

Djavad Mowafaghian CENTRE FOR BRAIN HEALTH

ADVANCING BRAIN HEALTH THROUGH RESEARCH AND CARE

RICCA



TABLE OF CONTENTS

- 1 MESSAGE FROM THE DIRECTORS
- 2 STATISTICS: SNAPSHOT OF 2022/2023
- 3 IN THE NEWS
- 4 RESEARCH HIGHLIGHTS
- 10 AWARDS
- 12 TRAINING THE NEXT GENERATION 13 Trainee Profiles
- 15 LOCAL AND GLOBAL ENGAGEMENT
 18 Research Excellence Clusters
 19 BC Brain Wellness Program
- 20 PEOPLE AND PLACES
 - 20 Faculty Profile
 - 21 Staff Profile
 - 22 Facility Updates

The Djavad Mowafaghian Centre for Brain Health is located on the traditional, ancestral and unceded territory of the Musqueam people.

MESSAGE FROM THE DIRECTORS

Thanks to the synergistic efforts of our faculty, staff and trainees, we continue to build momentum in pursuit of our strategic goals. In this year's report, we celebrate the remarkable achievements of our community in pioneering innovative research and demonstrating unwavering compassion in patient care.

Translational research is an integral part of the Djavad Mowafaghian Centre for Brain Health's activities. Our five Integrated Research Programs (IRPs) have woven intricate connections in areas ranging from mental health and addictions to movement and neurodevelopmental disorders. In the last year, we witnessed close to 200 collaborative studies within UBC and over 800 in collaboration with national and international partners, culminating in more than 1,000 published papers and an infusion of \$49 million in new funding which will help to bridge research and clinical realms.

The Centre continues to strengthen and foster new partnerships with initiatives such as the Kickstart Research Grants and Alzheimer Disease Research Grants. Our commitment to supporting open science-related events and projects resulted in the establishment of the Centre as an Open Science Institute this past spring. We look forward to planning a large-scale in-person retreat next year that will further build new connections in our research community.

As champions of innovation, our members are leaders of four UBC Research Excellence Clusters, which bring together diverse groups of researchers to solve challenges that transcend traditional boundaries. The Dynamic Brain Circuits Cluster has expanded its Databinge program beyond UBC and created a new "Topics in Neuroscience" course in partnership with the Graduate Program in Neuroscience, while the MATRIX-N and Vision clusters have organized a series of seminars and events aimed to further promote teamwork and innovation.

Community outreach and education are key parts of the Centre's mission. The resounding success of our recent *Brainstorm: Innovations and Breakthroughs* event reinforced the importance of public engagement and discussions in brain health. In addition, our weekly Neuroscience Research Colloquium series continued to attract a wide array of diverse speakers from around the world while the BC Brain Wellness Program has expanded with more classes and new workshops.



Our trainees are being mentored as the next generation of talented researchers and supporting them in achieving their full potential is pivotal. The Centre is proud to provide funding through Trainee Endowment Awards and the Indigenous Undergraduate Research Internship Program. The close proximity of both the graduate and undergraduate neuroscience programs at the Centre further encourages interaction, collaboration and sharing of new ideas.

The successful and seamless operation of our labs and clinics is largely due to support from the Centre's core facilities. A new phlebotomy unit in the Borgland Family Brain Tissue and DNA Bank will expand participant recruitment for research, while the Charles E. Fipke Integrated Neuroimaging Suite's addition of new equipment and upgrades will result in improved image quality and expanded capabilities. The NeuroImaging and NeuroComputation Centre has also launched a new Microscopist in Residence program that will provide dedicated support for its users.

It is our honour to lead the Djavad Mowafaghian Centre for Brain Health as it continues to grow as a world-renowned hub for neuroscience research and clinical care. Recruitment is underway for a new chair in multiple sclerosis and a new ALS professor will arrive in 2024, which will enhance the Centre's research capacity and impact. We are grateful for the collective efforts of everyone in our community to date and look forward to the cultivation of new partnerships as we work together to advance brain health across the lifespan.

Ja Raymond

Dr. Lynn Raymond Director

Dr. Shernaz Bamji Associate Director

STATISTICS: SNAPSHOT OF 2022-2023



IN THE NEWS

UBC Medicine

The BC Brain Wellness Program (@brain_wellness) at @UBC is helping British Columbians with chronic brain conditions live their best lives, says Sally Stelling (@UBC_PT) and Dr. Silke Appel-Cresswell (@UBCDoM @DMCBrainHealth) via @CTVVancouver



VCH Research Institute

A research team led by @DMCBrainHealth investigator Dr. Shannon Kolind is exploring how a portable MRI scanner can be used to study the effect of malnutrition on myelin in brain development: oww/v5etMK0NzoAi



Q 13.9 ♥ 10 □



We are deeply saddened to share that Dr. Edith (Edie) McGeer passed away on August 28 at the age of 99.

Dr. McGeer was a pioneering neuroscientist who leaves behind a legacy of extraordinary achievement & impact. @UBC_Psychiatry @DMCBrainHealth

Tribute: bit.ly/4620PO2



UBC Media Relations @UBCNews

.@UBCmedicine Physical therapy professor Dr. Teresa Liu-Ambrose discussed her research that found weight training improves cognitive function. via @BBCRadio4



2:22 PM · Mar 8, 2023 · 1,714 Views

t] 8

0

£

Providence Health Care

People of Asian ancestry have been underrepresented in Alzheimer's disease research to-date.

Learn how @UBCmedicine researchers, including St. Paul's Hospital neurologist Dr. Robin Hsiung, are addressing this gap, @DMCBrainHealth



11:57 AM · Aug 23, 2023 · **712** Views



Djavad Mowafaghian Centre for Brain Health @DMCBrainHealth

Congratulations to Dr. Terrance Snutch, who has received the 2023 Margolese National Brain Disorders Prize for his combination of groundbreaking research, drug design and development, and clinical and commercial translation.

Read more: med.ubc.ca/news/ubc-facul.



