

THE MCGILL UNIVERSITY RESEARCH CENTRE FOR STUDIES IN AGING (MCSA)



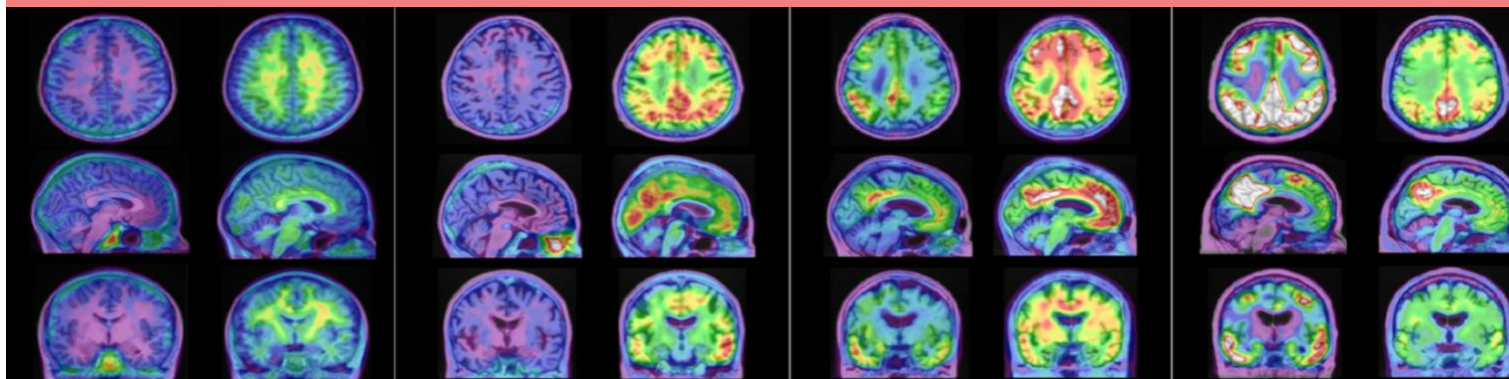
April 2021 – 13TH EDITION



Keeping you updated on the latest news, events, and research achievements!

The scientific achievements from last year were possible thanks to the active participation of our patients, their relatives, and friends. Together, we advance clinical science towards new therapies for Alzheimer's Disease.

HIGHLIGHTS OVER THE PAST 35 YEARS



MCSA was featured in the McGill Faculty of Medicine and Health Sciences Electronic Newsletter this past December to commemorate the 35th anniversary. The article focused on the major achievements of the Centre over the past 35 years. If you are interested in reading the article, please [click here](#) or visit the McGill Publications website.

In honor of the 35th anniversary this year, Dr. Serge Gauthier has looked back on some outstanding research moments our Centre has been a part of.

Observational studies in cohorts of aged rodents and humans. For example, studies with rats by Dr. Michael Meaney have established that changes in hormone levels particularly cortisol influence some features of brain aging. This finding was reproduced in the Douglas Hospital Longitudinal Study of Normal and Pathological Aging Study initiated by Dr. Nair in 1988. Skipping forward 32 years we now have at the Douglas Research Centre two cohorts of persons at risk of AD being studied using clinical, neuropsychological, imaging, and laboratory biomarkers, led by Drs Pedro Rosa-Neto, Sylvia Villeneuve, and Judes Poirier. The latest finding is that plasma phosphore tau isoforms levels correlate with brain and CSF tau levels in AD, opening the door to screening for candidates for randomized clinical trials against amyloid and tau pathologies.

Studies of biomarkers in the brain and various fluids Simon Young has studied changes in dopamine and serotonin metabolites in CSF from patients undergoing pneumoencephalography - this was a test done at the Neuro to visualize the brain after replacing CSF by air, now fortunately replaced by CT and MRI. But the fluid collected allowed comparison of metabolites from the lumbar region versus the cerebral ventricles, demonstrating a gradient for certain metabolites. Skip forward 35 years and we are using at the Neuro second-generation amyloid and tau ligands for PET brain imaging of persons with or without cognitive symptoms. One of our findings is that there is no

amyloid visible in at least 10% of persons diagnosed as having probable AD and that tau pathology appears to be the driving force in the emergence of dementia.

