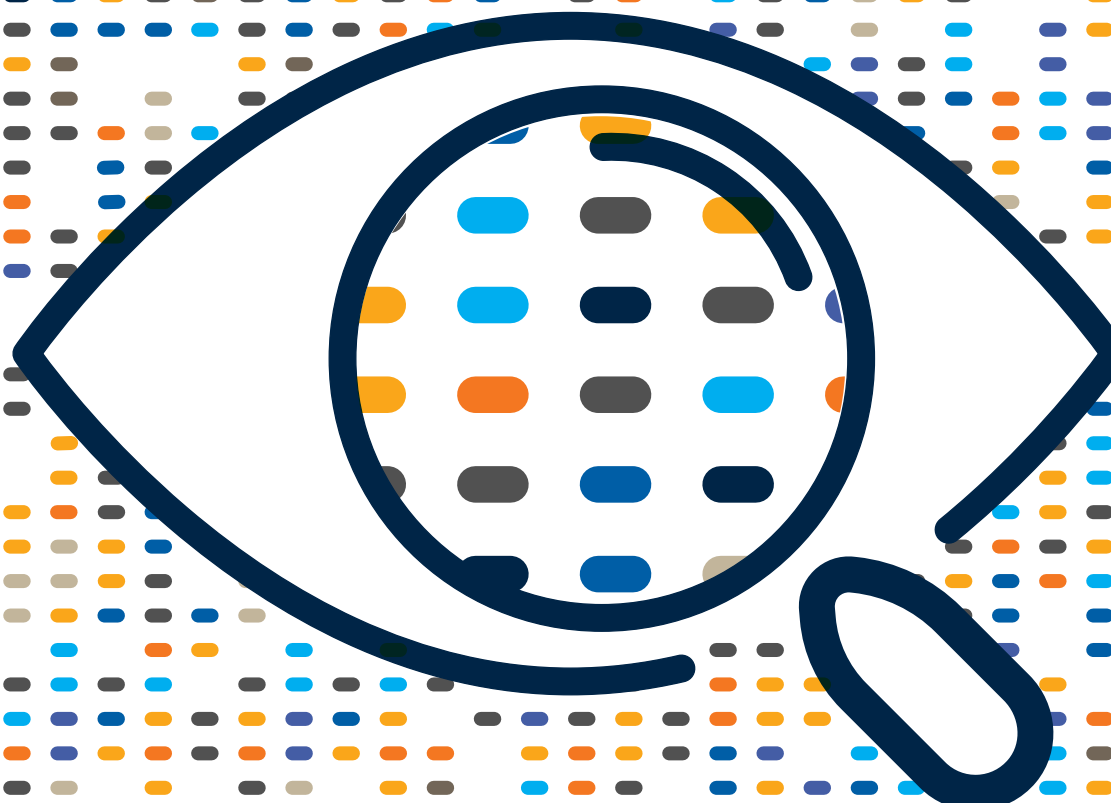


THANK YOU FOR SUPPORTING THE NEXT WAVE OF DEMENTIA RESEARCH

DONOR
IMPACT
REPORT
2021



Alzheimer *Society*

CANADA

UNLOCKING INNOVATIVE SOLUTIONS TOGETHER



You are helping unlock solutions that will lead to ways of preventing dementia, better treatments, and eventually cures. And you are helping people who are living with dementia right now live their best and longest life possible. For that, we are truly grateful.

The Alzheimer Society Research Program is only possible because of you, and we appreciate the trust you put in us to ensure that only the best research from across the country receives your support. **You gave more than \$3 million this past year for new grants and awards that funded 25 innovative research projects across Canada despite the continued uncertainty caused by the COVID-19 pandemic.**

In this report, you will learn more about our 2021 research competition and some of the researchers you funded. You will also hear about the progress being made on some research projects that are already underway as well as the long-term impact you are having by supporting dementia research through the Alzheimer Society of Canada.

I hope you can see the difference you make by funding pivotal and innovative research that helps us better understand dementia so we can improve treatments and care for people living with the disease, and eventually, find cures. On behalf of the millions of Canadians affected by dementia, thank you!

A handwritten signature in black ink, appearing to read 'Saskia', written in a cursive style.

Dr. Saskia Sivananthan
Chief Research & Knowledge, Translation and Exchange Officer



Backed by your support, Liisa is looking at whether the production of new brain cells is different in males and females. It is known that new brain cell production is decreased in Alzheimer's disease and that females have a greater lifetime risk to develop it compared to males. Liisa hopes that one day her work will pave the way for better treatment strategies that are tailored to people based on their sex/gender and genotype at different life points.



