Awardee Profiles

2022-2024 Research Competition

Parkinson Canada and our partners are proud to support 27 new grants, fellowships and student awards for the 2022-2024 research competition including:

- 5 Basic Research Fellowships
- 8 Graduate Student Awards
- 7 Pilot Project Grants
- 2 Clinical Movement Disorders Fellowships
- 1 Clinical Research Fellowships

Using deep brain stimulation as a treatment for Parkinson's

Dr. Amirhossein Ghaderi, University of Calgary
Basic Research Fellowship
Funded Funded by The Leonard and Gabryela Osin Foundation
$100,000 over 2 years

Project description:

Deep brain stimulation (DBS) is a surgical treatment that involves the implantation of a medical device that can be imagined as a brain "pacemaker". It delivers electrical stimulation to specific areas of the brain and has been shown to improve quality of life for many people with Parkinson's. However, it also carries risks for adverse effects like cognitive impairment. A critical component of the DBS process is the pre-evaluation to determine who is an appropriate candidate for the surgery and who is at risk for adverse outcomes. Our overarching aim is to explore biomarkers to identify which patients are most likely to experience long-term benefit from DBS surgery without cognitive. Given the considerable personal risk and high cost of DBS surgery, predicting the duration of benefit is critical for allowing people with Parkinson's to make informed decisions about their healthcare.

How Parkinson Canada is helping

Funding from Parkinson Canada is a very important consideration for me because it helped me to continue my research in the field of brain stimulation for movement disorders. Without this funding, I would not be able to pursue my research interests or may have needed to rely on other sources of income. This could be time-consuming and may detract from my research work.

Where do you hope to see yourself in the future?

I hope to start a more advanced position, such as becoming a tenured faculty member at a university or research institute. This would give me the opportunity to mentor and train younger researchers and students. I hope to develop my career based on my current studies with advanced approaches.

Improving synucleinopathy and dopaminergic function by targeting the HSP90 and co-chaperone STI1.

Dr. Anoosha Attaran, University of Western Ontario
Basic Research Fellowship
$80,000 over 2 years

Project description:

Proteins need to maintain their unique three-dimensional shapes to perform their intended functions in the cell. However, a common feature of neurodegenerative diseases is the abnormal misfolding of proteins. Certain molecules help proteins maintain their correct shapes – and label them to be degraded if they are misfolded. When these molecules interact poorly with proteins, it can cause issues. My research will look at interactions between these molecules and a protein, called alpha-synuclein, that is commonly known for misfolding in Parkinson's. Specifically, I will look at how reduced levels of this molecule affects alpha-synuclein levels and cognitive function in mice. I will then test a drug, PU-AD, currently in clinical trials for Alzheimer's disease, to determine if it also has potential for treating protein misfolding issues in Parkinson's.

How Parkinson Canada is helping

The funding from Parkinson Canada guaranteed me to do my proposed research at Western University. Therefore, I will publish relevant papers in highly impacted journals and be competitive for further funding and positions.

Where do you hope to see yourself in the future?

I have always wanted to help people and do something important. My close friend's dad and one of my family members have Parkinson's disease, so I decided to help them and many other people by focusing my research on this disease and helping to find a potential cure.
In 10 years, I see myself as a more knowledgeable person contributing to the field of neurodegenerative diseases, having my own lab, and doing research and supervising other students.

Using patient-derived stem cells to uncover the mechanisms of lysosomal dysfunction in Parkinson's

Dr. Jace Jones-Tabah, Montreal Neurological Institute
Basic Research Fellowship
$80,000 over 2 years

Project description:

Over the past decade, genetic studies have identified nearly a hundred genetic variations that affect the risk of developing Parkinson's disease (PD). Many of these PD-associated genes are involved in the function of lysosomes, a cellular structure involved in the degradation of proteins and other materials in the cell. Large genetic studies have recently found that mutations in three lysosomal genes, TMEM175, CTSB and SCARB2 have an association with the risk and severity of PD. However, little is known about the mechanisms by which mutations in these genes can contribute to PD. In my project I am using induced pluripotent stem cells (iPSCs) to derive cultures of human dopamine neurons which can then be used to determine how disruptions in these select genes impacts cellular pathways known to be associated with PD. This will allow us to understand how these mutations contribute to the integrity and function of dopamine neurons, and will provide a platform that can be used to investigate potential therapies.