Randomized clinical trials in AD Pierre Étienne recruited Serge Gauthier to help him in testing lecithin oral supplements in AD. The first multicenter study for AD in Canada using THA was made possible by a gift of the substance imported from Australia by Mr. Morris Goodman. Improvement in an initiative towards activities of daily living was observable and Isabelle Gélinas and Louise Gauthier developed the Disability Assessment in Dementia scale to measure this effect of drugs acting on brain acetylcholine levels. Multiple other trials followed, including the first one in moderate to severe dementia using donepezil. The Canadian Consortium for Clinical Cognitive Research (C5R) was created to facilitate clinical trials in Canada and was hosted by the MCSA for many years; the C5R is still using budget grids developed by Donna Amyot



Brain banking There is a cultural willingness in Québec to give one's brain to help our children and grandchildren. As an example, a young man in his late 20s was recently seen at the MCSA for what appeared to be early-onset AD; his mother had died 30 years previously of atypical dementia, followed by post-mortem examination suggesting Gerstman-Sträussler syndrome with kuru-like changes in the cerebellum. Dr. Paul Wood measured in his lab at the Douglas a decreased in choline acetyltransferase activity in her brain, and Dr. Yves Robillard published the case in 1982. It turns out that mother and son both have a PS1 mutation similar to the first case of Dr. Alois Alzheimer a century ago. The MCSA currently leads DIAN-Canada, looking for families affected by dominantly inherited AD, for observational and therapeutic studies.

Clinical scales development Drs Martin Cole and Dolly Dastoor created in 1988 the Hierarchic Dementia Scale that was the first to encompass all the clinical stages of dementia based on Piagetian concepts. Later Dr. Steven Vida compared various depression scales in dementia. Members of our department are now helping in the validation of the Minimal Behavioral Impairment Checklist (MBI-C) created by Dr. Zahinoor Ismail in Calgary, detecting subtle mood and behavioral changes in the preclinical stages of AD, correlating with amyloid buildup.

Consensus building We built with Professor Ted Keyserlingk and Maître Kathleen Glass in the 1980's consensus guidelines for research involving vulnerable persons with dementia. This facilitated their participation in research through advance directives towards research, and approval by their designated legal representative. The Canadian Consensus Conferences for the Diagnosis and Treatment of Dementia (CCCDTD) were started at McGill in 1991 by Mark Clarfield and hosted by our Center to this day.

The future is promising with a change of guard with the arrival of clinicians with interest in the interface of neurology and psychiatry in aging, such as Dr. Maiya Geddes, and the nomination of Dr. Simon Ducharme at the head of the division of Psychogeriatrics.

L'URGENCE DE VIVRE: MA VIE AVEC L'ALZHEIMER PRÉCOCE BY SANDRA DEMONTIGNY



At the age of 39, Sandra Demontigny found out that she has an early and hereditary form of Alzheimer's Disease. In her book, she shares her day-to-day life, thoughts and ideas, emotions, memories, and hopes. Mrs. Demontigny now advocates for medically assisted dying and is enjoying every moment of life with hope and energy.

To purchase her book, visit Renaud-Bray or Amazon. Here is an excerpt from her book:

"Yesterday was my first day at work since I was diagnosed last Friday. It was ... how to describe ... emotional? I felt crowded inside, full of a heavy secret. That I wanted to shout out to each of my colleagues and friends. In addition to feeling invaded by amyloid plaques, I felt muzzled.

I pretended like I was an actress in my own life. And it's not natural for me. I wanted to run and hide in my bed.

I still had to smile as I felt this tremendous pressure of emotion behind my eyes from crying too much over the weekend. It must not appear.

That evening, I went to bed at 8 p.m., in pain and misery. I had insomnia from 4:30 a.m. to 6 a.m. When he woke up, my husband gave me a hug like he had never done before. His strong and enveloping arms, which remind me of my father's. I must have told him that at least 1000 times since we've known each other.