WHERE ARE THEY NOW? PAST GRADUATE PROGRAM IN NEUROSCIENCE STUDENTS

20

£

Dr. Tamara Bodnar, PhD Graduate 2016 >> Assistant Professor – University of Calgary

Amelia Hunter, MSc Graduate 2018 >> Study Contracts Manager – AstraZeneca

Dr. Andrea Jones, PhD Graduate 2018 >> Neurology Physician Resident and Postdoctoral Fellow – UBC

Dr. Parker Holman, PhD Graduate 2019 >> Senior Lab Demonstrator – Brock University **Dr. Naama Rotem-Kohavi**, PhD Graduate 2019 >> Research Associate – Praxis Spinal Cord Institute

Dr. Seth Tigchelaar, PhD Graduate 2019 >> Neurosurgery Medicine Intern – Stanford University

Dr. Elisa York, PhD Graduate 2019 >> Postdoctoral Fellow – Harvard University

Dr. Sohrab Bahrami Manesh, PhD Graduate 2020 >> Enterprise Scientific Liaison – Biomed AI

DMCBH Year in Review 2022/2023



DEVELOPING POTENTIAL CURES FOR GENETIC NEURODEVELOPMENTAL DISORDERS

Dr. Blair Leavitt and his team are working directly with patients and their families to develop potential treatments for rare pediatric neurodevelopmental disorders. Last year, Dr. Leavitt secured funding to create a tailored gene therapy for a child with GNA01 encephalopathy. Using the child's stem cells, his team was able to create a cellular model based on the child's specific genetic mutation. This model can then be used to explore how the mutation leads to disease and to develop a gene therapy approach, using gene editing technologies such as CRISPR-Cas9. Dr. Leavitt's team has partnered with Incisive Genetics to develop a lipid nanoparticle-based delivery platform, similar to technology used in COVID-19 mRNA vaccines, which enables gene editing treatments to be efficiently delivered directly to cells throughout the body. This lipid nanoparticle platform has already received FDA approval for gene therapy, making it a promising avenue for treating rare neurodevelopmental disorders like GNAO1 encephalopathy.



If we are able to use these techniques to produce a therapy for this one child, it could pave the way for new treatments for many other diseases, offering relief at last to children afflicted by these devastating neurodevelopmental disorders."

Dr. Leavitt

ESTABLISHING A NEW STANDARD FOR DIAGNOSING MILD TRAUMATIC BRAIN INJURY

Doctors and other healthcare providers have a new standard for diagnosing mild traumatic brain injury (TBI), thanks to a thorough process co-led by Dr. Noah Silverberg alongside researchers from UBC and Harvard-affiliated Spaulding Rehabilitation Hospital.

Mild TBIs, commonly known as concussions, are challenging to diagnose since they often do not show up on brain scans, and symptoms can be subtle and overlap with other conditions.

"We've achieved consensus across a diverse range of experts in developing these new diagnostic criteria," says Dr. Silverberg.

Our hope is that this strong consensus will drive a global shift towards adopting these criteria, ultimately improving patient care and research consistency in the field."

- Dr. Silverberg

The work undertaken by Dr. Silverberg aims to establish a new global standard to diagnose TBI, that can be applied across age groups, health systems and injury circumstances. It takes into account blood tests and tests of thinking skills, balance, and vision that can contribute to the diagnosis of TBI, which has not been a feature of previous criteria.

Ultimately, the goal is to have the criteria incorporated into clinical practice guidelines and accreditation standards for healthcare facilities in the United States and Canada, and eventually be integrated into electronic medical records.

PUSHING THE BOUNDARIES OF SPINAL CORD RESEARCH

Dr. West

UBC Okanagan's Dr. Christopher West is part of an interdisciplinary team exploring how implantable technologies can help people with a spinal cord injury (SCI) live longer, healthier lives. An estimated 85,000 Canadians live with a SCI, and approximately half of those injuries are sustained because of a traumatic event like a motor vehicle crash or fall. While considerable global research has been focused on getting people with a SCI to walk again, comparatively little has been done to comprehensively understand what happens to the body's systems that are under automatic control after a SCI.

"Our hypothesis is that by implanting a stimulator on the spinal cord, we can reengage the systems that control cardiovascular function," explains Dr. West. He adds that if oxygen can be delivered in a more efficient way to the spinal cord one to seven days post-injury, this can hopefully prevent—or delay—some of the secondary damage that happens after a SCI. "Normal blood pressure, heart function, better respiratory function, movement sensation, bladder function, bowel function—all these things depend on nerves travelling down the spinal cord unimpeded."

Dr. West is working closely with Dr. Brian Kwon, a Canada Research Chair in Spinal Cord Injury, to develop spinal cord sensors that can ultimately be inserted in humans.



66

5



USING VIRTUAL REALITY TO HELP WITH EARLY DETECTION OF ALZHEIMER DISEASE

Dr. Manu Madhav and his team are working to develop and test a behavioural biomarker for Alzheimer disease by creating a task designed to assess navigational ability. Both human participants and rodents will take part in navigating paths in a maze that will become increasingly complex. Researchers will determine the complexity at which a participant's navigation capabilities become impaired.

Dr. Madhav highlights the importance of effective communication between clinicians and scientists, allowing research to transcend disciplinary boundaries.

"This collaboration has been instrumental in refining our ideas and tasks to align with real-world clinical needs, giving us invaluable insights into the varied presentations of Alzheimer disease," notes Dr. Madhav, on working with clinicians from the Clinic for Alzheimer Disease and Related Disorders (CARD).

We have learned that factors such as anxiety, fatigue and physical discomfort can greatly impact participants' ability to complete tasks. So, after initially considering robotic teleoperation, we decided to create a purely virtual reality version of the task." *Dr. Madhav* Dr. Madhav hopes this diagnostic tool can be used to detect navigation impairments and understand underlying brain mechanisms associated with early-stage Alzheimer disease. This knowledge will lead to better treatments and support for people with dementia and help to prolong brain health.

\$33.8M GIFT TO TRANSFORM MS RESEARCH AND SAVE MORE LIVES, SOONER

A \$33.8 million gift has been donated to the University of British Columbia and VGH & UBC Hospital Foundation for multiple sclerosis (MS) research and care—the largest known donation ever for MS research worldwide. This gift will be used to establish the BC MS Cell Therapies Translational Research Network, a world-class research and patient-care hub that will use the latest advances in cell and gene engineering to develop, manufacture and test cell-based therapies. It will also help augment clinical services for patients and their families. As a clinician-scientist who has worked with patients for over 20 years, Dr. Anthony Traboulsee sees the debilitating effects of MS on individuals and their families every day.

"It breaks my heart to see patients I've known since their diagnosis continue to decline due to a current lack of treatment options," says Dr. Traboulsee.

66

These patients don't have five or 10 years to wait, but through participation in early-stage clinical trials for promising new therapies, we can give them a greater chance at success. Thanks to this investment, I can envision a future where we deliver innovative, lifesaving therapies that have the potential to conquer MS one day."

Dr. Traboulsee





TRAFFIC POLLUTION IMPAIRS BRAIN FUNCTION

A new collaborative study led by Dr. Jodie Gawryluk, along with Dr. Daniela Palombo and researchers at UBC and the University of Victoria, has shown that common levels of traffic pollution can impair human brain function in only a matter of hours. The study shows that just two hours of exposure to diesel exhaust causes a decrease in the brain's functional connectivity – a measure of how different areas of the brain interact and communicate with each other. This research provides the first evidence in humans, from a controlled experiment, of altered brain network connectivity induced by air pollution.



