DIVISION OF NEURODEGENERATIVE & NEURODEVELOPMENTAL DISORDERS

2025 ACTIVITY REPORT

LOCATION:

St. Boniface Hospital Albrechtsen Research Centre
351 Taché Avenue
Winnipeg, Manitoba R2H 2A6
Canada

Division of Neurodegenerative & Neurodevelopmental Disorders

2025 Activity Report

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1. Message from the Director

The Division of Neurodegenerative & Neurodevelopmental Disorders (DNND) is housed within the Dr. John Foerster Centre for Health Research on Aging at the St. Boniface Hospital Albrechtsen Research Centre. Established in 1999 through the St. Boniface Hospital Foundation's major "Age of Discovery" funding initiative, the Division has continued to grow as a centre of excellence in neuroscience research, education, and collaboration.

I am pleased to present the Division of Neurodegenerative & Neurodevelopmental Disorders' 2025 Activity Report.

In 2025, DNND researchers held approximately $6 million in active grant funding. Notable funding achievements during the year included:

- Drs. Renee Douville and Henry Dunn received a Canadian Foundation for Innovation (CFI) John R. Evans Leaders (JELF) Award valued at approximately $862,347.
- Dr. Michel Aliani received a five-year, $1.2 million CIHR Operating Grant, a Sustainable Canadian Agricultural Partnership (SCAP) award valued at $450,000, and a Global Lung Cancer Impact Challenge Award valued at approximately $585,000.

DNND investigators continued to make significant contributions to undergraduate and graduate education at the University of Manitoba, providing a broad range of teaching and mentorship opportunities. In 2025, our graduate students and trainees achieved exceptional success, receiving a total of 37 awards with a combined value of approximately $342,000.

The Division's research productivity also remained strong, with investigators publishing 17 full-length manuscripts in 2025.

Through the jointly funded Visiting Speaker Program of the Manitoba Neuroscience Network (MNN), a total of 13 invited speakers and seminars were hosted throughout the year. The MNN also continues to collaborate with the local Neurology Rounds program, which features presentations from experts within the local neuroscience and clinical communities.

The Speaker Program is jointly supported by the Manitoba Neuroscience Network; the Division of Neurodegenerative & Neurodevelopmental Disorders at the St. Boniface Research Centre; the Department of Pharmacology & Therapeutics at the University of Manitoba; and the Neuroscience Research Program at the Kleysen Institute for Advanced Medicine. Coordination of neuroscience-related seminars through the MNN continues to be highly effective, helping to minimize scheduling conflicts while maximizing participation and engagement across the neuroscience community.

The Division also remains an active participant in the Department of Pharmacology & Therapeutics Weekly Seminar Program. In addition, the administrative office of the Manitoba Neuroscience Network continues to be housed within the Division's administrative offices, further strengthening the Division's role in supporting neuroscience collaboration and communication throughout the region.

Despite ongoing challenges in the research funding landscape, including reductions in CIHR funding, the DNND continues to thrive. With a strong foundation of research excellence, successful trainees,

collaborative partnerships, and sustained external funding, the Division remains well positioned for continued growth and expansion in the years ahead.

Respectfully Submitted,

Paul Fernyhough, Ph.D. Director, Div. of Neurodegenerative & Neurodevelopmental Disorders,
St. Boniface Albrechtsen Research Centre;
Professor, Department of Pharmacology & Therapeutics, Univ. of Manitoba

2. Our Staff

Principal Investigators (7)
Fernyhough, Paul (Director)
Aliani, Michel
Douville, Renée
Dunn, Henry
Glazner, Gordon
Smith, Darrell
Suh, Miyoung

Graduate Students (20)
Ale, Ebenezer
Amiri, Shayan
Baskerville, Kaden
Candas, Joanna
Chauhan, Sanjana
Dhaliwal, Simran
Dhaliwal, Simrat
Feltham, Bradley
Goertzen, Alex
Mishra, Pranav
Parvin, Afroza
Perchotte, Chantal
Rideout, Andrew
Semenko, Breanne
Senadhiraja, Shanella
Siribaddana, Rashmi
Smith, Booke
Smith, Hayley
Tadele, Hanok
Walchuk, Chelsey

Undergraduate Students (17)
Barnabe, Maya
Bird, Sasha
Cameron, Sarah
de Sa Ferreira Lemos, Ana
Esporlas, Carla
Gaitho, Nicole
Laurencelle, Samantha
Milne, Sarah
Muldarh, Jaspal
Oduntan, Opemipo
Panchoo, Katelyn
Sharma, Snigdda
Sharpe, Dylaney
Simpson, Alaina
Tanti, Mansi
Vandenakker, Alex
Vermette, Thomas

Postdoctoral Fellows & Research Associates (2)
Clark, Jaime
Nandasiri, Ruchira

Technicians (7)
Esfahani, Ehsan
Le, Khuong
Niedermayer, April
Nguyen, (Terra) Thi Anh Thu
Odero, Gary
Perez, Claudia
Shariati-Ievari, Shiva

Administration (3)
Fernyhough, Paul (Director)
Jorundson, Kelly (Admin. Manager)
Melnyk, Vira (Glass wash Technician)

3. Academic Research Projects

A. Dr. Michel Aliani

Principal Investigator - Nutritional Metabolomics Research, Division of Neurodegenerative & Neurodevelopmental Disorders;

Professor - Human Nutritional Sciences, & Adjunct Professor - Physiology and Pathophysiology, University of Manitoba;

A functional food is any food claimed to have a health-promoting or disease-preventing property beyond the basic function of supplying nutrients. Nutritional interventions using functional foods have had a considerable role as legitimate therapeutic strategies to combat common metabolic disorders in Canada and around the world.

Acceptability of functional foods is a constantly evolving challenge to nutritional interventions where compliance is a key factor for success. Incorporation of novel ingredients in functional foods may shift the molecular balance of flavor precursors which can compromise consumer acceptability. Therefore, understanding the molecular interactions among natural flavor precursors and added bioactive compounds is crucial to our understanding of flavor formation in functional foods. Once ingested, the bioactive compounds are susceptible to major changes in the body with formation of novel compounds engaged in different biochemical pathways. The metabolomics studies of the metabolites derived from functional foods in the body are extremely informative on the effects exerted by these compounds.

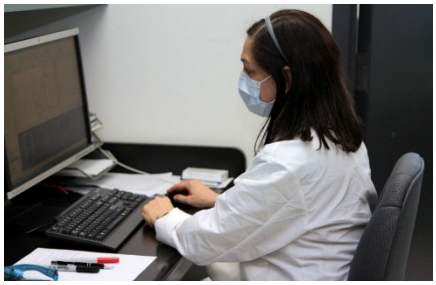
The focus of Dr. Aliani's research is therefore two-fold.

- To provide the scientific and molecular basis for the development and successful marketing of functional foods targeted to patients as well as healthy populations in the world and
- To investigate the effect of active compounds on metabolic pathways in animal and human model.

Dr. Aliani's current research projects include: Creation of a database for selected pulses and to investigate the effect of different processing on bioactive compounds using mass-spectrometry and NMR techniques (Funded by Saskatchewan Pulse Growers/CIGI/Warburton Ltd; Ronak Fahmi PhD project). This project is still ongoing and Ronak Fahmi is now writing her PhD Thesis.

Genetic markers for flavour selection in pork (Funded by ARDI in collaboration with Maple Leaf Ltd.; Erin Goldberg Post-doctoral Funded by MITACS). This project has been completed and a report has been provided Maple Leaf Ltd.

Identification of cancer specific metabolic signatures in body fluids of the patients with early-stage lung cancer using proton magnetic resonance spectroscopy (MRS) and mass spectrometry (MS) (Collaboration with Dr. Naseer Ahmed Funded by Manitoba Cancer Care). This project has been completed and two abstracts have been submitted. Manuscripts are currently being prepared.



Technician Shiva Shariati (Supervisor: Dr. M. Aliani)

B. Dr. Renée Douville

Principal Investigator - RetroFIND Laboratory, Division of Neurodegenerative & Neurodevelopmental Disorders;

Associate Professor - Department of Pharmacology, and Therapeutics, University of Manitoba

Dr. Renée N Douville is an Associate Professor in the Department of Pharmacology and Therapeutics at the University of Manitoba and a Principal Investigator in the Division of Neurodegenerative Disorders at the St. Boniface Hospital Albrechtsen Research Centre. She was formerly a Full Professor in the Department of Biology at the University of Winnipeg (2011-2023). Dr. Douville is best known for her expertise on human endogenous retroviruses and their potential roles in neurological disease. During her first postdoctoral fellowship, she published a seminal report on endogenous retrovirus-K (ERVK) activity in Amyotrophic Lateral Sclerosis (ALS).

The mission of my laboratory is to understand how human endogenous retroviruses contribute to motor neuron disease and dementia.

Over the last few years, her work has been largely focused on the discovery of a new viral protein in ERVK called conotoxin-like protein (CTXLP) found to be strongly expressed in ALS. Recently, the Douville lab has also shown the potential benefit of therapeutically targeting the ERVK integrase enzyme as a strategy to treat motor neuron disease. It is our continued mission to investigate whether antiviral drugs targeting ERVK could be used to treat neurodegenerative diseases like ALS and dementia.

This knowledge of host versus virus interaction is important for determining the cellular, immunologic, and viral factors that cause damage to neurons and promote neuropathology, and ultimately to identify novel therapeutic targets against these pathogenic viral symbionts. Our work in human, *Drosophila* (fruit fly) and murine models aims to assess the therapeutic efficacy of antivirals for the treatment of Amyotrophic Lateral Sclerosis (ALS) and dementia.

We are exploring how ERVK drives motor neuron disease and inflammation through the following projects in our laboratory:

1) The Douville lab has recently discovered a new ERVK protein called conotoxin-like protein (CTXLP). We are investigating how this novel viral protein contributes to ALS neuropathology by modulating inflammatory signaling and calcium channels in neurons.

2) We have predicted and shown that the ERVK integrase enzyme (a key viral protein for virus replication) causes DNA damage. This viral protein further modulates the DNA damage response and innate immune signaling cascades. We are investigating if integrase inhibitors could be used to treat ERVK integrase mediated motor disturbances in a fruit fly model with ERVK integrase-driven motor deficits.

3) We are screening new drugs to inhibit the ERVK protease enzyme. The ERVK protease is required for viral replication and to produce mature viral proteins. Thus, blocking its activity is an important therapeutic strategy to fight ERVK.

C. Dr. Henry Dunn

Principal Investigator - Molecular Pharmacology & Neuropsychiatric Disease Lab, Division of Neurodegenerative & Neurodevelopmental Disorders

Assistant Professor - Pharmacology and Therapeutics, Max Rady College of Medicine Rady Faculty of Health Sciences, University of Manitoba

Dr. Henry A. Dunn is an assistant professor in the Department of Pharmacology and Therapeutics at the University of Manitoba, and a principal investigator at St. Boniface Hospital Albrechtsen Research Centre where he leads the Molecular Pharmacology and Neuropsychiatric Disease Lab.

Dr. Dunn is best known for his work on G protein-coupled receptors (GPCRs): particularly, delineating molecular mechanisms of stress-induced anxiety and depression, and illuminating a novel trans-synaptic pharmacological regulation mechanism with relevance to attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder (ASD), and epilepsy.

These seminal studies have led to a keen interest in the interplay between synaptic adhesion molecules and synaptic GPCRs, including: (1) how these relationships are utilized in synaptic connectivity, neurotransmission and intracellular signalling, and (2) how these interfaces can be exploited for novel drug design in neuropsychiatric disease.

Dr. Dunn's research aims to elucidate the molecular mechanisms underlying neurodevelopmental and neuropsychiatric disease with the goal of facilitating the development of novel therapeutic strategies for a myriad of neurological conditions. Dr. Dunn's current projects are focused on pathogenic genetic variations in neurodevelopmental diseases, including autism spectrum disorder (ASD).

With a prominent focus and expertise on G protein-coupled receptors (GPCRs) and their associated signaling pathways – the pharmaceutical target of over 35% of FDA-approved drugs – Dr. Dunn's lab utilizes multidisciplinary approaches spanning molecular mechanisms to rodent models, including: molecular pharmacology, biochemistry, cellular & molecular neurobiology, bioinformatics and behavioral neuroscience.

Research Focus: Dr. Henry A. Dunn's research aims to elucidate the molecular mechanisms underlying neurodevelopmental and neuropsychiatric disease with the goal of facilitating the development of novel therapeutic strategies for a myriad of neurological conditions, including autism spectrum disorder (ASD), anxiety disorders, attention-deficit/hyperactivity disorder (ADHD), and epilepsy.

With a prominent focus and expertise on G protein-coupled receptors (GPCRs) and their associated signalling pathways – the pharmaceutical target of over 35% of FDA-approved drugs – Dr. Dunn's lab utilizes multidisciplinary approaches spanning molecular mechanisms to rodent models, including: molecular pharmacology, biochemistry, cellular & molecular neurobiology, bioinformatics and behavioural neuroscience.

