March 24, 2022

McGill | Faculty of Medicine and Health Sciences | Faculté de médecine et des sciences de la santé

Committee for Oversight of Research Units

Annual Reporting for Faculty Supported Research Centres and Networks

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All Centres (provisional Centres; McGill Centres), Research groups and Networks that receive funding from the Faculty of Medicine and Health Sciences (FMHS) are required to provide an annual report to the Committee for Oversight of Research Units (CORU)

The reporting period is May 1, 2021 – April 30, 2022.

Please submit your report to the Research Office, Faculty of Medicine and Health Sciences (**riac.med@mcgill.ca**) before the following deadline:

Monday, May 2, 2022

Continued support from the Faculty is contingent on:

1. the receipt of the reporting documents on time,
2. the evaluation of reported activities by the Faculty's Committee for Oversight of Research Units (CORU),
3. the availability of Faculty funds.

Your strong engagement in the Faculty's mission for continued research excellence and financial stewardship is truly appreciated.

Annual Report of Activities and Outcomes

Name of the Unit:
The McGill University Research Centre for Studies in Aging

Name of Unit leader & email address: Director's Contact Information:

Dr. Pedro Rosa-Neto, MD, PhD, Professor of Neurology & Neurosurgery, Psychiatry and Pharmacology & Therapeutics at McGill University, affiliated to the Douglas Hospital Research Centre.
Tel. (514-766-2010) pedro.rosa@mcgill.ca

If the Unit is **a Senate-approved** McGill Research Centre, indicate date of approval: MCSA is a recognized as an official Senate approved McGill Research Centre since October 1, 1984.

Mission statement of the Unit (~ 2 sentences): Refer to the following link that captures the same information as presented in our website **(Link)**

The Centre leads the way to cure, treat and prevent dementias by promoting research, education, and teaching in the field of aging and aging research.

Total number of Unit members: 49 (Link)

1 Director
1 Alzheimer's Disease Research unit Director
3 Faculty Clinicians
1 Chair, MCSA Education Committee/Member of the Executive Committee
2 Nurses
1 Medical Secretary
1 Clinical Coordinator
1 Receptionist
1 Social Media
1 Web Designer (Part-Time)
1 Translator (Part-Time)

1 Genetic Counsellor
1 Administrator
1 Support Clerical Staff (Part-Time)
1 Business Development

2 Post-Doctoral Fellows
7 PhD
3 Masters
3 Undergraduate
1 Graduate Research Trainee
15 Research Personnel

Number of members affiliated with McGill's FMHS: 43 members (Link)

Unit's website -

Please note the website needs to feature:

- all sources of funding support (including the FMHS logo),
- the list of Members and their institutional affiliation with appropriate links,
- the activities supported by the Unit,
- all previous Annual Reports.

Website address (URL): **www.aging.mcgill.ca**

Please respect the page limits, where indicated.

(minimum font size of 11 pts, use lay language)

1. **Explain the significance of the Unit's mission at McGill and beyond** (1/2 page max.)**(Link)**

The MCSA aligns with the McGill Strategic Research (SRP) specifically on the research excellence theme neurosciences, under the area of neurodegenerative disorders. Our mission holds great significance at McGill University and beyond by promoting research, education, training and teaching primarily on aging, age-related diseases, prevention, and early diagnosis of age-associated cognitive decline. The MCSA is a vital part of the University's setting and serves as a point of convergence for the entire aging and dementia community. The Centre has sustained growth of its operations, by conducting **transformative research**, implementing preventative strategies, and interventions as well as future development in aging. Our researchers developed six new methods to detect and track at-risk individuals at early stages of cognitive decline. Furthermore, our members authored the Dementia National Guidelines and the World Alzheimer Report (W.A.R.). We also advanced early Dementia Biomarker Research, telemedicine, and remote research cognitive assessment tools. **Our Memory Clinic** conducts advanced cognitive assessments, specialized neurological exams, novel diagnostic tests (bloodwork and lumbar puncture) and cutting-edge diagnostic brain imaging. The specific nature of the Unit's mission allows us to render quality, compassionate and exceptional care to our patients and study caregivers which is further facilitated by a network of affiliated specialists exclusively practicing in the field of aging. The clinic offers **specialized training** in behavioral neurology and neurosciences.

