

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



# McGill

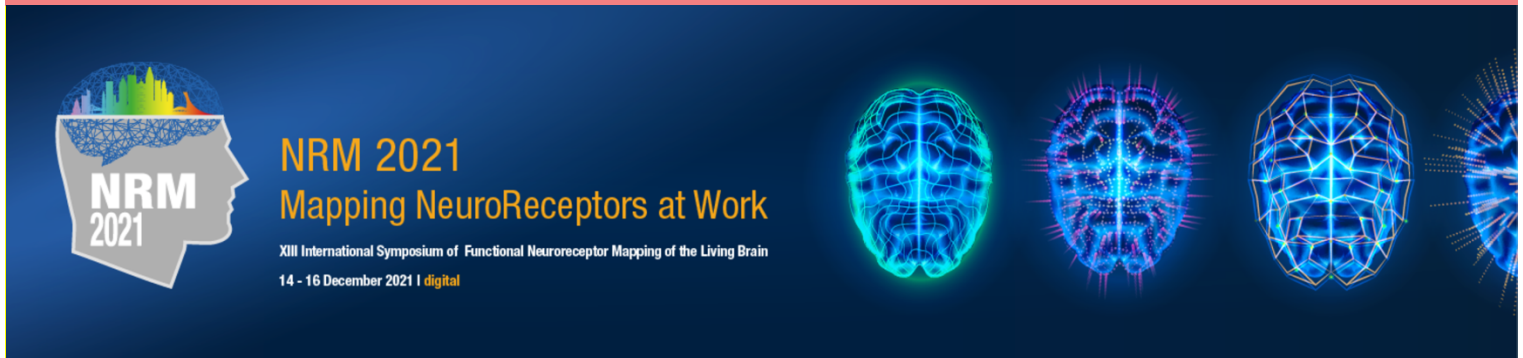
April 2022 – 16<sup>TH</sup> EDITION



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.

## MAPPING NEURORECEPTORS AT WORK (NRM) VIRTUAL CONFERENCE



This past December, The McGill University Research Centre for Studies in Aging (MCSA) hosted the first ever Mapping NeuroReceptors at Work (NRM) Virtual conference. Since 1997, the NRM convenes experts in the field of neuroreceptors and serves as a platform to discuss the latest breakthroughs in quantifying neuroreceptors in the human brain using Positron Emission Tomography (PET). A wide range of methodological advances are traditionally discussed, including novel brain molecular imaging agents, pharmacokinetic analysis, radio metabolites and analytical methods are traditionally discussed in this meeting. Furthermore, the NRM includes sections devoted to neuroreceptor abnormalities in neuropsychiatric and neurological conditions with particular attention to quantification of protein aggregates in neurodegenerative conditions.

Due to the COVID-19 pandemic, the NRM Conference, which typically takes place in-person, had to shift to online. The NRM Local Organizing Committee did not see this shift as problem, but rather as an opportunity to rise to the occasion of hosting the event in a way that has never been done in NRM history. As such, with the support of the Scientific community, the Virtual NRM 2021 Conference was a huge success. We were honored to have Prof. Dr. Michael T. Heneka, PD Dr. rer. nat. Nicola Palomero-Gallagher, and Dr. Marc Diamond as Keynote speakers. We had a total of 250 attendees from 18 countries at the digital event, 220 abstracts, and 30 oral presentations.

For the next NRM conference, our colleagues Dr. Romina Mizrahi, together with Drs Udunna Anazodo and Pablo Rusjan, now part of the McGill PET community, together with our previous Canada-wide team (Drs. Rosa-Neto, Doudet, Sossi, Soucy, Herscovitch) will work together for the organization of the meeting in 2024 which will hopefully take place in-person, here in Montreal!

