# ALS Canada Research Program: Snapshot of grants awarded 2014 to 2017

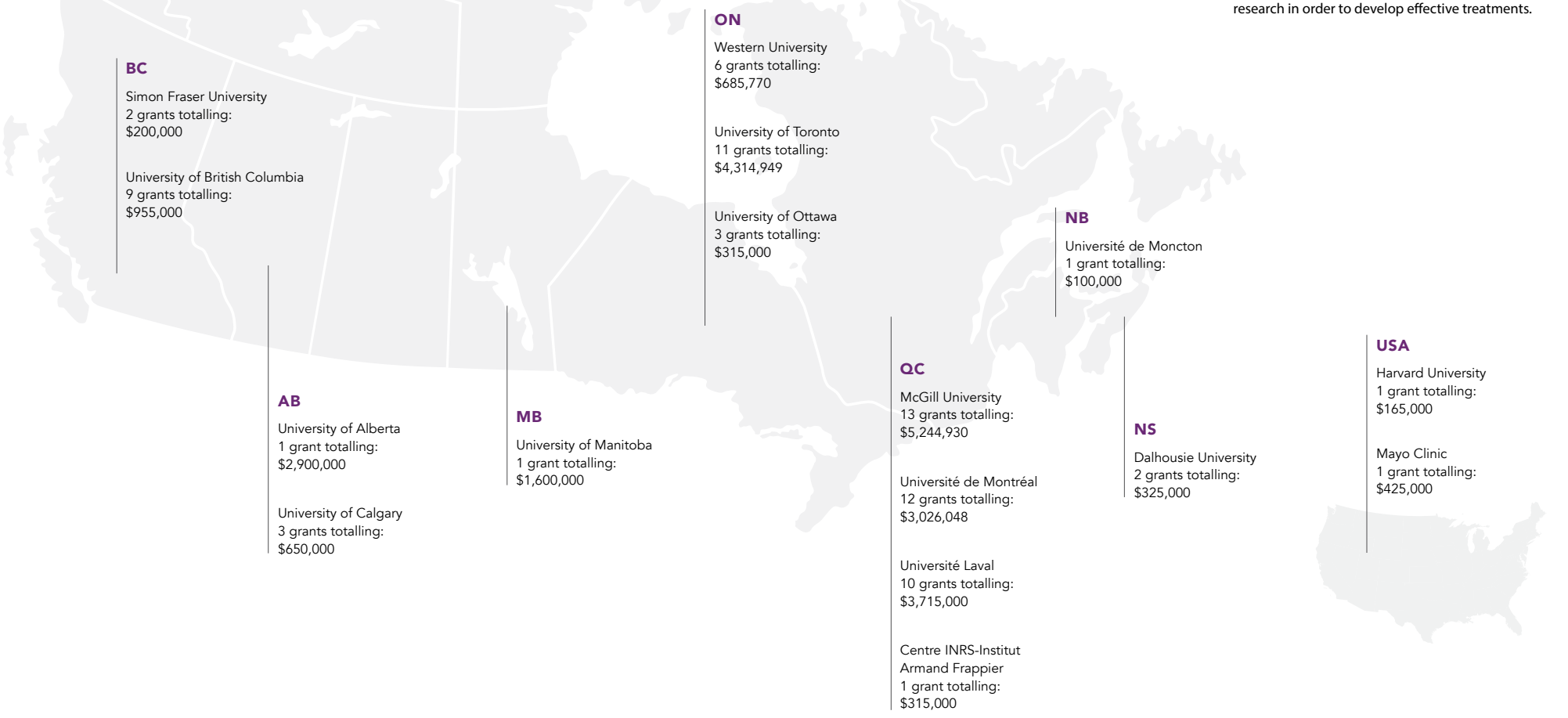
ALS CANADA RESEARCH PROGRAM

Brain Canada Foundation

ALS is a complicated disease that is not well understood. It needs to be studied from many different angles in order to unlock new discoveries and find new treatments. Through the ALS Canada Research Program we fund different types of research, from the lab to the clinic. We fund research teams who work together to advance the development of treatments. We also fund outside-the-box research that looks at the disease in new ways; promising projects that need a boost to keep moving forward; studies that help people with ALS to manage their symptoms and live better with the disease; and grants to help attract the brightest young minds, creating the next generation of Canadian ALS researchers.