D. Dr. Paul Fernyhough

Director - Division of Neurodegenerative & Neurodevelopmental Disorders

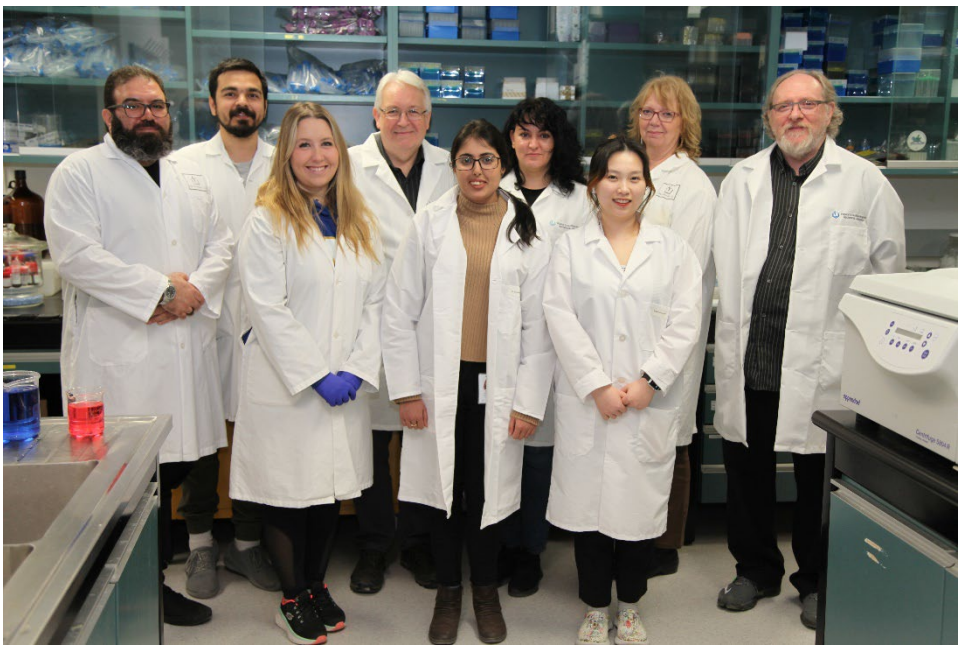
Principal Investigator - Cell Biology of Neurodegeneration Lab, Division of Neurodegenerative & Neurodevelopmental Disorders

Professor - Pharmacology and Therapeutics, Max Rady College of Medicine
Rady Faculty of Health Sciences, University of Manitoba

Founder - WinSanTor Inc.

The WHO informs us that by 2025 there will be 300 million sufferers from diabetes worldwide – a figure approximately equal to the population of the USA. Neurobiologist Dr. Fernyhough is studying the etiology of the peripheral nerve damage observed in patients with diabetes. In addition, he is researching the link between Alzheimer's disease and Type 2 diabetes. "In patients with Alzheimer's disease there is an increased risk of developing diabetes and these patients exhibit more severe and accelerated memory loss" says Dr. Fernyhough.

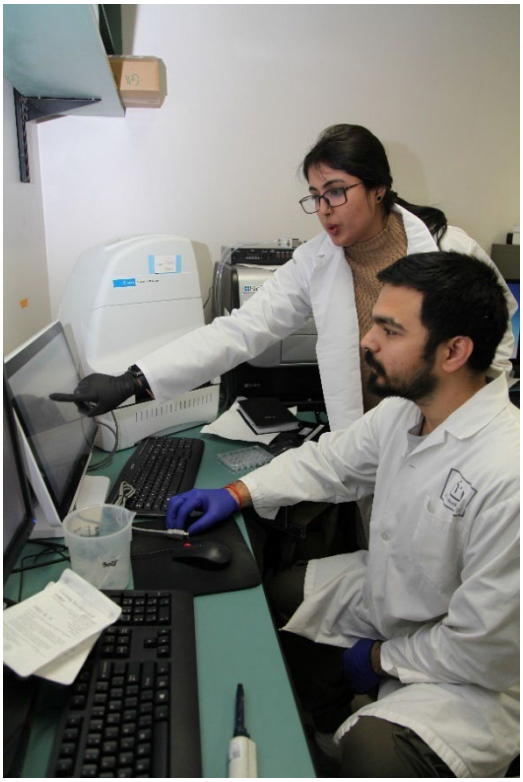
Our studies are focused on identifying key signaling pathways that are impaired in animal models of Alzheimer's disease. A major direction of the lab is to determine whether improper insulin signal transduction in neurons is central to axon and neuronal loss.



Fernyhough lab team: Back Row L-R Shayan Amiri, Pranav Mishra, Dr. Paul Fernyhough, Vira Melnyk, Kelly Jorundson, Dr. Darrell Smith; Front Row L-R Karmen Britton, Sanjana Chauhan, Terra Nguyen

Dr. Fernyhough's laboratory will be taking 2 paths over the next 3-5 years:

PROGRAM 1 – The main focus of our research will take a hypothesis-driven approach and perform mechanistic studies in order to understand the etiology of diabetic sensory neuropathy. This work is currently supported by CIHR and NIH. The program is multidisciplinary involving *in vitro* and *in vivo* paradigms and includes collaborative arrangements (see section later describing collaborations). The main body of work will use cutting edge real time imaging with standard and confocal microscopes to assess the role of impaired Ca^{2+} homeostasis, mitochondrial dysfunction, AMP-activated protein kinase pathway analysis and enhanced ROS levels in the etiology of diabetic neuropathy. Studies will be performed on adult neuronal tissues as single neuron cultures or slices of neuronal tissue.



Phd Students Sanjana Chauhan & Pranav Mishra reviewing their data on the Seahorse XFe24 Analyzer

PROGRAM 2 – In parallel the laboratory will take a translational approach and attempt to identify novel drugs for treatment of diabetic neuropathy. The JDRF has supported my laboratory in order to extend our drug screen studies. This work has now been supported by CIHR and NIH. We have identified at least 4 FDA-approved compounds that can improve axon regeneration in cultures of adult sensory neurons. This work has been taken *in vivo* to test the drugs in whole animal models of type 1 diabetes. In addition, medicinal chemistry is being used to identify related compounds that may also be efficacious and will permit generation of new IP. A CIHR-SPOR network grant is now supporting human clinical trials in diabetic neuropathy with a topical formulation developed in collaboration with Dr. Nigel Calcutt at UCSD. This work is being performed by Drs. Vera Bril and Bruce Perkins at the University Health Network in Toronto. This work is being mediated by a small biotech company, WinSanTor Inc, where Drs. Fernyhough, Nigel Calcutt and Lakshmi Kotra are the co-founders and Stanley Kim is the CEO. The company has been funded by several NIH SBIR and STTR grants to support drug development for treatment in diabetic neuropathy, chemotherapy-induced peripheral neuropathy and HIV-induced neuropathy. *Both programs of work are comprised of a number of local, national and international collaborations.*

M.Sc. Student Karmen Britton

E. Dr. Gordon Glazner

Principal Investigator - Cellular Neuropathology & Neurodegeneration, Division of Neurodegenerative Disorders

Assistant Professor - Pharmacology & Therapeutics, University of Manitoba

Cellular biologist Dr. Gordon Glazer is investigating protective mechanisms within the cell. When a neuron is under stress, it fights for survival by increasing the production of certain proteins. The balance that is struck between the death-inducing stress and the production of protective proteins will determine whether the cell lives or dies. The production of these proteins is controlled by transcription factors, and one of the most important of these is NF-kB. “NF-kB is a stressed-induced anti-stress response,” Dr. Glazner explains. “In neurons, NF-kB is always fairly high, which isn’t true of other cells. We believe it is important not just for survival but for function of the neuron itself, so discovering the ways in which outside messengers impact on that can be important for our understanding of how the nerve itself works and, in turn, for our understanding of clinical pathologies which involve neuronal death.”

PhD Student Pranav Mishra
(Supervisors: Drs. Ben Albensi & Paul Fernyhough)

F. Dr. Miyoung Suh

Principal Investigator - Nutrition and Neurological Diseases, Division of Neurodegenerative & Neurodevelopmental Disorders

Professor - Food and Human Nutritional Sciences, University of Manitoba

Registered Dietitian - College of Dietitians of Manitoba & Dietitians of Canada

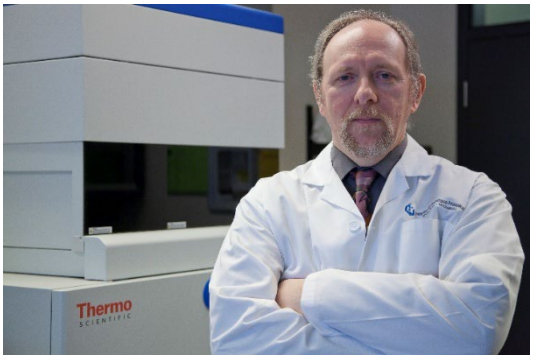
Dr. Miyoung Suh is a Professor in the Department of Food and Nutritional Sciences at the University of Manitoba, Canada. Additionally, she serves as a Principal Investigator in two divisions at the St. Boniface Hospital Research Centre in Winnipeg, Manitoba: the Division of Neurodegenerative and Neurodevelopmental Disorders (DNND) and the Canadian Centre for Agri-Food Research in Health and Medicine (CCARM).

Her ongoing research explores the critical roles of dietary lipids in the development and function of neural cells in the brain and retina, particularly under conditions of alcohol exposure, diabetes, and obesity. Additionally, she serves as a scientific health research liaison for the Opaskwayak Cree Nation (OCN) in The Pas, Manitoba. Her recent collaborative with OCN on a project to grow functional vegetables using smart vertical farm technology holds transformative potential in combating chronic diseases, especially diabetes, which is prevalent in northern communities. Overall, her research lays the groundwork for optimizing nutrition and developing dietary strategies that benefit both targeted clinical populations and the general public. Her work is currently supported by CIHR, NSERC-Horizon, and the CIHR Healthy Cities Research Training Platform (HCRTP).

Left to Right: Bradley Feltham, Rashmi Siribaddanage, Shanella Senadhiraja, Breanne Semenko, Dr. Miyoung Suh, Dr. Ruchira Nandasiri, Opemipo Oduntan

G. Dr. Darrell Smith

Research Scientist, Neurodegenerative Drug Discovery Lab, Division of Neurodegenerative & Neurodevelopmental Disorders



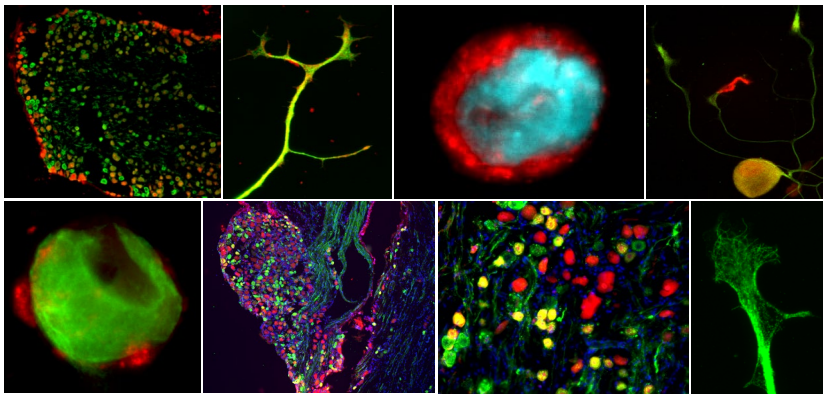
The goal of the lab is to advance the development and screening of agents that could be used to treat neurodegenerative problems, particularly peripheral neuropathies.

There is currently an incomplete understanding of the pathogenesis of most neurodegenerative disorders and there are no treatments able to delay the onset and slow the progression of many of these disorders. The common treatments used for peripheral neuropathies include pain relievers, anti-seizure medications, and antidepressants. These drugs are used to control the discomfort associated with peripheral neuropathies and have no effect on the progression of the neuropathies themselves.

Dr. Smith's lab uses primary cell cultures of adult sensory neurons. These cultures are useful for studying the regulation of neuronal survival, axonal regeneration, and cellular bioenergetics of axotomized neurons in the adult setting. An advantage of using cultured neurons from adult animals is that animals with an established disease can be used as a source of culture material. This culturing system is excellent for examining the effectiveness of compounds in repairing and preventing neuropathies in vitro. Screening of compounds is also performed in vivo. Rodent models of Type I and Type II diabetes exhibit very consistent levels of peripheral neuropathy. These models are excellent for examining the ability of compounds to prevent and/or reverse diabetic peripheral neuropathy in vivo.

Techniques:

- In vitro and in vivo modeling
- Animal models of Type I and Type II diabetes
- Primary sensory neuron culture
- Behavioral testing (Hargreaves, von Frey)
- Corneal confocal microscopy
- Fluorescent microscopy
- Western blotting
- Mitochondrial function (using cellular bioenergetics)



Observing the morphology of adult sensory neurons.

4. Academic Funding

Our faculty hold major funding awards from national/international agencies such as the Canadian Institutes of Health, Natural Sciences and Engineering Research Council of Canada, Research Manitoba, Brain Canada, ALS, and the Alzheimer Society. Our research is also supported by the St. Boniface Foundation and various provincial agencies such as Manitoba Egg Farmers, Manitoba Liquor & Lotteries, the University of Manitoba and Cancer Care Manitoba.

Academic **Active** Funding in DNND

TOTAL: $ 5,988,488.70

The following is a breakdown of active funding held by each of our principal investigators in 2025.

