Brainy, and which demonstrate aspects of neuroscience.



Pictured: Professor Richard Faull gives a public lecture at Brain Day.





Pictured: Members of the public participate in Brain Day.

The public open day is usually packed out from start to finish, with thousands of people attending lectures every hour and keen to learn more about brain health and the impact of neurological conditions across the lifespan.

Over the years, thousands of Aucklanders have attended the event and raised awareness of brain related disorders and the community groups available to provide support. The Community Expo usually involves 30-45 groups giving members of the public the chance to find out more about a range of neurological conditions and support groups. A number of community groups have also presented talks to the public about what they do and how they can help provide support for those who need it.



HDYO (Huntington's Disease Youth Organisation)

Stephanie Carr was studying to be a doctor when she learned she and other members of her family may carry the gene for Huntington's Disease.

Her test proved negative, but the experience changed the trajectory of her medical career. Stephanie graduated in 2023, but then took a year out to work on a project at the Centre for Brain Research, studying the involvement of microglia in Huntington's Disease in the cerebellum, a brain region involved with balance and coordination.

Her other passion is helping to support young people like herself, whose lives have been impacted by the condition. In 2023, Stephanie became chair of the Huntington's Disease Youth Organisation New Zealand, a group which helped her through a gruelling year of genetic counselling and finally testing in 2021.

"Huntington's can be quite isolating. I didn't have that many people who really understood what I was going through. This group lets people know that they're not alone and makes them feel heard and understood."

In May 2024, the organisation, which is supported by CBR among other sponsors and has Sir Richard Faull as patron, ran its inaugural national youth camp at Hanmer Springs, attended by 18 youth directly or indirectly affected by Huntington's. It was a weekend of fun activities and educational talks, and Stephanie hopes it may become a biennial event.

"It's a beautiful community to be a part of," she says. "One of the most special things is that you can go through something so intense, that definitely has dark facets, but come out with a really hopeful approach to life. It makes you really value life and the people that matter to you."

Stephanie says her experience has drawn her towards neurology and though she begins her house officer year in a couple of months, she hopes to include research in her medical career.

"What drew me to the CBR is its connection with the community – the families are at the heart of everything it does."



Pictured: Support team: Liz Hogan (MS Waikato), HD community member Lucy Richardson, Stephanie Carr (HDYO-NZ Chairperson), neurologist Dr Richard Roxburgh, Rochelle Kingi (Canterbury HD Service Coordinator), genetic counsellor Harry Fraser, and Dr Malvindar Singh-Bains (HDYO-NZ founding member and CBR neuroscientist).





CBR Clinics: Taking Research from the Lab to the People

The CBR will soon launch dedicated research clinics exploring new frontiers in brain research including chronic traumatic encephalopathy (CTE), autism, and gene therapy. These clinics are crucial to tackle the rising prevalence of neurological disorders in our community by involving volunteer patients, accelerating research and translating findings into real-world solutions. The long-term vision is for a suite of clinics addressing more of the neurological diseases that affect one in every three New Zealanders.

It is thanks to the generosity of donors that the CBR has been able to expand its capabilities into new areas of brain research, and invest in fellowships to nurture the next generation of researchers - the people who will drive these clinics into the future. To fully realise the potential of these clinics, increased investment and funding are essential. By channeling more resources into these areas, we can accelerate the pace of discovery and make meaningful strides toward a healthier future for all.





Pictured: Graduate students at work in the Neurological Foundation Human Brain Bank.

Chronic Traumatic Encephalopathy (CTE)

Publicity around neurogenerative disease linked to traumatic brain injuries often focuses on possible treatment, but improved diagnosis is what families want and need first, says CBR's Dr Helen Murray.

"Everyone thinks treatment is where you want to be but we can't even start developing treatments until we know who and what we are treating. Unless you can define the problem, you can't start designing the treatment."

The neuroscientist and former captain of New Zealand women's ice hockey team the Ice Fernz is leading research efforts to find biomarkers of early-stage disease in patients who've suffered repeated brain trauma in sport - even those minor head knocks which haven't caused concussions.