MCSA also excels on virtual learning, **knowledge transfer** events and public education designed to sensitize both scientists and the lay public with the "International Dementia Conferences" and "Brainy Boomers Lecture Series", respectively. The International Dementia Conferences provides educational presentations, discussions among local and international students/trainees and top scientists in the field of Dementia fostering knowledge exchange and dialogue. Since 2007, the Brainy Boomers lectures series, aims to educate the lay public by suggesting practical steps to both improve brain health and promote healthy lifestyle choices. This empowers both individuals and communities on research topics that impact older adults seeking to age in their communities and preserve their health and independence.

2. **Alignment with the Faculty's Strategic Research Plan** (1/2 page max.) **(Link)**

The MCSA also aligns with the Faculty's SRP strategic research area Neuroscience & Mental Health and with two **cross-cutting strategic priorities:** Biomedical & Health Sciences in the Age of Digital Data and Precision Approaches to Personalized Medicine. The MCSA research plan highlights the need of "Personalized dementia prevention via the integration of excellent patient care, transformative research and world-class knowledge dissemination."

I. Transformative global outreach in dementia: MCSA leads a number of clinical guidelines and consensus clinical papers at the provincial and national levels. MCSA in conjunction with the McGill Division of Geriatric Medicine and the McGill Dementia Education Program has been commissioned by the prestigious Alzheimer's Disease International (ADI) to edit the world annual report in 2021 and 2022. The implementation of the Translation Biomarker for Aging and Dementia (TRIAD) cohort by Dr. Pedro Rosa-Neto established a landmark as it became the largest cohort in Canada specially designed to benchmark novel diagnostic tests for Alzheimer's Disease.

II. Innovative Digital Outreach Programs: The Centre implemented online outreach programs focusing on nutrition and exercise classes to improve the health, quality of life of older adults and to stay socially connected.

III. **Telemedicine in Dementia Care and Cognition**: Dr. Maiya Geddes and Dr. Paolo Vitali together are expanding and validating remote cognitive and behavioral assessments. The TRIAD cohort also deployed online cognitive assessments specially designed to an aging population (S.N.A.P).

IV. **Excellence in Early Dementia Biomarker Research**: The MCSA lead a Canada foundation for innovation (CFI) application to develop a Biomarker Discovery Platform for Aging and Dementia (BioPAD) (PI: Dr. Pedro

Rosa-Neto;) and will develop novel biomarkers for several brain pathological processes to open new avenues for personalized approaches for dementia prevention.
V. Enrich Collaborations via Open Science: During the last few years, the MCSA has built a prolific network of collaborators.
VI. Enhance Equity, Diversity & Inclusion (EDI) under the guidance of our member Dr. Natasha Rajah we designed an EDI strategy diversifying our research outreach.

3. Major joint publications over the past 12 months (including shared software, data repositories.

Listed below are the publications with the highest Impact Factors (IF) co-authored by at **least two PI members of the MCSA**. **(See Appendix 1) (56 CORE MEMEBERS, TOTAL 537) (Associate Members)**

Salloway S, Farlow M, McDade E, Clifford DB, Wang G, Llibre-Guerra JJ, Hitchcock JM, Mills SL, Santacruz AM, Aschenbrenner AJ, Hassenstab J, Benzinger TLS, Gordon BA, Fagan AM, Coalier KA, Cruchaga C, Goate AA, Perrin RJ, Xiong C, Li Y, Morris JC, Snider BJ, Mummery C, Surti GM, Hannequin D, Wallon D, Berman SB, Lah JJ, Jimenez-Velazquez IZ, Roberson ED, van Dyck CH, Honig LS, Sánchez-Valle R, Brooks WS, Gauthier S, Galasko DR, Masters CL, Brosch JR, Hsiung GR, Jayadev S, Formaglio M, Masellis M, Clarnette R, Pariente J, Dubois B, Pasquier F, Jack CR Jr, Koeppe R, Snyder PJ, Aisen PS, Thomas RG, Berry SM, Wendelberger BA, Andersen SW, Holdridge KC, Mintun MA, Yaari R, Sims JR, Baudler M, Delmar P, Doody RS, Fontoura P, Giacobino C, Kerchner GA, Bateman RJ; Dominantly Inherited Alzheimer Network–Trials Unit. A trial of gantenerumab or solanezumab in dominantly inherited Alzheimer's disease. **Nat Med. 2021** Jul;27(7):1187-1196. doi: 10.1038/s41591-021-01369-8. Epub 2021 Jun 21. PMID: 34155411 (IF 53.4)