A. Dr. Michel Aliani

DATE	AGENCY	TITLE	AMOUNT/YR	TOTAL AWARD
04/01/2025 - 03/31/3031	CIHR	Project Grant 202409PJT-526513-NUT-CDAA-194469	$ 237,915.00	$ 1,189,575.00
10/01/2024 - 04/01/2025	SCAP	Mass Spectrometry for Nutritional Metabolomics	$ 450,000.00	$ 450,000.00
04/01/2025 - 03/31/2031	The Global Lung Cancer Impact Challenge	An electronic nose for diagnosing and monitoring lung cancer recurrence and treatment response ($450,000 USD)	$ 117,000.00	$ 585,000.00
Total Funding – Dr. Aliani			**$ 804,915.00**	**$ 2,224,575.00**

B. Dr. Renée Douville

DATE	AGENCY	TITLE	AMOUNT/YR	TOTAL AWARD
09/05/2025-03/31/2028	Canadian Foundation for Innovation (CFI)	CFI-JELF# 44953 - Subcellular Protein Assembly (SPA) Platforms for Investigating Mechanisms of Neurological Disease. Co-Applicant H. Dunn	$ 57,361.50	$ 172,084.50
09/05/2025-03/31/2028	Research Manitoba (apart of CFI)	CFI - G1 award - Subcellular Protein Assembly (SPA) Platforms for Investigating Mechanisms of Neurological Disease. Co-Applicant H. Dunn	$ 58,861.50	$ 172,084.50
09/05/2025-03/31/2028	Canadian Foundation for Innovation (CFI)	CFI – IOF (co-Applicant H. Dunn)	$ 10,325.10	$ 51,625.50

01/2023 - 12/2025	ALS Canada /Brain Canada	DNA damage driven motor disturbance in ALS: An ERVK integrase transgenic mouse model	$ 62,500.00	$ 125,000.00
04/01/2023 - 03/31/2026	NSERC RGPIN-2016-05761 (SRQ738535)	RetroExplorer: An interactive database of endogenous retroviruses in the human genome	$ 31,000.00	$ 93,000.00
01/2024 - 01/2025	St. Boniface Hospital Foundation 2401-3152	Effectiveness of antivirals against endogenous retroviruses in tauopathies	$ 119,130.00	$ 119,130.00
2025-2026	St. Boniface Hospital Foundation	SBHF Donation 2025 Edwards 2502-3152A	$ 50,000.00	$ 50,000.00
Total Funding – Dr. Douville			**$ 399,178.10**	**$ 792,924.50**

C. Dr. Henry Dunn

DATE	AGENCY	TITLE	AMOUNT/YR	TOTAL AWARD
09/05/2025-03/31/2028	Canadian Foundation for Innovation (CFI)	CFI-JELF# 44953 - Subcellular Protein Assembly (SPA) Platforms for Investigating Mechanisms of Neurological Disease. (PI: R. Douville)	$ 57,361.50	$ 172,084.50
09/05/2025-03/31/2028	Research Manitoba (a apart of CFI)	CFI - G1 award - Subcellular Protein Assembly (SPA) Platforms for Investigating Mechanisms of Neurological Disease. (PI: R. Douville)	$ 58,861.50	$ 172,084.50
09/05/2025-03/31/2028	Canadian Foundation for Innovation (CFI)	CFI – IOF (PI: R. Douville)	$ 10,325.10	$ 51,625.50
2024-2025	St. Boniface Foundation	Neurodegenerative Disorders 2504-3131	$ 6,154.86	$ 6,154.86

2023 – 2024	Brain Canada: Future Leaders in Canadian Brain Research	Future Leaders in Canadian Brain Research Program Title: "Atypical neuronal communication mechanisms disrupted in neuro-developmental disease"	$ 50,550.00	$ 101,100.00
08/01/2024 - 07/31/2026	Children's Hospital Research Institute of Manitoba (CHRIM)	Investigation of a novel trans-synaptic complex between molecules disrupted in neurodevelopmental disorders.	$ 60,000.00	$ 60,000.00
04/01/2024 - 08/31/2029	NSERC Early Career Researchers, Discovery Grants Program	Atypical trans-synaptic signaling pathways underlying synaptic diversity	$ 44,000.00	$ 220,000.00
04/01/2024 - 08/31/2029	NSERC DGECR - Discovery Launch Supplement Discovery Grants Program	Atypical trans-synaptic signaling pathways underlying synaptic diversity	$ 12,500.00	$ 12,500.00
08/01/2024 - 07/31/2026	Research Manitoba New Investigator Award	Novel mouse models harboring rare pathogenic mutations in human neurodevelopmental disease.	$ 65,000.00	$ 130,000.00
2022-2024	St. Boniface Hospital Foundation	Kali Dyck Award #2210-3247	$ 175,000.00	$ 425,000.00
2022-2024	St. Boniface Hospital Foundation #2210-3247a	Kali Dyck Award - Salary	$ 15,000.00	$ 75,000.00
Total Funding – Dr. Dunn			**$ 554,752.96**	**$ 1,425,549.36**

D. Dr. Paul Fernyhough

DATE	AGENCY	TITLE	AMOUNT/YR	TOTAL AWARD
04/01/2025 - 03/31/2026	St. Boniface Foundation	The Alfred E. Deacon Research Studentship Grant	$ 33,914.93	$ 33,914.93
04/01/2025 - 03/31/2026	St. Boniface Foundation	Nick Shepel Travel Award	$ 1,597.69	$ 1,597.69
12/01/2025- 11/30/2026	StimCell	Electrical stimulation to drive mitochondrial function	$ 37,079.00	$ 37,079.00
04/01/2025- 03/31/2026	Novo Nordisk	Proj #2 R&D Contracts 2025-006324, Drug screening for novel molecules that drive nerve growth	$ 84,998.22	$ 84,998.22
04/01/2025- 03/31/2026	Novo Nordisk	Proj #3 Drug screening for novel molecules that drive nerve growth	$ 112,600.00	$ 112,600.00
Total Funding – Dr. Fernyhough			**$ 270,189.84**	**$ 270,189.84**

E. Dr. Miyoung Suh

DATE	AGENCY	TITLE	AMOUNT/YR	TOTAL AWARD
04/01/2025 - 03/31/2026	St. Boniface Foundation	Efficacy of SMART Farm-Grown Broccoli Microgreen in Modulating Metabolic Syndrome in a Diet-Induced Obesity Rat Model 2404-3143	$ 10,050.00	$ 10,050.00
2023-2028	Canadian Institute in Health Research (CIHR) Project Grant	Role: PI Title: Perinatal nutrition strategy with omega-3 docosahexaenoic acid to protect brain in fetal alcohol spectrum disorders 202209PJT-487107-NUT-CDAA-134789 F326735	$ 113,220.00	$ 566,100.00

2021 - 27	Canadian Institute in Health Research-NSERC-SSHRC DH-2024-00076 F325123 Total award for team: 4.95M F325123	Healthy Cities Research Training Platform (HCRTP): Training grant Role: PI Title: Implementing Smart Cities Interventions to Build Healthy Cities. Three leading Univ: Dr. David Ma (Guelph, Nominated PA), Suh M (UM, PA), Laurette Dube (McGill, PA); and other co-applicants across Canada	$ 134,000.00	$ 402,600.00
2022 - 25	Canadian Institute in Health Research	A preclinical examination of omega-3 DHA for the prevention of FASD (B Feltham) CGS-D Doctoral Rch UMP# 57493 F325721	$ 5,000.00	$ 15,000.00
04/01/2024 - 03/31/2029	NSERC DH-2024-00076 (Horizon)	Production of functional vegetables for northern communities by harnessing smart vertical farm technology	$ 50,000.00	$ 250,000.00
08/01/2024 - 07/31/2025	Research Manitoba	Empowering Communities: The Collaborative Journey to Health Equity.	$ 6,500.00	$ 6,500.00
10/07/2024 - 03/31/2025	University of Manitoba	SREF Streamlined flash chromatography system for valorizing functional vegetables from smart farming technology.	$ 25,000.00	$ 25,000.00
Total Funding – Dr. Suh			$ 343,770.00	$ 1,275,250.00
DND Total Active Academic Funding Held in 2025			**$ 2,375,805.90**	**$ 5,988,488.70**

OTHER ACADEMIC FUNDING (no funding to DND PI)

DATE	AGENCY	TITLE	TOTAL AWARD
Dr. Aliani			
2019-2025	CIHR Project Grant	To determine the impact of breastfeeding, maternal food intake and infant gut microbiota on the risk of obesity and diabetes in First Nations women and children in rural communities. **Co-Investigator: M. Aliani**	$ 210,430.00
2023-2025	University of Manitoba	A pilot study to examine the health benefits of a traditional diet and lifestyle in a northern Manitoba Indigenous community **Co-Investigator: M. Aliani**	$ 24,675.00
2023-2028	CIHR Project Grant	Perinatal nutrition strategy with omega-3 docosahexaenoic acid to protect brain in fetal alcohol spectrum disorders **Co-Investigator: M. Aliani**	$ 566,100.00

Sanjana Chauhan, a PhD student in pharmacology and therapeutics at the Max Rady College of Medicine, will attend the online Leadership in the 21st Century course offered by the Wharton School at the University of Pennsylvania.

"I am constantly motivated to improve my leadership skills by looking for new challenges and approaches," said Chauhan, whose field is neuropharmacology. "This course will broaden my confidence and ability to speak in public."

Trainee Funding/Awards

TOTAL: $342,008.81

Congratulations to our trainees on receiving the following awards during 2025 that supported their salary and/or travel to international conference to present their scholarly work they are conducting at St. Boniface Research Centre.

DATE		AGENCY	TITLE	AMOUNT/YR
Afroza	Parvin	University of Manitoba	Rady Faculty of Health Sciences Graduate Studentship	$ 29,000.00
Baskerville	Kaden	University of Manitoba	Faculty of Graduate Studies Travel Award	$ 750.00
Baskerville	Kaden	St. Boniface Foundation	Nick Shepel Travel Aawrd	$ 750.00
Baskerville	Kaden	Canadian Institutes for Health Research (CIHR)	Canada Graduate Scholarship - Masters (CGS-M)	$ 27,000.00
Baskerville	Kaden	CIHR	Tri-Agency Top-Up Award-UM Faculty of Graduate Studies	$ 5,000.00
Barnabe	Maya	NSERC	USRA Summer 2025	$ 6,000.00
Bird	Sasha	Biotalent	Student Work Placement Program	$ 7,000.00
Cameron	Sarah	Biotalent	Student Work Placement Program	$ 7,000.00
Dhaliwal	Simrat	CIHR	Canada Graduate Scholarship - Masters (CGS-M) (declined)	$ 27,000.00
Dhaliwal	Simrat	Research Manitoba	Research Manitoba Graduate Studentship – Masters	$ 20,000.00
Dhaliwal	Simrat	Children's Hospital Research Institute Manitoba (CHRIM)	CHRIM Travel Award	$ 750.00
Feltham	Bradley	CIHR	Canada Graduate Scholarship - Doctoral Scholarship	$ 20,000.00

Feltham	Bradley	University of Manitoba	Graduate Teaching Award of Merit, Faculty of Agricultural & Food Sciences	$	-
Feltham	Bradley	ISSFAL	New Investigator Travel Awards, sponsored by AlaskOmega and N.I.H, ISSFAL Conference	$	-
Laurencelle	Samantha	University of Manitoba	Undergraduate Student Research Award	$	7,000.00
Laurencelle	Samantha	Biotalent Canada	Student Work Placement Program	$	7,000.00
Mishra	Pranav	University of Manitoba	Ed Kroger Travel Award for the International Congress on Academic Medicine	$	2,500.00
Mishra	Pranav	University of Manitoba	Bioscience Assoc. MB Poster Award	$	200.00
Nandasiri	Ruchira	Mitacs	Lab to Market & Mitacs	$	10,000.00
Rideout	Andrew	University of Manitoba	University of Manitoba Graduate Fellowship (UMGF)	$	25,000.00
Rideout	Andrew	St. Boniface Hospital Foundation	Dr. Alfred E. Deacon Research Studentship	$	10,412.50
Semenko	Breanne	University of Manitoba	Applied Health Services Research Micro-Diploma	$	12,500.00
Semenko	Breanne	St. Boniface Foundation	Alfred E Deacon Research Studentship	$	4,083.33
Senadhiraja	Shanella	University of Manitoba	Graduate Enhancement of Tri-Agency (GETS)	$	4,000.00
Senadhiraja	Shanella	St. Boniface Foundation	TD Bank Graduate Student Award	$	2,312.00
Senadhiraja	Shanella	University of Manitoba	Silver award for the poster in the master's category, 21st Annual Child Health Research Days. Winnipeg, MB. Oct 25-26.	$	-

Sharma	Snigdda	Biotalent	Student Work Placement Program #1	$	7,000.00
Sharma	Snigdda	Biotalent	Student Work Placement Program #2	$	7,000.00
Siribaddanage	Rashmi	University of Manitoba	Graduate Enhancement of Tri-Agency (GETS)	$	4,500.00
Siribaddanage	Rashmi	St. Boniface Foundation	Mark G & Patricia N Smerchanski Endowed Studentship Grant	$	9,584.00
Smith	Brooke	Research Manitoba	Graduate Studentship (declined)	$	20,000.00
Smith	Brooke	University of Manitoba	Honorable Mention Poster Award ENRRICH Research Symposium	$	-
Smith	Hayley	St. Boniface Foundation	Dr. Alfred E. Deacon Research Studentship	$	21,667.00
Smith	Hayley	University of Manitoba	3MT Finalist		--
Tadele	Hanok	University of Manitoba	University of Manitoba Graduate Fellowship	$	20,000.00
Tadele	Hanok	St. Boniface Foundation	Dr. Alfred E. Deacon Research Studentship	$	3,499.98
Tadele	Hanok	NSERC	Undergraduate Student Research Award	$	6,500.00
Vermette	Thomas	University of Manitoba	ENRRICH Summer Studentship	$	7,000.00
				$	342,008.81

Postdoctoral fellow
Dr. Ruchira Nandasiri

.