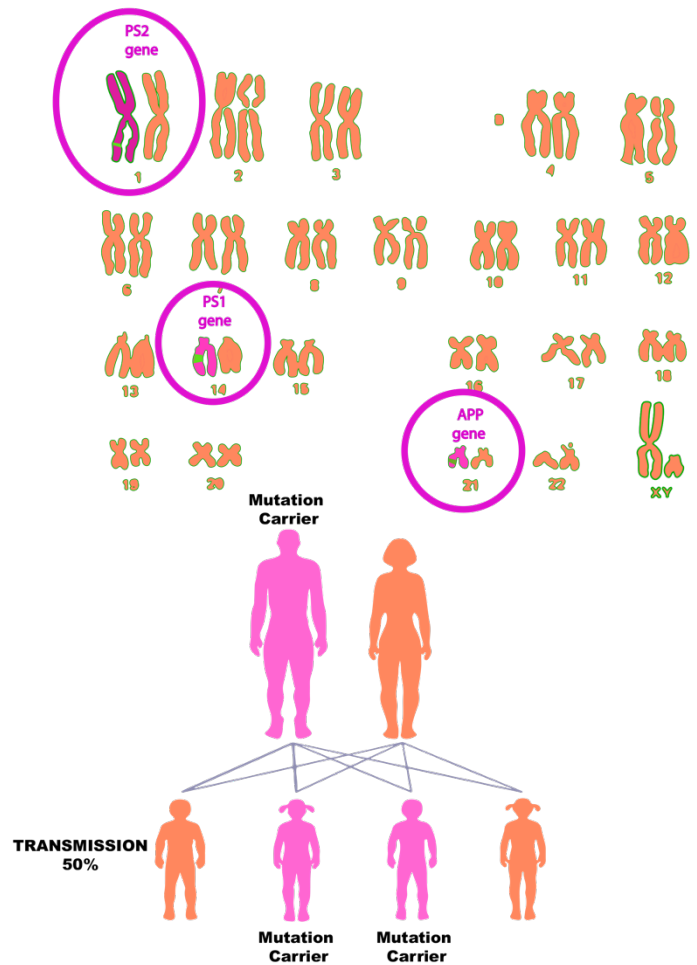
## INFORMATION ABOUT GENETIC FORMS OF ALZHEIMER'S DISEASE BY DR. PEDRO ROSA-NETO – MCSA DIRECTOR

Alzheimer's disease is characterized by the deposition of amyloid and tau in the brain. The disease has a silent stage, a mild cognitive impairment, and a dementia stage. The most important manifestation is a progressive difficulty to retain new information in people older than 65 years. There are various genes that facilitate the deposition of amyloid and tau in the brain, and this might explain why some families have a high number of people affected by Alzheimer's disease. Certain genetic factors alone are not sufficient to cause dementia, however, there are alterations in three genes that will invariably cause Alzheimer's disease. The three genes are involved in the formation of the protein amyloid in the brain. The genes are called presenilin-1 (PS1), presenilin-2 (PS2) and amyloid precursor protein gene (APP). Alzheimer's disease in people with PS1, PS2 and APP manifests before 65 years old and might progress faster and affect other functions rather than memory.

Recent scientific developments allow doctors to make special therapies to patients with PS1, PS2 and APP mutations. In 2012, the Dominantly Inherited Alzheimer Network Trials Unit (DIAN-TU) at Washington University in St. Louis, launched the first prevention trial for families with PS1, PS2 and APP mutations. The study showed that gantenerumab, an anti-amyloid medication, had a positive impact on the disease progression, but it was not sufficient to stop the disease progression. Now, a new study will be launched in 2022 that will try the combination of an anti-amyloid and an anti-tau therapy to stop Alzheimer's disease. It is expected that the combination of medications designed to stop the progression of amyloid and tau will stop the disease progression and stop the disease symptoms. In 2019, the DIAN-TU created the Cognitive Run-In (CRI) study, which allows participants to enroll in the upcoming anti-amyloid and anti-tau trials. The combined anti-amyloid and anti-tau therapy bring the hope to stop the progression of genetic and non-genetic forms of Alzheimer's disease.

If you want to know more information about genetic forms of Alzheimer's disease please contact us at T:514-766-2010.

### Genetic forms of Alzheimer's disease



## HOW WILL LIFE BE NORMAL AGAIN? BY DR. DOLLY DASTOOR – CHAIR OF MCSA EDUCATION COMMITTEE



Almost 2 years ago this month, COVID first appeared on the scene and turned our lives upside down. Staying home and isolating ourselves from family and friends was not easy. However, in the beginning it was kind of fun to stay home in your pyjamas, watch endless movies, or visit Museums around the world on Zoom, courtesy of different museums. If there was no shut down, how would you afford to visit the Louvre, in Paris, or the Museum in St Petersburg. But as weeks turned into months, and eventually years, the novelty began to wear off. Wearing masks, standing two metres apart, and lining up for groceries, our patience was put to the test. No more clanging of pots to celebrate the heroism of front-line workers!