Since Friday's announcement, Doum has been searching for me systematically in our bed. He embraces me, I instinctively feel he is protecting me. And we take advantage of the moment.

A mixture of love, pain, fear, rage."

ALZHEIMER'S DISEASE INTERNATIONAL – WORLD ALZHEIMER REPORT

Alzheimer's Disease International (ADI) is an international federation consisting of over one hundred Alzheimer's associations and federations and is related to the World Health Organization. ADI has commissioned McGill University to write the next two editions of the World Alzheimer Report focusing on Diagnosis (2021) and Post-Diagnostic Support (2022). The team is led by Dr. Serge Gauthier, with Dr. Pedro Rosa-Neto, Dr. José A. Morais, Claire Webster, Dr. Tamara Ellen Carver, Zeina Salameh, Carol Servaes, Maria Vincelli, Diane Weidner, and Leila Zahabi.



**Alzheimer's Disease
International**

The global voice on dementia

"We strongly believe that our combined experience and expertise in research, care, education, and lived experience in dementia-related illnesses will provide a tangible, meaningful and inclusive report on diagnosis and the management of dementia to Alzheimer's Disease International," says Dr. Gauthier on behalf of the McGill team.

Congratulations to everyone involved!

FEATURED ASSOCIATE RESEARCH MEMBER – DR. MARIA NATASHA RAJAH, Ph.D



Dr. Maria Natasha Rajah, Ph.D. is a Full Professor in the Department of Psychiatry, McGill University, and Researcher at the Douglas Research Centre. Dr. Rajah received her Ph.D. in Experimental Psychology from the University of Toronto, St. George Campus in 2003 and did her post-doctoral training at the Helen Wills Neuroscience Institute, University of California at Berkeley. In 2005, she joined the Douglas Research Centre and the Department of Psychiatry, McGill University. She received a CIHR New Investigator Award and FRQS Junior 1 and 2 Awards in support of her research on the cognitive neuroscience of memory, aging, and dementia prevention. She uses behavioral, neuropsychological and structural, and functional magnetic resonance imaging (MRI) methods to investigate how the human brain learns and remembers past events in

rich detail (episodic memory); and, how risk-factors for late-onset Alzheimer's disease (AD), such as age, sex, and having an apolipoprotein E e4 allele (+*APOEε4*), impact the structural and functional networks related to episodic memory. Her work to date has helped advance our understanding of the neural basis of age-related memory decline and how the aging brain compensates for these declines. In addition, Dr. Rajah's work has brought attention to the importance of midlife as a critical period in adult development when episodic memory decline first arises. Dr. Rajah will be joining the MCSA Education Committee as a consultant to focus on equality, diversity, and inclusion-related issues.

In 2020 she was named CIHR Chair for Sex and Gender Research in Neuroscience, Mental Health, and Addiction and was funded to conduct an adult lifespan MRI study to understand: *why more women are diagnosed with late-onset Alzheimer's Disease, than men*. This work will reveal whether there are sex differences in healthy and pathological brain aging; and, if menopause effects memory-related brain function in middle-aged women with risk factors for AD. To learn more about her work and to volunteer to participate in her research please go to <http://rajahlab.com/participate/>

FEATURED EDUCATION COMMITTEE MEMBER – MARIA CONGIU-MAIOLO, RN



Born in Montreal of Italian Immigrant parents, she earned her Nursing diploma at Dawson College. Her nursing career spanning over 25 years, began at the *Montreal Children's Hospital* in the ENT and Burn Unit where she worked 5 years, then at the *Centre d'Accueil Dante* and *Centre de Jour Dante*; a long-term care facility mostly dedicated to the elderly of the Italian community and affiliated with *Santa Cabrini Hospital* for nearly 20 years. Her cultural background and work experience provided her with the sensitivity and expertise and gave her the passion to serve the community in the role of Executive Director of the ICCSQ, which she accepted in 2005. The Italian Canadian Community Services of Quebec is a charitable, non-profit organization where the focus has always been to inform, educate and support all members of the community and beyond, in the development and search for adapted health and social services and programs or to answer to any other need that may arise. The ICCSQ

works in partnership with the Public Health and Social Services Network and numerous other community organizations in providing accessible and adapted programs and services that will benefit the community at large. Mrs. Congiu-Maiolo has been a member of the MCSA Education Committee for over 10 years now. She very much enjoys spending time with family and is also passionate about baking and cooking for them!