5. Teaching Activities

A. Dr. Michel Aliani

University of Manitoba

- HNSC2150 Composition, Functional and Nutritional Properties of Foods

B. Dr. Renée Douville

Teaching Activities

- PHAC7162 Neuropharmacology – Drugs for Neuroinflammation (1.5 hrs, March 24, 2025, Zoom)
- PHAC7162 Neuropharmacology – Neurodegen. & scientific art workshop (3 hrs, March 31, 2025, Zoom)
- PHAC7162 Neuropharmacology – Antimicrobials (3 hrs, April 7, 2025, Zoom)
- Unistra DMN Kick-off week at the University of Strasbourg, France (August 30 - Sept 6th, 2025)
- DMN welcome & opening for 2025-2027 M1 students (≈16 hrs, Sept 1 – 4, 2025, In-person Strasbourg)
- DMN Neuroimmunology – Historical perspective (1.5 hrs, Sept 2, 2025, In-person Strasbourg)
- Workshop 1: Implicit and Explicit Expectations (2 hrs, Sept 3, 2025, In-person Strasbourg)
- Workshop 2: Practical strategies to succeed in grad school (2.5 hrs, Sept 4, 2025, In-person Strasbourg)
- PHAC4030 – Neuroinflammation lecture (1.25 hrs, Sept 11, 2025, UM in-person)
- PHAC4030 – Neurovirology lecture (1.25 hrs, Sept 18, 2025, UM in-person)
- DMN Neuroimmunology – Complement (1.5 hrs, Sept 23, 2025, Zoom)
- DMN Neuroimmunology – Tolerance (1.5 hrs, Oct 9, 2025, Zoom)
- DMN Neuroimmunology – CNS infections (1.5 hrs, Nov 20, 2025, Zoom)
- DMN Neuroimmunology – Retroviral infections (1.5 hrs, Dec 9, 2025, Zoom)
- DMN Neuroimmunology – Proteinopathies (1.5 hrs, Dec 11, 2025, Zoom)
- DMN Neuroimmunology – Open session with students (+ Ghia) (1 hr, Dec 16, 2025, Zoom)

Program and Course Development:

- MNeuro / DMN program development
- Weekly steering committee meetings (Lelièvre, Anderson, Ghia and Douville)
- Organize housing options for incoming Strasbourg students (March 2025)
- DMN 2025-2026 student applications to review (159 total, April 2025)
- Edits for international cooperation agreement (April 2025)
- MNeuro and DMN timetabling (≈ 70+ hours, Lelièvre, Vienante, Douville)
- Rady capital fund: Lab Equipment purchases and installation (May 2025 – March 2026)
  - BioRad, AD Instruments, Fisher Scientific, Thermo Fisher
- Coordination of Lelièvre and Darbon visit to UM (June 16-20, 2025)

  - Preparation of itinerary
  - Host and coordinate meetings and tours
- Discuss lab course and equipment
- Organize dinners and transportation
- Participation in the Unistra DMN Kick-off week at the University of Strasbourg (Sept 2025)
- Maquette for DMN 2025-2026 (Sept 2025)
- OER Lab manual book preparation
- Organization of VSR Iris Taugourdeau's internship (Sept -Dec, 2025)
- Program proposal revisions (Anderson, Douville)
  - Adoption of core and concentration formats (Dec 2025)
  - Meeting with Provost and FGS (Dec 16, 2025)
- Writing new syllabi:
- IMED7829 Experiential Learning in Neuroscience
- Organization of UM instructors for Zoom and Moodle delivery for Winter 2026
  - Moodle instructions and troubleshooting
  - Syllabus preparation assistance
  - Timetabling coordination

C. Dr. Henry Dunn

Teaching Activities

2025 - present **PHAC 7136 – General Pharmacology**, University of Manitoba, Winnipeg, Canada
Lecturer, Graduate Studies

- A half-year undergraduate course averaging ~8 students per year, outlining fundamentals in pharmacology
- Providing 4 contact hours every year within the theme of pharmacokinetics.
- Designed and performed all lecture materials and exam questions.

2025 – present **PHAC 7165 - Neuropharmacology**, University of Strasbourg
Course Coordinator & Lecturer, Dual Masters of Neuroscience Program

- A half-year graduate course averaging ~13 students per year, outlining a diversity of topics within neuropharmacology, including neurological disease etiologies and pharmacological advancements.
- Providing 19 contact hours per year within the themes of pharamacokinetics, pharmacodynamics, GPCR pharmacology, psychotic disorders & antipsychotics, higher cognitive function & behavioural control, pharmacological, treatments for mood disorders, modulating disruptions in sleep & arousal, seizure disorders & anti-convulsants, stroke, cerebrovascular disease, migraine, & treatments, and neurodegenerative disorders & therapeutic strategies.
- Designed syllabus and all performed lecture materials and exam questions.

2024 - present **IMED 7112 – Fundamentals in Cellular Neurobiology**, University of Manitoba
Lecturer, Graduate Studies

- A quarter-year undergraduate course averaging ~12 students per year, outlining fundamentals in neurobiology
- Providing 1.25 contact hours every second year within the theme of signal transduction.
- Designed and performed all lecture materials and exam questions.

2024 - present **RESP 1440 - Pharmacology**, University of Manitoba
Lecturer, Undergraduate Studies

- A half-year undergraduate course averaging ~30 students per year, outlining mechanisms of pharmacokinetics.
- Providing 2 contact hours per year within the theme of pharamacokinetics.
- Designed all performed lecture materials and exam questions.

2023 - present **PHAC 7222 – Molecular Pharmacology**, University of Manitoba
Lecturer, Graduate Studies

- A half-year graduate course averaging 5 students per year, outlining mechanisms of action of therapeutic and recreational drugs with a focus on G protein-coupled receptors (GPCRs).
- Providing 4 contact hours per year within the theme of G protein-coupled receptors.
- Designed all lecture materials and exam questions.

2023 - present **PHAC 3000 – Foundations of Pharmacology**, University of Manitoba
Lecturer, Undergraduate Studies

- A half-year undergraduate course averaging ~40 students per year, providing basic pharmacology principles that prepare a strong foundation for future studies in pharmacology, toxiocology and health science with a focus on G-protein coupled receptors (GPCRs).
- Providing 2 contact hours per year within the GPCR theme.
- Designed all lecture materials and exam questions.

M.Sc. Student Hanok Tadele

Teaching Development

August 6, 2025 **TLC Orientation**
The Centre for the Advancement of Teaching and Learning University

D. Paul Fernyhough

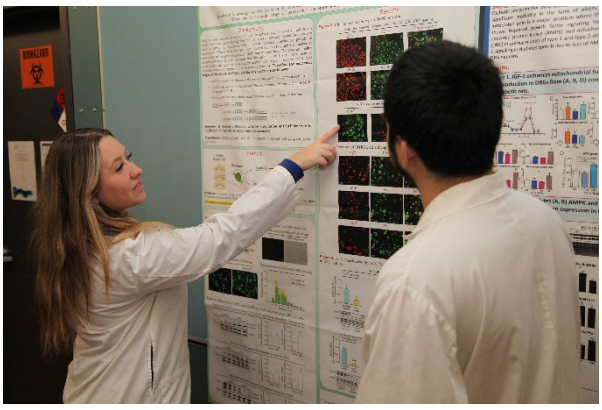
Current teaching

- Drugs and human disease (PHAC 4040) (2 x 3 credit hr 3/4th year undergraduate and 1st yr graduate level). I present 2 lectures on diabetes and 1 lecture on antiviral pharmacology.
- Molecular Pharmacology (PHAC 7222) (3 credit hr - 2nd year or above graduate level) – 12 lecture unit – I present 2 lectures on growth factor receptors, tyrosine kinases and associated receptors and one tutorial on critique of manuscript.
- Neuroscience (IMED 7112 and 7114) (6 credit hr - 1st/2nd yr graduate level) – coordinator of neurobiology of disease segment (ended 2020). Deliver 3 lectures on neurotrophins, transcription factors and peripheral neuropathy and mark dissertations.
- Pharmacology (PHAC 2100) (6 credit hr – Pharmacy course) – I deliver 3 lectures each year covering diabetes (2 hr) and GI tract (1 hr).
- Pharmacology (PHAC7230/7240) (6 credit physician assistant course) – I deliver 4 lectures each year on antivirals, antifungals, GI tract and diabetes. Ended 2024.
- Neuropharmacology (PHAC 7162) (1.5 credit hr – 2nd yr and above graduate level) – deliver 2 lectures on neuronal growth factors and PNS disease. Ended 2020.
- Pharmacology (ORLB3320) – 3rd year undergraduate dentistry course – I deliver 1 lecture.
- Pharmacology (RESP1440) – 1st year respiratory medicine course – I deliver 1 lecture. Ended 2025.
- Pharmacology (PHAC3000) – undergraduate fundamental course – I deliver 1 lecture.
- Neuroscience MSc course – I deliver 3 2hr lectures on the PNS.

E. Dr. Gordon Glazner

Current teaching

- PHAC 2100: Pain Physiology, Opioids/NSAIDs, Migraine/Gout, Autonomic Nervous System
- PHAC 7230: Autonomic Nervous System Addiction and Drugs of Abuse
- PHAC 7240: Adrenal & Thyroid



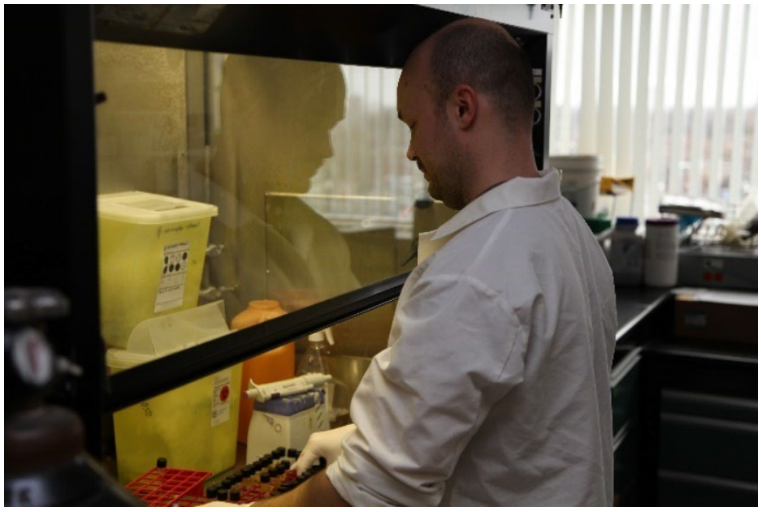
Graduate students Karmen Britton and Pranav Mishra.

F. Dr. Miyoung Suh

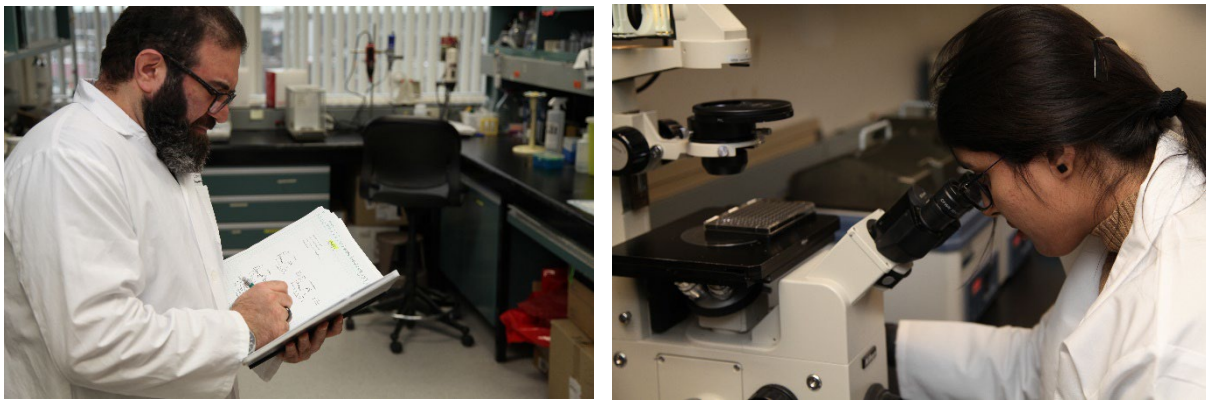
Current teaching

University of Manitoba, Department of Food & Human Nutritional Sciences

HNSC7110 Method Café, Food and Human Nutritional Sciences (co-offer with U of Guelph)
HNSC1210 Nutrition for Health and Changing Lifestyle



PhD Student Brad Feltham (Supervisor: Dr. Miyoung Suh)



Left panel: PhD Student Shayan Amiri; Right panel: Sanjana Chauhan (both supervised by Dr. Paul Fernyhough)

6. Publications (including Book Chapters)

A. Dr. Michel Aliani

1. S. Chauhan, D.R. Smith, S. Shariati-Ievari, A. Srivastava, S. Dhingra, M. Aliani, P. Fernyhough, Muscarinic acetylcholine type 1 receptor antagonism activates TRPM3 to augment mitochondrial function and drive axonal repair in adult sensory neurons, Molecular Metabolism 92 102083.