How Parkinson Canada is helping

Funding from Parkinson's Canada is a great support to both the project and my individual career development. This support frees up both time and grant money that can be redirected toward what matters; pushing towards a deeper understanding of Parkinson's disease etiology, and exploring new targets for future therapeutic development.

Where do you hope to see yourself in the future?

In ten years I hope to run a laboratory of my own where I will continue to investigate the causes and potential treatments of neurodegenerative diseases. of neurodegenerative diseases, having my own lab, and doing research and supervising other students.

Theta burst transcranial ultrasound stimulation as a novel treatment for motor symptoms in Parkinson's

Dr. Naaz Desai (Kapadia),University Health Network
Basic Research Fellowship
Funded by The Leonard and Gabryela Osin Foundation
$80,000 over 2 years

Project description:

A decrease in spontaneity of movement and slowness of voluntary movement are some of the most debilitating problems in people with Parkinson disease (PD). Many people with PD, with these problems do not respond adequately to drugs, and alternative forms of treatment are needed. There has been an emerging interest regarding use of non-invasive brain stimulation as an adjunctive treatment in PD. Several studies tested repeated pulses of transcranial magnetic stimulation (rTMS) as a treatment for movement problems in PD and showed promising results, although the results were variable. The proposed study will investigate the use of a novel form of non-invasive brain stimulation known as low-intensity transcranial focused ultrasound (TUS) on the motor cortex to normalize brain activities and improve movements in patients with PD. TUS applied to the scalp uses sound waves that can painlessly penetrate the scalp and skull and selectively stimulate the motor cortex to change brain activity. In the proposed study, we will examine the effects of TUS of bilateral motor cortex in PD. We will carry out a treatment protocol of five consecutive days of TUS on the motor cortex for each individual subject with PD with the aim of improving the ability to move. Overall, we expect that TUS will normalize the abnormal brain connections and that repeated TUS application will improve movements in people with PD. The proposed study will be the first to use TUS to change brain activities in PD.

How Parkinson Canada is helping

This prestigious fellowship will facilitate my ability to conduct the proposed study and thereby contribute towards the field of movement disorders. This research has the potential to contribute towards the development of therapies to that will improve the life of individuals living with PD. Moreover, this award will strengthen my research skills and standing in the field once I complete the post-doctoral training and embark on my independent research as a Nneuroscientist and an Academician.

Where do you hope to see yourself in the future?

In the long term my hope is to secure a position as a Scientist, where I can independently carry out research-based projects with a focus on exploring and advancing safe, efficient, and easy to administer treatment options for patients with PD.

Genetic, biological and clinical biomarkers of neuropsychiatric symptoms in Parkinson's

Dr. Yuri Sosero, McGill University
Graduate Student Award
Funded in Partnership by Bill and Anne Harker and the Fonds de Recherche du Québec – Santé
$10,000 over 2 years

Project description:

Parkinson's disease (PD) is the second most frequent neurodegenerative disorder worldwide. Motor impairment represents the hallmark for a clinical diagnosis, but the ancillary presentation and underlying causes are extremely variable, suggesting that PD is not a single disease, but a single term encompassing multiple disease subtypes. For example, just a portion of PD patients manifest neuropsychiatric symptoms, including cognitive decline (up to 80%) and psychiatric symptoms, such as anxiety (up to 40%), depression (up to 50%), and psychosis (16% up to 75%). Such symptoms can manifest individually, but often co-occur. Similarly, mutations in the APOE gene are associated with cognitive decline but not with psychiatric symptoms, whereas mutations in the GBA gene are associated with cognitive impairment, depression, anxiety, and psychosis. This suggests that also for PD associated with neuropsychiatric symptoms, several PD subtypes might exist, some manifesting neuropsychiatric symptoms in isolation, others in combination. The purpose of this study is to uncover genetic, biological, and clinical markers associated with neuropsychiatric symptoms and, consequently, delineate specific PD subtypes with different combinations of such symptoms.