Historically, the ALS Canada Research Program has awarded research grants totalling approximately $1.5 to $2 million each year thanks to the support of donors and partnerships with provincial ALS Societies. The generosity of Canadians during the Ice Bucket Challenge and a subsequent $10 million partnership with the Brain Canada Foundation enabled an additional $20 million to be earmarked for ALS research. Thank you to all our partners and supporters for everything that you make possible. Together, we are creating a future without ALS.

Research grants are awarded following annual competitions where independent panels of international scientific experts rigorously assess research proposals to identify the projects that are grounded in scientific excellence and have the potential to most quickly advance the field of ALS research in order to develop effective treatments.



### BC

Simon Fraser University
2 grants totalling:
$200,000

University of British Columbia
9 grants totalling:
$955,000

### AB

University of Alberta
1 grant totalling:
$2,900,000

University of Calgary
3 grants totalling:
$650,000

### MB

University of Manitoba
1 grant totalling:
$1,600,000

### ON

Western University
6 grants totalling:
$685,770

University of Toronto
11 grants totalling:
$4,314,949

University of Ottawa
3 grants totalling:
$315,000

### QC

McGill University
13 grants totalling:
$5,244,930

Université de Montréal
12 grants totalling:
$3,026,048

Université Laval
10 grants totalling:
$3,715,000

Centre INRS-Institut Armand Frappier
1 grant totalling:
$315,000

### NB

Université de Moncton
1 grant totalling:
$100,000

### NS

Dalhousie University
2 grants totalling:
$325,000

### USA

Harvard University
1 grant totalling:
$165,000

Mayo Clinic
1 grant totalling:
$425,000

**FOR MORE INFORMATION VISIT WWW.ALS.CA/ALSRESEARCH**

Joint funding from the Brain Canada Foundation was made through the Canada Brain Research Fund with financial support from Health Canada.

## 2017: 12 grants totalling $3 million

DR. TURGAY AKAY / DALHOUSIE UNIVERSITY
$125,000
What can we learn from mice that are able to walk almost normally despite significant loss of motor neuron function?

DR. FLAVIO BERALDO / WESTERN UNIVERSITY
$110,770
Could touchscreen technology help to improve testing for the cognitive impairment that occurs in some cases of ALS?

DR. YVES DE KONINCK / UNIVERSITÉ LAVAL
$125,000
Could targeting the activity of motor neurons in the spinal cord be a new way to diagnose and treat ALS?

SONJA DI GREGORIO / WESTERN UNIVERSITY
$50,000
How might misfolded proteins that occur in ALS cause cells to die?

DR. HEATHER DURHAM / MCGILL UNIVERSITY
$1,800,000
Can a promising drug combination address one of the defining
biological characteristics of ALS?*

DR. DEREK GIBBINGS / UNIVERSITY OF OTTAWA
$125,000
Can microscopic bubbles in our bodies be used to deliver ALS treatments through the bloodstream?

AUDREY LABARRE / UNIVERSITÉ DE MONTRÉAL
$75,000
Will probiotics that improve ALS symptoms in worms also work in mice?

DR. MARCO PRADO / WESTERN UNIVERSITY
$125,000
Can a protein that becomes toxic in most cases of ALS be protected by adjusting the levels of another, "guardian" protein?

DR. RICHARD ROBITAILLE / UNIVERSITÉ DE MONTRÉAL
$121,048
Why are eye muscles often more resistant to ALS, and what can we learn about this that could help to preserve the function of other muscles?

JAY ROSS / MCGILL UNIVERSITY
$75,000
Could whole genome sequencing reveal new areas of genetic mutations that make some people more likely to develop ALS?

DR. STEFANO STIFANI / MCGILL UNIVERSITY
$124,930
Could the change in communication processes between motor neurons and the immune cells of the nervous system after an ALS diagnosis help to identify new treatment targets?

DR. LORNE ZINMAN / UNIVERSITY OF TORONTO
$124,949
Can image-guided focused ultrasound technology be used safely in people living with ALS as a means of delivering future treatment?

## 2016: 23 grants totalling $6.7 million

DR. GARY ARMSTRONG / MCGILL UNIVERSITY
$100,000
Creating new zebrafish models of ALS using a revolutionary technology called CRISPR where specialized genetic changes can be made in a way never before possible.*

DR. VERONIQUE BELZIL / MAYO CLINIC
$425,000
Canadian senior postdoctoral fellow studying how the most prominent genetic cause of ALS, C9orf72, causes disease and how to use this for treatment; her return to Canada following her studies will represent a very strong addition to our community.

DR. NEIL CASHMAN / UNIVERSITY OF BRITISH COLUMBIA
$100,000
Examining a specific structure in prominent ALS protein SOD1 to see if it can explain how ALS progresses in people.