2. G.M. Dowling, M. Aliani, Emerging Applications of Targeted and Non-Targeted Metabolomics to Physiology and Pathophysiology, Frontiers in Physiology.

3. A.D. Goertzen, D. Ryland, S. Shariati-Ievari, K. Pitura, L. Bourré, P. Asavajaru, R. Nandhakishore, A.G.P. Samaranayaka, B. Polley, P. Bhowmik, M. Aliani, Investigation of flavor and functional properties of diverse yellow pea ingredients for pan bread applications, Journal of Food Science 90(12) e70724.

4. Shah, A. Surendran, P. Hassan-Tash, C.N. Turnbull, N. Johnston, D. Goodlett, J. Han, R.A. Ducas, J.W. Tam, E. Renner, T.A. Duhammel, M. Aliani, A. Ravandi, R.A. Krasuski, Association of Fontan pathophysiology with plasma bile acids, Journal of The American College of Cardiology Advances .

5. A.H. Shah, A. Ravandi, S. Dhingra, M. Aliani, K. Sivakumar, R.A. Krasuski, S. Ramakrishnan, Interplay between Elevated Bile Acids and Reduced Vitamin D Levels in Fontan Circulation: A Double-Edged Sword, Curr Cardiol Rep 27(1) 149.

6. J. Grant, G.M. Dowling, S. Ievari-Shariati, P. Zahradka, C. Taylor, M. Aliani, A lipidomics approach identifies the lipid classes modulated in response to hepatic steatosis in obese fa/fa rats relative to lean Zucker rats, Prostaglandins, Leukotrienes and Essential Fatty Acids 1-20.

7. Srivastava, A. Rafieerad, W. Yana, K.N. Alagarsamy, N. Sareen, L.R. Saleth, M. Aliani, S. Dhingra, Germanane quantum dots promote metabolic reprogramming of immune cells towards regulatory T cells and suppress inflammation in vitro and in vivo, Advance Functional Materials.

8. *I. Novel Technologies Applied to Flavoromics and Sensory Evaluation of Foods. This e-book contains 10 manuscripts focused on flavour studies. Edited in Collaboration with Dr. G. Dowling from Atlantic Technology University, Ireland. Frontiers Research Topics 2025 | Edited book DOI: 10.3389/978-2-8325-5938-3 ISBN: 9782832559383 *Part of* ISSN: 1664-8714

9. *II. Emerging Applications of targeted and Non-Targted Metabolomics to Physiology and Pathophysiology This e-book contains 10 manuscripts focused on Metabolomics applications of physiology. Edited in Collaboration with Dr. G. Dowling from Atlantic Technology University, Ireland. Frontiers Research Topics 2025 | Edited book DOI: 10.3389/978-2-8325-6900-9 ISBN: 9782832569009 *Part of* ISSN: 1664-8714

B. Dr. Henry Dunn

1. Zucca, S., Dao, M., Dunn, H.A., Sutton, L.S., Maza, M., Crynen, G., Lindsley, C., Niswender, C., Lujan, R., & Martemyanov, K.A. . Rewiring of cholinergic circuits in the nucleus accumbens orchestrates opioid reward. Proc Natl Acad Sci U S A. *doi: 10.1073/pnas.2409325122* (Impact Factor: 11.205)

2. Dunn, H.A., Dhaliwal, S.K., Chang, C., & Martemyanov, K.A.‡ . Distinct autoregulatory roles of ELFN1 intracellular and extracellular domains on membrane trafficking, synaptic localization, and dimerization. Journal of Biological Chemistry. doi: 10.1016/j.jbc.2024.108073. (Impact Factor: 5.157) ‡ co-corresponding authors

C. Dr. Paul Fernyhough

1. Mishra, P., Albensi, B.C. and P. Fernyhough* . Estradiol activates the CaMKKβ/AMPK pathway to enhance neurite outgrowth in cultured adult sensory neurons. *Molecular and Cellular Neuroscience*. 133: 104008. (if 4.5)

2. Chauhan, S., Calcutt, N.A. and P. Fernyhough* . M_1R Antagonism and TRPM3 activation as Stimulators of Mitochondrial Function and Axonal Repair in Diabetic Sensorimotor Polyneuropathy. *International Journal of Molecular Sciences*. 31: 26(15):7393. (if 5)

3. Mishra, P., Esfahani, E., Fernyhough, P.* and B.C. Albensi . Estradiol preferentially prevents amyloid beta-induced mitochondrial dysfunction and neurotoxicity in Alzheimer's disease via AMPK-dependent suppression of NF-κB signaling. *International Journal of Molecular Sciences*. 26, 2603. (if 5)

4. Chauhan, S., Smith, D.R., Shariati-Ievari, S., Srivastava, A., Dhingra, S., Aliani, M. and P. Fernyhough*. Muscarinic acetylcholine type 1 receptor antagonism activates TRPM3 to augment mitochondrial function and drive axonal repair in adult sensory neurons. *Molecular Metabolism*. 92: 102083. (if 7)

D. Dr. Miyoung Suh

1 Semenko B, Nandasiri R, Cook S, Wijekoon C, Suh M A cross-analysis of nutrient formulation, harvest time and post-harvest processing for antioxidant elicitation in broccoli sprouts (Submitted to Int J Food Sci Technol; IJFST-2025-41266)

2 Nandasiri R., Semenko B, Siribaddanage R, Wijekoon C, Suh M Air-frying improves the bioactive compounds of thermally processed Brassica oleraceae vegetables. ACS Food Sci & Technol: 5(4): 1400-1402. https://doi.org/10.1021/acsfoodscitech.4c00996

7. Conference Contributions

A. Dr. Renée Douville

1. *CCARM Food for Thought seminar series,* Winnipeg (May 29, 2025) Viral proteins in my ice cream?!? Exploring the role of endogenous retroviruses in food safety.

2. Manitoba Neuroscience Network meeting, Winnipeg, June 6, 2025 Plenary oral presentation (by Hayley Smith): *A Fight for Brandon*
    a) Poster #1: *ERVK integrase within CD14+CD11b+ myeloid cells as an ALS blood biomarker.*
    b) Poster #2: *ERVK integrase-driven DNA damage leads to motor deficits.*

3. ALS Canada National Research Summit (Invited, June 12, 2025)

4. 6th Virtual Bio-Techne Targeted Protein Degradation and Induced Proximity symposium (July 10, 2025)

5. ALS Canada National Research Summit follow-up meeting (Virtual, August 27, 2025)

6. CCARM International Trainee Symposium (Oct 15, 2025, registration desk)

7. 2025 Undergraduate Research Showcase (Oct 16, 2025, presented by Snigdda Sharma) Poster: *ERVK Integrase within CD11b+ myeloid & CD8+ T cells as ALS blood biomarkers*

B. Dr. Henry Dunn

1. Kaden R. Baskerville, Sarah J. Cameron, Tomi E. Vermette, and **Henry A. Dunn**. *Investigating a novel trans-synaptic complex of molecules independently implicated in ASD*. Annual Child Health Research Day (CHRD) Conference. Winnipeg, Canada. October 21, 2025.

2. Kaden R. Baskerville, Sarah J. Cameron, and **Henry A. Dunn**. *Novel extracellular interaction of mGluR5 and neurexin-1*. 2025 Excellence in Neurodevelopment & Rehabilitation Research In Child Health (ENRRICH) Research Day. Winnipeg, Canada. September 19, 2025.

3. Kaden R. Baskerville, Sarah J. Cameron, and **Henry A. Dunn**. *Novel trans-cellular interaction between neurexin -1 and mGluR5*. 23rd GPCR Retreat. Bromont, Canada. May 15, 2025.

4. Kaden R. Baskerville. *Novel trans-cellular interaction between neurexin -1 and mGluR5 (Oral Presentation)*. 23rd GPCR Retreat. Bromont, Canada. May 15, 2025.

5. Kaden R. Baskerville, Sarah J. Cameron, and **Henry A. Dunn**. Novel extracellular interaction of mGluR5 and neurexin-1. Manitoba Neuroscience Network Research Symposium. Winnipeg, Canada. June 6, 2025.

6. Kaden R. Baskerville. *Novel trans-synaptic structures in neurotransmission (Oral Presentation)*. Winnipeg Brain Bee. Winnipeg, Canada. March 8, 2025.

7. Hanok Tadele, Shayan Amiri and **Henry A. Dunn.** *Neuroligin 1 interaction and modulation of mGluR2 in trans*. 2025 Excellence in Neurodevelopment & Rehabilitation Research In Child Health (ENRRICH) Research Day. Winnipeg, Canada. September 19, 2025.

8. Hanok Tadele, Shayan Amiri and **Henry A. Dunn**. *Neuroligin 1 interaction and modulation of mGluR2 in trans*. 2025 Annual Child Health Research Day (CHRD) Conference. Winnipeg, Canada. October 21, 2025.

9. Afroza Parvin and **Henry A. Dunn.** *Investigating atypical neuronal communication mechanisms between ELFN1 and mGluR4 in rare neurodevelopmental disorders.* 23rd GPCR Retreat. Poster Competition. Bromont, Quebec Canada. May 15-17, 2025

10. Afroza Parvin and **Henry A. Dunn.** *Investigating atypical neuronal communication mechanisms between ELFN1 and mGluR4 in rare neurodevelopmental disorders.* Annual Research Symposium (An event of Manitoba Neuroscience Network). Poster competition. Winnipeg, Canada. June 06, 2025.

11. Afroza Parvin and **Henry A. Dunn.** Investigating atypical neuronal communication mechanisms between ELFN1 and mGluR4 in rare neurodevelopmental disorders. ENRRICH 2nd Annual Research Day. Poster Competition. Winnipeg, Canada. September 19, 2025.

12. Afroza Parvin and **Henry A. Dunn.** *Investigating atypical neuronal communication mechanisms observed in ELFN1 Deficiency Disorder.* 21st Annual Child Health Research Days (CHRD. Poster Competition. Winnipeg, Canada. October 21-23, 2025.

13. Simran K. Dhaliwal and **Henry A. Dunn.** *Structure-function analysis of ELFN1 in autoregulation and pharmacological modulation of mGluR7*. 23rd GPCR Retreat. Bromont, Quebec. May 15, 2025.

14. Brooke A. Smith and **Henry A. Dunn.** *Implications of the neuroligin-1/mGluR2 trans-complex in neurological disorders*. 2025 ENRRICH Research Day. Winnipeg, Canada. September 19, 2025.

15. Simrat Dhaliwal, Katelyn Panchoo, and **Henry A. Dunn.** *Evaluating the modulatory activity and binding capacity of hELFN1 on mGluR8 in trans*. 23rd GPCR Retreat. Bromont, Quebec. May 15, 2025

16. Simrat Dhaliwal, Katelyn Panchoo, and **Henry A. Dunn.** *Evaluating the modulatory activity and binding capacity of hELFN1 on mGluR8 in trans*. 2025 Manitoba Neuroscience Network Scientific Meeting. Winnipeg, Manitoba. June 06, 2025

17. Simrat Dhaliwal, Katelyn Panchoo, and **Henry A. Dunn.** *Evaluating the modulatory activity and binding capacity of hELFN1 on mGluR8 in trans*. 2025 Annual Child Health Research Days (CHRD) Conference. Winnipeg, Canada. October 21, 2025.

18. Sarah J. Cameron, Kaden R. Baskerville, and **Henry A. Dunn**. *L1 syndrome-causing L1CAM in transcomplex with mGluR5*. 2025 Manitoba Neuroscience Network Scientific Meeting. Winnipeg, Canada. June 06, 2025.

19. Sarah J. Cameron, Kaden R. Baskerville, and **Henry A. Dunn**. *L1 syndrome-causing L1CAM in transcomplex with mGluR5*. 2025 Excellence in Neurodevelopment & Rehabilitation Research In Child Health (ENRRICH) Research Day. Winnipeg, Canada. September 19, 2025.

C. Paul Fernyhough

1. Amiri, S., Aghanoori, M.R., Smith, D.R., Waise, T.M.Z., Lao, Y., Zahedi, R.P., and P. Fernyhough . β-arrestin-biased agonism at the muscarinic acetylcholine type 1 receptor regulates neuronal phenotype via engaging casein kinase 2. *British Pharmacology Society. New therapeutic modalities: Transforming receptor pharmacology.* April 2025, Cambridge, UK.

2. Mishra, P., Esfahani, E., Fernyhough, P., and B.C. Albensi . Neuroprotective potential of 17-beta Estradiol: Targeting Inflammation and Mitochondrial Dysfunction in Alzheimer's Disease. *Alzheimer's Association International Conference (AAIC*). July 2025, Toronto, ON, Canada.

3. Mishra, P., Esfahani, E., Fernyhough, P., and B.C. Albensi . Neuroprotective effects of 17-beta estradiol in Alzheimer's Disease: targeting mitochondrial dysfunction and inflammation. *FIU 4th Annual South Florida Translational Research Symposium.* April 2025, Port St. Lucie, Florida, USA.