Then the vaccine appeared on the scene and, there was hope. We all lined up (at least most of us) to get our first shot, then the second, and then the booster. The virus seemed to be under control and then *-BOOM-* a new variant appears, but we have managed to survive that as well, at least many of us have. We had our weekly Brainy Boomers Lecture Series talks to keep us mentally stimulated and our exercise classes to keep us physically active and fit.

Now most health restrictions are being eased. Restaurants and bars can open, we can meet our family and friends and hug once again. Though masks are still recommended (with good reason), and vaccine passports are no longer mandatory. The unvaxxed and vaxxed can mingle freely. Does that make you wonder: Why did we have to segregate before? but that is for another article.

Now many of us have another anxiety .... How will we integrate into a world which we had avoided for 2 years? How will we dress for a social outing? How will we greet one another? Do we shake hands? Emerging from this long deep hole of two years will not be easy, and reintegrating will be difficult.

Each one will have to work it out for themselves, but it will help if we find a daily routine and stick by it, wake up, shower, have breakfast, and give structure to the rest of your day. Hopefully our Zoom meetings for the body and mind will continue twice a week. We need to restart our social life slowly, incorporating activities with others in our routine with a few activities at a time until we build up momentum.

Relaxing restrictions was something we were all waiting for but accepting them and dealing with them can be anxiety provoking, (I was quite happy being alone, why do I have to go back to being with friends?). We are social animals, and we need people to thrive and stimulate us. Start going out and find your old friends one week at a time, you will be alright. Hopefully this pandemic will be a bad dream for many of us.

The MCSA will continue with its virtual Brainy Boomer Lecture Series as many of our participants have stated that they would rather our events stay online, as they now find it much easier to attend. Having the events online removes the stress of commuting or travelling, and it allowed people not located in Montreal to take part in our activities. **If you would like to see what events we have coming up, please visit this link:**  
<http://CMEV.eventbrite.com>



## FEATURED RESEARCH MEMBER – ADJUNCT PROFESSOR – DR. EDUARDO ZIMMER, PhD



Dr. Eduardo R. Zimmer, Ph.D., is an Assistant Professor in the Department of Pharmacology at Universidade Federal do Rio Grande Sul (UFRGS), Brazil. In 2015, Dr. Zimmer completed his Ph.D. in Biochemistry at UFRGS with a two-year exchange period at the McGill Centre for Studies in Aging (MCSA), Canada. In 2018, he started his independent laboratory ([www.zimmer-lab.org](http://www.zimmer-lab.org)). Dr. Zimmer is also an affiliate member of the Brazilian Academy of Sciences, an Instituto Serrapilheira Grantee, and an Associate Researcher at the Brain Institute of Rio Grande do Sul (Brazil). He is a recipient of multiple awards, including the Alzheimer's Association Neuroscience Next "One-to-Watch" Award (2021), which recognizes the most promising young investigator in the field. Dr. Zimmer has published his work in impactful scientific journals and has been an active speaker at international scientific

conferences. In addition, Dr. Zimmer is taking a leading role in mentoring Brazilian students and contributing to promoting diversity and science democratization in the field of Alzheimer's disease.

Dr. Zimmer's group focuses on understanding neuron-to-astrocyte communication in neurodegenerative disorders aiming at deciphering precise mechanisms, early diagnosis, and developing innovative therapies. In the last years, in collaboration with the team of Prof. Rosa-Neto, his work helped refine the biological interpretation of Alzheimer's disease biomarkers, showing the role of astrocytes in brain imaging exams. In addition, he found that astrocyte reactivity biomarkers are consistently altered in the Alzheimer's disease continuum. Dr. Zimmer is also one of McGill's "International Dementia Conference Series" organizers, a webinar series that has been gaining much attention from students and researchers around the world.

## TANAZ PARDIWALA – YOGA INSTRUCTOR – GENTLE FLOW YOGA WITH TANAZ



Tanaz first began practicing yoga in 2000 at a YMCA in New York City, where she was completing a Masters program at Columbia University. Yoga quickly became a regular part of her routine, providing the space for both physical and mental health well-being. Over the next 20 years, she continued to deepen her practice, having studied under teachers in Barcelona, London and Toronto.

In 2020, she completed a 250-hour Yoga Teacher Training at the esteemed Yoga Sanctuary studio in Toronto. She believes that yoga can play a beneficial role for everyone and anyone, and therefore she designs her classes to be accessible and to honour everyone's own journey.



If you would like join our Gentle Flow Yoga Classes, that will take place every Friday the month of April, please send us an email: [brainy.boomer-mcsa@mcgill.ca](mailto:brainy.boomer-mcsa@mcgill.ca) or call 514-761-6131 EXT. 6311.