FEATURED MCSA RESEARCHER – JOSEPH THERRIALT

I am a Ph.D. student in Neuroscience working at the McGill University Research Centre for Studies in Aging. Before my Ph.D., I pursued an undergraduate degree in psychology and behavioral science at McGill. My research focuses on genetic contributions to the abnormal proteins that characterize Alzheimer's disease.

In particular, I work with a technique called PET, a type of brain scan that allows us to see abnormal protein accumulation in people's brains. Using this technique, we can design studies to try to predict what kind of symptoms people will develop, and when, as a result of the abnormal protein accumulation. This will give us greater hope for finding treatments. After finishing my Ph.D., I plan to study medicine and one day be a clinician-scientist.



Joseph Therriault & Firoza Lussier

FEATURED MCSA RESEARCHER – FIROZA LUSSIER

I am currently pursuing my master's degree in Neuroscience in the Translational Neuroimaging Laboratory under the supervision of Drs. Rosa-Neto and Gauthier. Before this, I completed my BSc in Neuroscience and Computer Science at McGill. I joined the MCSA team early in my bachelor's degree as a research assistant, helping with the creation of our now large human cohort.

During my undergraduate studies, I also completed research projects in this lab and a cell and molecular biology lab.

My current research focuses on the neuropsychiatric and behavioral symptoms of Alzheimer's disease, and how these symptoms relate to the accumulation of disease-related proteins in the brain. The objective of this research is to find early signs of disease to improve detection. Currently, my plans after wrapping up my graduate degree are to continue working in scientific research, perhaps in science communication or study coordination, as my time in the MCSA has taught me a great deal about research!

NEW STAFF & STUDENTS



Teresa Altamirano Mayrovale – Website Designer

Teresa is a U3 Computer Science and Psychology student at McGill University. Her main interests are robotics, artificial intelligence, and cognitive science. She is always looking for an exciting project to work on and believes that no innovative idea is too crazy. She is currently honing her web development skills by working at the MCSA and upgrading their websites.

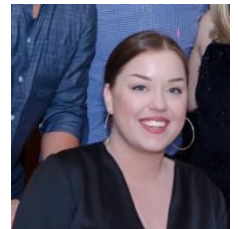
Dayna-lee Baldo, Research Assistant

Dayna-lee Baldo has been working as a research assistant under the supervision of Dr. Pedro Rosa-Neto since January 2021. Her responsibilities include working with biosamples in the lab at Crossroads and LORIS data entry. She is incredibly thankful for the opportunity to join such an amazing project and team!



Abir Chamoun, Research Assistant

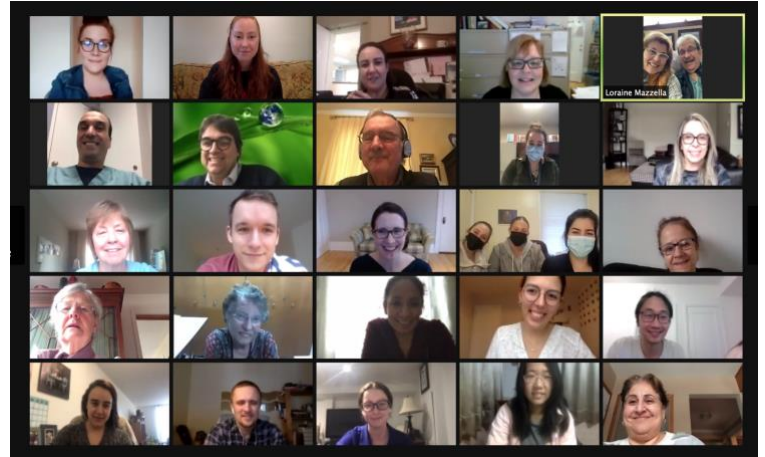
Proud to be part of the MCSA Team!



