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| Application for CFREF (BrainsCAN) supported MRI Rates at the CFMM |

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| Through the Canada First Research Excellence Fund (CFREF) BrainsCAN award, the Centre for Functional and Metabolic Mapping (CFMM) Elite Core can support reduced rates for imaging projects aligned to the broad areas of the CFREF proposal, namely cognitive, computational, clinical, technological, and translational approaches required for understanding and intervening in brain function. BrainsCAN's goal is to reduce the burden of brain disorders.The BrainsCAN rate structure is set by the CFMM User Committee. The initial billable rates for BrainsCAN supported users have been set by the user committee at $150/hr on the 3T and 7T scanners and $75/hr on the 9.4T scanner to recover CFMM costs not supported by the CFREF award. *BrainsCAN rates are not available for industry sponsored clinical trials and contracts, or studies where uniform rates are negotiated across centres (e.g. ADNI, OBI etc).* However, such studies can still benefit from access to all CFMM personnel as needed.This application form is intended to ensure that each proposed imaging project is aligned with the goals of the CFREF program and with the institutional and scientific strategic priorities and plans set out by Western University for the BrainsCAN program in its approved proposal. This form will also facilitate reporting to the CFMM user committee, BrainsCAN Executive Committee, BrainsCAN Board of Directors and the International Scientific Advisory Board,Principal Investigators will need to request the reduced rate for *each* imaging project that they are leading, so that a full inventory of all relevant studies is maintained for reporting purposes. This is required for both new and ongoing studies. Please submit this form to brainscan@uwo.ca . |

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| Using no more than the space remaining on this page (~300 words), please describe why your imaging project aligns with the themes and goals of BrainsCAN (see [BrainsCAN Research Alignment/Steering Document](http://cfmm.robarts.ca/wp-content/uploads/2017/02/BrainsCAN_Research_Alignment.docx)). Explain the benefits of the reduced rate to your research in terms of the additional scientific avenues you can pursue.The purpose of this CIHR funded project is to understand how multiple sclerosis lesions in grey and white matter affect cognitive funciton in patients. Degredation of cognitive function is a common consequence of multiple sclerosis, but its origins are not well understood. This study will use novel anatomical MRI methods to delineate lesions in white matter and cortical and subcortical grey matter. We will also collect resting state fMRI and high resolution DTI using modified Human Connectome protocols in order to understand how tracts and connectivity are affected by the observed lesions. Additionally, validated cognitive batteries will be used by Dr. Morrow and her research staff to assess cognition at the initial, 2 year, 5 year and 7 year time points. MRI will be performed every 6 months as lesions can change over this time period.This project aligns with the strategic priorities of BrainsCAN. It involves the use of imaging and cognitive batteries to evaluate deficits in memory, attention, learning, problem-solving and communication in MS patients. It involves collaboration of basic-scientists and clinicians to achieve this goal.The reduced rate will allow the incorporation of an age and sex matched control group that will allow comparisons against the resting state networks and tractography of the patient group. This leverages the longitudinal study of patients proposed in the CIHR grant by incorporating a normative group as well. |

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| Contact Information:  |
| Principal Investigator: Ravi S. Menon | email: rmenon@robarts.ca |
| Department: Robarts Research Institute | Campus Extension: 24148 |
| Date: 02/14/2017 |

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| Please also indicate the following: |

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| Project Name (short title): Origin of cognitive deficits in multiple sclerosis  |
| PI Details (include information regarding prior MRI experience, estimated annual hours needed, expected publications resulting from this project): PI has 33 years of MRI experience. This project will use ~200 hrs per year upon full enrollment of the cohorts. 3-4 papers are anticipated from this research once sufficient longitudinal data is acquired. |

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| If this study has been peer reviewed by a funding agency, please indicate agency name: CIHR |
| Was it funded? YES [x]  NO [ ] (Please include the reviews if the application was not funded in order to aid the User Committee in making decisions). |

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| If this project has a training component, list names of trainees (if applicable), type (ie. MSc student, PDF), their prior experience with MRI: Geoffry Ngo (M.Sc., no prior MRI experience), Sagar Buch (PDF, 6 years of MRI experience), Anna Wing Marques dos Santos (Clinical Fellow, minimal MRI experience)  |
| If this project has a collaborative component, please list collaborating researchers (including their prior level of MRI experience) and affiliations:Sarah Morrow (MD, 5 years MRI exp.), Marcelo Kremenchutzky (MD, 15 years MRI exp.), Courtney Casserly (MD, 2 years MRI exp). |
| UWO HSREB or AUS approval number: In progress |
| UWO Speedcode for billing: RTNM |

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If awarded the CFREF reduced rate, researchers for each individual project are expected to acknowledge the “Canada First Research Excellence Fund to BrainsCAN” award in all presentations and publications, and to submit a brief report to the CFREF Administrative team (brainscan@uwo.ca) by the end of March in every calendar year ([Annual Report](http://cfmm.robarts.ca/wp-content/uploads/2017/02/CFREF_ReducedRate_AnnualReport.docx)) until the project and all outputs are complete/delivered.

***Methods sections in publications, abstracts and presentations must include a statement that scanning was performed at Western’s Centre for Functional and Metabolic Mapping. Publications neglecting to acknowledge the funding source or CFMM will be retrospectively assessed the standard rate of $450/hr.***

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| Internal Use OnlyCFMM User Committee approval: YES [ ]  NO [ ]  | Date:  |