Pascoal TA, Benedet AL, Ashton NJ, Kang MS, Therriault J, Chamoun M, Savard M, Lussier FZ, Tissot C, Karikari TK, Ottoy J, Mathotaarachchi S, Stevenson J, Massarweh G, Schöll M, de Leon MJ, Soucy JP, Edison P, Blennow K, Zetterberg H, Gauthier S, Rosa-Neto P. Microglial activation and tau propagate jointly across Braak stages. **Nat Med.** 2021 Sep;27(9):1592-1599. doi: 10.1038/s41591-021-01456-w. Epub 2021 Aug 26. PMID: 34446931 (IF 53.4)

Association between regional tau pathology and neuropsychiatric symptoms in aging and dementia due to Alzheimer's disease. Tissot C, Therriault J, Pascoal TA, Chamoun M, Lussier FZ, Savard M, Mathotaarachchi SS, L Benedet A, Thomas EM, Parsons M, Nasreddine Z, Rosa-Neto P, Gauthier S.
Alzheimers Dement (N Y). 2021 Mar 31;7(1):e12154. doi: 10.1002/trc2.12154. eCollection 2021.
PMID: 33816761 (IF: 21.56)

Plasma p-tau231: a new biomarker for incipient Alzheimer's disease pathology.
Ashton NJ, Pascoal TA, Karikari TK, Benedet AL, Lantero-Rodriguez J, Brinkmalm G, Snellman A, Schöll M, Troakes C, Hye A, Gauthier S, Vanmechelen E, Zetterberg H, Rosa-Neto P, Blennow K.
Acta Neuropathol. 2021 May;141(5):709-724. doi: 10.1007/s00401-021-02275-6. Epub 2021 Feb 14.
PMID: 33585983 (IF 18.17)

4. Major joint research projects funded over the past 12 months (involving at least two PI members of the Unit:

2022-2023	In vivo quantification of tau aggregates as a measure of disease progression in Alzheimer's disease spectrum. CIHR Institute of Aging (IA). ($100,000). Rosa-Neto, Pedro (PI); Gauthier, Serge; Massarweh, Gassan; Soucy, Jean-Paul; Ducharme, Simon; Vitali, Paolo
2021-2026	Longitudinal multicenter head-to-head harmonization of tau PET tracers". NIH 1R01AG073267-01, GRANT13216360 (USD $40,000,000) Pascoal, Tharick (PI), Baker, Suzanne (PD/PI); Bateman, Randall; Blennow, Kaj; Cohen, Ann; Foroud, Tatiana; Gauthier, Serge; Gordon, Brian; Graff-Radford, Jonathan; Jagust, William; Janabi, Mustafa; Klunk, William; Koeppe, Robert ; La Joie, Renaud; Lopez, Oscar; Lopresti, Brian; Lowe, Val; Masdeu, Joseph ; Min, Paul; Oh, Hwanee; Pascual, Belen; Petersen, Ronald; Rabinovici, Gil; Raji, Cyrus; Rosa-Neto, Pedro (Co-I) (CAN $3,618,108); Toga, Arthur; Tudorascu, Dana; Villemagne, Victor; Zetterberg, Henrik;
2020-2025	Integrating Multi-Omics, Multi-Modal Neuroimaging and Artificial Intelligence for Biologically- defined Staging and Stratification in the Alzheimer's Disease spectrum. CIHR-Project Grant 2020 (CAN$745,876) Dr. Yasser Iturria Medina (PI) S. Ducharme, S. Duchesne, S. Gauthier, C. Kleinman, K. O'Donnell, Rosa-Neto, Pedro (Co-Applicant)
2019-2023	Biomarqueurs de vieillissement et de démence: BioVie. FRQS (CAN $ 1,442,842). Rosa-Neto, Pedro (PI); Gauthier, Serge; Soucy, Jean-Paul; Tsuneyuki, Ozaki
2019-2021	Novel biomarkers for PSP: a pilot study Weston Brain Institute – Rapid Response: Canada 2019 PD-Related Diseases program (CAN $ 297,440). Rosa-Neto, Pedro (PI); Gauthier, Serge; Massarweh, Gassan; Soucy, Jean-Paul.
2018-2021	Imaging epigenetics in dementia. CIHR Project Grant 2018 ($1,262,250). Rosa-Neto, Pedro (PI); Gauthier, Serge; Massarweh, Gassan; Soucy, Jean-Paul.
2019-2022	In vivo quantification of tau aggregates as a measure of disease progression in Alzheimer's disease spectrum. Weston Brain Institute – Transformational Research (CAN $1,527,750). Rosa-Neto, Pedro (PI); Gauthier, Serge; Massarweh, Gassan; Soucy, Jean-Paul; Ducharme, Simon; Vitali, Paolo
2017-2022	Interactions between pathological processes as drivers of clinical progression in Alzheimer's disease. CIHR Project Grant 2016 (CAN $1,377,000). Rosa-Neto, Pedro (PI); Gauthier, Serge; Massarweh, Gassan; Chakravarty, Mallar; Pruessner, Jens; Soucy, Jean-Paul.
2017-2022	The impact of sex, menopausal status and +APOE4 risk for Alzheimer's Disease on the neural correlates of episodic memory in healthy middle-aged adults. CIHR Project Grant 2016 (CAN $ 833,850). Rajah, M. Natasha, Chakravarty, Megha M; Einstein, Gillian; Gauthier, Serge G; Poirier, Judes; Pruessner, Jens C; Rosa-Neto, Pedro (Co-applicant).