MCSA Zoom Highlights 2020-2021

Finding ways to stay connected while social distancing.

The MCSA Education Committee would like to thank you for joining the Brainy Boomer Lecture Series. The COVID-19 pandemic has reshaped our world forever. In a year, we have changed how we work, learn, live, and connect. The MCSA Education Committee has always been active in the community. Yearly, the MCSA Education Committee gives 25 public lectures at different locations. Given the new reality of social distancing, our committee questioned how to continue the lectures and interact with our participants. The Committee found creative ways to virtually stay engaged and socialize with our senior population. Given the effects of social isolation, we wanted to help alleviate depression, social anxiety, and loneliness. Through Zoom, The Brainy Boomers lectures series went virtual. As of March 2021, the Committee held over 70 events (June 2020 to March 2021).



MCSA STAFF

Concerned that the older generation would be unfamiliar with online interaction, our priority was to make these new forms of communication accessible. Knowing that they were craving such connections for their well-being, we knew that we needed to help our seniors navigate the new technology, so we offered virtual lectures in both languages on how to use Zoom and sent instructions by email/mail. Silvana Aguzzi was dedicated to finding the experts for our Brainy Boomer Lecture Series, to ensure that there would be a topic of interest for each of our participants. Sarah Mulcahy was your contact person to help with any registration or connection issues.

Kaitlyn Butt joined the MCSA team as our Communications person in June 2020 and is the host of all BB lectures. We began the Virtual Brainy Boomer Lecture Series in June. Every Tuesday (12:00 -1:00 pm) we offered different educational lectures in French or English on different topics (gaming, telemedicine, health, nutrition, laughter, elderly abuse, social isolation, tech & safety tools, caregiving, etc...) making sure that our participants continue to stay engaged. A month later, we started our fitness program, *Exercise for Seniors*, with Giuliana Guerriero every Thursday (1:15 – 2:15 pm). Virtual platforms were crucial throughout this pandemic, it made it possible for older adults to stay socially active and intellectually engaged online—this is an experience that not only boosts self-esteem but improves physical wellbeing.

The feedback for the Virtual Brainy Boomer Lecture Series has been positive! Human interaction is necessary to maintain good health, and this is an excellent way to meet new people who have similar interests in topics and who want to learn something new. We are all seeking human interaction and communication through devices to stave off loneliness and to stay connected. For those who are reading our newsletter for the very first time, come join us and attend our Brainy Boomer Lecture Series. If you would like to be added to our email list send us your email at brainy.boomer-mcsa@mcgill.ca. If you would like to watch past events of 2020 you can still do so by viewing them on our YouTube Channel at <https://www.youtube.com/channel/UC9q0DRFcb6cgJRskdwwKD1Q/videos>.

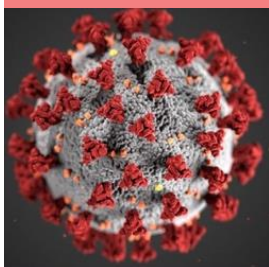
A word to all family members, communication and social interaction is essential for our senior population. If you know of someone who is having problems with devices, please make yourself available to teach them, so that they can connect with the world. In the last year, many nursing homes stopped visitation and are now relying on technology to help residents stay connected with their families. We must do the same and help our seniors who are at home as they are willing to learn and most importantly, they want and need to stay in touch with society.

Social distancing has been especially hard on the mental and physical health of older adults, but more and more research shows that staying connected can reduce the risk of depression in the population. Join us, we believe that our virtual activities will help our present situation.

THANK YOU, THANK YOU, for inviting us into your office space, living/dining rooms, kitchens, and basements! Just remember to stay healthy, happy and most of all to stay connected with the "Brainy Boomer Lectures Series" and "Exercise for Seniors" every Tuesday and Thursday!!