Helen would like to see children begin some contact sports later - say at 13 or 14 instead of 8 or 9 - to reduce the cumulative impacts later in life.

Finding biomarkers in the blood or MRI scans of patients and charting how they change over time is the focus of her team's longitudinal studies. They're caused by the accumulation of tau protein clumps in the brain, which are associated not only with brain injuries, but also diseases such as Alzheimer's.

Working alongside patients is a big change for Helen, who has previously focused on examining tissue from patients diagnosed with Chronic Traumatic Encephalopathy (CTE) and other brain diseases after death.



"Everyone thinks treatment is where you want to be but we can't even start developing treatments until we know who and what we are treating."



Top: All Black visit to the CTE - Carl Hayman, Geoff Old and Dr Helen Murray, Bottom: "Party Popper" - a close-up image of the human olfactory bulb taken by Dr Helen Murray.

That work began here with the launch

Gene Therapy

The appointment of world-renowned New Zealand neuroscientist Professor Chris Shaw as the inaugural Hugh Green Chair in Translational Neurology puts the Centre for Brain Research at the cutting edge of gene therapy internationally, says director Sir Richard Faull.

Chris is a Kiwi who is professor of neurology and neuroscience at King's College, London, and director of its Maurice Wohl Clinical Neuroscience Institute. He's had a particular interest in gene therapy to treat motor neuron disease (MND) and his team has identified many of the genes associated with the condition. Clinical trials are already underway.



"[Gene therapy] absolutely works. If you get in early, you can stop the disease in its tracks."

"Chris will be transformational for our centre," says Sir Richard. "He is one of the world's top experts on gene therapy, developing new and novel techniques to directly target mutant genes and deliver treatments into the brain and spinal cord using viral vectors."

Chris is working alongside Associate Professor Deborah Young to establish a gene therapy laboratory at CBR, while continuing collaborative projects in the UK.

"Chris will also help get treatments tested in patients with other diseases like Huntington's and Parkinson's, since the CBR has very active research programmes in these areas," says Deborah.

The Hugh Green Foundation has funded the chair in translational neuroscience in perpetuity. Chris says he's wanted to return to New Zealand for some time, saying the country punches above its weight in neuroscience and gene therapy. "I love New Zealand; I love its ethos. New Zealanders are usually endowed with a sense of self-confidence and optimism. We tend to do things that other people would say, 'don't do that, it's not a good idea'. We just go and do it."

He's confident gene therapy will be a game-changer for patients, particularly those with MND. "It absolutely works. If you get in early, you can stop the disease in its tracks."

Autism Research Clinic

"A diagnosis is something we've never had, and this has made it possible for us to understand so much more about why our daughter is like she is. It has been a big relief."

Feedback like this, from a family of an autistic child, is the motivation for CBR's Dr Jessie Jacobsen and her team as they establish a new state-of-the-art translational autism research clinic that will link timely genetic diagnoses with personalised clinical care and support.

She says families often have to cope alone with some of the more challenging conditions which can cooccur with autism that can impact quality of life, from communication difficulties and lack of speech to intractable seizures.

Jessie established a genetic research programme for neurodevelopmental conditions at CBR in 2012, and the following year co-founded the Minds for Minds Research Network, a collaboration of researchers and clinicians enabling parents and families to better understand autism and related neurodevelopmental conditions.

The autism research clinic has received funding from the Freemasons Foundation, who were also the first involved when Jessie began her PhD developing animal models for Huntington's disease with Professor Russell Snell and Sir Richard Faull 20 years ago.

"It's a lovely full circle moment," says Jessie of the Freemasons to establish the clinic, which will operate in a manner similar to the existing Dementia Prevention Research Clinic.

She acknowledges that many in the autistic community, particularly those with minimal support needs, aren't interested in "treatment" and "nor should they be", but others can face a "difficult odyssey" after diagnosis, with patchy rather than wraparound support when they need it.

"It's about trying to make it easier for families to navigate their community to enable their tamariki to have the best outcomes in life."



Pictured: Associate Professor Klaus Lehnert, Dr Jessie Jacobsen, Professor Russell Snell.