D. Miyoung Suh

1. Senadhiraja S, Feltham BA, Candas J, Nguyen NA, Suh M Effects of Prenatal Alcohol Exposure (PAE) on Maternal Hepatic Lipid Metabolism and Inflammation. RCFT Food Technology and Research Day, Nov 13, 2025.

2. Senadhiraja S, Feltham BA, Candas J, Suh M Prenatal alcohol exposure (PAE) Disrupts hepatic lipid metabolism. Silver award for the poster in the master's category (CHRD), 21st Annual Child Health Research Days. Winnipeg, MB. Oct 25-26. (Senadhiraja received the Silver Medal, Poster Competition)

3. Siribaddanage R, Nandasiri R, Semenko B, Stephanie C, & Suh M Broccoli Microgreens Improve Hepatic Vitamin A Levels and Reduce Adiposity in A Rodent Model Of Diet Induced Obesity. 3rd International Trainee Symposium in Agri-Food, Nutrition, and Health (Oct 15-17,2025)

4. Siribaddanage R, Nandasiri R, Semenko B, Stephanie C, & Suh M Microgreens cultivated through SMART technology improves Hepatic Vitamin A status under obesogenic conditions. RCFTR Food Technology and Research Day, poster presentation (Nov 13, 2025)

5. Feltham BA, Walchuck C, Aliani M, Suh M Disrupted phospholipid remodeling in the fetal cortex induced by prenatal alcohol. 16th International Society for the Study of Fatty acids and Lipids (ISSFAL, 2025), Quebec City, Quebec, June 29-July 2, 2025 (Feltham received the New Investigator Travel Awards, sponsored by AlaskOmega and N.I.H).

6. Candas J, Guénette J, Moreno T, Walchuk C, Blewett H, Kim S, Suh M Effects of DHA and lutein enriched eggs on retina health and metabolic parameters in individuals with type 2 diabetes. 16th International Society for the Study of Fatty acids and Lipids (ISSFAL, 2025), Quebec City, Quebec, June 29-July 2, 2025

7. Walchuk C, Feltham BA, Suh M Prostate lipid dysregulation in metabolic syndrome: Investigating the role of dietary oleic acid (C18:1n9). Canadian Nutritional Society Conference, Montreal, May 8-11, 2025

8. Candas J, Guénette J, Walchuk C, Blewett H, Kim S, Suh M Discrepancies between perceived and actual retina health and dietary practices in individuals with type 2 diabetes. Canadian Nutritional Society Conference, Montreal, May 8-11, 2025 (Candas received the Equity in Nutrition Travel Awards).

9. Feltham BA, Walchuk C, Aliani M, Suh M Exploring the impact of prenatal alcohol exposure on the fetal brain lipidome. Canadian Nutritional Society Conference, Montreal, May 8-11, 2025

10. Candas J, Guénette J, Walchuk C, Blewett H, Kim S, Suh M Discrepancies between perceived and actual retina health and dietary practices in individuals with type 2 diabetes. Canadian Nutritional Society Conference, Montreal, May 8-11, 2025

L-R: Graduate Students Karmen Britton, Sanjana Chauhan, Pranav Mishra, Shayan Amiri (Supervisor: Dr. Paul Fernyhough)

8. Invited Presentations, Scholarly & Outreach Activities

A. Dr. Michel Aliani

Invited Talks

1. International Society for Study of Fatty Acids and Lipids Quebec City; 29 June-02 July, 2025 Opening session Speaker: "A Lipidomics Approach Identifies the Lipid Classes Modulated in Response to Hepatic Steatosis in Obese *fa/fa* Rats Relative to Lean Zucker Rats".

2. Richardson Center Food Technology and Research Day Winnipeg; 13 Nov 2025 Speaker: "Investigation of Flavour and Functional Properties of Diverse Yellow Pea Ingredients for Pan Bread Applications: A Flavouromics and Artificial Intelligence Approach".

Administrative Appointment

07/01/2024 – 12/31/2025 Associate Dean Academic
Faculty of Agricultural and Food Sciences
University of Manitoba

Committees

Departmental:

2024-2025	Member, Research Committee
2024-2025	Chair, Curriculum Committee

Faculty:

2025	Chair, Faculty Promotion Committees
2023 – 2025	Chair, Endowment Committee
2023 – 2025	Chair, Undergraduate and Graduate Awards Committee

University

2025	Member, Committee - Associate Dean Academic
2025	Member, Dean's Committee
2024 – 2025	Member, Aging Advisory Committee

Reviewing Activities

Journals

Jan 2025-Dec 2025	Journal of Food Science; Food Chemistry, Frontiers in Physiology

Grants

Jan 2025-Dec 2025	Reviewer - CIHR Operating Grants
Jan 2025-Dec 2025	Review - CFI

B. Dr. Renée Douville

Committee & Administrative Service:

SBRC Service:

- Coordination of new BSCs installation in Douville and Czubryt labs (August 2025 – April 2026).

DPT Service:

- DPT knowledge review chair (for Chelsea Lukawy), Nov 13, 2025

University Service:

- Rady Faculty of Health Sciences studentships review (Jan 2025)
- Forough Khadem scholarships review (June 2025)
- WISDOM mentorship program (Group #8, May-Dec 2025)

University committees:

- UM Internal Research Grants Committee (2023-2026) UIPPSF & URGP NSE-related applications

National committees:

- NSERC S&F Spring Chairs' Policy Meeting, Chaired meeting, March 20, 2025
- NSERC 19th Committee on Discovery Research meeting, June 4, 2025

Conference organization:

- Co-organizer (with E. Eftekharpour) of Manitoba Neuroscience Network meeting (June 6, 2025).

Peer review:

- FightMND Cure grant round 2025 (Discovery grant panel, May 2025)
- Swiss National Science Foundation, review application CRSK-3_237824 (May 2025)
- External reviewer, Dr. Iordanskiy (Dept of Pharmacology & Molecular Therapeutics, Uniformed Services University of the Health Sciences) promotion and tenure review (July 10, 2025)
- Reviewer for *Virologie* journal, French language manuscript review (Dec 2025)
- Rady Faculty of Health Sciences Graduate Studentships reviewer (Dec 2025)

Professional development:

- Rady Emerging Women Leaders Program (October 6-7, 2025 & Nov 6, 2025)

Media Interviews and Community Outreach:

- SBHF Lab tour: Hiebert family (Jan 24, 2025)
- Douville CJNU Interview (Feb 21, 2025)
- Douville lab CJNU Interview (Feb 24, 2025, presented by Hayley Smith and Snigdda Sharma)
- Live-on-air interview, CTV Morning Live (March 6, 2025)

- Annual Reviews Knowable magazine interview with Amber Dance, *How rogue jumping genes can spur Alzheimer's, ALS.* (May 2025) https://knowablemagazine.org/content/article/health-disease/2025/awakened-viral-jumping-genes-role-in-alzheimers-als
- Wealth Management Walk for Alzheimer's, Douville lab team, Raised $200+ (May 24, 2025)
- ALS Walk for the Cure in Assiniboine Park, Douville Lab team, Raised $200+ (June 7, 2025)
- SBHF researcher representative, Edna Edwards memorial service (June 14, 2025)
- SBHF Lab tour: Robidoux family (October 16, 2025)

C. Dr. Henry Dunn

Invited Talks:

Atypical neuronal communication mechanisms disrupted in neurodevelopmental disease" Invited presentation for 4th Annual GPCRs-Targeted Drug Discovery Summit. **Boston, USA.** May 22nd, 2025.

Reviewer:

June 2025 -Present	Mitacs Accelerate Program - Reviewer. Peer reviewer of Mitacs Accelerate Program supporting dynamic collaborations between for-profit and not-for-profit organizations: providing scoring and written feedback to candidates on strengths and weaknesses of grant applications.
November 2024-Present	*RFHS Studentships – Reviewer*. Peer reviewer of Rady Faculty of Health Sciences Studentships supporting high-caliber graduate students: providing scoring and written feedback to candidates to highlight the strengths and weaknesses of their grant applications.
October 2024-Present	*Brain Canada: Future Leaders Awards – Reviewer* Peer reviewer of Brain Canada: Future Leaders in Canada Brain Research Awards letters of intent and full applications supporting early-career neuroscience investigators with $100,000 grants.

Committees:

August 2024-Present	*UMFA Board of Representatives* Department of Pharmacology & Therapeutics Representative (Alternate) *University of Manitoba Faculty Association* The Board adopts policy, appoints committees and the Executive Council (except for the President and Vice-President who are elected by the membership), considers recommendations to general meetings, and oversees the work of the Executive Council.
July 2024-Present	Max Rady College of Medicine Executive Council Department of Pharmacology & Therapeutics Representative Committee dedicated to act and recommend on matters of an academic character, from the Rady Faculty of Health Sciences Bylaw.

July 2024-Present	Faculty Search Committee External member for College of Pharmacy position focused on pharmaceutics.
June 2024- October 2024	Co-Chair ENRRICH Conference Planning Committee Excellence in Neurodevelopment and Rehabilitation Research in Child Health Organizing of first-ever ENRRICH academic symposium hosting Manitoba-focused oral and poster presentations and an external keynote speaker.
March 2024-July 2024	Chair Scientific Conference Planning Committee Manitoba Neuroscience Network Scientific Retreat Organizing of academic symposium hosting Manitoba-focused oral and poster presentations and supplements MNN annual budget. Manitoba Neuroscience Network
February 2024-Present	Graduate Studies Committee Department of Pharmacology & Therapeutics Committee responsible for updating and maintaining graduate studies' regulations and award processes for graduate students.

D. Dr. Paul Fernyhough

Professional Activities

- Director of Division of Neurodegenerative Disorders, St Boniface Hospital Albrechtsen Research Centre (2004 onwards).
- Chair of Promotion and Tenure committee (2023 onwards)

Grant Panels

- Canadian Institutes of Health Research (CIHR) – Cell Biology and Mechanisms of disease panel – Sept 2012 onwards.
- CIHR – 2016 onwards - member of college of reviewers.
- NIH research study section – NINDS Clinical Neuroplasticity and Neurotransmitters (CNNT) Study Section – March 2005 to 2010 and then Oct 2014 onwards as ad hoc reviewer.

Editorial boards

- Current Diabetes Reviews (Bentham Science Publishers Ltd) – started June 2005.

Consultancy work

- Consultant for Sangamo Biotech Ltd, San Francisco, Ca, USA. Started July 2005.
- Consultant for Savient Pharmaceuticals, Inc., One Tower Center, 14th Floor East Brunswick, New Jersey 0881. Started Sept 2005.
- International Diabetic Neuropathy Consortium (IDNC) – Special Interest Group (SIG) of *Peripheral Nerve Society*. Board member from May 2022 onwards.

Professional advisory or consultancy work

- International Diabetic Neuropathy Consortium (IDNC) – Special Interest Group (SIG) of *Peripheral Nerve Society*. Board member from May 2022 onwards.
- Consultant for Sangamo Biotech Ltd, San Francisco, Ca, USA. Started July 2005.
- Consultant for Savient Pharmaceuticals, Inc., One Tower Center, 14th Floor East Brunswick, New Jersey 0881. Started Sept 2005.

Service as grant or journal referee

Journals:

- Acta Neuropathologica
- Brain
- Brain Research
- British Journal of Pharmacology
- Canadian Journal of Neurol. Sci.
- Diabetes
- Diabetologia
- Experimental Neurology
- European Journal of Neuroscience
- European Journal of Pharmacology
- Intl. J. of Biochemistry and Cell Biology
- Journal of Pain
- Journal of Neuroscience
- Journal of Neurochemistry
- Journal of Neurophysiology
- Journal of the Peripheral Nervous System
- Molecular Brain Research
- Molecular and Cellular Neuroscience
- Nature Communications
- Neurobiology of Disease
- Neuron
- PNAS
- Science Translational Medicine

Grant bodies:

BBSRC (UK)
CIHR (NSB and CBM)
Dept. of Defense (USA)
Diabetes UK
HSFC
JDRF (USA)
CRC Canada
CFI Canada
Motor Neurone Disease Association (UK)
MRC (UK)
NHMRC (Australia)
NIH (USA)
NSERC
Wellcome Trust (UK)

Faculty or University level Committees

- Chair, Search Committee for Assistant Professor position in Department of Pharmacology, University of Manitoba (2 positions).
- Member of Committee – Review of Pharmacology Graduate course
- Faculty of Medicine tenure and promotions committee – 2007 onwards.
- Member panel to review Basic Science research performance and strategy (Feb 2020 onwards)

Symposia at International Conferences

- Judge each year from 2006 onwards for CIHR Research Days at Univ of Manitoba

Membership of learned societies

- Peripheral Nerve Society (since 2003)
- Canadian Association for Neuroscience (since 2004)
- NEURODIAB (since 2011)
- Biochemical Society (since 2017)
- American Society for Pharmacology and Experimental Therapeutics (2017-2025)
- Canadian Society of Pharmacology & Therapeutics (since 2022)

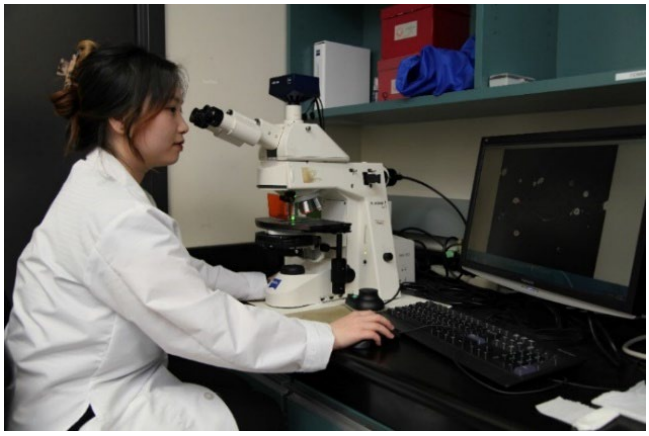
E. Dr. Gordon Glazner

Editorial

- **Ad Hoc reviewer:** Journal of Neuroscience, Journal of Neurochemistry, Brain Research, Experimental Neurology

Membership

- **Member**, Society for Neuroscience 1994-present



Research Technician Terra Nguyen on the Zeiss Axioskop 2 fluorescent microscope

F. Dr. Miyoung Suh

Honors

- Dr. James House Memorial Award for Excellence in Postdoctoral Mentoring (Natural and Applied Sciences), Faculty of Graduate Studies, University of Manitoba

Invited Presentations

- Suh M *From Bench to Bedside: Nutritional Approaches to Protecting Retinal Function* in Diabetes and Aging' Canadian Nutritional Society, Webinar Series, Nov 26.