5. Major outreach activities (e.g., seminar series, general public events).

World Alzheimer Report 2021 "Journey through the diagnosis of dementia" (Link)

This year Alzheimer's Disease International (ADI), commissioned McGill University to deliver the World Alzheimer Report on September 21, 2021. The World Alzheimer Report has been overseen by the McGill University Research Centre for Studies in Aging and the McGill Faculty of Medicine and Health Sciences, specifically the Division of Geriatric Medicine and the Dementia Education Program, supported by the Office of Education Technology and Online Learning at the Steinberg Centre for Simulation and Interactive Learning. This report includes over 50 essays from leading experts from around the world and is supported by findings from 3 key global surveys, which received responses from 1,111 clinicians, 2,325 people with dementia and carers, and over 100 national Alzheimer and dementia associations. The report focuses on the crucial and timely subject of diagnosis. Diagnosis is still a major challenge globally, with those who seek a diagnosis often experiencing long wait times, if they can receive a diagnosis at all. Societal stigma, self-stigma and clinician-related stigma also exacerbate what is already a difficult journey. It explores this diagnosis journey through the lens of those living with dementia and carers, clinicians, researchers and academics, and Alzheimer and

dementia associations, as well as what can and must be improved. This event lasted 90 minutes and over 2000 participants attended worldwide.

Celebrating World Alzheimer's Day – Discussion with the authors of the World Alzheimer's Report, Community Groups and Donors (Link)

On September 21, 2021 after the prompt release of the World Alzheimer Report 2021, the MCSA Education Committee invited diverse community groups, Brainy Boomer's participants, donors and patients for a 90 minute virtual panel discussion to learn more about this report in which there were 90 attendees. The MCSA Education Committee lead by Chair Dr. Dastoor, invited the following authors Dr. Serge Gauthier (MCSA member), Dr. Pedro Rosa-Neto (Director of the Centre), Dr. José Morais and Ms. Claire Webster to explore the writing process of the report, the trials and tribulations they had to undergo to complete this massive International report on time. The authors were introduced by the members of the MCSA Education Committee, Dr. Loraine Mazzella-Maiolo, Dr. Michael Wiseman, Dr. Maiya Geddes and final remarks were shared by Mrs. Jeane Day, Executive Director of Alzheimer Society of Montreal, and Mrs. Meghan Williams, Director of Support Services of Alzheimer Group (AGI). This event gave us exclusive insight on how world reports on difficult subjects are conceived and developed by experts from around the world. It gives us hope knowing that renowned experts around the world are working diligently together to find novel and refined treatments for this devasting disease for the growing aging population. Some recommendations were: an annual brain checkup for people over 50; timely clinical diagnosis; build on technology-based approach; and Government must prepare for the high demand of health care services as a result of global aging **(See page 23 for W.A.R Recommendations).**

Mapping Neurceptors at Work – NRM 2021 Virtual Conference December 14-16, 2021

On December 14-16, 2021, MCSA hosted the first ever Virtual Mapping NeuroReceptors at Work (NRM) conference. 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). Due to the COVID-19 pandemic the NRM Conference shifted online for the first time in NRM history. With the support of the Scientific community, the Virtual NRM 2021 Conference was a huge success. There was a total of 250 attendees from 18 countries at the digital event, 220 abstracts, 30 oral presentations, and 3 Keynote lectures. The next NRM conference, our colleagues Dr. Romina Mizrahi, together with Drs Udunna Anazodo and Pablo Rusjan, together with our Scientific team Drs Rosa-Neto, Doudet, Sossi, Soucy, Herscovitch, will work together in organizing the meeting in 2024 which will take place in-person in Montreal.