Growing Future Brain Researchers

The future of brain research depends on our commitment to supporting future researchers. As we discover neurological disorders and cognitive challenges are increasingly complex, it is essential to nurture a new generation of scientists who are equipped to push new boundaries in medicine. By investing in PhD scholarships, postdoctoral fellowships, and especially long-term research fellowships, we can provide early-career researchers with the resources, mentorship, and financial support they need to pursue innovative studies and contribute to groundbreaking discoveries. These fellowships are not just an investment in individual careers; they are a critical step toward advancing the entire field of brain research and improving global health outcomes.

Aotearoa Fellowships

From 2010 - 2027, CBR received funding from Julian Robertson's Aotearoa Foundation to support nine Aotearoa Foundation Neuroscience Postdoctoral Fellowships. Three of these fellows are highlighted below and demonstrate the diversity of research supported by these fellowships.



Dr Peter Freestone (2013 Fellow)

Peter was awarded an Aotearoa fellowship to explore how endocannabinoids (cannabis-like substances produced in the brain) regulate dopamine neurons in the substantia nigra, which are affected in Parkinson's disease.

He is now a Research Fellow in the School of Medical Sciences, where he has established an optogenetics laboratory and forged links with the Faculty of Engineering to develop an implantable optogenetic device.

The device uses light to stimulate individual neurons in the brain and activate neural circuits. It has been successful in freely-moving animals, and it is hoped it could one day be used in humans.



Dr Emma Scotter (2014 Fellow)

Emma received her Aotearoa fellowship in 2014 and has since gone on to establish the Motor Neuron Disease Lab at the CBR.

With support from the Freemasons of New Zealand, the lab is advancing genetic studies in motor neuron disease (MND) by collecting vital genetic information from MND patients from around the country.

Emma studies MND at a cellular level, and uses cell lines, primary cells grown from patients, and patient brain and spinal cord tissue to better understand the dynamic processes involved in the disease and what to target. She also recently established the NZ Motor Neuron Disease Research Network to facilitate interaction between MND biomedical and clinical researchers, allied health professionals and other researchers with funding from Motor Neurone Disease NZ.



Dr Amy Smith (2019 Fellow)

Amy is a current Aotearoa Fellow and studies the role of the immune system in dementia. Her academic career has taken her from the University of Auckland, to the University of Oxford, Imperial College London, then back to the University of Auckland where she established a research group focusing on central and peripheral inflammation in neurodegeneration.

The lab uses precious human brain tissue and human brain cell cultures, combined with large-scale human data, to ask new questions about disease and identify new drug targets for neurological disorders.

Other Fellowships





Dr James Coxon 2011

20



Dr Marta Tarczyluk 2016



Dr John Cirillo 2017



Dr Gjurgjica Badzakova-Trajkov

2012



Dr Andrea Kwakowsky 2015



Dr Rachael Taylor 2018

CBR Dame Rosie Horton Postdoctoral Fellowship

High-profile philanthropist Dame Rosie Horton was an enthusiastic ambassador for the Centre for Brain Research since its inception and now a postdoctoral fellowship in her name will ensure her legacy lives on.

Taranaki-raised Sir Richard says Dame Rosie's contacts in the philanthropic community were invaluable to the fledgling CBR. "I'm a bit of a country bumpkin. I didn't mix in those circles. She was extraordinary because in helping us become successful, she had this wonderful reach-for-the-stars approach to networking and fundraising. She was a can-do person."

Dame Rosie died in May 2023 aged 83 and CBR director Sir Richard Faull, her friend of more than 20 years, asked her husband Michael if her family would be happy with the idea of postdoctoral fellowship in her name. "We weren't asking for money," says Sir Richard. "This was turning a time of tragedy and heartbreak for him into something meaningful. This was like a comet in the sky."

Michael immediately agreed and offered \$2 million to establish the fellowship.

CBR is fundraising for a further \$1 million to ensure the Dame Rosie Horton Postdoctoral Research Fellowship endowment continues in perpetuity. Sir Richard hopes the inaugural fellow will be appointed in 2026.