- Suh M *Growing Health: Smart Vertical Farming to Support Mothers.* Moms in Motion Conference 2025, Winnipeg, MB Oct 10

- Suh M *Functional Vegetables from Farm to Function: A Strategy for Diet-Induced Obesity Prevention.* Canada-Korea Conference, Montreal, Quebec, July 19-Aug 1

- Suh M *Building Research Networks with the Health Industry and Indigenous Communities: Strategies and Reflections.* AKCSE Technical Seminar Series, The Association of Korean-Canadian Scientists and Engineers, May 15 (Virtual)

- Suh M *Smart Farming for Health Equity: Innovations Supporting Northern Indigenous Communities (Plenary talk)* Annual Joint NSERC CREATE Conference, York University, Toronto, Apr 27-28

- Suh M *Working Together to Advance Health in Indigenous Communities*

- CCARM Research Day, Winnipeg, Jan 27

Graduate Student Committees

PhD

- Ellery Burton, *Biomedical Engineering*

MSc

- Bin Saeed, Civil Engineering
- Qasim Jordan Charney, Human Nutritional Science
- Sawanee Wickramase, Human Nutritional Science

Academic Committees and Related Administrative Duties

- University of Manitoba Small Research Equipment Funding Program Review Committee
- University of Manitoba CIHR-PhD Review Committee
- Department of FHNS Dietetics Committee

- Advisory Board Member, The Association of Korean-Canadian Scientists and Engineers-Manitoba Chapter
- Reviewer, Nutrients and Internal J Food Properties

Professional Service

- Winnipeg Regional Health Authority, Liaison between HNS and WHRA policy updates
- Vice President (Research), Canadian Nutritional Societies
- Vice President (EDI), Association of Canada-Korea Scientist and Engineers
- Management Team, CIHR SMART Training Platform for Healthy Cities, (https://smart-training.ca/)

Representation on Behalf of CCARM

Attend regular meetings and activities, presented at the Townhall meeting

9. Visiting Speaker Program & Seminar Series

The Division of Neurodegenerative & Neurodevelopmental Disorders, the Neuroscience Research Program located within the Kleysen Institute for Advanced Medicine at the Health Sciences Centre, and the Department of Pharmacology & Therapeutics, University of Manitoba, conjointly participate in funding the Manitoba Neuroscience Network's Seminar Series/Visiting Speaker Program. The Manitoba Neuroscience Network's administrative office is located within the Division of Neurodegenerative & Neurodevelopmental Disorders.

DATE	SPEAKER
January 24, 2025	Dr. Yun Li Assistant Professor, University of Toronto, Scientist, Hospital for Sick Children
February 27, 2025	Dr. Graham Collingridge, CBE, FRS, PhD Professor, University of Toronto. Director, Tanz Centre for Research in Neurodegenerative Diseases, Krembil Family Chair in Alzheimer's Research. Senior Investigator, Lunenfeld-Tanenbaum Research Institute, Mount Sinai Hospital, Toronto
March 5, 2025	Dr. Cindi Morshead, PhD Professor, Division of Anatomy, Department of Surgery Donnelly Centre for Cellular + Biomolecular Research Institute of Biomedical Engineering Temerty Faculty of Medicine | University of Toronto KITE - Toronto Rehabilitation Institute, University Health Network
March 14, 2025	Dr. Paul Fernyhough Professor, Dept of Pharmacology & Therapeutics, University of Manitoba and Director, Division of Neurodegenerative and Neurodevelopmental Disorders, St. Boniface Research Centre

April 4, 2025	Dr. Paul Marcogliese Assistant Professor, Biochemistry & Medical Genetics, Rady College of Medicine Rady Faculty of Health Sciences, University of Manitoba Investigator - Children's Hospital Research Institute of Manitoba (CHRIM)Co-lead – Multi-OMICS pipeline for Mainstreaming Genomics in Manitoba (MGM).
April 17, 2025	Dr. Paul Franklin Senior Scientist, Neurosciences & Mental Health, Hospital for Sick Children Professor, Depts. Psychology and Physiology, University of Toronto
May 15, 2025	Dr. Veronique Miron, PhD Professor in the Department of Immunology, John David Eaton Chair of Multiple Sclerosis Research at the Keenan Research Centre for Biomedical Science, Unity Health Toronto, University of Toronto.
May 29, 2025	Dr. Qi Yuan Professor, Faculty of Medicine Memorial University of Newfoundland
June 5, 2026	Dr. Rick Dobrowsky Professor, Dept of Pharmacology & Toxicology University of Kansas
June 6, 2025	Manitoba Neuroscience Network Scientific Meeting Keynote Lecture: Professor Jean-Pierre Julien, University of Laval
September 25, 2025	Dr. Stephen Ferguson Distinguished Research Professor in Neurodegeneration Department of Cellular and Molecular Medicine, University of Ottawa
October 24, 2025	Neuroscience Grand Rounds Dr. Thomas Klonisch
October 29, 2025	Tamara Franklin Associate Professor, Department of Psychology and Neuroscience Dalhousie University

10. Manitoba Neuroscience Network

The Manitoba Neuroscience Network (MNN) is an organization of academic faculty, physicians, research professionals and trainees dedicated to advancing networking, outreach and education in the neurosciences in Manitoba. Over 60 primary research investigators from four University of Manitoba Faculties, five research institutes and the University of Winnipeg are unified by the activities of the MNN in a virtual institute model, showcasing world-class interdisciplinary neurosciences research being conducted in Manitoba, recruiting and training highly qualified research personnel and creating new opportunities to inform the public of the value of research in the neurosciences.

MNN outreach is accomplished by a rich and growing series of activities including extensive participation in International Brain Awareness Week, public presentations, Café Scientifique public forums on current topics, creation and curation of neurosciences-based art, and funding awards for aspiring research neuroscientists.

The role of the MNN is to organize Manitoban neuroscientists with a unified voice for promotion of research networking, outreach and education. There is no singular representative neuroscience department or institute in Manitoba. Rather, MNN's strength is drawn from multiple component departments, centres, faculties and institutes in Manitoba.

The general office for the Manitoba Neuroscience Network is located within the Division of Neurogenerative & Neurodevelopmental Disorders, St. Boniface Hospital Research Centre.

A. Annual Scientific Meeting

MNN's Annual Scientific Meeting was held on June 6, 2025 at the Winnipeg Art Gallery. Attended by approximately 175 neuroscientists, trainees, clinicians the event included keynote speakers and a trainee poster session where approximately 73 trainees were on site showcasing their research. The Keynote Speaker was Jean-Pierre Julien, Professor, Department of Psychiatry and Neuroscience, Université Laval.

Keynote Lecture: Sponsored by ALS Canada

Proteinopathy in ALS and dementia: From basic science to novel therapeutic approaches.

Jean-Pierre Julien, Ph.D.,
CERVO Brain Research Centre,
Department of Psychiatry and Neuroscience,
Laval University

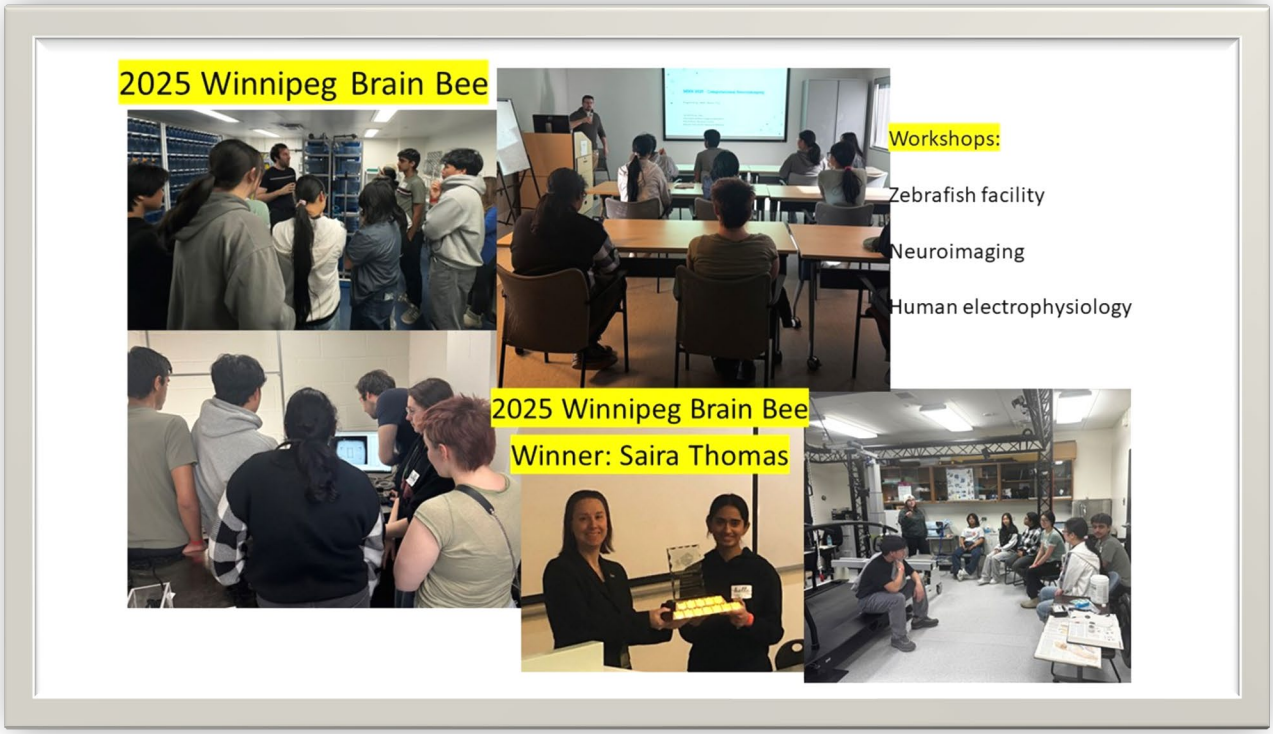
Biography:

Jean-Pierre Julien is Professor in the Department of Psychiatry and Neuroscience at Université Laval. He obtained his Ph.D. (Biochemistry) from McGill University where he discovered with his mentor Walter Mushynski the phosphorylation of neurofilaments. This was followed by postdoctoral studies in molecular genetics at the National Institute for Medical Research in London UK. This is where he cloned for the first time the mouse and human neurofilament genes. In 1986, he became Assistant Professor at Université de Montréal - Institut du Cancer de Montréal (now CRCHUM). Three years later, he was recruited at McGill University in the Department of Neurology and Neurosurgery (1989-2003). In 2003, he moved to Université Laval (Research Centre of CHUQ) where he was offered a Canada Research Chair in neurodegeneration. In 2013, his laboratory moved to CERVO Brain Research Centre where he acted as director of Axis Integrative Neuroscience.

B. Brain Bee

Each year, the Manitoba Neuroscience Participates in the National Brain Awareness Week that was held March 10 – 16, 2025 across Canada.

The MNN hosted over 70 high-school students from 12 different Manitoba schools for a competition based on the Canadian National Brain Bee Curriculum. The students also participated in workshops in the afternoon performed by University of Manitoba graduate students in respective research labs. Four different institutes and 20 graduate student volunteers helped to organize this event, including University of Winnipeg students.



C. 2025 Kids Art for Brain Awareness in Manitoba - KABAM!

As the inaugural KABAM! activity established and spearheaded by Dr. Theresa Mciver in 2024 was a huge success in all the schools that we got involved, therefore we decided to take KABAM! outside of the city limits in 2025. Our graduate-student lead team: Meher Kantroo, Sanjana Grover and visited Winnipeg Beach School (WBS N-K6) that is a Kindergarten to Grade 6 school which serves the communities of Winnipeg Beach, Matlock, Whytewold, Dunnottar, Ponemah and Sandy Hook within the province of Manitoba. Utilizing the Backyard Brain Kits we obtained with the IBRO/DANA grant support; they showed students how to collect recordings of brain activity among other fun undertakings in the classroom.

