Queensland Brain Institute

The University Of Queensland
AUSTRALIA

Clem Jones Centre for Ageing Dementia Research

Understanding dementia. Changing lives.

Changing the Future of Dementia Through Research

The defining health challenge of our time

Most of us know someone living with dementia. Few of us realise that it's not a single disease but a collection of brain conditions that affect memory, thinking and daily life. While dementia can impact anyone, it is most common in older adults and right now, there is no cure.

AN AUSTRALIAN SNAPSHOT

Dementia is the leading **cause of death** for Australians

More than **446k** **Australians** live with dementia

More than **1.7 million** are directly involved in their care

Currently, **$4.7b+** direct health and aged care **costs**

2 in 5 **people** aged 90+ are affected

63% **of Australians** with dementia are women

1 in 12 **people over 65+** live with dementia

Aboriginal and Torres Strait Islander peoples are **3-5x** **more likely** to develop dementia

THE NEED

Every 3.2 seconds, someone globally is diagnosed with dementia. By 2030, more than 82 million people worldwide are expected to be living with the condition. In Australia, dementia is now the leading cause of death.

Today, more than 433,000 Australians live with dementia, supported by over 1.7 million family members and carers. The impact extends beyond individuals to families, health systems and the broader economy, placing substantial emotional, physical and financial strain on communities.

Despite decades of progress, there is currently no cure. However, advances in neuroscience, genetics and data-driven medicine are reshaping what is possible. Research is essential to understanding disease patterns, identifying risk factors, and developing effective interventions.

MEETING THE CHALLENGE

The Queensland Brain Institute (QBI) at The University of Queensland (UQ) is internationally recognised for excellence in neuroscience. Within QBI, the Clem Jones Centre for Ageing Dementia Research (CJCADR) leads focused efforts to address dementia through rigorous, multidisciplinary research.

"At CJCADR, we bring together diverse expertise to address the full biological complexity of neurodegenerative disease."

Professor Jürgen Götz,
CJCADR Director

CLEM JONES CENTRE FOR AGEING DEMENTIA RESEARCH

OUR MISSION

To uncover the fundamental mechanisms of ageing and dementia, and translate discovery into interventions that improve health, independence and quality of life.

"Understanding disease mechanisms is essential if we are to develop effective and lasting interventions."

Professor Steven Zuryn, CJCADR Group Leader

WHO WE ARE

CJCADR is recognised for international leadership in fundamental and translational dementia research. Our work spans molecular, cellular and systems neuroscience, integrating genetics, imaging, computational modelling and clinical relevance to address the biological complexity of neurodegenerative disease.

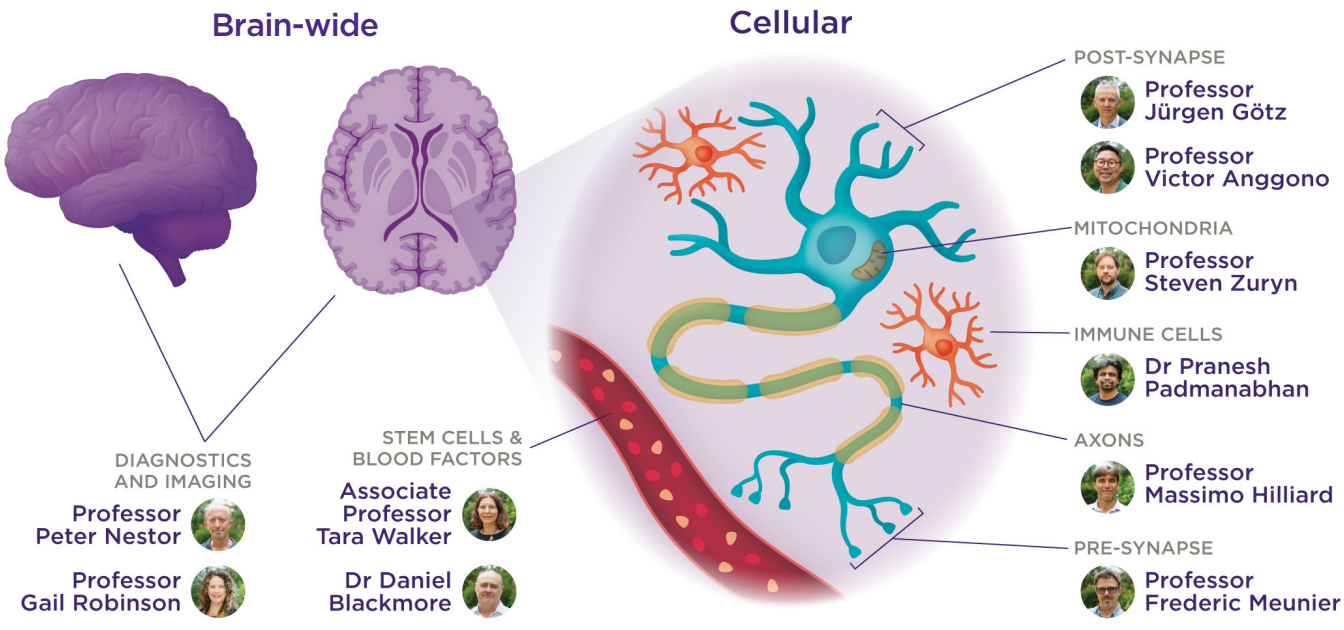
The Centre brings together ten distinguished laboratories and group leaders, reflecting exceptional depth of expertise and a robust, sustainable research pipeline. CJCADR comprises a vibrant community of more than 70 researchers including students, early and mid-career investigators, and senior scientific leaders united by a shared commitment to addressing dementia through multidisciplinary inquiry.