Alzheimer's Disease Awareness Month (Link)

In honour of Alzheimer's Disease Awareness Month on January 25, 2022, the MCSA Education Committee planned a special Brainy Boomers event, entitled "Alzheimer's Disease Update 2022" in which 85 participants joined. This event aimed to encourage individuals to learn more about dementia and its stark impact on Canadians. It was moderated by Dr. D. Dastoor, Chair of the MCSA Education Committee, and welcomed the following guests: Dr. Pedro Rosa-Neto (Director, MCSA) to speak on "Forgetfulness and Alzheimer's Disease", Meghan Williams, Director of Support Services of Alzheimer Group (AGI) spoke on "Healthy Caregiving – Setting Realistic Expectations"; Dr. Michael Wiseman, Member of the MCSA Education Committee, spoke about "Healthy Gums for a Healthy Mind"; and finally a pre-recording of Dr. Paolo Vitali's lecture titled "Docteur, je cherche mes mots. Est-ce que je dois m'inquiéter?" concluded the 1 hour Zoom event. This event's ultimate goal of raising awareness of dementias and Alzheimer's to the public, was to reiterate and emphasize the importance of recognising the early signs of this disease, getting help as soon as possible, and to educate families and carers on understanding the different stages and medical procedures to expect.

International Dementia Conference Series (IDCS) (Link)

The International Dementia Conference Series (IDCS), bi-weekly international learning activity led by Dr. P. Rosa-Neto, Dr. E. Zimmer and PhD student, Peter Kunach, aims to facilitate collaborative endeavors through

the discussion of the works presented by scientists and researchers in the field of Dementia. IDCS promotes exchanges between students/trainees and top scientists to bridge the gap between junior and senior scientists in a meaningful way. These presentations constitute the frontiers of knowledge in Dementia research and promote the cultivation of new ideas and directions to pursue. In 2021, there were **20 presentations** (the last one was given by Nobel prize laureate Dr. Stanely Prusiner where 306 people attended) with a total of **1586 attendees from more than 10 countries**. The IDCS innovates by offering mentorship opportunites to students all over the world. It is well attended and receives an overwhelmingly amount of positive feedback from the entire dementia community. The present expansions of the Organizational Committeeinclude students and fellows from every continent respecting core EDI principles.

Knowledge Transfer for Community Workers - Workshops September 9, 16, 2021 (Link)

The MCSA hosted its very first workshop training to a class of community service workers on September 9 and 16, 2021. The goal of this training focused on how to identify neurodegenerative diseases and other mental health issues in the aging population, and to better equip service workers with the needed tools to act accordingly when confronted with them. MCSA's Dr. Paolo Vitali, neurologist, headed the event with an in-depth look at the medical aspects of neurodegenerative diseases, normal aging and pathological aging, the concept of dementia, and abnormal behaviors which could be the manifestation of a neurodegenerative pathology. This was followed by gerontopsychiatrist, Dr. Isabelle Silverstone, who delved into both neurodegenerative diseases and mental health issues in the aging population. Benoit Bouvier, director of the nonprofit organization "Le Temps d'une Pause," and Nurse Carmen Desjardins, clinical administrator of the Dementia Program with Psychiatric Comorbidity at the Douglas Mental Health Institute, delivered practical steps and tools that both community workers and caregivers could use when dealing with the public and loved ones. Outcome: Civil servants are more knowledgeable to identify neurodegenerative diseases and other mental health issues in the aging population presenting with aberrant and/or aggressive behaviors and better equipped with the right tools and aptitude to act appropriately**.**

The Brainy Boomers Lecture Series (2021-2022) (Link)

The MCSA Education Committee organizes weekly lectures entitled the "Brainy Boomers Lecture Series" with the goal of suggesting practical steps to both improve, maintain brain health, and promote healthy lifestyle choices to improve the quality of life for the aging population. In addition, to the Brainy Boomers lecture series, the MCSA also organized events entitled "Exercise for Seniors" and "Gentle Flow Yoga." In the past year one of our major achievements was to invite our Centre's members to give public lectures for our Brainy Boomer's events on different age-related topics. (Drs Daphne Nahmiash, Loraine Mazzella-Maiolo, Vasavan Nair, Dolly Dastoor, Maria Natasha Rajah, Serge Gauthier, José Morais, Paolo Vitali etc.). Some significant advantages of our online platform: it allowed participants to stay safe in the comfort of their own home, reduced commute time, affordable (free), readily available (YouTube), increased attendance numbers, expand outreach to include international participants, enticed our community to be more socially engaged, stimulated, and helped elevate and reduce the effects of social isolation**.**