How Parkinson Canada is helping

We use techniques aiming to assess the entire genome of patients, analyze the genetic correlation between different conditions, infer the biological pathways involved in the pathophysiology of Parkinson's disease and its specific manifestations. Parkinson Canada is crucial to extending our ability to use new cutting-edge tools to analyze our data, build new collaborations and share a growing set of data to enhance the quality of our research.

Where do you hope to see yourself in the future?

I aim to become a neurologist and a professor focusing my research on the genetics and biology of Parkinson's Disease clinical manifestations. My goal is to integrate the knowledge and experience from my clinical activity into my research and vice versa.

Characterizing patterns of neural activity in 3D midbrain organoids as a model for Parkinson's disease

Ghislaine Deyab, Montreal Neurological Institute
Graduate Student Award
Funded by the Lanka Charitable Foundation
$20,000 over 2 years

Project description:

My research focuses on characterizing neural activity present in brain-modelling organoids of Parkinson's disease (PD). Organoids are a promising tool that can be used to study neurodegenerative diseases on a patient specific level by capturing both the genetic background of patients, as well as some of the structural complexity of the human brain. There is evidence showing that organoids exhibit certain aspects of disease pathology such as the inclusion of protein clusters and neuronal death which occurs in human models of PD. However, in PD patients the progression of the disease also leads to changes in neural network activity. My aim is to determine whether lab-generated organoids can capture these changes in neural activity with the progression of PD, and if these changes in activity are reproducible between different types of organoids. To do this I will generate organoids derived from PD patients and record neural activity throughout their development. I can then compare these patterns of activity between organoids and data taken from human patients to determine how disruptions in neural activity are captured in our model. This study will help validate the reliability of using organoids as a model to study neurodegenerative diseases in a patient specific manner. If organoids prove to be a reliable model for neurodegenerative diseases, it will aid in the development of patient-specific therapeutics and more effective treatments.

How Parkinson Canada is helping

My funding from Parkinson Canada allows me to carry out my research independently without the need for additional financial support. This allows me to focus my time and dedication on my project and on completing research in the lab. Therefore, the funding received my Parkinson Canada is critical for the adequate completion of my project.

Where do you hope to see yourself in the future?

I hope to be working in industry research focused on the development of new technology and models that can be used in neurodegenerative disease research. Specifically, I would like to do research aimed at tools used for stem cell- and genetic- based therapies for Parkinson's disease and other neurodegenerative disorders.

Treating Anxiety in Parkinson's Disease with a Multi-strain Probiotic – A Randomized, Controlled Trial

Joyce (Sze Tung) Lam, University of British Columbia
Graduate Student Award
Funded in Partnership with the Parkinson Society of British Columbia
$20,000 over 2 years

Project description:

More than 30% of people with Parkinson's experience multiple anxiety disorders. Anxiety in Parkinson's leads to lower quality of life and contributes to significant motor and cognitive impairments. Despite its high prevalence, there is a lack of dedicated clinical trials of any treatment for anxiety in Parkinson's. In recent years, many research groups, including our group, have found that the gut bacteria in people with Parkinson's are different from those in people without Parkinson's. Probiotics are live microbes that confer health benefits on the host when consumed in adequate amounts. Clinical trials of probiotics in non-PD populations have observed beneficial effects on anxiety. Interestingly, clinical trials of probiotics conducted in people with Parkinson's have demonstrated improvements in constipation symptoms and motor function, though, their effects on anxiety have never been explored. Given the high prevalence of anxiety in Parkinson's, the growing evidence that probiotics may improve anxiety in non-Parkinson's disease populations and Parkinson's symptoms, and the strong links between the gut bacteria and Parkinson's, a trial of probiotic use for anxiety in Parkinson's is warranted.