Our scientific programs adopt a multipronged approach to dementia research, advancing discovery across basic science, translational pathways, and emerging therapeutic opportunities.

Central to CJCADR's mission is a sustained commitment to capacity building. By providing meaningful training and development opportunities for students and early and mid-career researchers, the Centre is cultivating the next generation of scientific leaders and reinforcing Australia's long-term research excellence.

CJCADR is also distinguished by its expanding collaborative partnerships with national and international research institutions, industry, and government. These collaborations underscore the Centre's growing contribution to strengthening Australia's dementia research capability, exemplified by the award of major competitive funding such as the MIND-AD Centre of Research Excellence — Australia's first NHMRC CRE dedicated to fundamental dementia research.

CJCADR: OUR RESEARCHERS AND THEIR FOCUS AREAS



Clem Jones Centre for Ageing Dementia Research

RESEARCH PIPELINE – FROM DISCOVERY TO IMPACT

- CJCADR seed project
- CJCADR accelerator project
- CJCADR flagship project

GÖTZ LAB 1
Ultrasound-mediated modulation of NMDAR receptor activity in amyloid-β treated neuronal cultures.

GÖTZ LAB 2
Defining how ultrasound restores cognition in amyloid-forming APP23 mice and potential translation to patients with Alzheimer's disease.

GÖTZ LAB 3
Exploring changes in protein folding in response to low-intensity focused ultrasound.

WALKER LAB 1
Platelets and brain rejuvenation.

WALKER LAB 2
ENRICH - Exploring Neural Reserve in Cognitive Health.

WALKER LAB 3
Can ferroptosis inhibition enhance neurogenesis and cognition in ageing and Alzheimer's disease?

WALKER LAB 4
Gut microbiota as mediators of exercise-induced brain rejuvenation in Alzheimer's disease.

ANGGONO LAB 1
Understanding toxic protein aggregates formation in neurons.

ANGGONO LAB 2
Understanding "AGAP" in mechanisms of neuronal plasticity.

ANGGONO LAB 3
Molecular basis of glutamate receptor trafficking in neuronal plasticity.

ANGGONO LAB 4
Novel role of RNA methylation in neuronal homeostasis.

ANGGONO LAB 5
Epigenetic regulation of learning memory.

GÖTZ LAB 4
Understanding exosomal delivery of cargoes, including Tau, into the cytosol by back-fusion and endolysosomal permeabilisation.

GÖTZ LAB 5
Novel approach to ultrasound-mediated delivery of genetic material to the brain.

ANGGONO LAB 6
Unraveling the physiological and disease-enabling functions of Tau protein.

WALKER LAB 5
Platelet Factor 4 (PF4) mediated brain rejuvenation.

1 Discovery research

MEUNIER LAB 1
Role of Tau and synapsin in clustering distinct synaptic vesicle pools.

MEUNIER LAB 2
Investigating myristic acid as a key mediator of memory via myristylation.

MEUNIER LAB 3
Understanding Tau dysfunction in frontotemporal dementia.

ZURYN LAB 1
Mechanisms that restrict the inheritance of mitochondrial DNA mutations.

ZURYN LAB 2
Protective Small RNA responses to mitochondrial stress.

ZURYN LAB 3
Ejection of dysfunction mitochondria from axons as a quality control pathway.

NESTOR LAB 1
How does progressive supranuclear palsy affect eye movements?

NESTOR LAB 2
Defining the dementia in Lewy body disease.

HILLIARD LAB 1
Neuronal fusion: a novel neuropathology in the brain.

HILLIARD LAB 2
Protecting the axon from outside: Understanding how the tissue surrounding the axon protect from degeneration.

HILLIARD LAB 3
Human endogenous retroviruses and neuropathology.

HILLIARD LAB 4
Viral infection and neuropathology.

BLACKMORE LAB 1
The epigenetic basis of successful cognitive ageing.

PADMANABHAN LAB 1
Understanding innate immune signalling in Alzheimer's disease.