2021-2022	Total Events	Number of Participants
Brainy Boomer Lecture Series	46	1615
Exercise for Seniors with Giuliana	35	1065
Gentle Flow Yoga with Tanaz (New 2022)	7	197

11th Annual McGill University Virtual Health Fair – October 21, 2021 (Link)

MCSA participated at the 11th Annual McGill University Virtual Health Fair for faculty members and staff. This fair is a unique opportunity for students and staff to connect and learn about health and wellness expert services offered by the University community. MCSA staff members presented a one hour zoom presentation on various topics of interest including introduction and information about the Centre (A. Triantafillopoulos),

MCSA KT activities (S. Aguzzi), social media-Communications (K. Butt), World AD Report (K. Guindon), International Dementia Conference Series (P. Kunach), S.N.A.P. (J. Fernandez Arias) and about the Triad Research Cohort Study (J. Stevenson). In conclusion, a patient testimonial emphasizing the importance of the Centre's medical research was presented. Outcome: The group session was intended for booth participants (University staff and students) wanting to learn about MCSA, our free online community outreach activities on Health Aging and some of our research programs.

Business Development Outreach

Travel Award	$3,000.00
McGill 24 Campaign (2021)	Donations received $4,021.00
Triannual Mail out Communication (Donors & Patients)	3000
Triannual MCSA Newsletters	April 2021, August 2021 & November 2021 – Keeping our participants, patients, donors up to date with the Centre's clinical, research and outreach activities. (**Link)**
MCSA Donor Package	New 2021-2022 to attract new Donors and provide an overview of the Centre (**Link)**
Total Donations (245 Thank you letters)	$82,000.00

Medical Outreach

The Book: "Case Studies in Dementia – Common & Uncommon Presentations" (Vol 2) By Dr. P. Rosa-Neto and Dr. S. Gauthier. **(Link)**

6. Major training activities (e.g., summer schools, co-supervision of trainees, practical workshops):

Co-Supervision of Trainees: 45 (Link)

	Post-doctoral	PhD	MSc	Medical Student	Doctorate	Undergraduate Student	Undergraduate Co-op Student
Dr. P. Rosa-Neto **(15)**	**4**	**8**	**3**	**1**			
Dr. P. Vitali **(5)**		**2**	**1**		**2**		
Dr. M. Geddes **(24)**	**2**	**3**	**3**	**2**		**12**	**2**

Space Medicine Innovations Laboratory – Dr. Jay Buckey – Training January 2022

N. Rahmouni, A. Stevenson and J. 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 this trip was to receive training for an upcoming project that will be conducted at the McGill University Research 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. Goal: This collaboration will help us discover more aspects of cognitive impairment not yet explored.

Practical Workshops:
Dangerous Goods Training – December 2, 2021 – Participants = 8
Biosafety Training – June 2021 – Participants = 2
Artificial Intelligence MATLAB Course (24-02-2022) – Participants = 20

7. If applicable, **list new members** who joined the Unit in the past 12 months
(indicate: Name, title, full/associate member, affiliation):

Dr. Udunna Anazodo, PhD, Associate Member, McGill University
Dr. Gassan Massarweh, PhD, Associate Member, McGill University
Dr. Christina Tardiff, PhD, Associate Member, McGill University
Dr. Clifford Cassidy, PhD, Adjunct Professor, McGill Univeristy
Dr. Benicio N. Frey, MD, PhD, Adjunct Professor, McGill University

8. If applicable, **list members who have left the Unit** in the past 12 months
(indicate: Name, title, full associate member, affiliation):