DR. NEIL CASHMAN / UNIVERSITY OF BRITISH COLUMBIA
$100,000
Using fruit flies to test if ALS is spread from neuron to neuron by a protein called SOD1 that can be readily targeted with therapies.*

DR. SALI FARHAN / HARVARD UNIVERSITY
$165,000
Working on one of the largest databases of ALS genetic information to look for new genetic connections in the disease.

DR. ANGELA GENGE / MCGILL UNIVERSITY
$68,000
Develop a standardized set of tools to assist people living with ALS to safely drive as long as possible.

DR. CHARLES KREIGER / SIMON FRASER UNIVERSITY
$100,000
Studying a novel potential therapeutic target called adducin that could help strengthen the connection between motor neurons and muscle.*

DR. CARL LAFLAMME / MCGILL UNIVERSITY
$165,000
Characterizing a novel biological function of the most prominent ALS gene, C9ORF72.

DR. ÉRIC LECUYER / UNIVERSITÉ DE MONTRÉAL
$100,000
Using a specialized set of tools created by Dr. Lecuyer and colleagues to determine the contents of important, not yet fully understood particles in ALS called stress granules.*

DR. HONGLIN LUO / UNIVERSITY OF BRITISH COLUMBIA
$100,000
Exploring a connection between ALS and viral infection.

DR. MARLENE OEFFINGER / UNIVERSITÉ DE MONTRÉAL
$100,000
Studying the contents of recently discovered biological particles called paraspeckles in ALS.*



* Grants that were jointly funded by the Brain Canada Foundation through the Canada Brain Research Fund with financial support from Health Canada. The ALS Canada Research Program is administered by ALS Canada thanks to the generosity of donors and partnerships with provincial ALS Societies.

# 2016: 23 grants totalling $6.7 million

BASTIEN PARÉ / UNIVERSITÉ LAVAL
$75,000
Using a unique human skin model of ALS to understand the disease and potentially diagnose it earlier.

DR. JEEHYE PARK / UNIVERSITY OF TORONTO
$315,000
Creating a comprehensive program to understand how a recently identified ALS gene called matrin-3 causes ALS and how we can use this knowledge to treat the disease.

DR. ALEX PARKER / UNIVERSITÉ DE MONTRÉAL
$100,000
Using microscopic worms to study the effect of probiotics on ALS.*

DR. KESSEN PATTEN / CENTRE INRS–INSTITUT ARMAND-FRAPPIER
$315,000
Developing new zebrafish models of ALS that through collaboration will be used as a screening tool for finding new treatments.

DR. CHRISTOPHER PEARSON / UNIVERSITY OF TORONTO
$100,000
Using specialized expertise to understand complicated DNA structures in the most prominent genetic form of ALS.

DR. JANICE ROBERTSON / UNIVERSITY OF TORONTO
$1.6 million
Using a multidisciplinary team to comprehensively understand the normal function of the most prominent mutated gene/protein in ALS called C9orf72.*

DR. GUY ROULEAU / MCGILL UNIVERSITY
$2.2 million
Establishing a platform of stem cells derived from people living with ALS to create motor neurons and other important cells that can be studied in the lab and used to test new therapies.*

MONIKA SCHMIDT / UNIVERSITY OF TORONTO
$75,000
Studying how a potential repair mechanism for the most prominent ALS mutation may actually be making it worse.

DR. CHANTELLE SEPHTON / UNIVERSITÉ LAVAL
$100,000
Deciphering a new function in motor neurons for a prominent ALS protein called FUS.

DR. LISA TOPOLNIK / UNIVERSITÉ LAVAL
$100,000
Using a unique imaging technique to examine the motor cortex of the brain at the onset of ALS to determine its contribution and potential as a target for therapy.*

ELSA TREMBLAY / UNIVERSITÉ DE MONTRÉAL
$25,000
Studying the potential to target the connection between motor neurons and muscle as a place to treat ALS.

DR. MARK WARE / MCGILL UNIVERSITY
$147,000
Perform a clinical trial using liquid extracts of cannabinoids in different ratios to determine if quality of life measures are improved or maintained longer in ALS.