Dr. Gawryluk



Dr. Palombo

Researchers analyzed changes in the brain's default mode network (DMN), a set of interconnected brain regions that play an important role in memory and internal thought. Brain scans showed that participants had decreased functional connectivity in widespread regions of the DMN after exposure to diesel exhaust, compared to filtered air.

We know that altered functional connectivity in the DMN has been associated with reduced cognitive performance and symptoms of depression, so it's concerning to see traffic pollution interrupting these same networks.

While more research is needed to fully understand the functional impacts of these changes, it's possible that they may impair people's thinking or ability to work."

- Dr. Gawryluk



ANTIDEPRESSANTS CAN REDUCE RISK OF RELAPSE FOR PATIENTS WITH BIPOLAR DEPRESSION

Treatment with modern antidepressants may help prevent patients with bipolar disorder from relapsing into a depressive episode, according to an international clinical trial led by Dr. Lakshmi Yatham. The findings challenge current clinical practice guidelines and could change how bipolar depression is managed.

"Treating depression in bipolar disorder is challenging and the depressive episodes can be quite devastating for patients and their families," says Dr. Yatham. "Reducing the risk of relapse is important because it can provide patients with a great deal of stability that ultimately lets them get back to the activities they enjoy and can greatly improve their quality of life."

Now, results from the world's first randomized clinical trial assessing the duration of adjunctive antidepressant therapy suggest that extending the treatment period beyond current guidelines may help prevent depressive relapses.

Stabilizing patients and keeping them stable by preventing relapse is critical and can quite literally be lifesaving.



Future revisions of bipolar guidelines will incorporate the evidence from this study and contribute to changes in clinical practice on how antidepressants will be used to manage patients with bipolar disorder."

- Dr. Yatham

CREATING SMARTPHONE APPS TO SUPPORT MENTAL HEALTH

Dr. Raymond Lam is leading the development of an app to promote and support mental well-being among youth in Vietnam. The Youth Promotion of Resilience Involving Mental E-health (Y-PRIME) study is a partnership with Vietnam's Institute of Population, Health and Development (PHAD), researchers from UBC, Simon Fraser University and the University of Melbourne, youth leaders at Foundry BC and the APEC Digital Hub for Mental Health. Participation in this study via the Vietnam Youth Advisory Council (V-YAC) will allow youth to be at the forefront of a push for improved mental health and well-being support, in a way that reflects their experiences and needs.

Drs. Erin Michalak and Steven Barnes, along with the CREST.BD (The Collaborative RESearch Team to study psychosocial issues in Bipolar Disorder) team have created a smartphonebased app called PolarUs. Built by researchers, with input from people with lived experience and healthcare providers, this app helps people with bipolar disorder to measure and monitor their quality of life. Thanks to advancements in artificial intelligence and machine learning, the app will, over time, even have the ability to suggest personalized self-management strategies for users, depending on their unique needs and situation.





Jeff LeDue (above)

Dr. Murphy



Dr. Spering

EYE MOVEMENTS COULD **BE A WINDOW INTO BRAIN** HEALTH AND FUNCTION

Humans are excellent at following objects with their eyes, such as a ball. However, we are less refined at tracking accelerating objects. New research led by Dr. Miriam Spering provides a clearer picture of the mechanisms behind this very human hindrance.

"Motion tracking is important when crossing a street and anticipating the movement of oncoming traffic, as well as when walking down a sidewalk and avoiding bumping into other people," notes Dr. Spering. "The results of this study provide further evidence that the human visual system has a hard time observing and reacting to accelerating objects."

of the predictive pathways of hand-eye movements to track accelerating objects could support further scientific research and understanding about disease diagnosis and severity.

A better understanding To date, there has been a lack of understanding about how modern humans transform our visual perception of acceleration into motor skills. Dr. Spering explains that the reason for this is a complex neural system that interprets information from the eyes to the optic nerve in the brain, all the way to the visual cortex located at the back of the brain.

USING ADVANCED IMAGING TOOLS TO UNDERSTAND AND TREAT NEUROLOGICAL DISORDERS

The Dynamic Brain Circuits in Health and Disease Research Excellence Cluster's new iMAP (in vivo Mesoscale Assessment of the neuroProjectome) project is using advanced imaging tools to assess and manipulate brain circuits in animal models of human brain disorders. Led by Dr. Tim Murphy and managed by Research Associate Jeff LeDue, iMAP discoveries will lead to new treatments, called circuit-based therapeutics, which can be personalized to an individual's needs.

These discoveries will be enabled by iMAP's highresolution imaging of the function and structure of projections between widely separated areas of the brain, bridging the current gap between preclinical studies and patient imaging. With support from the Canadian Foundation for Innovation and BC Knowledge Development Fund, the iMap project has provided the Centre with over \$3 million in new equipment and resources in the last year. Together, these resources will accelerate discovery and facilitate collaborations between scientists and clinicians at the Centre and beyond.

AWARDS





KICKSTART GRANTS

The Djavad Mowafaghian Centre for Brain Health Kickstart Grants are intended to encourage research that demonstrates new collaborations, directions and technological developments. It supports new projects that generate preliminary data for future grant applications to external funding agencies. Five research teams received 2023 Kickstart Grants:

Validating ZDHHC9 as a therapeutic target for Multiple Sclerosis

Shernaz Bamji and Jacqueline Quandt

The role of metabolic driven changes in histone lactylation in regulating microglial inflammation

Annie Ciernia, Sheila Teves and Seth Parker

Assessing long-term trajectories of brain structure, neurodevelopment and function in adolescents with complex congenital heart disease

Thalia Field and Jill Zwicker

New magnetic resonance approaches to understanding developmental visual disorders

Deborah Giaschi, Alexander Weber, Hee Yeon Im, Tamara Vanderwal and Miriam Spering

Experience-specific tuning of postnatallyborn hippocampal neurons

Jason Snyder and Manu Madhav

ALZHEIMER DISEASE RESEARCH GRANT

The Djavad Mowafaghian Centre for Brain Health Alzheimer Disease Research Grant continues to spark new collaborations between foundational and clinical researchers. Each of these projects has the potential to transform Alzheimer disease outcomes. Five research teams received grants for 2023:

The contribution of metabotropic glutamate receptor 5 to impaired neurovascular coupling in Alzheimer disease

Khaled Abdelrahman and Brian MacVicar

A universal Drosophila platform for testing modifiers of tau toxixity in tauopathy

Douglas Allan, Amrit Mudher, Philip Williamson and Efthimios Skoulakis

Validating ZDHHC21 as a therapeutic target for Alzheimer Disease Shernaz Bamji and Steven Hallam

The role of Inflammatory bowel disease in the development of Alzheimer disease Annie Ciernia, Cheryl Wellington and Carolina Tropini

Disrupting GluA1-VCP/p97 as a novel therapeutic strategy to restore synaptic plasticity in Alzheimer disease *Sriram Subramaniam*



TRAINEE ENDOWMENT AWARDS

The 2023 Djavad Mowafaghian Centre for Brain Health Trainee Endowment Awards recognize excellence in academics and research activities of our trainees. Special thanks to our donors and the Graduate Program in Neuroscience for their generous support.