How Parkinson Canada is helping

The Graduate Student Award funding from Parkinson Canada is extremely important for early-stage researchers like me. Funding in graduate school is limited and having received this funding will significantly strengthen my applications to future funding opportunities. As each funding application goes through a rigorous review process, this is also a huge recognition and means that my project is feasible and has the potential to improve the lives of people with PD. I am very grateful to more than 135 people with PD who have participated in this trial so far.

Where do you hope to see yourself in the future?

I see myself still conducting research on Parkinson's disease. Running this clinical trial has been extremely rewarding – I am involved in all aspects of the trial, from recruiting and obtaining informed consent from participants, screening participants through clinical assessments, conducting regular check-ins and collecting side effect reports from enrolled participants, to processing all biological samples. I love the patient contact – most of the individuals I have spoken to are very interested in participating in research studies. Their trust, support, and willingness to participate in studies, especially clinical trials that require a huge time commitment, motivate me to continue.

Using exercise to treat cognitive and sensory factors influencing gait impairments in Parkinson's disease

Kishorree Sangarapillai , University of Waterloo
Graduate Student Award
Funded by the Lanka Charitable Foundation
$20,000 over 2 years

Project description:

Walking difficulties are one of the most challenging symptoms for individuals living with Parkinson's Disease as it can lead to injuries, increased hospital and long-term care facility stays, and an overall poor quality of life. Currently, there is some debate over the causes of walking challenges. Some research suggests that challenges with walking are due to sensory impairments. In other word, individuals may have trouble making sense of the sensory information from the surrounding environment making walking more difficult. Unfortunately, the common medications for Parkinson's have very little effect on cognition and sensory impairments. It is not surprising that medications cannot completely improve the challenges seen with walking. Therefore, the goal of my research is to improve walking by improving cognition and sensory impairment through exercise. Through the results of this study, I aim to reduce the challenges of walking that people with Parkinson's face daily.

How Parkinson Canada is helping

This funding from Parkinson Canada is critical for allowing projects such as mine to occur. Over the next decade, the incidence of PD will increase. This means more people will require treatments to help improve their symptoms and quality of life. As a result, we need more funding agencies to fund graduate projects in Parkinson's to help foster research that will improve the lives of people with PD.

Where do you hope to see yourself in the future?

In the future, I hope to improve the function and quality of life of people with Parkinson's by identifying effective interventions that can reasonably be integrated into Canadian communities. I aim to be a scientific leader in rehabilitation approaches for PD. I plan to engage people with lived experience of PD in my research, and to collaborate with organizations and institutions that could implement emerging interventions, as well as inform key knowledge gaps. In doing so, I hope to stimulate the development and implementation of innovative rehabilitation interventions for PD and other neurodegenerative conditions.

Investigating the role of cyclin dependent kinase 8 in mitochondrial dynamics in suppressing a Parkinson's model in Drosophila

Jenny Liao, Simon Fraser University
Graduate Student Award
$20,000 over 2 years

Project description:

In our lab, we use fruit flies, also known as Drosophila, to model human diseases as they have a simpler genetic makeup. In my project, I focus on the gene called Cyclin-dependent kinase 8 (Cdk8), which was previously not known to play any role in Parkinson's Disease (PD). However, when we genetically remove Cdk8 from flies, we noticed that those flies have features including damaged flight or climbing abilities, reduced lifespans, which are similar to flies with pink1 or parkin mutations, two genes which are often found to be mutated in patients with PD as well. We found that modulating the expression of Cdk8 can have significant effects on the shapes of mitochondria. This finding made us further wonder if Cdk8 can act as an additional layer of surveillance when Pink1 is compromised. We used elegant genetic approaches and found that adding extra Cdk8 to pink1 mutated flies can rescue the climbing defects, and muscle degeneration. Most importantly, it also restored the healthy status of mitochondria as buildup of damaged mitochondria was gone. These findings led us to realize that Cdk8 may have novel functions in mitochondria and could potentially be used in a therapeutic direction that is beneficial to the PD community.