Thank you! Because of your generous donations, we don't just do the research to generate new knowledge, but we inevitably find new fruitful directions of research, always adding that puzzle piece and training new people to hunt for other puzzle pieces. One day—maybe years from now—those pieces will come together, and effective treatments will be developed to reverse the disease. **I am proud to know that we will *all* have played a part in finishing the puzzle!**

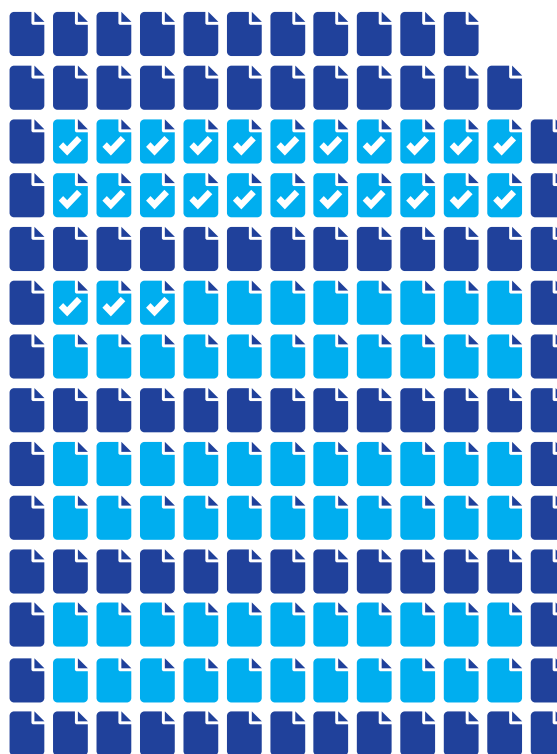
– LIISA GALEA, Researcher from the University of British Columbia.

THANK YOU FOR BEING A CATALYST FOR HOPE

NATIONAL COMPETITION 2021

Your impact at a glance

Your support is paving the way for bold ideas and innovative solutions by bringing the right people together and giving them the resources they needed through the 2021 National Competition. With the backing of your support, grant recipients are striving to achieve the impossible, dedicated to changing the lives of Canadians affected by Alzheimer's and other dementias.