Leslie Ann Wyman Brain Tumour Research Endowment: Corbin Glufka, MSc student

Benjamin Feldman and Family Endowment Fund for Transformational Activity in Mental Health: Abhijit Mahesh Chinchani, PhD student

Neural Repair (Spinal Cord) Endowment: Katharina Raschdorf, PhD student

Schizophrenia Endowment: Naomi (Catie) Futhey, PhD student



GENERAL AWARD

Eric Press, PhD student Melody Salehzadeh Moghadami,

PhD student Minseon Jung,

MSc student Sasha McDowell,

PhD student

Ahmad Samara, PhD student

Brianna Bristow, MSc student

Hitasha Bajaj, MSc student Hong Lu, PhD student

Juana Ayala, MSc student

Karina Aika Thiessen, PhD student

Regan Campbell, MSc student

Tetiana Poliakova, PhD student

Cristina Rubino, PhD student

Seyedehleila Abtahi, PhD student

TRAINING THE NEXT GENERATION:

UPDATE FROM THE GRADUATE PROGRAM IN NEUROSCIENCE (GPN)

The Graduate Program in Neuroscience continues to thrive in its de facto home within the Djavad Mowafaghian Centre for Brain Health. While I have only been program Director for a few months, picking up the baton from our previous Director who has since been promoted to Associate Dean, I have already benefited enormously from the outstanding leadership my predecessors have provided to the program. I will endeavour to carry on their efforts to ensure all our Neuroscience graduate students have a productive, enjoyable and well-supported experience here at UBC.

The Undergraduate Program in Neuroscience is welcoming its second cohort of students this fall, having gotten off to a fantastic inaugural year in 2022. I intend to work closely with the undergraduate program Director to enhance collaboration and synergy between our two programs, and to foster continuity between our undergraduate and graduate courses. We are in the process of revitalizing our graduate curriculum, with input from current students, to ensure our trainees are receiving the instruction they need to succeed in their research. Although we were unable to run a retreat for our students this past year, the Neuroscience Trainee Association has some exciting initiatives planned and I look forward to working with them. Our students continue to excel in funding competitions. 13 were newly awarded Canada Graduate Scholarships at the Master's or Doctoral level, and 18 received the Centre's 2023 Trainee Endowment Awards. However, the number of students experiencing financial hardship while completing their PhDs is concerning, as the cost of living in Vancouver continues to rise while award stipends and grant dollars stay relatively stagnant.

I remain deeply committed to the process of reconciliation, and hope to find ways in the coming years to decolonize our thinking within the program and recognize the value of Indigenous ways of knowing and learning. We are working to ensure that the principles of equity, diversity and inclusion are embedded in every aspect of the program, and that all our trainees are able to conduct their research in a safe and respectful working environment.



Dr. Catharine Winstanley Director, Graduate Program in Neuroscience

TRAINING THE NEXT GENERATION

TRAINEE PROFILES:



BRIANNA BRISTOW, MSC STUDENT

Brianna Bristow is a current MSc Neuroscience student in the lab of Dr. Mark Cembrowski, which specializes in using transcriptomic approaches to identify unique cell types with roles in memory in the brain.

Brianna's thesis project investigates a novel cell type in the cortex, which expresses a unique, hybrid transcriptomic profile that hasn't been documented before. Currently, Brianna is performing histological methods to locate and characterize these cells. She is also searching published RNAseq datasets in R to identify a series of marker genes to aid in her investigation.

Brianna received her Bachelor of Science in Biochemistry & Molecular Biology at UBC. During her undergraduate degree, she completed her honour's thesis project in Dr. Annie Ciernia's lab, where she studied the effects of lipopolysaccharide exposure on microglial activation and phagocytosis rates.

In the future, Brianna can see herself using her molecular biology and neuroscience skillset to work in a career in healthcare. Part of the reason she loves science is because it is essentially full of puzzles waiting to be solved. With that in mind, working in careers related to pathology or medical genetics where she can apply her knowledge to help diagnose and provide treatments to patients, seems to be a good fit for her skills and interests.

Brianna's favourite thing about the Neuroscience graduate program is the scientific diversity it encapsulates. Her advice to students interested in graduate school is to pursue something that interests and inspires them, which will guide them on their path to figuring the rest out.

Outside of research, Brianna enjoys hanging out with her friends at the beach, checking out new artists at music concerts and completing puzzles.



Brianna Bristow (top), Chantelle Cocquyt (photo above)



CHANTELLE COCQUYT, PHD STUDENT

Chantelle Cocquyt is a PhD student in Psychology under the supervision of Dr. Daniela Palombo in the Memory and Imagination Lab. Her lab researches emotional memory processes using both behavioural and cognitive neuroscience approaches. Specifically, Chantelle uses functional magnetic resonance imaging (fMRI) for her research on the neural correlates of emotional memory.

She received her Honours Specialization in Psychology at Brescia University College and her Master's in Psychology at UBC. Chantelle started her research journey during her undergraduate studies, working with spatial navigation in a virtual environment. She gained experience conducting extensive in-person testing and designing thoughtful behavioural experiments.

Currently, Chantelle is elevating her experimental design skills to accommodate the complex considerations that come with conducting an fMRI experiment. Through learning how to preprocess and analyze neuroimaging data, she is becoming proficient in a variety of programming languages.

Chantelle chose to conduct research in a neuroscience lab because she has always been fascinated by functional

TRAINING THE NEXT GENERATION

TRAINEE PROFILES:

neuroimaging since she first encountered it in her first year of undergrad. She is elated at the opportunity to use these techniques to understand how emotional memories are represented in the brain.

Her favourite part about the research environment at UBC is the eagerness for collaboration. There has been a recent push for knowledge translation and resource dissemination pertaining to neuroimaging practices both within the Psychology department and at the Djavad Mowafaghian Centre for Brain Health. This community of kind and helpful researchers has made all the difference in Chantelle's education thus far.

In the future, Chantelle hopes to continue in neuroimaging research at a university or hospital. Outside of research, she spends her free time knitting, crocheting, sewing and painting.