He says postdoctoral research fellows are "gold". "They're young people with enthusiasm and passion to change New Zealand – to change the world – yet we have the least funds for that."

The fellowships cost more than \$100,000 a year but are "absolutely critical" for emerging researchers, says Sir Richard, who was himself awarded a Harkness Fellowship to study in the United States 50 years ago.

Michael says his wife always had a lot of time for Sir Richard and the work at the CBR, especially in the area of brain trauma and concussion. He says she would have been thrilled by the fellowship in her name.



Pictured: Professor Richard Faull, Dame Rosie Horton.

Sir Richard agrees.

"This would set Rosie's heart alight. If she was here, she would just be on fire."





Current Research and Clinical Leaders at the Centre for Brain Research

We want to express our heartfelt thanks to our incredible research teams, whose dedication and hard work over the years have been vital to our success. Your expertise, passion, and collaboration have driven our progress and made our achievements possible. Nothing we have accomplished could have been done without your unwavering commitment. Innovative collaborative teams working together make miracles happen. Thank you for being the backbone of our research and for your continued efforts in pushing the boundaries of what we can achieve together.

Research Leaders

Dist. Professor Margaret Brimble, FRSNZ, FRS — Dept of	Professor Laura Bennet, FRSNZ — Dept of Physiology
Chemistry	Professor Lynette Tippett — School of Psychology
Dist. Professor Sir Richard Faull, FRSNZ — Dept of Anatomy & Medical Imaging	Professor Maurice Curtis — Dept of Anatomy & Medical Imaging
Professor Alan Barber — Dept of Medicine	Professor Michael Witbrock — School of Computer Science
Professor Alistair Gunn, FRSNZ — Dept of Physiology	Professor Mike Dragunow, FRSNZ — Dept of Pharmacology
Professor Annette Henderson — School of Psychology	Professor Mike Taylor — School of Biological Sciences
Professor Bronwen Connor — Dept of Pharmacology	Professor Ngaire Kerse — School of Population Health
Professor Cathy Stinear — Dept of Medicine	Professor Nick Gant — Dept of Exercise Science
Professor Charles Unsworth — Engineering Science	Professor Paul Corballis — School of Psychology
Professor Chris Shaw — Dept of Anatomy & Medical Imaging	Professor Peter Thorne — Dept of Physiology/Section of
Professor Clare Wall — Dept of Nutrition	Audiology
Professor Darren Svirskis — Dept of Pharmacy	Professor Quentin Atkinson — School of Psychology
Professor Garth Cooper, FRSNZ — School of Biological Sciences	Professor Ralph Buck — Dance Studies Programme
	Professor Russell Gray, FRSNZ — School of Psychology
Professor Grant Searchfield — Section of Audiology	Professor Russell Snell — School of Biological Sciences
Professor Helen Danesh-Meyer — Dept of Ophthalmology	Professor Steven Dakin — School of Optometry & Vision
Professor Ian Kirk — School of Psychology	Science
Professor Johanna Montgomery — Dept of Physiology	Professor Suzanne Barker-Collo — School of Psychology
Professor John Montgomery, FRSNZ — School of Biological Sciences	Professor Suzanne Purdy — School of Psychology
	Professor Tony Lambert — School of Psychology
Professor Julian Paton, FRSNZ — Dept of Physiology	Professor Trecia Wouldes — Dept of Psychological Medicine
Professor Karen Waldie — School of Psychology	Professor Winston Byblow — Dept of Exercise Science

Institute Associate Professor Angus Grey — Dept of Physiology Associate Professor Srdjan Vlajkovic — Dept of Physiology Associate Professor Anna Miles — School of Psychology Associate Professor Stephen Buetow — Dept of General Practice Associate Professor Clare McCann — School of Psychology Associate Professor Suresh Muthukumaraswamy — School Associate Professor David Moreau — School of Psychology of Pharmacy Associate Professor Deborah Young — Dept of Pharmacology Associate Professor Te Oti Bakena — School of Music Associate Professor Ehsan Vaghefi — School of Optometry Dr Angus McMorland — Dept of Exercise Science and Vision Sciences Dr Braden Te Ao — Dept of Health Systems Associate Professor Eileen Lueders — School of Psychology Dr Brigid Ryan — Dept of Anatomy & Medical Imaging Associate Professor Frederick Sundram — Dept of **Psychological Medicine** Dr Burkhard Wuensche — School of Computer Science