The MCSA Education Committee: Dr. Dolly Dastoor, Chair; Dr. Pedro Rosa-Neto; Dr. Serge Gauthier; Dr. Paolo Vitali; Dr. Loraine Mazzella-Maiolo; Dr. Michael Wiseman, Maria Maiolo; Laura Robb; Silvana Aguzzi; Tamar Tatigian; Sarah Mulcahy; Kaitlyn Butt; Alexandra Triantafillopoulos.

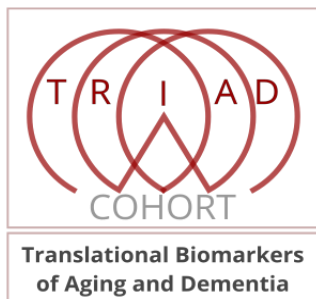
COVID-19 AND CLINICAL TRIALS AT THE MCSA



Clinical trials for Alzheimer's Disease have been affected by the COVID-19 pandemic. Most trial studies are on hold, due to the inability to have dosing and in-person clinic visits. This will affect nearly 94 new therapies in clinical trials today. Most of the therapies target brain amyloid including Roche's gantenerumab, Biogen's aducanumab, and Eisai's BAN-2401, and six preventive therapies including Eli Lilly's donanemab and Alzheon's ALZ-801.

Dr. Serge Gauthier, the Alzheimer's Disease Research Unit Director, and Dr. Pedro Rosa-Neto, Director of the McGill University Research Centre for Studies, believe that remote technologies for assessing patients in clinical trials seem to be a reasonable alternative for the continuation of data collection. The disruption of important clinical research by the COVID-19 pandemic is linked also to the particular vulnerability of the older adults; the most targeted subjects by COVID-19. At MCSA, three clinical trials (DIAN, BUENA, and Avanir) are currently on hold and plan on restarting recruitment as soon as possible. Our team will answer all questions on the above studies in regards to clinical trials and if you are interested in obtaining more information and/or participating in one of our clinical trials please do not hesitate to contact Tamar Tatigian at 514-761-6131 x6314 or email: info.mcsa@mcgill.ca

WHAT IS THE TRIAD COHORT?



The Translational Biomarkers in Aging and Dementia (TRIAD) cohort is a longitudinal observational cohort specifically designed to study mechanisms driving dementia. The cohort studies dementia markers and their progression from pre-symptomatic stages to the onset of Alzheimer's disease or other types of dementia. TRIAD participants are followed in a longitudinal manner with clinical and neuropsychological assessments, fluid and imaging biomarkers every 24 months. Results generated from the TRIAD cohort help advance scientific knowledge and develop better targeted clinical trials to cure Alzheimer's Disease and dementia. The TRIAD cohort is actively recruiting participants, for more information about the participation criteria and the different measures please refer to <https://triad.tnl-mcgill.com>, to get additional

information or to participate call our research centre 514-761-6131 ext: 6321. For research participants and sponsors that are interested in donating to the TRIAD Cohort Research Study, please contact Silvana Aguzzi at T:514-761-6131 x 6308 or email silvana.aguzzi@mcgill.ca or Alexandra Triantafillopoulos at 514- 761-6131 X 6311 or by email at alexandra.triantafillopoulos1@mcgill.ca.

WHY YOUR DONATIONS ARE SO IMPORTANT



Between 2020-2021, our fundraising activities were impacted by the pandemic. Your continued support and encouragement were crucial and have played a central role in the continued success of the Centre's outreach, research infrastructure objectives, and medical research initiatives for the community. Thank you for helping us advance our mandate towards prevention, aging research, and education. Income tax receipts shall also be issued for all donations exceeding \$15.00. If you would like to donate by mail, phone or email, please contact Alexandra Triantafillopoulos

at 514- 761-6131 X 6311 or by email at alexandra.triantafillopoulos1@mcgill.ca or silvana.aguzzi@mcgill.ca

NEW MCSA SOCIAL MEDIA

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Website:

www.aging.mcgill.ca
tnl.research.mcgill.ca
<http://alzheimer.mcgill.ca>

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