## NEW STUDENTS



### **Arthur Macedo, MSc Student – Integrated Program in Neuroscience**

Arthur is a Medical Doctor from Brazil who recently joined the research team as a Master's student. He will be working with biomarkers for Alzheimer's Disease staging and is very excited to contribute to the high-quality research produced by the MCSA team.

## STAFF FAREWELL

### **Marie Vermeiren**

My name is Marie, I am a 25-year old graduating medical student from Belgium. I started my graduate research traineeship at the MCSA in Octobre 2021. Coming from Belgium and living in the Netherlands, doing research at McGill in a world-reknown neuroimaging lab was a unique opportunity. During my time at the lab I worked on fluid biomarkers to detect Alzheimer's in an early stage. I learned a lot about neuroimaging in Alzheimer's, how to conduct research and write a scientific paper. In March we went to a conference in Barcelona, where I realized even more how valuable and relevant the work is that we do. I am so thankful to all my colleagues here, who helped me grow scientifically and personally and sparked my interest in dementia research.



I would like to thank all the kind people working at the MCSA for the help, opportunities, guidance and motivation they have given me. I was welcomed so warmly and felt part of the team right away. This learning experience in Montréal has been a valuable and unique part of my education as a medical doctor. My colleagues, who I now call my friends, will always have a special place in my heart. Special thanks go to Professor Rosa-Neto who gave me this exceptional opportunity. Not sure whether to say goodbye or see you later (who knows what the future holds)... But for sure I say thank you for everything.

## COLLABORATION WITH THE SPACE MEDICINE INNOVATIONS LABORATORY AT DARTMOUTH UNIVERSITY



Late January 2022, Nesrine Rahmouni, Alyssa Stevenson and Jenna Stevenson travelled to Dartmouth University and visited the Space Medicine Innovations Laboratory led by Dr. Jay Buckey at the Geisel School of Medicine.

The purpose of the trip was to receive training for an upcoming project that will be conducted at the McGill Centre for Studies in Aging in the TRIAD cohort. The study will investigate hearing in cognitively impaired and cognitively unimpaired individuals. The goal of the study is to investigate how well you can hear sounds and how well your brain understands the sounds you hear. The main goal of this project is to study whether changes in cognition can

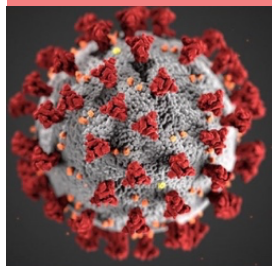
be detected using tests that study how your brain processes sound.

During their time at the Geisel School of Medicine, they were trained to conduct otoscopy examinations, tympanograms and several other hearing tests. In addition, Nesrine, Alyssa and Jenna were trained to conduct Auditory Brainstem Response and Frequency tests which measures the brainstem's response to sound.

We are hopeful that this collaboration will help us discover more aspects of cognitive impairment that have not been well explored yet!



## COVID-19 AND CLINICAL TRIALS AT THE MCSA



The physicians of the Alzheimer's Disease Research Unit 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, two clinical trials on autosomal dominant Alzheimer's Disease (DIAN-TU-001 and DIAN CRI) are currently in recruitment. Our team will answer all questions in regard 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 and Abir Chamoun at 514-761-6131 x6314 or email: [info.mcsa@mcgill.ca](mailto:info.mcsa@mcgill.ca)

## STUDENT AWARDS AND CONFERENCES 2021-2022

### AWARDS

#### **Mira Chamoun, Post doctoral Fellow**

- Recruitment Scholarship 2021-2022 RBIQ (Réseau de Bio-Imagerie du Québec)

#### **Joseph Therriault, PhD Student**

- Forbes 30 under 30 award
- Travel Award - Young Investigator Travel Award for AD/PD 2022 (March 2022)
- Junior Faculty Award – AP/PD 2022 Conference

#### **Cécile Tissot, PhD Student**

- Scholarship Award – Healthy Brain for Healthy Lives
- Scholarship Award – Faculty of Medicine McGill (Hugh E. Burke Fellowship)
- Travel Award – Great Award for AD/PD 2021
- Travel Award – Richard Murphy Student Travel Award for AD/PD 2021
- Travel Award – Alzheimer Association Imaging Conference (AAIC)
- Travel Award – AD/PD 2022
- Attendance Award – Tau2022 (Online)