Nárlon Cássio (above photo)



NÁRLON CÁSSIO, POSTDOCTORAL FELLOW

Nárlon Cássio is a Postdoctoral Research Fellow in the Department of Physical Therapy at UBC. Under the supervision of Dr. Teresa Liu-Ambrose in the Aging, Mobility and Cognitive Health Lab, Nárlon's research aims to understand the impact of preventive or protective factors on age and pathology-related declines in brain health.

Nárlon is currently working on several projects, but his main interest is understanding how exercise can benefit white matter health in older individuals at risk for dementia. He is using myelin water imaging to assess the impact of exercise on white matter myelin in people living with white matter pathology.

In his MSc and PhD programs, there was a large focus on designing exercise interventions for older individuals. Therefore, he has experience in designing and conducting randomized controlled trials in high-risk older individuals and assessing cognition, mobility and cardiovascular health outcomes in this population.

Nárlon loves how UBC is an international hub for MRI research and Dr. Liu-Ambrose is one of his favourite scientists in the world. Coming to UBC to work with Dr. Liu-Ambrose in a very supportive and rich environment has been transformative for his career. His advice for students pursuing grad school is to be brave and honest enough to seek help from others.

In the future, Nárlon wants to do meaningful research on dementia prevention and treatment of cognitive impairment. He also hopes to establish a research training program which can aid in the development of aspiring researchers in Northeastern Brazil.

Outside of research, Nárlon's favourite thing to do is spending time with his daughter. He also loves cooking for his wife, reading and writing poetry, working out and spending time with his dogs.



BRAINSTORM: INNOVATIONS AND BREAKTHROUGHS

On April 15, 2023, the Centre held a community outreach event called *Brainstorm: Innovations and Breakthroughs*, where several of our neuroscientists showcased their research in areas such as healthy aging, dementia, mental health, brain injury, Parkinson disease and autism. We had a full house in attendance and were delighted to hear that many were inspired by what they learned and are interested and enthusiastic about participating in research.

BECOMING AN OPEN SCIENCE INSTITUTE

The Djavad Mowafaghian Centre for Brain Health has officially become an Open Science Institute. Through a partnership with The Neuro's Tanenbaum Open Science Institute (TOSI), the Centre has adopted a set of Open Science principles for collaboration and sharing research findings. As part of this agreement, the Centre commits to publicly releasing research data, methods and results, while minimizing the use of restrictive intellectual property protection, in order to accelerate the rate of scientific and medical discoveries. Developing infrastructure and initiatives that promote Open Science and data sharing is also an important part of the Centre's strategic plan. Spearheaded by Dr. Paul Pavlidis, the Centre introduced various Open Science activities in the past year, including a seminar series, a town hall and a patent study led by Dr. Judy Illes.







Dr. Eng Dr. Liu-Ambrose

CENTRE FOR AGING SMART COMBINES EXPERTISE IN AGING AND REHABILITATION

The Centre for Hip Health and Mobility (CHHM) has partnered with the Rehabilitation Research Program (RRP) at GF Strong to form the Centre for Aging SMART (Solutions for Mobility, Activity, Rehabilitation and Technology) at Vancouver Coastal Health. Led by co-directors Drs. Janice Eng and Teresa Liu-Ambrose, the centre will offer new opportunities for collaboration among researchers, clinicians and patients to address priorities in healthy aging and rehabilitation. Their work will inform clinical practice and recommendations, shape community programs and promote aging in place via innovations in technologies and tools.

"Over the next 20 years, Canada's older adult population is expected to grow by 68 per cent," says Dr. Liu-Ambrose. "There is an urgent need to identify, evaluate and implement evidence-based strategies that promote well-being, aging in place and effective transitions in care."

The Centre for Aging SMART will ensure that VCH continues to be a national and global leader in providing healthcare for older adults through innovative and patient-oriented research.

IBRO-CBH UBC INDIGENOUS UNDERGRADUATE RESEARCH INTERNSHIP PROGRAM

Through a partnership between the International Brain Research Organization (IBRO) and the Djavad Mowafaghian Centre for Brain Health, the IBRO-CBH UBC Indigenous Undergraduate Research Internship Program aims to enhance opportunities for Indigenous undergraduate students to participate in neuroscience research at UBC. This past year, IBRO-CBH was able to provide salary funding for five students, creating opportunities for them to participate in cross-lab mentorship including in career development and scientific approaches.

One of the students in the program was Maiara Burgess, a second-year biology student from West Moberly First Nations and also part Bolivian. Working in Dr. Kurt Haas' lab, Maiara learned single-cell electroporation (a technique that utilizes electrical stimulation to increase cell membrane permeability in a single cell), by first using dye to label the cells in tadpoles and then later with DNA. She also learned how to operate a microscope using different techniques such as bright field and fluorescent microscopy, how to scan brain cells and how to take care of animals in the lab.



Getting a behind-thescenes look at the research process has helped me realize how interested I am in science. It's been eye-opening because you never learn or see any of this in the classroom."

-Maiara Burgess



LARGE LANGUAGE MODELS (LLM) FOR BRAIN HEALTH HACKATHON

Artificial intelligence (AI) tools have become increasingly popular in recent months. The goal of the Dynamic Brain Circuits in Health and Disease Research Excellence Cluster's 2023 hackathon was to explore how large language models (LLMs) such as ChatGPT can aid brain health research. Using AI algorithms, LLMs have the potential to help researchers in brain research in a variety of ways, including writing code for data analysis, generating synthetic data, and assisting in generating text for research proposals, questionnaires and ethics applications.

In March, 34 participants on six teams came together from different institutions across the Cascadia region, participating both in person and virtually. The first-place winner was Daniel Ramandi, a PhD student in Dr. Lynn Raymond's lab, and his team who created PsycheCloak. Using synthetic interview data from ChatGPT, PsycheCloak not only anonymizes psychological interviews while preserving data integrity and protecting participant privacy, but also retains the richness and context of the original transcripts, ensuring that the data remains meaningful and easy to analyze.

2023 BRAIN BEE INSPIRES HIGH SCHOOL STUDENTS WITH INTERESTS IN NEUROSCIENCE

UBC hosted the 15th Annual Vancouver Brain Bee in April where 22 local high schoolers participated in the regional competition at the Djavad Mowafaghian Centre for Brain Health. The neuroscience-themed written and oral challenges are designed to test the students' knowledge of the brain and nervous system to stimulate interest and excitement about brain research. The Brain Bee is held in over 35 countries around the world, with local, national and international competitions. The event included an introductory lecture delivered by Dr. Mark Cembrowski, neuroscience research lab tours, an introduction to UBC's Undergraduate Program in Neuroscience by Dr. Steven Barnes, and a neuroanatomy lecture delivered by Dr. Claudia Krebs.