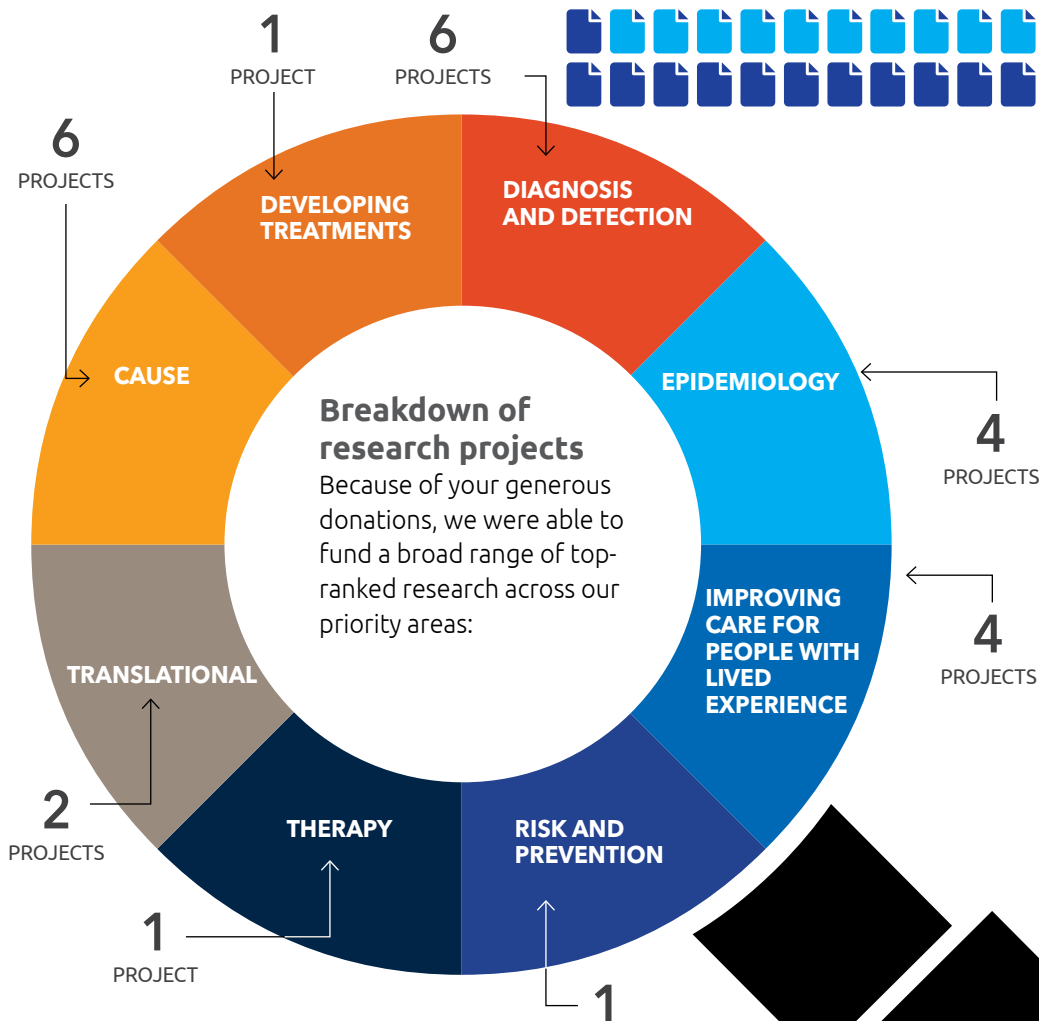


NUMBER OF APPLICATIONS RECEIVED **182**

NUMBER OF FUNDABLE PROJECTS **88**

NUMBER OF APPLICATIONS FUNDED **25**

TOTAL FUNDING AMOUNT **\$3,044,906**



Meaningful impact

Our research priorities have been identified through a study that asked Canadians affected by dementia about what they believe are the important research questions related to living with dementia as well as dementia prevention, treatment, and diagnosis. Find out more here:

alzheimer.ca/en/research/10-priorities-dementia-research-canada

THE REACH OF YOUR GENEROSITY

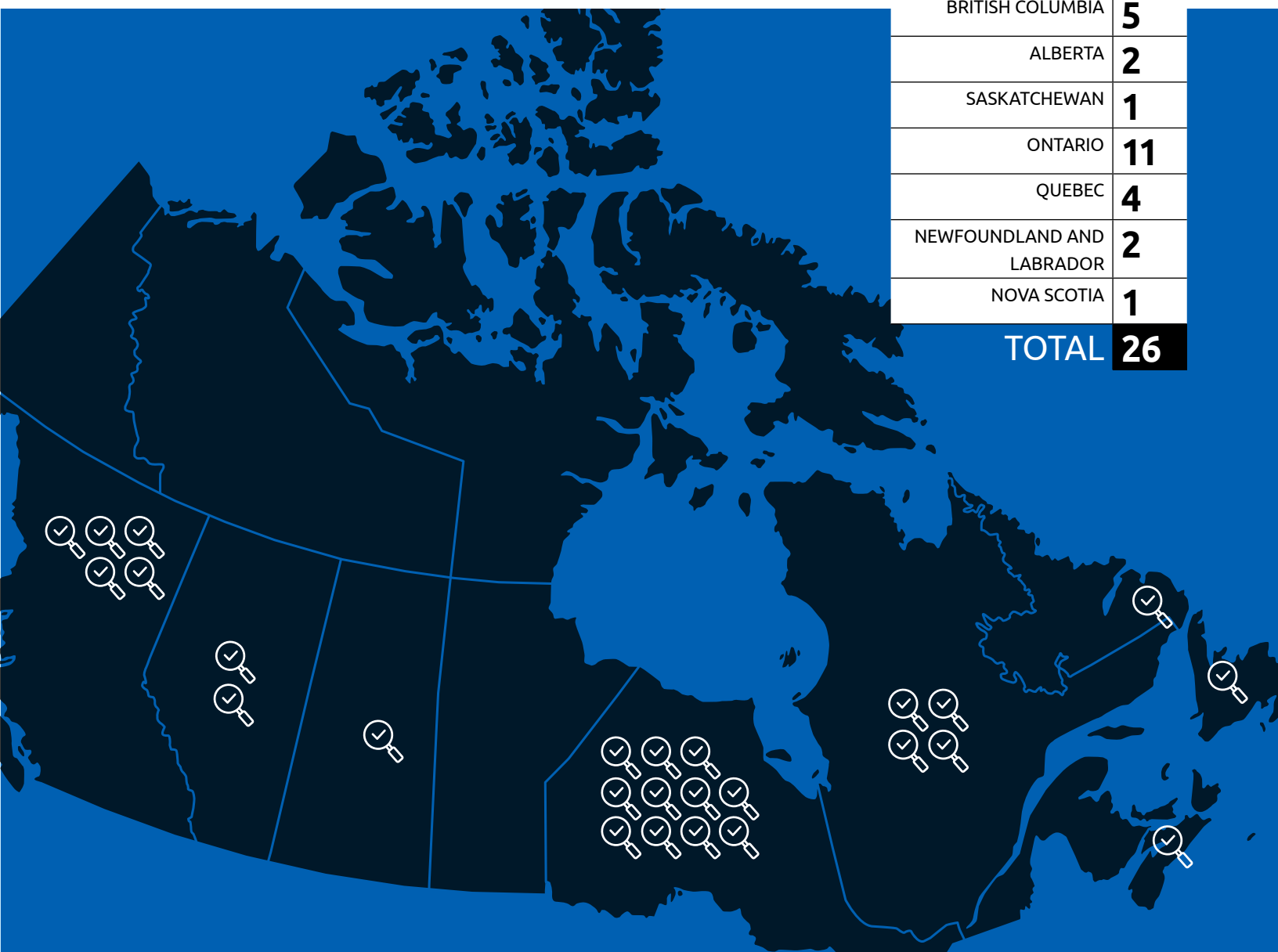
OPENING DOORS TO RESEARCH ACROSS THE COUNTRY