How Parkinson Canada is helping

The funding from PD Canada means a lot to me. I always want to help people in my own way, and I love the field of genetics. The award that I received from Parkinson Canada made me realize that I can use my passion in genetics to help people. This recognition has given me confidence to keep my project going. In addition, it also relieved some financial burden. The recognition provides me a greater platform to connect with scientists who are working in different areas of PD, and ultimately helps me to establish potential collaborations.

Where do you hope to see yourself in the future?

Our current findings open a number of research directions that are both interesting and promising. I see myself having several publications based on the new data we have. In addition, I imagine myself having a post-doctoral fellowship which specializes in neurodegeneration by understanding the role that mitochondria play. In 10 years from now, I imagine myself in a a supervisory position to provide guidance to future generations of scientists.

Strain-Specific Ability of α-Synuclein to Influence the Aggregation of Amyloid β

Nicholas Silver, University of Toronto
Graduate Student Award
Funded in Partnership with the Parkinson Society of British Columbia
$20,000 over 2 years

Project description:

Parkinson's Disease is thought to caused by the build-up of a protein in the brain called Alpha-Synuclein. Other diseases, namely a disease called Multiple System Atrophy, are also thought to be caused by the build-up of the same Alpha-Synuclein protein. Scientists believe build-up of different variants in Alpha-Synuclein could result in different diseases. In other words, one variant of Alpha-Synuclein build-up could cause Parkinson's Disease, while a different variant of Alpha-Synuclein build-up could cause Multiple System Atrophy. To test this, I will be using mice that can develop both Alpha-Synuclein and Amyloid-Beta protein build-up in their brain. By having the mice develop different variants of Alpha-Synuclein I will be able to see if different variants of Alpha-Synuclein have different effects on the amount of Amyloid-Beta build-up, answering the question: Is the build-up of Amyloid-Beta due to different variants of Alpha-Synuclein build-up?

How Parkinson Canada is helping

The reality is that any new scientific research is expensive. The funding provided by Parkinson Canada is essential as it will be used to help cover the expenditures of conducting this exciting project. I hope this funding from Parkinson Canada will allow me to continue to focus on the research that is taking place in the lab and focus on working towards a cure for these debilitating diseases.

Where do you hope to see yourself in the future?

I hope to still be conducting research on Parkinsonisms and other related diseases. There is still a lot of research required to understand these diseases and develop treatments for them. I hope I can help contribute to research that can be used to directly improve the lives of people with Parkinsonisms.

Motor unit activity as a potential biomarker in Parkinson's Disease

Dr. Tejas Sankar, University of Alberta
Pilot Project Grants
$64,440.75 over 1 year

Project description:

Our team is focused on understanding the neurophysiology of Parkinson's Disease (PD); that is, how the function of the brain, spinal cord, nerves, and muscles are impacted by the disease. Some early work by our team and others has shown that muscle activity is altered in people suffering from PD. However, we do not yet know when this starts happening in the course of the disease, how it changes as PD progresses, or how it can be rescued by treatment. In this study, we will use a new technique called High Density Surface Electromyography (HDsEMG) to gather the most detailed information yet about muscle function in PD. Specifically, we are going to examine muscle function in PD patients using HDsEMG at different stages of the disease and while patients are receiving different treatments (such as Deep Brain Stimulation). Our study will help better understand how PD affects movement and walking, and could help to generate personalized biomarkers that can be used by doctors looking after people with PD.