PADMANABHAN LAB 2
Multiscale imaging to understand ultrasound-mediated blood-brain opening.

PADMANABHAN LAB 3
The role of adaptive immune response in Alzheimer's disease.

PADMANABHAN LAB 4
Fyn-STEP-Tau axis in synaptic function and dysfunction.

PADMANABHAN LAB 5
Understanding complement signalling in Alzheimer's disease.

PADMANABHAN LAB 6
Developing mathematical models of Alzheimer's disease progression.

2 Identification of diagnostic targets

MEUNIER LAB 4
Capturing decline ahead of time: a diagnostic assay for "cognitive fitness".

MEUNIER LAB 5
Saturated free fatty acids as biomarkers of cognitive fitness and resilience.

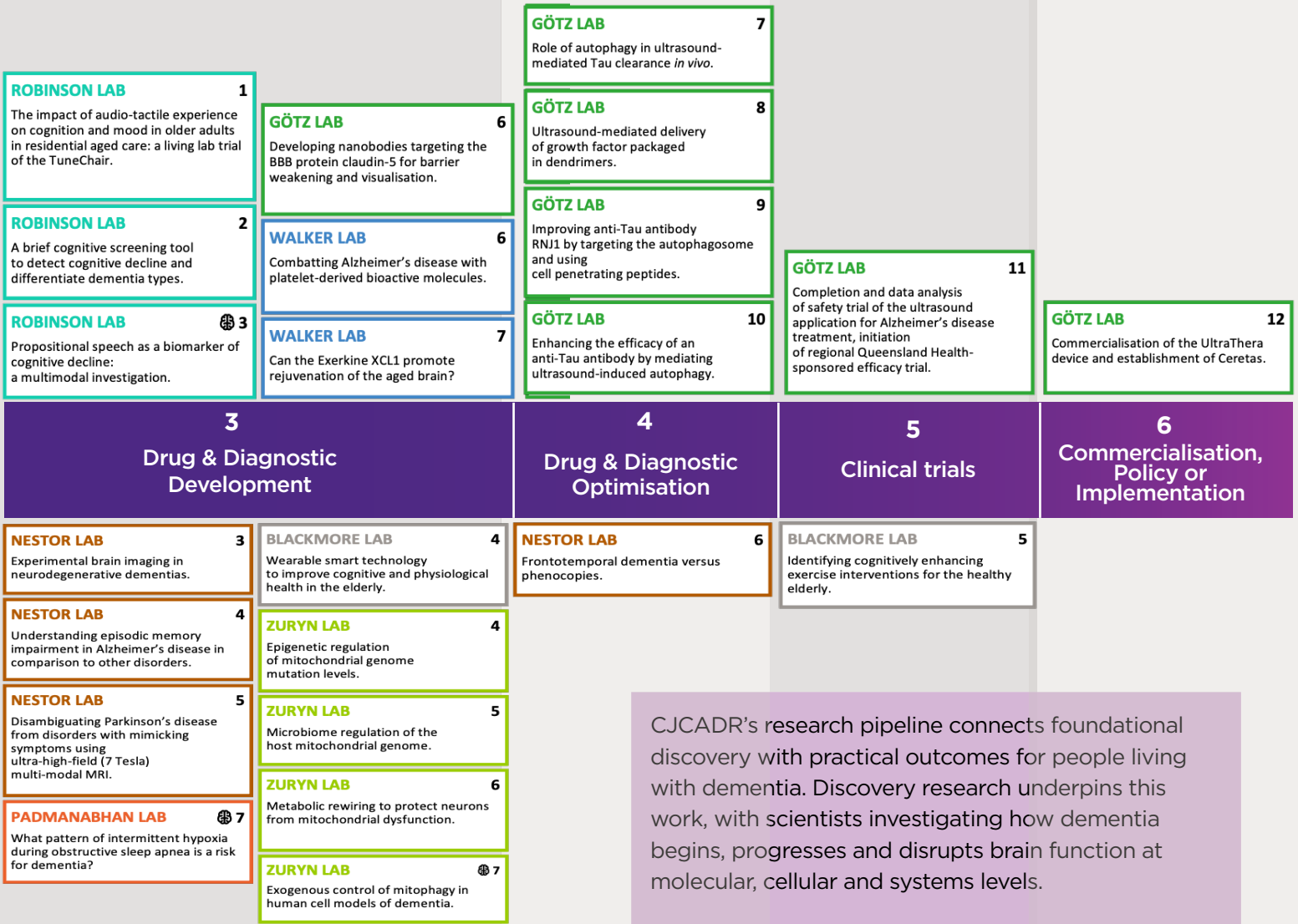
HILLIARD LAB 5
Identification and study of a novel molecule that protects neurons from oxidative stress.