Thanks to you, 25 exciting new research projects took shape from coast to coast to coast.

Your generous donations have been a launch pad for our country's very best researchers, enabling them to turn knowledge into hope for everyone. No matter where they live, people with lived experience of dementia will feel the incredible impact of the research that you make possible.

NUMBER OF RESEARCHERS FUNDED BY PROVINCE

BRITISH COLUMBIA	5
ALBERTA	2
SASKATCHEWAN	1
ONTARIO	11
QUEBEC	4
NEWFOUNDLAND AND LABRADOR	2
NOVA SCOTIA	1
TOTAL	26



To meet all the researchers you supported, visit:

alzheimer.ca/en/research/alzheimer-society-research-program/latest-funding-results.



Thank you for all your help—every bit matters. **The more research that is funded, the quicker we learn and discover approaches to reduce the impact of Alzheimer’s disease on society.** This competition is much more focused on immediately translational approaches to Alzheimer’s disease and is willing to entertain applications that may be high risk, if they also display potential for high reward. This competition focuses on research that has the potential to directly impact development of therapeutic approaches to combating AD prevalence.”

– LANE BEKAR, Researcher from the University of Saskatchewan.



Thanks to your generosity, Lane is looking at the connections between genetics, late-onset dementia, and a high-sugar diet to see if it increases the risk of dementia. Results from his work will empower individuals with real world options for small lifestyle changes (diet, sleep, exercise) that can profoundly impact Alzheimer’s disease progression.





With your generous support, Taylor is leveraging a highly sensitive brain imaging tool to monitor brain cells in the living brain. This will enable him to examine when cellular damage becomes detectable, long before cognitive impairment has happened. Tools for detecting Alzheimer's disease early that are developed from this research will help to develop new therapies for slowing or preventing the disease.



With improved tools for identifying when Alzheimer's disease first appears in the brain, we can also better identify who is most at risk and why. This would open the door for personalized preventative care. For those already living with dementia, our tools might assist in determining which types of treatments would be most effective for these individuals. **Without the generous support of the Alzheimer Society Research Program donors, this work simply would not be possible.**

– TAYLOR SCHMITZ, Researcher from Western University (London, Ontario).

YOUR GIFT IN ACTION



BREAKING THE BARRIERS TO EXERCISE AND A BETTER QUALITY OF LIFE

Dr. Middleton and her team know that exercise improves the functional abilities of persons living with dementia and provides an opportunity for social engagement, support, and inclusion. Unfortunately, they also know that persons living with dementia face considerable barriers to exercise, and that stigma of dementia only reinforces these barriers.

Thanks to your generous donations, Dr. Middleton, a researcher from the University of Waterloo, is completing a 3-year Quality of Life project entitled “Expanding Exercise Opportunities for Persons with Dementia: A Participatory Approach”.

The project has enabled Dr. Middleton to further her work to understand people living with dementia’s preferences and supports for

exercise. Her vision is to increase the number and variety of exercise opportunities for persons with dementia so that they can experience the physical, mental, and social benefits of exercise.