Associate Professor Gary Cheung — Dept of Psychological Medicine

Associate Professor Alan Wang — Auckland Bioengineering

Associate Professor Jeff Hamm — School of Psychology

Associate Professor Joanne Davidson — Department of Physiology

Associate Professor Julie Lim — Department of Physiology

Associate Professor Justin Dean — Dept of Physiology

Associate Professor Kathy Mountjoy — Dept of Physiology

Associate Professor Klaus Lenhert — School of Biological Sciences

Associate Professor Miriam Scadeng — Dept of Anatomy & Medical Imaging

Associate Professor Monica Acosta — School of Optometry and Vision Sciences

Associate Professor Patrice Delmas — School of Computer Science

Associate Professor Richard Roxburgh — Dept of Medicine

Associate Professor Sam Schwarzkopf — School of Optometry & Vision Science

Associate Professor Samantha Holdsworth — Dept of Anatomy & Medical Imaging

Associate Professor Sarah Hetrick — Department of Psychological Medicine

Associate Professor Sarah Cullum — Department of Psychological Medicine

Associate Professor Scott Graham — Molecular Medicine and Pathology

Dr Catherine Morgan — School of Psychology

Dr Christopher Erb — School of Psychology

Dr David Dubowitz — Centre for Advanced Medical Imaging

Dr Emma Scotter — School of Biological Sciences

Dr Helen Murray — Dept of Anatomy & Medical Imaging

Dr Jessie Jacobsen — School of Biological Sciences

Dr Joanna Black — School Optometry and Vision Science

Dr Joanne Lin — School of Pharmacy

Dr Justin Rustenhoven --- Dept of Pharmacology

Dr Kathy Peri — School of Nursing

Dr Lola Mugisho — Dept of Ophthalmology

 ${\rm Dr} \ {\rm Luke} \ {\rm Hallum} \ - \ {\rm Dept} \ {\rm of} \ {\rm Mechanical} \ {\rm Engineering}$

Dr Malvindar Singh-Bains — Dept of Anatomy & Medical Imaging

Dr Makarena Dudley — School of Psychology

 ${\rm Dr}\,{\rm Natasha}\,{\rm Grimsey}-{\rm Dept}\,{\rm of}\,{\rm Pharmacology}$