#### **Tina Wang, PhD Student**

- Junior Faculty Award – AD/PD 2022 Conference

#### **Firoza Lussier, MSc Student**

- Rémi Quirion Excellence Award (May 5, 2021)

### CONFERENCES

#### AAIC 2021

#### **Jaime Fernandez, PhD student**

- "Visual memory scores are associated with lateralization of tau in the medial temporal lobe"

#### **Peter Kang, Post-Doctoral Fellow**

- "Cognitive health mediates the effect of hippocampal volume on COVID19-related knowledge or anxiety change during the COVID19 pandemic"

**Vanessa Pallen, MCSA staff -psychometrician/research assistant**

- "Tau accumulation using [18F]MK6240 PET is associated with increase in executive dysfunction in prodromal AD"

**Nina Poltronetti, MCSA staff - psychometrician**

- "Visual Memory Test Equal to Commonly Used Verbal Memory Test in Predicting Tau in the Medial Temporal Lobe"

**Jenna Stevenson, MCSA staff -Study Coordinator**

- "COVID-19 Pandemic: Quantifying the effects of the first lockdown on behavioral and cognitive measures using TASIC"

**Nesrine Rahmouni, MSc Student/MCSA Staff -Research Assistant**

- "Associations between neutrophils and amyloid deposition in the Alzheimer's disease spectrum"

**Alyssa Stevenson, MCSA staff -Research Assistant & Nesrine Rahmouni -MSc student/MCSA Staff**

- "Verbal Fluency associated with tau accumulation and not amyloid deposition in the Alzheimer's disease spectrum"

**Cecile Tissot, PhD Student**

- "Discrepancy between plasma pTau181 and tau-PET statuses"

**Stijn Servaes, Post Doctoral Fellow Researcher**

- "Tau-load in the lingual gyrus impacts anxiety levels during the COVID-19 Pandemic in participants of longitudinal observational studies in aging"

**Mapping NeuroReceptors At Work (NRM) 2021 Virtual Conference**

**Jaime Fernandez, Ph.D student**

- "Visual memory scores are associated with lateralization of tau in the medial temporal lobe"

**Peter Kang, Post-Doctoral Fellow**

- "Mapping the multivariate effects of amyloid, tau, and neuroinflammation on cortical thickness in AD"

**Firoza Lussier, MSc Student**

- "Associations between CSF markers of synaptic dysfunction, tau hyperphosphorylation, and glial activation in aging and Alzheimer's disease"

**Cecile Tissot, PhD Student**

- "Imaging synaptic density in aging and dementia"

**Tina Wang, PhD Student**

- "APOE isoforms differentially modulate the associations between regional tau deposition and neuroinflammation in Alzheimer's disease"

**Stijn Servaes, Post Doctoral Fellow Researcher**

- "Using a support vector machine to identify signatures of different p-tau CSF species in incipient Alzheimer's Disease"

### **AD/PD 2021**

#### **Stijn Servaes, Post Doctoral Fellow Researcher**

- "The effect of cognitive impairment in anxiety imposed by the COVID-19 Pandemic in participants of longitudinal observational studies in aging"

### **AD/PD 2022**

#### **Joseph Therriault, Ph.D student**

- "Biomarker modelling of Alzheimer's disease using in vivo Braak staging"

#### **Peter Kang, Post-Doctoral Fellow**

- "Tau disrupts the covariance between cortical thickness and white matter architecture in Alzheimer's disease"

#### **Firoza Lussier, MSc Student**

- "Associations between CSF markers of synaptic dysfunction, tau hyperphosphorylation, and glial activation in aging and Alzheimer's disease"

#### **Cecile Tissot, PhD Student**

- "Imaging synaptic density in aging and dementia"

#### **Tina Wang, PhD Student**

- "APOE modulates the association between amyloid, tau and neuroinflammation In Alzheimer's disease"

#### **Stijn Servaes, Post Doctoral Fellow Researcher**

- "Identifying signatures of different CSF pTau species in incipient Alzheimer's Disease"

### **Tau2022**

#### **Peter Kunach, PhD Student**

- "Quantifying Acute Tau Inoculations in Living Rats using PET Emission Tomography"

#### **Cecile Tissot, PhD Student**

- "Synaptic signatures of cognitive dysfunction in tauopathies"

### **Brain & BrainPET**

#### **Stijn Servaes, Post Doctoral Fellow Researcher**

- "Heterogeneity in CSF p-Tau as a measure for disease severity in incipient Alzheimer's Disease"