First-place winner Arla Xiao enjoyed participating in the competition as it allowed her to delve further into her interests outside of her high school studies. She went on to compete in the CIHR Canadian National Brain Bee in Hamilton, Ontario in May and placed third overall.

"Attending the national Brain Bee was nothing short of exciting!" says Arla. "Aside from the competition itself, I was also very happy to engage with others who shared my passion for neuroscience."

First-place winner Arla Xiao, bottom left

RESEARCH EXCELLENCE CLUSTERS

UBC's Office of the Vice-President, Research & Innovation announced 38 emerging and established research excellence clusters that will be supported with funding in 2023-24 through the Grants for Catalyzing Research Clusters competition. Four of these Research Excellence Clusters are led by our researchers.

DYNAMIC BRAIN CIRCUITS IN HEALTH AND DISEASE RESEARCH EXCELLENCE CLUSTER



The Dynamic Brain Circuits in Health and Disease cluster is led by Dr. Tim Murphy and seeks mechanistic

insight into normal and dysfunctional brain circuits across illnesses and injuries. The cluster continues to foster a collaborative research environment through networks of peer tutors that support a variety of local and international workshops and the development of new course material. Emerging neuroscience tools include expanded tissue microscopy and fully synthetic model brains and organisms that help inform and guide therapeutics. Through these efforts, faculty, staff and trainees gain access to physical infrastructure and technology training in addressing questions around brain circuit function that embrace datadriven methodologies.

COLLABORATIVE ENTITY FOR CEREBROVASCULAR ISCHEMIA (CEREBRI)



Led by Dr. Mypinder Sekhon, the Collaborative Entity for ceREBrovasculaR Ischemia (CEREBRI)

is an emerging cluster comprised of multidisciplinary health professionals, clinician-scientists, health policy-makers, neuroscientists, UBC academic Faculty of Medicine Departments/Divisions, as well as patient and family partners who are collectively focused on improving the clinical outcomes of British Columbians with diseases emanating from cerebral ischemia. The cluster will focus its main research themes on creating new and novel projects that are based upon forging breakthroughs in the diagnosis, management and understanding the pathophysiology of cerebral ischemiabased diseases in humans.



MATRIX-N: MULTIDISCIPLINARY ALLIANCE FOR TRANSLATIONAL RESEARCH AND INNOVATION IN NEUROPSYCHIATRY



MATRIX-N is led by Dr. Anthony Phillips and brings together a diverse group of leading researchers

and clinicians from foundational neuroscience, pharmacology and drug discovery, to clinical research and clinical practice, each committed to seeking advances in mental health and addiction research and treatment. By facilitating foundational/clinical and academic/ industry partnerships, interdisciplinary collaboration and innovation, the goal of the cluster is to support translational research at UBC to address unmet gaps in research and treatment from bench to bedside to community.

THE CLUSTER IN VISION RESEARCH: FROM MOLECULES TO BEHAVIOR TO SOCIETY



The Cluster in Vision Research: From Molecules to Behavior to Society is led by Dr. Joanne Matsubara,

and aims to shape the future of vision research. The Cluster is a network of vision and technical experts focused on new foundational discoveries to improve the diagnosis, treatment and prevention of eye and brain disorders by state-ofthe-art methods in engineering, artificial intelligence, neuroimaging, telemedicine, proteomics and super-resolution microscopy.

DMCBH Year in Review 2022/2023

BC BRAIN WELLNESS PROGRAM

BUILDING COMMUNITY THROUGH EXERCISE

Regular exercise is an important part of a healthy lifestyle for everyone. For those with Parkinson disease, exercise is especially vital in helping to maintain balance, flexibility, mobility and cognitive abilities. The BC Brain Wellness Program (BCBWP), spearheaded by Dr. Silke Appel-Cresswell, combines clinical care, lifestyle programs, education and research in a comprehensive and integrated approach to brain wellness for people with chronic brain conditions and healthy agers.

Sally Stelling plays a key role in the BCBWP as the program's exercise lead and instructor of the Intensity Interval Training classes. Working alongside students in the UBC Physical Therapy and Research Clinic, she provides participants with safe and effective exercise programs and instruction.

Deborah Scott-Douglas and Margaret Miller, who are regular attendees of Sally's classes, had nothing but positive things to say when asked about their experience.

"Sally is a force of positivity and she really sets the atmosphere and tone," Deborah says. "Her positive energy permeates into the students and class."

Other than the benefits of the exercises themselves, both Deborah and Margaret enjoy the camaraderie and interaction with the students and other participants. I wish everyone with Parkinson's had the opportunity to participate in such customized, fun and supportive sessions on a regular basis because they would truly feel the benefit, both mentally and physically." — Deborah Scott-Douglas

"I love working with the students," says Margaret. "They are so positive, enthusiastic and kind. I think that we have learned a lot from each other, and they may have even learned something about 60s and 70s music from us!"

"I love their youthful energy," Deborah adds. "They have an impressive amount of expertise. The students come from diverse backgrounds, ranging from dancers to physical trainers, which makes it fun to work with them."

One of the unique aspects of the class is the opportunity to work one-on-one with the students so that exercises can be catered to individual fitness levels and needs, and each person gets help with doing the right exercises at the right intensity.

"They're wonderful coaches, always so positive and welcoming, like a mini cheering squad," says Deborah. "They really reinforce all of the benefits of the program."

Both Deborah and Margaret have found that the exercise classes have helped manage their Parkinson's symptoms, and the progression of the disease, in a positive and enjoyable way.

"I find the class to be extraordinarily valuable and never miss it!" Deborah says.

They also appreciate the creativity involved in putting the classes together. While every class is different, each one has an element focusing on key areas such as agility, strength, cardio and balance. These types of exercises are not only important for those with Parkinson disease but also benefit those with other neurological disorders.

"I really appreciate the sense of community that develops over the weeks," says Margaret, who has been participating in the classes since the start of the BCBWP in 2019. "The exercises give me a sense of physical and emotional well-being that may not be there when the class begins. I would definitely recommend the Brain Wellness Program to others, for its friendly and fun environment and the positive results."



FACULTY PROFILE: KHALED ABDELRAHMAN

Since his parents were both marine biologists, Dr. Khaled Abdelrahman developed a passion for science at a young age.

"I used to go with my parents to the lab and see all kinds of research," he recalls. "Seeing them perform experiments and witnessing their excitement when they obtained results was intriguing."

Currently an Assistant Professor in UBC's Department of Anesthesiology, Pharmacology & Therapeutics, Dr. Abdelrahman is also a licensed pharmacist with over 11 years of experience in direct patient care.