Dr Patrick Savage — School of Psychology

Dr Priya Parmar — Dept of Statistics

Dr Reece Roberts — School of Psychology

Dr Sarah Kapeli — School of Psychology

Dr Simon O'Carroll — Dept of Anatomy & Medical Imaging

Dr Victor Dieriks — Dept of Anatomy & Medical Imaging

Clinical Leaders

Mr Andrew Law — Neurosurgery	Dr Melinda Nolan — Neurology
Mr Ari Bok — Neurosurgery	Dr Rakesh Patel — Neurology
Mr Jason Correia — Neurosurgery	Dr Hannah Jones — Neurology
Mr Patrick Schweder — Neurosurgery	Dr Andrew Smith — Neuroradiology
Mr Peter Heppner — Neurosurgery	Dr Ayton Hope — Neuroradiology
Mr Rob Aspoas — Neurosurgery	Dr Ben McGuiness — Neuroradiology
Ms Phobe Matthews — Neurosurgery	Dr David Milne — Neuroradiology
Associate Professor Barry Snow — Neurology	Dr Maurice Moriarty — Neuroradiology
Dr David Hutchinson — Neurology	Dr Stefan Brew — Neuroradiology
Dr David McAuley — Neurology	Dr Stephen Gock — Neuroradiology
Dr Dean Kilfoyle — Neurology	Dr John Beca — Neurointensive care
Dr Edward Wong — Neurology	Dr Jacqui Allen — Otolaryngology
Dr Elizabeth Walker — Neurology	Dr Michelle Wong — Otolaryngology
Dr Ernie Willoughby — Neurology	Dr Michel Neeff — Otolaryngology
Dr Jennifer Pereira — Neurology	Dr Nikki Mills — Otolaryngology
Dr Joseph Donnelly — Neurology	Dr Richard Douglas — Otolaryngology
Dr Julian Bauer — Neurology	Dr Jamie Macniven — Neurophysiology
Dr Kiri Brickell — Neurology	Dr Alison Charleston — Geriatrics
Dr Luciana Pelosi — Neurology	Dr Phil Wood — Geriatrics
Dr Mark Simpson — Neurology	Dr Gary Cheung — Geriatrics
Dr Neil Anderson — Neurology	Dr Richard Worrell — Geriatrics
Dr Nicholas Child — Neurology	Dr Yogini Ratnasabapathy — Geriatrics
Dr Peter Bergin — Neurology	Dr Clinton Turner — Psychiatry
Dr Rosamund Hill — Neurology	Dr Greg Finucane — Psychiatry
Dr Zoe Dyer — Neurology	Dr Duncan Frazer — Psychiatry
Dr Cynthia Sharpe — Neurology	Dr April Clugston — Psychiatry
Dr Claire Spooner — Neurology	



Our Generous Donors

We extend our deepest gratitude to all of our donors, especially those who have generously supported the CBR. Your unwavering commitment has been the cornerstone of our success, fueling visionary research, enabling groundbreaking discoveries, and making a lasting impact on countless lives. None of our achievements in advancing brain health would have been possible without your support. Thank you for standing with us and for your continued dedication to shaping the future of brain research.

Alzheimers New Zealand Charitable Trust (Inc)	Lynette June Sullivan Trust
Aotearoa Foundation	Matthew Oswin Memorial Trust
Auckland Medical Research Foundation	Maurice and Phyllis Paykel Trust
Bollard Charitable Trust	Estate of Lynette C McHale
Boyd Clarke Foundation	McPhee Rozenberg Family
Coker Charitable Trust	MND New Zealand
Cure Parkinson's NZ - Bernard and Kaye Crosby	Neurological Foundation of New Zealand
David Levene Foundation	New Zealand Lottery Grants Board
Estate of Barbara and Robert (Bob) Dawn	Jon and Louise Nicholson
The Dillon Family	Amelia Pais-Rodriguez and Marcus Gerbich
The late Sir Graeme Douglas and Lady Ngaire Douglas	PaR nz Golfing Holidays
Gus and Irene Fisher	Dr Ian and Sue Parton
Frederich Kurstein Anthonsen Research Charitable Trust	Perpetual Guardian
Freemasons	Estate of Marjorie Prince
Freemasons Foundation	Stevenson Foundation
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Estate of Florence Gamman	The Angus Family Trust
Gaze Foundation	The Brain and Behaviour Research Foundation
Dame Jenny Gibbs	The CatWalk Spinal Cord Injury Research Trust
Gillespie Family	The Freemasons Charity
Ross and Janet Holmes	The Kelliher Charitable Trust
Henry Michael Horton CNZM	The New Zealand Dementia Prevention Trust
Henry and Trudy Hudson	The Sir Thomas and Lady Duncan Trust
Hugh Green Foundation	The T M Pacey Family Trust
Lough Family	Waiwetu Trust

We also want to extend our heartfelt thanks to all donors, both large and small, whose names may not be listed. Your contributions, no matter the amount, are the lifeblood of our mission to advance brain research. You are the driving force behind every breakthrough and discovery, and we couldn't push the boundaries of neuroscience without your support. From the bottom of our hearts, thank you for helping change lives and for being such an essential part of our community.

We have made every effort to recognise all donors who have generously contributed over \$50,000 toward advancing brain research. If your name is missing or listed incorrectly, we sincerely apologise. Your support is invaluable, and we want to honour your contribution accurately. Please reach out to us so we can correct any errors.







TE HUINGA HINENGARO CENTRE FOR BRAIN RESEARCH