

# Alzheimer Society

ALBERTA AND  
NORTHWEST TERRITORIES

## Hope for Tomorrow Research Program Update 2024-2025

Thanks to your contributions, the Alzheimer Society of Alberta and Northwest Territories launched the first annual Hope for Tomorrow Research Competition in collaboration with Campus Alberta Neuroscience (CAN). We are the only regional Alzheimer Society in Canada to host a provincially based research program. In September 2022 we provided funding for five Alberta-based dementia research projects. This significant investment reflects our commitment to understanding and managing dementia, nurturing hope, and improving the quality of life for those affected. We want to express our deepest gratitude for your role in this collective journey and for the trust you've placed in us to use your donation to make a real difference.

On November 1st, 2023 the second annual Hope for Tomorrow Research Competition was launched. The research theme remains quality of life with a focus on research that has the potential to make a significant impact on the quality of life of patients, families, and caregivers through exploration into the causes, prevention, treatment, and cure of Alzheimer's disease and related dementias. In 2025, we awarded grants to four research projects—please see the descriptions below for more information.

### Our Goal

The Hope for Tomorrow Research Competition aims to accelerate and focus the knowledge gained from innovative scientific findings, in the short or long term, into outcomes that will result in an enhanced quality of life for patients, families, and caregivers in Alberta and elsewhere.

### The Process

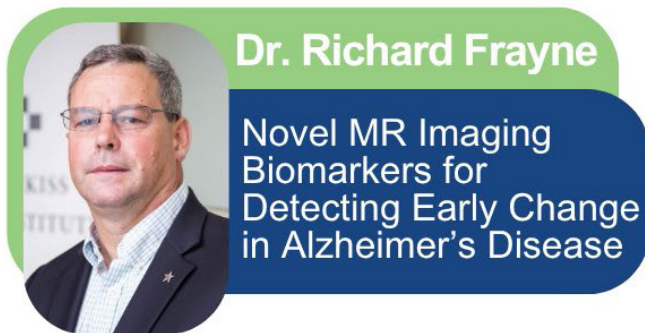
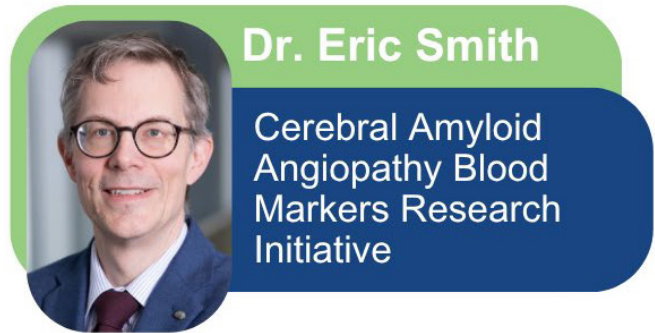
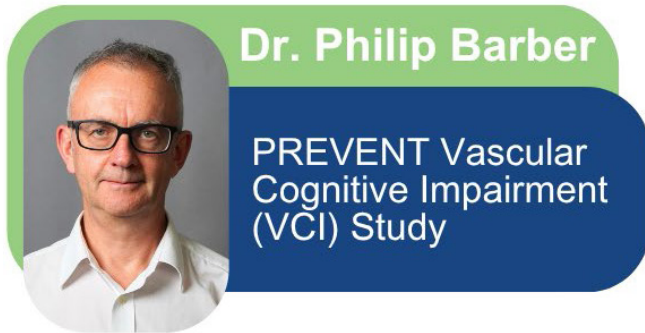
Alzheimer Society of Alberta and Northwest Territories partnered with Campus Alberta Neuroscience to help administer the application process and conduct a rigorous peer review of the applications.

To begin with, researchers, healthcare professionals, and individuals with lived experience were surveyed to identify their top research priorities. Innovative research on quality-of-life research was identified as the focus for the 2023 Hope for Tomorrow Research Competition, with the aim of making a significant impact for patients, families, and care partners. Quality of life encompasses the overall physical and mental health and well-being of a person in relation to the cultural, environmental, and social context in which they live. As we age, maintaining a good quality of life requires finding ways to foster healthy brain aging, reduce the risk of developing dementia, and improve the quality of life for those already diagnosed.

In addition to being related to quality of life, researchers also had to be Alberta-based. The Research Committee has noted that the quality of research being undertaken by Alberta-based universities meets or exceeds the work of many world-class institutions.



# Research Competition 2025 Award Recipients



## Dr. Philip Barber

### PREVENT Vascular Cognitive Impairment (VCI) Study



Dr. Philip Barber at the University of Calgary was awarded \$235,000 over the next 3 years (2025-2027) for his innovative work advancing early detection of dementia.