# 2015: 29 grants totalling $13.9 million

DR. GARY ARMSTRONG / UNIVERSITÉ DE MONTRÉAL
$425,000
Using a revolutionary gene-editing technology called CRISPR to create new zebrafish models of ALS in order to better understand and ALS and develop treatments.*

DR. FRANÇOIS BERTHOD / UNIVERSITÉ LAVAL
$100,000
Biomedical engineer creating a 3D model of ALS in a dish that could allow us to study human disease in a way that better mimics the human body.*

DR. NEIL CASHMAN / UNIVERSITY OF BRITISH COLUMBIA
$200,000
Examining a unique interaction between two prominent ALS proteins that has previously not been established.

DR. AVI CHAKRABATTY / UNIVERSITY OF TORONTO
$200,000
Using a state-of-the-art technique to understand the content of important biological substances called stress granules in ALS.

MANEKA CHITIPROLU / UNIVERSITY OF OTTAWA
$25,000
Examining a unique recycling and disposal pathway for prominent structures in ALS called stress granules.

DR. JACQUELYN CRAGG / UNIVERSITY OF BRITISH COLUMBIA
$55,000
Using epidemiological techniques to look for environmental risk factors for ALS.

MATTEO DA ROS / UNIVERSITY OF OTTAWA
$165,000
Examining a unique recycling and disposal pathway for prominent structures in ALS called stress granules.

DR. MARTIN DUENNWALD / WESTERN UNIVERSITY
$100,000
Looking at a novel ALS protein called RGNEF and how it is important to preventing ALS, as well as how it can be harnessed for therapeutic benefit.*

DR. HEATHER DURHAM / MCGILL UNIVERSITY
$100,000
Determining the effects of ALS pathology on a region of motor neurons called dendrites, which have largely been neglected in research to date.*

DR. JEAN-PIERRE JULIEN / UNIVERSITÉ LAVAL
$2.5 million
Preclinical testing of a new potential therapy derived from an Indian herb that has shown promise in ALS laboratory animal models, if successful it will could be tested on humans.*

DR. SANJAY KALRA / UNIVERSITY OF ALBERTA
$2.9 million
Establishing the basis of a national platform for high-powered brain imaging to look for biological differences that could help diagnose ALS earlier and better understand its progression.*

**FOR MORE INFORMATION VISIT ALS.CA/ALSRESEARCH**

* Grants that were jointly funded by the Brain Canada Foundation through the Canada Brain Research Fund with financial support from Health Canada. The ALS Canada Research Program is administered by ALS Canada thanks to the generosity of donors and partnerships with provincial ALS Societies.

# 2015: 29 grants totalling $13.9 million

DR. JIMING KONG / UNIVERSITY OF MANITOBA
$1.6 million
Using a new technique to target reducing an important toxic protein in ALS through IV infusion. It will be the first test of this technology, which could be applied in other ways if successful.*

DR. LAWRENCE KORNGUT / UNIVERSITY OF CALGARY
$500,000
A 100-person clinical trial at nine ALS clinics across Canada to test whether a drug called pimozide can slow progression of ALS.*

DR. JASNA KRIZ / UNIVERSITÉ LAVAL
$200,000
Examining the communication between motor neurons and their supporting cells in ALS.

DR. BLAIR LEAVITT / UNIVERSITY OF BRITISH COLUMBIA
$100,000
Targeting muscle with gene therapy to boost their responsiveness to motor neurons signals as a possible treatment for ALS.*

ÉRIC MARTINEAU / UNIVERSITÉ DE MONTRÉAL
$75,000
Examining if a unique supporting cell type can improve connection between motor neurons and muscle.

DR. PETER MCPHERSON / MCGILL UNIVERSITY
$100,000
Examining if a specialized system of transport within motor neurons is responsible for the most prominent genetic form of ALS.*

DR. PETER MCPHERSON / MCGILL UNIVERSITY
$100,000
Characterizing the normal function of the most prominent ALS protein, C9ORF72, to better understand how mutations are linked to disease.

DR. PIER JR MORIN / UNIVERSITÉ DE MONCTON
$100,000
Using a new technology to look for substances in blood samples called micro RNA in attempt to diagnose ALS earlier.*

DR. AMIR SANATI NEZHAD / UNIVERSITY OF CALGARY
$100,000
Bioengineer using unique talents to design a specialized device for studying motor neurons in a whole new way.*

DR. CHRISTOPHER PEARSON / UNIVERSITY OF TORONTO
$100,000
Unusual nucleic acid structures in C9orf72-related ALS/FTD repeat instability.

DR. VICTOR RAFUSE / DALHOUSIE UNIVERSITY
$200,000
Using a specialized model of ALS in the laboratory made from adult stem cells to study the effects of exercised muscle on motor neuron health in the disease.