How Parkinson Canada is helping

Funding from Parkinson Canada is essential for our project, and greatly appreciated. Because we are using very new methods that have not yet been proven in Parkinson's Disease research, it is often challenging to get funding support for projects like ours. The Pilot Project Grant program is the perfect way to kickstart the project and help take it forward quickly.

Where do you hope to see yourself in the future?

Very simply, I hope that my research helps to improve the lives of people living with Parkinson's Disease.

Repurposing an anti-viral drug as a disease-modifying therapy for Parkinson's

Dr. Lorraine Kalia, University Health Network
Pilot Project Grants
$75,000 over 1 year

Project description:

Drug repurposing is when a drug already approved for human use for treatment of other diseases is examined for its potential in a new therapeutic role. This study aims to leverage this approach to accelerate the development of a disease-modifying therapy for Parkinson's. Previously, our team screened Health Canada approved drugs for their ability to modify biological mechanisms related to Parkinson's. An anti-viral drug was identified as a promising candidate. This study will test the effectiveness of the drug in an animal model of Parkinson's by evaluating if 1) the drug effectively engages with the expected biological targets and 2) if the drug treatment prevents dopamine brain cell loss. As a previously approved medication, if we can show a therapeutic value in Parkinson's this would accelerate progress for human trials. This innovative research project explores a new therapeutic target and could potentially lead to a disease modifying treatment for Parkinson's.

Re-purposing deep brain stimulation as an electroceutical to reduce alpha-synuclein oligomers and neurodegeneration

Dr. Suneil Kalia, University Health Network
Pilot Project Grants
$75,000 over 1 year

Project description:

Deep brain stimulation is a surgical procedure that helps reduce the severity of Parkinson's symptoms. Early research has now hinted at a possible protective effect as well. However, we don't understand exactly how DBS could improve the disease processes happening in the brain. Misfolding and clumping of a protein called alpha-synuclein is thought to play a role in the development of Parkinson's. This study will examine if DBS has an effect on misfolded alpha-synuclein that leads to reduced brain cell damage and overall symptom improvement. Animal models of Parkinson's will undergo the DBS procedure and simultaneously have alpha-synuclein protein injected into Parkinson's areas of the brain. Typically, alpha-synuclein injections in animal models result in clear movement and brain abnormalities. Our study will examine if the DBS procedure lessens brain damage and symptoms in these animals. If successful, this project will lay the foundation for the possibility of using DBS not only as a symptomatic treatment of Parkinson's, but also as a disease modifying therapy.

Relationship between COVID-19 and Parkinson's Disease in a mouse model

Dr. Thérèse Di Paolo, Université Laval
Pilot Project Grants
$75,000 over 1 year

Project description:

Apart from aging, viral infections are considered among important risk factors for Parkinson's disease. Incidence of parkinsonism increased 2 to 3-fold after the Spanish flu pandemic in 1918. Recent reviews of the prevalence of COVID-19 infection in patients with Parkinson's disease showed a pooled prevalence of COVID-19 infection in Parkinson's disease cases of 5%, with hospitalization and mortality rates of 49% and 12% respectively. This has a significant public health implication. The prevalence of Parkinson's disease is 1.5–2-fold higher in men, with age at onset of this disease occurring about 2 years later in women compared to men. Sex differences in COVID-19 infection were reported. Distribution of COVID-19 cases above age 50 in Canada as of January 28, 2022 revealed more male than female cases, both hospitalized in the intensive care unit and deceased. Our objective is to study a plausible link between SARS-CoV-2 infection and susceptibility to Parkinson's disease in mice by investigating the basal ganglia of male and female mice in a two-hit mouse model of SARS-CoV-2 infection and MPTP.

How Parkinson Canada is helping

This funding is critical to set up the model to then investigate drug treatments to prevent, stop, or delay the brain effects of Parkinson's disease with COVID-19 infection. This pilot project is necessary to generate the animal model to support the feasibility of this research for future CIHR grant funding.

What research goals do you hope to achieve?