11. News Releases and Other Misc. Announcements

May 21, 2025

From Lab to Land: Dr. Suh's Research Cultivates Food Security in Manitoba

Research by Dr. Miyoung Suh, a Principal Investigator in the Nutrition and Neurological Diseases lab with the Canadian Centre for Agri-Food Research in Health and Medicine and the Division of Neurodegenerative and Neurodevelopmental Disorders, was recently featured in the Winnipeg Free Press and the UM News.

Dr. Suh, also a professor in the Department of Food and Human Nutritional Sciences at the University of Manitoba (UM), was highlighted for her involvement in an initiative addressing food insecurity in Manitoba's remote northern communities.

The article details how a team from the University of Manitoba, in collaboration with the Opaskwayak Cree Nation (OCN), is implementing Smart Vertical Farming (SMART-VF). This innovative system uses computer-monitored lighting and climate control to grow fresh produce year-round, aiming to reduce reliance on costly imports and ensure a steady supply of nutritious food. By growing value-added functional vegetables, the project seeks to combat the long-standing challenges of food insecurity in these areas, ultimately improving access to fresh vegetables and promoting better health outcomes within the community.

Read more: https://news.umanitoba.ca/the-free-press-how-vertical-farming-is-strengthening-food-security-in-manitoba/?utm_source=waag&utm_medium=email

OPASKWAYAK CREE NATION (OCN) SMART VERTICAL FARMING

Mar 25, 2025

Announcing the Division of Neurodegenerative and Neurodevelopmental Disorders (DNND)

To reflect an expanding research focus and growing recognition of the interconnected nature of neurological conditions, today marks the transition to the **Division of Neurodegenerative and Neurodevelopmental Disorders (DNND)**. This change underscores a commitment to understanding and addressing neurological diseases that affect individuals at both the beginning and later stages of life.

With Dr. Paul Fernyhough as Director, this team has long been at the forefront of groundbreaking neuroscience and pharmacology research. With a strong commitment to innovation, technical diversity, and scientific excellence, it has developed into a thriving training program, dedicated to cultivating highly qualified researchers, including undergraduate students, graduate students, and postdoctoral fellows to meet the increasing global demand for expertise in pharmacology, neuroscience and nutrition.

Why This Expansion?

Neurodevelopmental and neurodegenerative disorders of the central and peripheral nervous systems represent critical challenges at opposite ends of the lifespan. Neurodevelopmental disorders emerge early in life, disrupting cognitive, motor, and social development, while neurodegenerative diseases manifest later, progressively impairing function and independence. Both conditions profoundly impact individuals and their families and place immense financial burdens on healthcare systems. With the rising prevalence of neurodevelopmental disorders due to improved diagnostics and the increasing incidence of neurodegenerative diseases driven by an aging population, these disorders are receiving priority funding from governments and research agencies to advance understanding, treatment, and care.

St. Boniface Hospital Research established a dedicated neurodegenerative disorders research team in 1999 to uncover mechanisms underlying diseases such as Alzheimer's Disease, neuropathy, retinopathy, psychiatric illness, and aging-related CNS degeneration. Additionally, the research focuses on the impact of diabetes on these conditions and explores novel nutritional approaches to prevention and treatment.

The expanded research now includes investigating neurodevelopmental disorders, including autism spectrum disorder (ASD), anxiety disorders, attention-deficit/hyperactivity disorder (ADHD), and epilepsy. These additions strengthen our mission to bridge the gap between neurological conditions affecting individuals from infancy through old age, advancing discoveries that will shape the future of neuroscience and pharmacological interventions.

The DNND team looks forward to continuing its work with the scientific community, funding agencies, the St. Boniface Hospital foundation and healthcare organizations as we advance our understanding of neurological diseases and improve patient outcomes across all life stages.

$1.18 Million Grant Supports Dr. Michel Aliani's Study on Flaxseed and Antihypertensive Drugs

Mar 11, 2025

Dr. Michel Aliani, a distinguished professor in the Faculty of Agricultural and Food Sciences and principal investigator in the Nutritional Metabolomics Research Division at St. Boniface Hospital Albrechtsen Research Centre, has been awarded a $1,189,575 grant to fund his five-year research project on the potential health benefits of dietary flaxseed. The generous funding will support Dr. Aliani's study exploring how flaxseed consumption could influence the effectiveness and safety of blood pressure-lowering medications.

Dr. Aliani's research aims to uncover how flaxseed, a common dietary supplement, could interact with antihypertensive drugs to help manage blood pressure more effectively. Utilizing state-of-the-art instrumentation and cutting-edge metabolomics methods, his study will track and analyze the complex metabolic pathways involved in both flaxseed consumption and the metabolism of antihypertensive medications.

"This research is a step forward in understanding the blood pressure-lowering effects of flaxseed and its potential role when combined with blood pressure medications," Dr. Aliani explained. "We believe a beneficial interaction between flaxseed and these drugs could allow for reduced medication dosages, while maintaining their effectiveness in controlling blood pressure."

Dr. Aliani and his team plan to explore the thousands of compounds involved in drug and flaxseed metabolism, utilizing advanced tools developed in their labs over the past few years. These tools will enable them to better understand how specific components of flaxseed may mimic the actions of antihypertensive drugs, potentially fostering beneficial interactions with the medications.

Contributing to Personalized Medicine

The favorable outcomes of this study could pave the way for new recommendations in personalized medicine, particularly in the realm of diet-drug interactions. By providing important safety data and insight into how flaxseed can work alongside antihypertensive drugs, Dr. Aliani's work could lead to more precise dosage recommendations for patients who incorporate flaxseed into their daily diets.

Dr. Aliani emphasized the broader impact of the study: "Through this research, we hope to make significant contributions to personalized healthcare, offering insights that may allow healthcare professionals to tailor drug dosages based on specific food interactions, such as with flaxseed."

As the project progresses over the next five years, Dr. Aliani and his team aim to provide vital data that could influence future treatment strategies for patients with hypertension, combining the power of dietary science with the precision of pharmacology.

Congratulations to **Dr. Suh** on receiving the **Dr. James House Memorial Award for Excellence in Postdoctoral Mentoring** (Natural and Applied Sciences) from the Faculty of Graduate Studies at the University of Manitoba. This award recognizes her outstanding commitment to mentoring and supporting postdoctoral fellows—well-deserved, Dr. Suh!

Congratulations to **Dr. Nandasiri** on his recent accomplishments. He was selected for the **SMART Healthy Cities Summer School** to develop a sustainable solution using Oatbox's spent oats and has also been chosen for the **Lab to Market program with Mitacs support,** where he is developing a food product based on our research on broccoli sprout microgreens in collaboration with a northern Indigenous community.

Source: https://umanitoba.ca/agricultural-food-sciences/sites/agricultural-food-sciences/files/2025-07/fhns-june-newsletter-1.pdf

12. 2025 Nick Shepel Neuroscience Trainee Travel Award

In 2025, three awards of $700 each were given to students that were attending national/international conferences to present their scientific research.

Congratulations to:

- **Ashraf Kadar Shahib** attended the 2025 CSMB-PRinCE Joint Conference - Protein Homeostasis From Basic Science to Human Health held May 26-29, 2025 in Ottawa, Ontario.

- **Pranav Mishra** attended the Alzheimer's Association International Conference (AAIC) meeting held July 27-31, 2025 in Toronto Ontario.
- **Kaden Baskerville** attended the GPCR Retreat held May 15-17, 2025 in Bromont, Quebec

***Background**: The fund was established by the Division of Neurodegenerative & Neurodevelopmental Disorders, St. Boniface Hospital Research Centre, to honor Nick Shepel who was an outstanding researcher, friend and leader. Nick was a true inspiration to his laboratory partners and brought fire, humor, and a desire to always excel. His insistence to always try better has had a permanent effect on his lab mates and peers. Nick led by example and taught that detailed preparation and execution of experiments ensured reliable results.*
***Purpose:** The purpose of this fund shall be to recognize a young investigator(s) (specifically in the neuroscience area) by providing an annual award(s) to support travel costs associated with the applicant's attendance at an upcoming national/international conference where the applicant is presenting a poster or oral presentation. This year, awards are available with a value ranging from $750 to $1,000.*

Nick Shepel

13. Dr. Alfred E. Deacon Graduate Student Award

In 2025, we were pleased to provide funding towards the following graduate students' salaries:

- **Hayley Smith** M.Sc. Student (Supervisor: Dr. R. Douville)
- **Breanne Semenko** Ph.D. Student (Supervisor: Dr. M. Suh)
- **Hanok Tadele** M.Sc. Student (Supervisor: Dr. H. Dunn)
- **Andrew Rideout** Ph.D. Student (Supervisor: Dr. H. Dunn

Background: *Dr. Alfred Ernest Deacon was a leading orthopedic surgeon in Winnipeg, Manitoba. Dr. Deacon was a graduate of the Faculty of Medicine at the University of Manitoba and later obtained his orthopedic training at the Mayo Clinic in Rochester, USA. Dr. Deacon returned to Winnipeg and was an active member of the orthopedic staff at the Winnipeg Children's Hospital, Winnipeg Shriners Hospital and Grace General Hospital until his retirement in 1968. Dr. Deacon played a leading role in Winnipeg hospitals during the polio epidemic of the 1940s and 1950s. Dr. Deacon died on February 11, 2024 at the age of 101 years. An endowment fund was established as a result of a generous donation made to the St. Boniface Hospital Foundation.*

14. Commercialization

WinSanTor

Founded in 2011, WinSanTor Inc. is a clinical-stage biotechnology company focused on the discovery and development of treatments for peripheral neuropathies, including diabetic peripheral neuropathy, chemo- and HIV-induced peripheral neuropathy, and others. Visit their website: https://winsantor.com

During 2021, the commercialization associated with WinSanTor Inc., where Dr. Fernyhough is a co-founder, has progress further. The Phase 2 trials in Canada are now complete and a plan to initiate Phase 3 by end of 2022.

Paul Fernyhough PhD
Founder
Paul is the Chairman of the Department of Pharmacology &

Nigel Calcutt PhD
Founder
Nigel is the Professor of Pathology at the University of California San

Lakshmi Kotra PhD
Founder
Lakshmi is the Director at the Center for Molecular Design and

Read more on the founders: https://winsantor.com/the-winsantor-team/

Study finds drugs that can reverse nerve damage.

People who suffer from chronic numbness or pain and tingling in their extremities, caused by diabetes or other conditions, might soon get relief. A study by an international team of researchers has found that a class of drugs prescribed for other medical issues such as nearsightedness, incontinence or peptic ulcers may also prevent numbness and pain in fingers, arms and legs.

Led by Dr. Paul Fernyhough of the University of Manitoba and St. Boniface Hospital Albrechtsen Research Centre, and Dr. Nigel Calcutt of the University of California at San Diego, the researchers found that antimuscarinic drugs such as pirenzepine can reverse the numbness and pain, called neuropathy, often experienced by people with diabetes, HIV, or as a side effect of cancer chemotherapy.

Fernyhough notes: “The costs of treating these diseases and associated morbidities exceed the costs for treating breast cancer. For the first time we have identified a new class of drugs that can reverse nerve damage in animal models of these diseases.”

In peripheral neuropathy the nerve endings of the peripheral nerves die leading to severe impacts on quality of life. For example, patients suffer from intractable pain, foot ulcers, infections and ultimately amputations. There are presently no treatments other than palliative care. The study found that widely-used drugs targeted a key receptor in the neural pathway regulating the growth of nerve fibres and stimulated their regeneration. The drugs drive nerve fibre regeneration and repair in disease states such as diabetes and chemotherapy where there is otherwise irreversible nerve damage.

Calcutt, Fernyhough and Lakshmi Kotra of the University of Toronto together have founded the biotech company WinSanTor Inc to specifically develop the therapeutic potential of this novel approach to treating neuropathy.

“This data opens the possibility that the process of peripheral nerve degeneration may be therapeutically reversible, and now with the potential to use existing drugs, we can rapidly translate these findings to clinical trials,” says Stanley Kim, co-founder and CEO of WinSanTor Inc. “Peripheral neuropathy is a major and often neglected health problem affecting hundreds of millions of people around the world, including a majority of diabetes patients, and we can’t afford to wait any longer in advancing treatments for this disease.”

Fernyhough adds: “An exciting aspect of the work is that these are new uses for old drugs. They have been used in humans for over 20 years with no serious side effects and have an excellent safety profile. We expect Phase 1 trials to progress smoothly with Phase 2 trials arranged and already funded for 2017.”

“We are proud of Dr Fernyhough’s exciting finding and the clinical implications of this discovery,” says Dr. Grant Pierce, Executive Director of Research at St Boniface Hospital. “It is another example of the

successful history at St Boniface Hospital of translating our lab bench findings into valuable medical applications to benefit the health of Canadians."

"I congratulat Drs. Fernyhough and Calcutt on their findings," says Dr. Digvir Jayas, Vice-President (Research and International) and Distinguished Professor at the University of Manitoba. "This research will benefit millions of people who are affected by chronic diseases."

The results of the study were published in 2017 in the Journal of Clinical Investigation. The research was funded by grants from the JDRF, the Canadian Institutes of Health Research, and the National Institutes of Health, with support from St. Boniface Hospital Foundation.

Two phase 2 clinical trials in persons with type 2 diabetes and mild-moderate peripheral neuropathy have now been completed. The papers describing the findings are about to be submitted for publication. The company is now using the data from these trials to discuss with the USFDA plans for instigating phase 3 clinical trials in North America and Europe.

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