DR. FABIO ROSSI / UNIVERSITY OF BRITISH COLUMBIA
$100,000
Using state-of-the-art technology to revolutionize our understanding of inflammation in ALS. It could completely change the way we treat the disease.*

DR. RAPHAEL SCHNEIDER / UNIVERSITY OF TORONTO
$200,000
Looking for biomarkers of earlier diagnosis of ALS by studying specific genetic structures.

DR. CHANTELLE SEPHTON / UNIVERSITÉ LAVAL
$100,000
Effects of ALS-linked FUS mutations on synaptic function.

DR. CHANTELLE SEPHTON / UNIVERSITÉ LAVAL
$315,000
Deciphering a new function in motor neurons for a prominent ALS protein called FUS.*

DR. PETER ST. GEORGE-HYSLOP / UNIVERSITY OF TORONTO
$1.4 million
Examining how a whole new aspect of biology, called liquid-liquid phase separation, in ALS and determining how it might be a strong target for identifying new therapeutics.*

DR. CHRISTINE VANDE VELDE / UNIVERSITÉ DE MONTRÉAL
$100,000
Looking at how abnormal forms of an ALS protein called SOD1 interact with the energy producing parts of motor neurons and how this might be an avenue for therapy. *

DR. CHRISTINE VANDE VELDE / UNIVERSITÉ DE MONTRÉAL
$1.7 million
Studying important but poorly-understood biological substances in motor neurons called stress granules that are connected to a protein that functions abnormally in 97% of ALS cases.*



* Grants that were jointly funded by the Brain Canada Foundation through the Canada Brain Research Fund with financial support from Health Canada. The ALS Canada Research Program is administered by ALS Canada thanks to the generosity of donors and partnerships with provincial ALS Societies.

# 2014: 13 grants totalling $1.4 million

DR. NEIL CASHMAN / UNIVERSITY OF BRITISH COLUMBIA
$100,000
Examining how a particular protein in ALS might be responsible for spread of the disease within a person.

DR. MARVIN CHUM / WESTERN UNIVERSITY
$200,000
Assessing the effect of non-invasive ventilation on quality of life and longevity in ALS.

DR. HEATHER DURHAM / MCGILL UNIVERSITY
$100,000
Determining the effects of ALS pathology on a region of motor neurons called dendrites, which have largely been neglected in research to date.

DR. AMANDA FIANDER / UNIVERSITY OF CALGARY
$50,000
Administration of a small, first-in-human clinical trial of pimozide to look for appropriate dosage and safety in ALS.

DR. CHARLES KREIGER / SIMON FRASER UNIVERSITY
$100,000
Attempting a new form of gene therapy where the cells called to the site of damage in ALS are boosted in their protective abilities, thereby causing the body to help treat itself.*

DR. JASNA KRIZ / UNIVERSITÉ LAVAL
$100,000
Examining the communication between motor neurons and their supporting cells in ALS.

DR. CLAIRE LEBLOND / MCGILL UNIVERSITY
$165,000
Looking for mutations in known ALS genes that might have occurred spontaneously in people with non-hereditary ALS.

ALEXANDRA LISSOUBA / UNIVERSITÉ DE MONTRÉAL
$105,000
Using zebrafish models of ALS, caused by different mutant genes, to find common pathways as targets for therapy in ALS.

DR. ALEX PARKER / UNIVERSITÉ DE MONTRÉAL
$100,000
Using microscopic worms called C elegans to understand how a previously unstudied arm of the immune system might be critical to ALS biology.*

DR. STEVEN PLOTKIN / UNIVERSITY OF BRITISH COLUMBIA
$100,000
Using physics and computational expertise to understand how abnormal proteins change their shape and become toxic to motor neurons in ALS.*

DR. JANICE ROBERTSON / UNIVERSITY OF TORONTO
$100,000
Determining the key substances that interact with the most prominent mutant protein in ALS called C9ORF72.*

DR. MICHAEL STRONG / WESTERN UNIVERSITY
$100,000
Characterization of a new mutant protein in ALS and how abnormalities may cause it to lose an important protective function, thereby causing ALS.

DR. MELANIE WOODIN / UNIVERSITY OF TORONTO
$100,000
Looking at the potential for specialized neurons in the brain to reduce firing of upper motor neurons as a potential avenue for ALS treatments.



* Grants that were jointly funded by the Brain Canada Foundation through the Canada Brain Research Fund with financial support from Health Canada. The ALS Canada Research Program is administered by ALS Canada thanks to the generosity of donors and partnerships with provincial ALS Societies.