Dr. Jorge Armony, PhD, Associate Member, McGill University
Dr. Mark Baldwin, PhD, Associate Member, McGill University
Dr. Michael J. Bonnycastle, MD, Associate Member, McGill University
Dr. Remi Bouchard, MD, Affiliate Member, McGill University
Dr. Louis Collins, PhD, Associate Member, McGill University
Dr. Robert Coté, MD, FRCPC, FAHA, FANA, Associate Member, McGill University.
Dr. Alain Dahger, MD, Associate Member, McGill University
Dr. Russel-Thomas Hepple, PhD, Associate Member, McGill University
Dr. Martin Lepage, PhD, Associate Member, McGill University
Dr. Andre Parent, OC, OQ, PhD, FRSC, Affiliate Member, McGill University
Dr. Thomas Schricker, MD, PhD, Associate Member, McGill University
Dr. Lalit Srivastava, PhD, Associate Member, McGill University
Dr. Stephen Vida, MD, Associate Member, McGill University

Financial report & forecast

Expenses	2021/22 report	2022/23 budget
Total salaries	$265,416.61	$232,284.00 + $50,000.00 (forecasted support FMHS) = $282,284.00
Training	-	-
Stipends	$4,935.14	$5,000.00
Outreach	$9,691.94	$9,500.00
Publications	-	
Other (detail in #9 below)	$24,276.59	$12,100.00
Total expenses	**$304,320.28**	**$308,884.00**

Revenues	2021/22 report	2022/23 budget
Carryover	-	-
FMHS	-	$50,000.00 (forecasted 2022-2023)
User fees	-	-
Other sources (detail in #9 below)	$304,447.13	$259,084.55
Total revenues	**$304,447.13**	**$309,084.55**

9. Budget justification and details (e.g., itemize if multiple salaries, detail other sources of funding):

Expenses: Other Sources Details #9	2021/22 report	2022/23 budget
Other Sources Details: Specialized equipment purchases, upgrade, repair; Computer equipment; Materials & Supplies; Transportation; Brokerage; Contract Services Internal Purchases; Printing; Citizen & Imm. Eapps Fees (Internal Visitors; Purchases of Specific assets – Network Con Internal Purchases.	$24,276.59	$12,100.00

Revenues: Other Sources Details #9	2021/22 report	2022/23 budget
R. Wiselburg Fund; Jennie Rae-Feldman Bequest; W. & C. Bentham Medical Research Fund; Derek Davis Combined Annuity Fund; Chalk Rowles Laura Lectureship; MCSA Donations; MCSA Alzheimer Disease Research Unit; Alzheimer-Parkinson Res Fund.	**$304,447.13**	**$259,084.55 + $50,000.00 (Forecasted for period 2022-2023)**

This is possible due to donations that we do ourselves without financial assistance. The funds come from the donation programs and clinical trials, which were deeply affected by the COVID crisis. To maintain the outreach programs, it would be fundamental to receive funding from the Faculty of Medicine and Health Sciences. The funding could offset or help support the salaries to maintain the outreach program and the donations. We are requesting the amount of **$50.000.00** for **period 2022-2023** to assist with the salaries of the following positions:

Social Media Coordinator/Communications: (Full Time)
The Social Media Administrator's duties include coordinating, creating, and placing content for MCSA's social media platforms including Facebook, Twitter, YouTube, and LinkedIn. This involves content development meant to increase our online presence, spread awareness about Alzheimer's Disease, Dementia and other Cognitive disorders for both the public and scientific community.

Clinical Trials Coordinator: (Full Time)
The Clinical Trials Coordinator supports the research team for clinical trials. The coordinator is the liaison to the Sponsors for budgets and all regulatory documents. She assists the research nurse to coordinate subject visits, liaison with the various team members, data entry, and maintains all study binders for patients/study monitors.

Clinical Coordinator: (Full Time)
The Clinical Coordinator of the MCSA acts as a liaison between health care professionals, patients/families, and the research team. The coordinator oversees the smooth operation of the clinic and is the first point of contact for family questions. In addition, the coordinator also makes referrals to many organizations and follow-ups with the CLSC professionals to ensure the patients and caregivers have the resources they need.

Support Clerical Staff: (Part-Time)
The Support Clerical staff assists in the administrative and donation departments to file, process request for payments/reimbursements, process donations cheques, as well as to assist in organizing and book Brainy Boomer lectures. This job ensures that both departments run smoothly and efficiently so that the rest of the Centre can function steadily and effectively.