*The onset of dementia is most related to the co-existence of Alzheimer's disease (AD) and stroke burden, which contribute to early breakdown of the brain's connecting networks that eventually leads to impaired brain function. Despite enormous effort, there is currently no cure for dementia. To have the best chance of halting dementia, we need to intervene much earlier, and therefore we need to detect these diseases at the very earliest stages before they can take hold and progress.*

*The PREVENT VCI study has recruited minor stroke patients and controls to identify those individuals at greatest risk of change in brain function. To achieve this aim we have developed a novel blood biomarker for AD by detecting the "sticky" toxic protein amyloid causing AD on blood platelets as they flow through the brain.*

*We aim to determine the effect of this "sticky" protein on platelets on the early progression of disease affecting the very smallest (micro) vessels that penetrate the brain. The small vessels are critical for supplying blood and essential nutrients to the brain so when they become diseased, they can affect the structure and function of the brain over time. We use artificial intelligence to explore how following a minor stroke AD blood markers change over time and how they affect the earliest signs of disease by measuring the rate at which the brain shrinks, the accumulation of disease affecting the small vessels, and the overall impact on brain function.*

*At the end of this study, we anticipate that blood derived markers of AD will be detected more frequently in minor stroke patients than controls allowing us to detect the earliest signs of brain shrinkage and small vessel disease that are recognized risks for dementia. This will be a major advance in our understanding of the relative contribution of two diseases, AD, and disease affecting the small vessels at the very earliest stage.*

# Dr. Eric Smith

## Cerebral Amyloid Angiopathy Blood Markers Research Initiative

Dr. Eric Smith at the University of Calgary was awarded \$239,230.00 for his project which aims to improve how we diagnose Alzheimer's-related conditions.

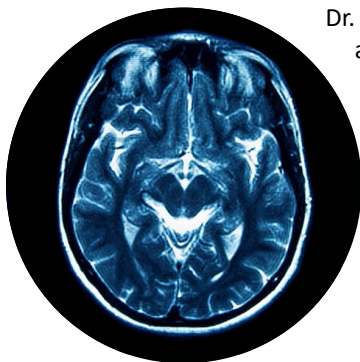


*Many people don't know that amyloid-beta, the protein found in amyloid plaques in Alzheimer's disease, can also coat the brain's blood vessels to cause a condition called cerebral amyloid angiopathy (CAA). CAA can reduce blood flow to the brain or even cause the blood vessels to rupture, causing cognitive decline and strokes due to bleeding. CAA can be diagnosed using magnetic resonance imaging, a form of brain scan. In our project, we are testing whether we can diagnose CAA based on proteins in the blood. If we are right, then doctors might be able to diagnose CAA more easily in patients who have cognitive problems or hemorrhagic strokes (strokes caused by bleeding in the brain).*

*This innovative work marks an important step forward in dementia-related research and could help bring faster, more accessible diagnosis to people at risk.*

# Dr. Richard Frayne

## Lifespan Brain Imaging Project



Dr. Richard Frayne at the University of Calgary was awarded \$249,927 (2025-2027) for his innovative approach to supporting healthy brain aging and the early detection of dementia.

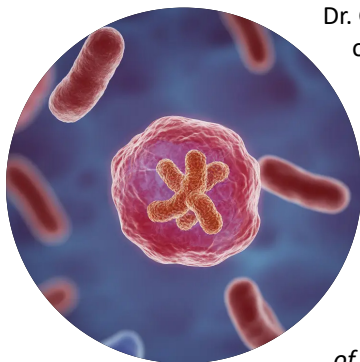
*Our research team has already used qMR scans from healthy adults to create "Lifespan Charts." These charts are similar to growth charts used for children. They show what typical brain changes look like across a person's life. These charts can help doctors see if someone's brain is aging normally or if there may be signs of a problem.*

*In this project, we will study people who have been diagnosed with mild cognitive impairment or dementia. We will compare their brain scans to our Lifespan Charts. This will help us find warning signs and set cut-off points for what's normal and what's not.*

*Our goal is to support healthy brain aging by helping doctors catch problems early. This could lead to better care, earlier treatment, and healthy changes to daily life for people at risk of dementia.*

# Dr. Glen Jickling

## The Immune System and the Aging Brain



Dr. Glen Jickling at the University of Alberta was awarded \$ 250,000 (2025-2027) for his projects focused on preventing cognitive decline through a deeper understanding of the aging brain.

*With advancing age the human brain accumulates disease of the small blood vessels. This small vessel disease decreases the brain's resiliency to additional brain injury such as Alzheimer's disease, Parkinson's disease, and stroke. Small vessel disease is a major cause of memory impairment and dementia. This small vessel disease is potentially treatable, with the hope that treatment could help prevent vascular dementia and enable the brain to be more resilient to other causes of dementia. In this study we will determine how changes in our immune system that occur with age contribute to this small vessel disease and the associated cognitive decline. We will determine the relationship of the small vessel disease to activation of the immune system that promotes disruption of the blood vessel wall over time. This study has the potential to identify novel treatments targeting the*

*immune system to decrease or even prevent the small vessel disease. It will provide the rationale and data needed to test specific agents that target the immune system to reduce the small vessel disease. The goal is the prevention of cognitive decline and overall improvement of brain health.*

# Our Fundraising Progress to Date

Alzheimer Society of Alberta and Northwest Territories has committed \$5M for research. Our plan is to distribute \$1M per year for the next three years (2026-2028). The competition is funded solely by private donations. We have raised approximately \$1.209M of the \$5M goal. We also know that demand for research funding far exceeds our \$5M commitment.

## Our Message of Gratitude

Thank you for providing Hope for Tomorrow! Your personal support directly impacts our ability to support the research program. We extend our heartfelt gratitude to our donors whose generous contributions have been pivotal in advancing these research endeavors. With your continued support the Alzheimer Society of Alberta and Northwest Territories will forge ahead, bolstering hope for tomorrow for the thousands of individuals experiencing dementia.

We will continue to share updates about the Hope for Tomorrow Research Program on our website and social media channels. Please reach out to us at any time if you would like more information or have feedback about the research program, your gift giving, or any Society activities.

## Contact:

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