## INTERNATIONAL DEMENTIA CONFERENCE SERIES



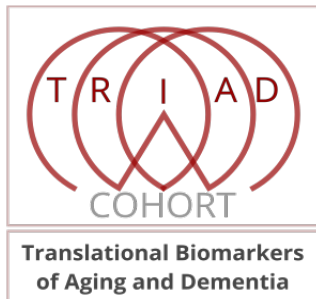
The pandemic had a noticeable impact with the process of social isolation and the loss of traditional information sharing tactics. To help alleviate these issues, Prof. Pedro Rosa-Neto and his close friend and collaborator Dr. Eduardo Zimmer, and PhD Student Peter Kunach, joined their groups of young scientists through Zoom to discuss on-going work and keep motivation high. By the end of 2020, our humble Journal Club had reached a critical mass of Neurodegenerative Laboratories from around the world. After realizing the potential impact, the idea was expanded to

create a dialogue between a consortium of experts around an important topic. They guided the integration of fundamental concepts into a coherent storyline.

In 2021, the International Dementia Conference Series ([www.i-dcs.org](http://www.i-dcs.org)) was born and it has quickly manifested into something that will transcend the pandemic times. The IDCS helps bridge the gap between junior and senior scientist in a meaningful way. Having the effect of democratizing science by being an alternative, sustainable, and inexpensive way for engaging in thematic dialogue. The IDCS is demonstrating a clear trajectory and is expected to continue to generate an overwhelmingly positive experience for everyone in the community. This is most notably exemplified by the acknowledgment, contribution, and promotion from Professor Stanley B. Prusiner, a Nobel Prize winner in Physiology or Medicine, 1997. His talk was hosted on December 8th, 2021 with over 250 people having attended the lecture!

The expansion of the Organizational Committee will include students and fellows from every continent, and from a diverse array of specialties. Reaffirming our pursuit for science democratization, collaboration, and communication. This will codify the pillars of our mission for the ambassadors of the future.

## WHAT IS THE TRIAD COHORT?



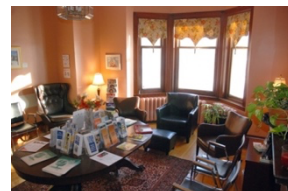
The Translational Biomarkers in Aging and Dementia (TRIAD) cohort is a longitudinal observational cohort specifically designed to study mechanisms driving dementia. The cohort studies dementia markers and their progression from pre-symptomatic stages to the onset of Alzheimer's disease or other types 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 Jenna Stevenson by email [jenna.stevenson2@affiliate.mcgill.ca](mailto:jenna.stevenson2@affiliate.mcgill.ca)

## WHY YOUR DONATIONS ARE SO IMPORTANT



Between 2020-2022, 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. The first edition of the Brainy Boomer Cookbook, written by you—our MCSA Community— helped us raise \$27,500.00! **We thank you for your loyal and on going support!** 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 Silvana Aguzzi at 514- 761-6131 X 6308 or by email at [silvana.aguzzi@mcgill.ca](mailto:silvana.aguzzi@mcgill.ca)



## DEMENTIA, YOUR COMPANION GUIDE

**A free new educational resource, *Dementia, Your Companion Guide*, was designed to help provide answers.** With engaging illustrations and a friendly writing style, this approachable guide covers a wide array of topics to assist both the person living with dementia (PLWD) and their care partners. It includes information on the science and progression of dementia as well as practical advice on safety and self-care. The Book is available in English, French, and Spanish.

The guide was created by a multidisciplinary team at the McGill University **Dementia Education Program** (DEP) in the Faculty of Medicine and Health Sciences (FMHS). The content was provided by the Program's founder and former care partner **Ms. Claire Webster**, geriatrician **Dr. José A. Morais** and neurologist **Dr. Serge Gauthier**, along with partners from the McGill University Research Centre for Studies in Aging, the Division of Geriatric Medicine, the School of Physical and Occupational Therapy, and the School of Social Work.

**Ask for a copy of the book at your next appointment at MCSA or Crossroads! or Visit:**  
<https://www.mcgill.ca/medsimcentre/community-outreach/dementia>

## MCSA SOCIAL MEDIA

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### YouTube:

<https://www.youtube.com/channel/UC9q0DRFcb6cgJRskdwwKD1Q/videos>



### Website:

[www.aging.mcgill.ca](http://www.aging.mcgill.ca)  
[tnl.research.mcgill.ca](http://tnl.research.mcgill.ca)  
<http://alzheimer.mcgill.ca>

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