HILLIARD LAB 6
Repairing damaged axons through fusion. Study of the ADAM metalloprotease in axonal repair.

HILLIARD LAB 7
Repairing damaged axons through fusion. Identification of new fusogens to repair injured axons.

BLACKMORE LAB 2
Identifying exercise-mediated epigenetic modifications required for improved cognitive function in the elderly.

BLACKMORE LAB 3
Developing exerkines into a personalised diagnostic tool for monitoring cognitive outcomes in the elderly.



CJCADR's research pipeline connects foundational discovery with practical outcomes for people living with dementia. Discovery research underpins this work, with scientists investigating how dementia begins, progresses and disrupts brain function at molecular, cellular and systems levels.

Building on these insights, CJCADR advances translational research focused on new therapeutic targets, earlier and more accurate diagnosis, and strategies to slow or prevent disease progression. Promising discoveries are refined and positioned for clinical application through defined translational stages.

Strategic partnerships including competitive grants, government and philanthropic support, and collaboration with UniQuest, enable research to move beyond the laboratory and towards real-world impact.

FUTURE FOCUS AREAS

The next generation of dementia breakthroughs will be driven by deeper biological insight, earlier intervention and precision approaches to treatment. Building on its strengths in fundamental neuroscience and translation, CJCADR is focused on addressing the most critical unanswered questions in dementia research.

Our future focus areas reflect a commitment to moving beyond symptom management toward earlier detection, disease modification and prevention.

CJCADR researchers are actively working to:

Translate discovery into real-world impact

CJCADR is committed to ensuring that laboratory discoveries progress beyond proof-of-concept. Through strong translational pathways, industry engagement and commercial partnerships, promising research is positioned for clinical development, therapeutic trials and broader health system impact.

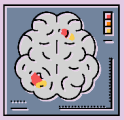
With sustained investment, these future-focused efforts have the potential to redefine how dementia is detected, managed and treated.

Target the right stage, at the right time

Timing matters. CJCADR research is focused on identifying disease stages where intervention can meaningfully slow or prevent progression. By understanding how dementia evolves across the lifespan, researchers can help shift care away from late-stage response toward proactive, preventative strategies.

Enable earlier and more precise diagnosis

Detecting dementia-related changes before significant brain damage occurs is a major priority. CJCADR is developing advanced diagnostic tools and biomarkers that improve accuracy, reduce uncertainty and support earlier clinical decision-making, when interventions are most likely to succeed.



Uncover new drivers of neurodegeneration

By identifying previously unknown molecular, genetic and cellular mechanisms that initiate and accelerate brain degeneration, CJCADR aims to reveal entirely new therapeutic targets. This work is essential to understanding why dementia develops, how it differs between individuals, and where intervention can have the greatest impact.

"Every advance in dementia treatment begins with a deep understanding of how the disease develops in the brain."

Associate Professor Tara Walker, CJCADR Group Leader

PARTNERING TO ACCELERATE PROGRESS

Transformational research depends on partnership. Philanthropic support plays a critical role in enabling innovation, attracting talent and accelerating high impact research.

Support for CJCADR helps to:

- Advance early-stage discoveries
- Train the next generation of dementia researchers
- Accelerate translation into real-world solutions
- Strengthen Australia's leadership in dementia research

There are many ways to accelerate change and support CJCADR'S dementia research. Gifts to QBI's Clem Jones Centre for Ageing Dementia Research are tax deductible and 100% of every donation goes to the nominated research or project.

Contact QBI's advancement team or visit the donation page.

Scan the QR code to learn more

Every gift helps move discovery closer to impact.

"Our goal is to ensure that scientific discovery leads to meaningful benefit for people living with dementia."

Professor Massimo Hilliard, CJCADR Group Leader

WAYS TO GIVE

Giving

Unrestricted gifts are among the most valuable forms of support, as they enable CJCADR to fund its highest priority needs.

Corporate giving

Corporate gifts can be made to specific funds to support researchers and research areas. Many companies offer employees matching gift benefits to double their contributions.

Gift in Will

After providing for your loved ones, leaving a gift in your Will to support dementia research at QBI is a powerful way to advance life-changing discoveries for future generations, while potentially offering tax advantages to your estate.

Gift in memory (or Memorial donation)

Making a gift in memory of a loved one is a meaningful way to honour their life while supporting vital dementia research at QBI, with options such as donations in lieu of flowers, online tributes or personal contributions helping advance life-changing discoveries.

Fundraise

Get involved, have a great time and involve your friends, family and colleagues whilst fundraising for dementia research. You may like to set a personal challenge, host a special event or attend a QBI event to support research at CJCADR.

Through world-class research and trusted partnerships, QBI's Clem Jones Centre for Ageing Dementia Research is working toward a future defined by earlier diagnosis, better prevention and more effective treatments.

Clem Jones Centre for Ageing Dementia Research

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