After two years of work, the research led to the development of a toolkit called *Dementia Inclusive Choices for Exercise* (www.dementiaexercise.com) that shows exercise providers how to engage with, understand, and meet the needs of persons living with dementia.

To develop the toolkit, the team brought together people living with dementia, family care partners, exercise providers, dementia service providers, health care professionals, and researchers. The toolkit contains a suite of informational resources, including a website, a training manual and modules for exercise providers, destigmatizing videos with stories of people living with dementia, and resources for people living with dementia and their care practitioners to increase knowledge and confidence regarding exercise.

Today, a pilot evaluation is currently under way and the resources will soon be made available through conferences and various events. **None of this would have been possible without your generous support.**



HARNESSING AN EXISTING DRUG FOR A NEW TREATMENT OPTION

Research has shown that older adults have problems regulating their body temperature, coinciding with the peak incidence of Alzheimer's disease. That's why biomedical grant recipient Dr. Frederic Calon and his team are investigating whether defects in the regulation of body heat contribute to the onset of Alzheimer's disease.

Backed by your support, Dr. Calon and his team have been exploring whether improving thermogenesis—the production of heat by the body—can treat symptoms of the disease.

Over the past two years, the team has been able to examine the effect of stimulating and inhibiting the production of heat on cognitive performance and brain markers of Alzheimer's disease.

To date, Dr. Calon and his team have gathered results that strongly suggest that correcting defects in the regulation of body heat could be therapeutic in Alzheimer's disease.

Building on this knowledge, the team has explored a pharmacological approach and found that a drug used to treat patients with obesity had the effect of regulating body heat and improving memory.



Thanks to your generous support, Dr. Calon and team were the first to have investigated this type of drug in the field.

The findings open the door to this pharmacological approach being advanced further, with the potential that the drug could be repurposed as a treatment for persons living with Alzheimer's disease.

YOUR LASTING IMPACT



AT THE FRONTIER OF KNOWLEDGE ABOUT THE BRAIN

Dr. Simon Duchesne is on a journey—a long one.

It began over two decades ago when he began looking at the brain with magnetic resonance imaging (MRI), having stumbled into this field serendipitously.

At the time, he could see that colleagues in the fields of cardiology and oncology were making significant gains through their research.

“They were far more advanced in their understanding of how cancer grows and hearts don’t work, and how to fix either,” says Dr. Duchesne. “We didn’t know nearly as much about the brain. Yet, when the brain does not work, it affects everything because, frankly, there’s no life without the brain, at least not as we have come to enjoy it.”

Thanks to MRI, which take detailed pictures of inside the body in a non-invasive and painless way, new explorations into the brain became possible.

Dr. Duchesne realized that he could apply MRI to study dementia, and in particular to build models able to make a difference at a most critical time: early on, well before a diagnostic.

With generous donor funding, Dr. Duchesne received two grants from the Alzheimer Society Research Program, in 2012 and 2016, that have been instrumental to his pursuing this research.

His team began studying MRIs to map the trajectory of a normal, cognitively healthy aging brain, and then compare this to individuals with mild cognitive problems or with Alzheimer’s disease.

Dr. Duchesne’s research provided an important point of comparison in determining whether an individual is on the way towards developing a brain disease, rather than simply aging.

“Ultimately, we want to turn MRI into an investigation tool able to detect the signature of Alzheimer’s disease well before diagnosis,” he says.

The potential impact is significant. Being able to predict the development of Alzheimer’s disease—using a non-invasive method—opens the door to early interventions to change this trajectory. Or, at the very least, better manage the associated cognitive decline, including using drugs currently approved or in the pipeline that are effective only if diagnosis is early.

Today, Dr. Duchesne’s work continues with ambitious objectives on the horizon.

“The goal I’ve given to my lab is to be able to predict Alzheimer’s not five, not 10, but a full 25 years before it starts.”

His team is now focused on the next steps—to improve their brain health model, including using data other than MRI and taking into consideration other brain components, such as energy metabolism and the brain’s vascular network. They will then work to translate this into a clinical application able to offer individualized prediction and therapy.

“I’m not retiring anytime soon,” says Dr. Duchesne, with a smile. The journey is far from over.



We're focused on being able to detect Alzheimer's disease 15 to 25 years in advance, because if we want to have a chance at solving this, it has to be at that point."

– Dr. Simon Duchesne, Université Laval



THANK YOU!
WE ARE INCREDIBLY
GRATEFUL FOR YOUR
COMMITMENT TO
HELPING US WORK
TOWARDS A FUTURE
WITHOUT DEMENTIA.

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