My research group expects to personalize neuroprotection treatments for Parkinson's disease considering the sex and hormonal status of the person. We focus on drugs already used to treat endocrine conditions with greater and more rapid translational value for use in Parkinson's disease patients.

Microtubule alterations in Progressive Supranuclear Palsy (PSP)

Dr. Nicole Leclerc, Université Laval
Pilot Project Grants
$50,000 over 1 year

Project description:

Progressive Supranuclear Palsy (PSP) is an atypical form of Parkinson's disease. In the brain of PSP patients, a protein called tau forms aggregates, which are believed to lead to the death of neurons. Tau is found on the railways that are responsible for the transport of proteins within neurons. In PSP, tau detaches from these railways compromising the transport of proteins in neurons. Several mouse models were developed to clarify how the dysfunction of tau protein leads to neuronal death in PSP. However, any therapy elaborated in these models was not successful in humans. Because of this, our laboratory will use a human cellular model to study the molecular mechanisms involved in the dysfunction of the tau protein. In our research program, we will isolate fibroblasts from skin biopsies obtained from PSP patients and we will convert them to neurons. These human neurons from patients will be employed to examine the molecular modifications of tau and the railways in PSP.

How Parkinson Canada is helping

The funding from Parkinson Canada will permit us to determine whether neurons produced from skin cells obtained from patients are a good model to identify novel therapeutic targets. If yes, we will be in an excellent position for obtaining long-term funding for this project.

What research goals do you hope to achieve?

PSP and Parkinson's patients are very heterogenous based on the progression of the disease. For some patients, the progression is slow whereas for others the progression is fast. These distinct patterns of progression strongly indicate that the therapeutic strategy will have to be personalized for each patient depending on the rate of progression. My goal is to contribute to the elaboration of personalized medicine for PSP patients.

Conversion of cells from urine samples to neurons for longitudinal studies

Dr. Janelle Drouin-Ouellet, Université Laval
Pilot Project Grants
$54,000 over 1 year

Project description:

Approximately 90% of Parkinson's Disease (PD) cases are of unknown cause. This complicates the development of model systems to study these so-called idiopathic forms. We have recently developed a method to convert skin cells from PD patients into nerve cells, to obtain brain cells in a dish, to better study the mechanisms leading to PD on a patient-specific basis. One major advantage of this technology is the maintenance of the aging signs in the brain cells after conversion. As a result, we can study how aging – the single most important risk factor for idiopathic PD – contributes to the development of the disease. To simplify the initiation of long-term studies to monitor the pre-disease stage or the disease progression, we now aim at converting cells collected in urine samples to nerve cells, and study signs of PD in these cells. The ultimate goal of this approach is to provide a patient-based system that would be useful for better understanding the disease, drug discovery and personalized medicine.

How Parkinson Canada is helping

The pilot project grant program is fantastic as it is one of the few providing seeding money to start novel and creative projects, as a stepping stone to obtain larger and longer-term funding. Without this program it would have been quite difficult to initiate our project, especially as an early career researcher.

What research goals do you hope to achieve?

My main goal would be to develop cell reprogramming tools which would help us better understand the heterogeneity within idiopathic PD at a molecular level, and in turn inform on how to apply personalized medicine to PD.

Influence of fatigue in Parkinson's disease on gait performance and locomotor control mechanism

Dr. Caroline Paquette, McGill University

Pilot Project Grants
Funded in Partnership with Parkinson Society of British Columbia
$75,000 over 1 year

Project description:

Fatigue is a frequently reported symptom of Parkinson's that interferes with daily activities and can lead to reduced quality of life. Fatigue may also impair the brain's ability to coordinate movement, which can cause walking difficulties. In this study, individuals with Parkinson's will be assessed on their physical activity and experiences with fatigue for five days. They will then undergo a PET imaging scan to measure activity in fatigue-related areas of the brain. This innovative research study will expand our knowledge about a poorly understood symptom of Parkinson's. Furthermore, it will help us understand the relationship between fatigue and walking difficulty so efforts can be made to address this issue.