"Having clinical commitments as a pharmacist only fuels my passion for research," he says. "Every time I dispense medications, I encounter drugs that are not really effective for some of my patients or have major side effects. It makes me wonder – why does this happen and how can things be improved? These experiences have reinforced my appreciation for research and the importance of advancing drug discovery."

His research focus revolves around a unique class of receptors called G protein-coupled receptors (GPCRs). During his postdoctoral studies, Dr. Abdelrahman investigated the metabotropic glutamate receptor 5 (mGluR5), a subtype within the GPCR family. His work focused on demonstrating the crucial role of this receptor in the cognitive function in the progression of Alzheimer, Huntington and Parkinson disease. Building upon this foundation, his future research will examine how it can indirectly regulate blood flow to the brain.

"Neurons require a proper supply of nutrients and oxygen, which is maintained through adequate blood supply," he explains. "Alzheimer disease patients often exhibit impaired control of blood flow to the brain. By addressing this issue, we might be able to alleviate the burden of Alzheimer's and its cognitive decline."

The implications of his research extend beyond Alzheimer disease and can potentially benefit individuals with other brain disorders.



"Understanding the role of this receptor in blood flow control could help tackle various problems associated with disrupted blood flow in the brain," notes Dr. Abdelrahman. His research aims to identify ways to pharmacologically target this receptor, thereby correcting blood flow and mitigating cognitive impairment and memory decline in patients.

With Canada's aging population, age-related neurodegenerative diseases are becoming more prevalent. The most common disease is Alzheimer's and the burden on the healthcare system that comes from patients' medications and caregivers is growing rapidly.

"I hope that with new collaborations with scientists at the Djavad Mowafaghian Centre for Brain Health, we will be able to boost the translational impact of the research that we do and hopefully advance research in the area for new drugs that can treat various brain disorders and therefore improve the quality of life of patients," he says.

Outside of setting up his lab, Dr. Abdelrahman has been enjoying Vancouver's natural beauty, by biking and playing soccer with his daughter. When asked on his advice for aspiring researchers, Dr. Abdelrahman stressed the importance of perseverance and curiosity.

"Sometimes, the path you envisioned may shift, and that's okay," he reassures. "Keep an open mind and be flexible. As long as you're passionate about what you do and constantly seeking knowledge, you'll find fulfillment in your career."

STAFF PROFILE: LAURA BARLOW

Since 2015, Laura Barlow has worked at the UBC MRI Research Centre in the Djavad Mowafaghian Centre for Brain Health as the Research MRI Supervisor. Prior to her current role, she worked at St. Paul's Hospital for 12 years in medical imaging, with four years spent in MRI. Laura went into this career because she fell in love with the technology and diagnostic power of magnetic resonance imaging (MRI).

"There's always something new to learn, whether it's new technology or new advancements," she says. "It keeps me engaged."

Laura's educational background includes two diplomas from BCIT – one in medical radiography and the other in magnetic resonance. She is also currently completing her Bachelor of Health Sciences in magnetic resonance at BCIT. Laura would encourage anybody to go into medical imaging.

"It is a very secure field of employment, there are lots of jobs available, and you can enter a fully paid practice after a few years of schooling."

The duties a Research MRI Supervisor performs include managing the staffing and scheduling of the MRI scanner, project development, implementing research protocols, and front-line patient care work. However, no two days are ever the same.





"It's always different based on the kinds of studies we have booked for the day and based on the kind of patient groups we are working with. Some studies almost mimic hospital MRI scans, and others require multiple pieces of research equipment being set up in the room," says Laura.

Laura's favourite part about helping with the various UBC research projects is using her patient care skills and knowledge in designing an experiment to create the researchers' vision of what they want to accomplish, and then figuring out how it's going to work in a clinical environment. Seeing the results of the experiments that she's helped with is always a highlight for Laura and the other MRI technologists.

When asked for one piece of advice for interacting with others, Laura responded, "I think in work and in life, you need to identify what's important to you, and what you value, and base your interactions with the world on those things."

The largest challenge for Laura in her role is making sure to have effective communication between many people. The researchers that come into the MRI Centre come from different areas of study with different experiences, so she interacts with everyone from graduate students and undergraduate research assistants to the Principal Investigators of a study.

Laura has lived in British Columbia her whole life. She loves spending time outdoors biking, hiking, camping and tending her many plants.

To sum up her experience of working at the Centre, Laura shared her favourite quote by Conan O'Brien: "Nobody in life gets exactly what they thought they were going to get. But if you work hard and you're kind, amazing things will happen."

FACILITY UPDATES







NEUROIMAGING AND NEUROCOMPUTATION CENTRE (NINC)

Three UBC Neuroscience graduate students have recently taken on the role of NeuroImaging and NeuroComputation Centre (NINC) Microscopists in Residence. Given recent advances in imaging technology, fluorescent probes and data analysis methods, neuroscience research is relying on ever increasing amounts of imaging data. Working with the NINC Managing Director, the NINC Microscopists in Residence will not only help troubleshoot and optimize new and ongoing experiments with NINC users, but will also support the adoption of new optogenetic fluorescent probes and imaging techniques to further advance neuroscience research. Optimal experimental design and data collection are essential to ensuring the success of specific research projects and this practical knowledge contributes to building the Djavad Mowafaghian Centre for Brain Health's capacity, as a community, to readily deploy new and evolving tools in future projects.



Peter Hogg:

PhD student under the supervision of Dr. Kurt Haas, with experience in multiphoton microscopy, building microscopes and participation in research-focused summer schools and conferences focused on neurophotonics and optics.



PhD student under the supervision of Drs. Ann Marie Craig and Mark Cembrowski, with experience in confocal microscopy, super-resolution microscopy, lattice lightsheet and widefield epifluorescence microscopes.





Nick Michelson:

PhD student under the supervision of Dr. Tim Murphy, with experience in using 2-photon microscopy to image neuronal activity across millimetres of cortex, and fiber photometry to image neural activity from deeper areas in the brain.

FACILITY UPDATES







CHARLES E. FIPKE INTEGRATED NEUROIMAGING SUITE

The Charles E. Fipke Integrated Neuroimaging Suite (FINS), which includes the PET/MRI Imaging Centre, the UBC MRI Research Centre and the Electrophysiology Suite, has been busy helping researchers over the last year.