10. **Explain why continued support from the FMHS is crucial to Unit** (½ page max):
There are no specific programs to fund our outreach programs, they are fully funded via philanthropy. Support from FMHS is crucial in promoting both our weekly "Brainy Boomer lectures series", whose goal is to maintain brain health, promote healthy lifestyle choices to improve the quality of life for the aging population and "International Dementia Series", which aims to exchange knowledge/dialogue between students/trainees and established scientists. **The Centre needs to be more visible to the University**, as well as the public at large, so that we can all fight against reducing the risk of non-communicable diseases and improving physical and mental capacity in order to delay care dependency. With the rapid growth of the aging population, and social visibility of Centre this will also attract and motivate students to pursue a career in neuroscience with a special focus on Alzheimer's Disease and other dementias.

As the aftershocks of Covid-19 pandemic subside, it will take time before we fully recover from the effects of the pandemic. Even though MCSA has excelled its administrative and KT activities, we have lost two full years of revenues from the suspended clinical trials. We intend to start clinical trials as soon as possible but we are not sure if the pandemic will strike again impeding our efforts. Therefore, additional funding for the period of 2022-2023, is crucial to help us incur the infrastructure expenses of our Centre (such as rent, electronic medical records costs, calibration and maintenance of lab research equipment, server maintenance, new hires etc.) We would appreciate funding support from the FMHS for period 2022-2023.

11. Provide suggestions about how the Faculty could do better to support the Unit and **research efforts in general** (no page limit but please be specific and unleash your creativity!)

Ageing comes with a variety of age-related neurodegenerative diseases anyone can fall victim to.
Support for research – One of the main and current objectives of the MCSA is to find an effective preventative treatment for Alzheimer's Disease, and other age-related diseases, as well as to better understand the implications and complexities of these detrimental neurodegenerative diseases. Through research and understanding, we can translate this knowledge to benefit societies at large, fulfilling our Mission Statement. This could not be feasible without the Faculty's support to propel the research forward in order to reach our objectives. The Faculty could facilitate collaborations with Industry partners, for the development of novel technologies for diagnosing and monitoring disease progression. These technologies can make a significant impact in addressing and reducing premature deaths and enhancing the health-related quality of life of patients and their caregivers. A business model for the development of these technologies will be crucial for our CFI funded fluid biomarker unit, as it is expected to develop biomarkers with immediate clinical applications.

Increase visibility of MCSA – We would like to leverage on the Faculty's social media platforms. This would help our Centre to reach broader communities to promote Centre's research and activities. We believe that support from the faculty will improve our capacity to fundraise, particularly in obtaining large donations. Although the MCSA is internationally recognized as a center of excellence in dementia research, it has been a challenge to improve our visibility to the local charity foundations in Montreal. To achieve this goal the support of the faculty is fundamental to enhance our visibility among donors interested in dementia. The Centre has developed a Donor Package containing compelling material summarizing the Centre achievements and vision.

Increasing Visibility will also:

- Raise awareness of this disease and help fight stigma by learning more about its effects and taking steps to reduce its impact. Dementia, especially Alzheimer's Disease, not only affects the memory but also the behavior and wellbeing of the person, as well as that of the family and the primary caregiver.
- Attract top researchers/graduate students who share similar research interests to the Centre's field of expertise. This would increase collaborations opportunities for the Centre, Lab and would help to diversify our pool of presenters and topics, educating and exposing our public on a wider array of topics.
- Improve social media fundraising strategies by connecting with the University Advancement (UA).

Expertise of computer designers and programmers – There is a pressing need to pool together expertise required to develop graphic user interfaces appropriate for assessing cognition in seniors. The key is to develop better information technology solutions for the elderly, simplified tech and addressing health-related hurdles such a poor eyesight, hearing and cost. Furthermore, computational resources would be valuable for storing, curating, databasing and data analyzing from the next generation of wearable devices capable for monitoring simultaneously a wide range of physiological parameters. The combined assessments of behavioural and physiological parameters allied to AI algorithms will become the pillars of tele-assessment and predictive medicine. The need to establish best practices and guidelines for research involving AI applications in healthcare will be necessary to ensure the quality of results.

APPENDIX 1
Publications of Core Members 2021-2022

Cassidy CM, Therriault J, Pascoal TA, Cheung V, Savard M, Tuominen L, Chamoun M, McCall A, Celebi S, Lussier F, Massarweh G, Soucy JP, Weinshenker D, Tardif C, Ismail Z, Gauthier S, Rosa-Neto P. Association of locus coeruleus integrity with Braak stage and neuropsychiatric symptom severity in Alzheimer's disease. Neuropsychopharmacology. 2022 Feb 17. doi: 10.1038/s41386-022-01293-6. PMID: 35177805 (IF 7.8)

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