Clinical Movement Disorder Fellowship at UHN

Dr. Jane Liao, University Health Network
Clinical Movement Disorder Fellowship
$ 75,000.00 over 1 year

Fellowship description:

The Clinical Movement Disorders fellowship has been invaluable in not only allowing me to pursue Movement Disorders as a subspecialty, but also allowing me to learn from world experts such as Dr. Anthony Lang and Dr. Susan Fox. The experience is far beyond anything I can take away from a textbook. It provides me the competence and confidence I need to appropriately diagnose movement disorders and provide the best care to patients with Parkinson's disease and other movement disorders.

How Parkinson Canada is helping

I am immensely grateful to Parkinson Canada for funding my fellowship as it allows me to focus on my professional development. It was always my goal to pursue fellowship training at Toronto Western Hospital to be able to work with the incredible group here, but Parkinson Canada helped me make that a reality.

Where do you hope to see yourself in the future?

I see myself practicing as a community movement disorders specialist. I want to be a part of a large neurology clinic that offers subspecialty expertise to patients in need whether that is multiple sclerosis, stroke or tremors. It will allow us to provide patient-centered care given the growing number of neurological disorders that cross subspecialty boundaries and require collaborative care. It will also provide my colleagues and I an opportunity for continued education.

Stereotactic and functional neurosurgery clinical fellowship

Dr. Stefan Lang, University Health Network

Clinical Movement Disorder Fellowship
Funded in Partnership with Parkinson Society of British Columbia
$ 75,000.00 over 1 year

Project description:

During this fellowship I will be trained in advanced neurosurgery techniques for the treatment of movement disorders, including deep brain stimulation (DBS) and focused ultrasound (FUS). This training will help me develop skills in surgical decision making, such as patient selection criteria, and surgical technique. In addition to my training, I will be involved in research using advanced imaging techniques to study how deep brain stimulation impacts brain activity and neural networks.

Measuring disease progression in Parkinson's using administrative health data

Dr. Priti Gros, University of Toronto
Clinical Movement Disorder Fellowship
Funded in Partnership with Parkinson Society of British Columbia
$150,000 over 2 years

Fellowship description:

I feel fortunate to be receiving my training in one of the best movement disorders programs in the world. From a clinical perspective, I am supervised by Dr. Tony Lang and Dr. Susan Fox. The quality of our instruction is unparalleled and the clinical mentorship we receive in each of our clinics is unique. In addition, we get to attend and present at weekly video rounds where challenging movement disorders cases are presented and discussed. We also attend weekly journal clubs where we discuss recent relevant articles in the field. We have mentorship sessions with all the faculties in the clinic. These are only a few examples of the superlative clinical experience our institution provides. From the research side, my PhD thesis is supervised by Dr Connie Marras and Dr Susan Bronskill. My PhD thesis committee also includes Dr Maria Chiu and Dr Michael Farkouh. I have been developing three exciting projects for the past year; along with completing PhD courses that teach important research skills. I feel extremely fortunate and could not have asked for a better training environment.

How Parkinson Canada is helping

I am very lucky to be in a place where organizations such as Parkinson Canada can fund opportunities for trainees like me. Having this type of support allows me to dedicate my time to Parkinson related work. It is also a chance for me to get connected to the Parkinson Canada community and meet inspiring individuals.

Where do you hope to see yourself in the future?

I see myself being a clinician and a researcher who focuses on disease modifying therapies for Parkinson Disease. I would love to take part and lead clinical trials for these types of therapies. I also see myself taking leading pharmacoepidemiology studies, in which I would aim to use large datasets to find drug repurposing candidates. These are drugs that are currently in use for a given condition, that we could potentially use in Parkinson Disease or other movement disorders.

Thank you for supporting the next wave of Parkinson's research!

Parkinson Canada

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