On the GE Signa PET/MR scanner, several novel studies in Parkinson disease (PD), addiction, bipolar disorders, COVID-19 and women's health are being conducted. This fall, the GE Signa PET/MR scanner is being upgraded to take its imaging capabilities to new heights. The upgrade includes a substantial increase in digital channels, from 32 to 128, enabling higher resolution and precision imaging. To enhance image quality and versatility, new 48 channel coils and AIR coils will be added, offering enhanced image reconstruction capabilities, and Motion Free Brain for smooth, artifact-free brain imaging. This upgrade will revolutionize the scanning experiences, offering unprecedented image quality and expanded capabilities.

The electrophysiology suite had a busy year with studies involving noninvasive brain stimulation to both map and alter cortical excitability being carried out along with investigations of neurophysiological research considering how behaviour and neuropathology shift brain function. In addition, work has continued using high density electroencephalography to map brain activity in both healthy brains and individuals with neurological disorders. Studies are underway to consider a variety of groups and interventions including stroke, brain injury, concussion and Parkinson disease as well as others that are considering the impact of interventions such as music or exercise on healthy brain function.

UBC MRI Research's Philips MR scanner has completed over 1,200 scans in the 2022/2023 fiscal year. An upgrade to the electrical system was recently completed in preparation for a gradient system upgrade for faster, more precise imaging and a new multinuclear spectrometer will be installed in the fall. Many projects are underway that capitalize on the close proximity of the neurophysiology lab space and the MRI department. Dr. Martin McKeown's lab has installed

a new electroencephalogram (EEG) system in the scanner, collecting EEG data on PD subjects during fMRI scanning while they receive vestibular stimulation treatment. Dr. Lara Boyd is using the adjacent electrophysiology lab space to do MRI scanning and transcranial magnetic stimulation (TMS) interventions back-to-back. Dr. Fidel Vila-Rodriguez is delivering TMS treatments in medication-resistant depression, then scanning these subjects on the Philips 3T MRI as well as the Hyperfine Swoop portable low-field MRI system. Dr. Shannon Kolind's lab is continuing its work on developing the imaging capabilities of the Hyperfine Swoop so it can visualize more subtle disease processes and be used for quantitative tissue analysis. Dr. McKeown's new high-intensity focused ultrasound unit has also been installed in the scanner and will be used in the treatment of Parkinsonian tremor and can be used to deliver therapy while the scanner is acquiring functional MRI data.

FACILITY UPDATES



The Biobank is committed to expanding its services to provide continued support for the clinical research community. For new clinical trials and projects seeking guidance in developing ethics applications, the Biobank team is readily available for consultation.

BORGLAND FAMILY BRAIN TISSUE AND DNA BANK

The Borgland Family Brain Tissue and DNA Bank, also known as the Biobank, remains a pivotal resource at the Djavad Mowafaghian Centre for Brain Health for the collection, storage, and distribution of high-quality biospecimens and clinical data. Led and managed by Drs. Lynn Raymond and Seti Boroomand, the Biobank benefits from the oversight of qualified members from the Centre and local biobank experts. Carolyn Namaganda has joined as the Biobank's Research Assistant, bringing extensive experience in biobanking and a strong dedication to delivering high-quality work.

Over the past year, the Biobank has undergone several operational changes, aiming to enhance its services for the community. Notably, the Biobank has added multiple clinical trials from various clinics at the Centre to its client list, along with a few studies from Vancouver General Hospital and BC Women's and Children's Hospital. The Biobank is also actively streamlining its operations with the use of OpenSpecimen, a biobanking database. The transfer of data to this new platform is scheduled for completion by the end of 2023.

With the help of the Djavad Mowafaghian Centre for Brain Health clinics' patient care management team, a phlebotomy unit has been added to the Biobank. This addition enables the Biobank to offer blood draw and other specimen collection services to the research community, providing convenience to both research coordinators and patients.

KOERNER LAB RENOVATIONS

It has been almost 25 years since one of UBC's first CFI grants enabled the Djavad Mowafaghian Centre for Brain Health, then called the Brain Research Centre, to renovate space in UBC Hospital's Koerner Pavilion to house our core labs and facilities. To a great extent, this work has passed the test of time, however the material sourced to cover our lab benchtops has not only shown its age in wear and tear but also no longer met safety standards for a Biosafety Level 2 laboratory.

An upgrade to meet these standards and provide appropriate and safe working conditions was successfully completed over the summer of 2023 with minimal disruption to research. This attests to the excellent community spirit amongst our faculty, staff and trainees. While each lab was completely displaced during work on their areas, everyone worked together to facilitate continuing research, offering to share space and use of equipment on a temporary basis, and adjusting to frequent changes to construction work schedules.

The scope of this \$700,000 project was extensive, which involved replacing the benchtop working surface of all the lab benches in our open concept space and in many internal rooms. The new material is fire, chemical and abrasionresistant, making it an excellent choice for our various research labs for years to come.



PARTNERSHIPS:

The Djavad Mowafaghian Centre for Brain Health represents a partnership between Vancouver Coastal Health and the Faculty of Medicine at the University of British Columbia. The Centre was made possible with a generous donation from the Djavad Mowafaghian Foundation, as well as contributions from other philanthropists and leaders, in addition to those of the federal and provincial governments.



THE UNIVERSITY OF BRITISH COLUMBIA

The University of British Columbia is one of Canada's largest and most prestigious public research and teaching institutions and consistently ranks among the top 40 institutes in the world. It offers a range of innovative undergraduate, graduate and professional programs in the arts, sciences, medicine, law, commerce and other faculties. UBC has particular strengths in biotechnology, ranking in the top 10 universities in North America and number one in Canada for commercializing research and for its patent activity in the life sciences. www.ubc.ca

Vancouver / CoastalHealth

Vancouver Coastal Health (VCH) is responsible for the delivery of \$4.1 billion in community, hospital and long-term care services to more than one million people in communities including Richmond, Vancouver, the North Shore, Sunshine Coast, Sea to Sky corridor, Powell River, Bella Bella and Bella Coola. VCH also provides specialized care and services for people throughout BC and is the province's hub of health care education and research. www.vch.ca

Vancouver / **CoastalHealth Research Institute**

Vancouver Coastal Health Research Institute (VCHRI) is the research body of the Vancouver Coastal Health and a world leader in translational health research. VCHRI is academically affiliated with UBC Faculty of Medicine and includes three of BC's largest academic and teaching health sciences centres—Vancouver General Hospital, UBC Hospital, and GF Strong Rehabilitation Centre—as well as other hospitals and public health agencies across Vancouver Coastal Health. As one of Canada's top funded research institutes, VCHRI receives over \$100 million in research funding annually to support health research and discoveries with direct health, economic and social impact on British Columbians.

www.vchri.ca



Djavad Mowafaghian CENTRE FOR BRAIN HEALTH

The University of British Columbia 2215 Wesbrook Mall Vancouver, BC V6T 1Z3

centreforbrainhealth.ca

