

# Deepa P. Ramasamy MD

Buffalo Neuroimaging Analysis Center  
Department of Neurology  
100 High street, Buffalo, NY 14203  
(716) 859- 7036  
dramasamy@bnac.net

## Education and Training:

- **M.B.B.S.** (Bachelor of Medicine and Bachelor of Surgery), Madras Medical College, India. 09/1992 - 4/1997
- **Compulsory Rotatory Residential Internship (Transitional Year residency)**, Madras Medical College, India. 05/1997 - 11/1999
- **Research MRI Fellow:** Buffalo Neuroimaging Analysis Center, Jacobs Neurological Institute, Dept. of Neurology, University at Buffalo, May 2006 to Oct 2007

## Certifications:

- **ECFMG** (Educational Commission for Foreign Medical Graduates) (2004)
- The Tamil Nadu Dr.M.G.R Medical University, Chennai, India (2000)

## Research Interests:

- Neurological disorders with particular focus on Multiple Sclerosis, its etiology, diagnostic neuroimaging, and treatment; MRI brain segmentations to measure atrophy and lesion detection on both conventional and non-conventional MRI sequences such as DWI, DIR, and SWI.

## Technical Skills:

- Medical imaging : FSL (FMRIB Oxford), SPM (The MathWorks Inc), FreeSurfer (Lab for Computational Neuroimaging), 3D Slicer, VBM, Jim (Xinapse systems)
- Operating system: Linux, Windows
- Software: SPSS (SPSS Inc.), Word, Excel, PowerPoint(Microsoft), Photoshop (Adobe Systems), Endnote (Thompson Reuters)

## **Employment:**

- Clinical Trial Neuroimager/Senior Clinical Trial Research Assistant, Buffalo Neuroimaging Analysis Center, Dept. of Neurology, Buffalo, NY (07/2009 to present)
- Clinical Trial Research Assistant, Buffalo Neuroimaging Analysis Center, Dept. of Neurology, Buffalo, NY (07/2008 - 01/2010)
- Research Assistant, Buffalo Neuroimaging Analysis Center, Dept. of Neurology, Buffalo, NY (09/2007 - 06/2008)
- House Officer, Surgical Intensive Care Unit, St. Isabel's Hospital, Chennai, India 7/1999 to 12/2000
- House Officer, Department of Internal Medicine, St. Isabel's Hospital, Chennai, India (01/2001 to 11/2001)
- House Officer, Department of Obstetrics and Gynecology, Holy Redeemer Hospital, India (4/2002 to 8/2002)
- House Officer, Department of Internal Medicine and Obstetrics and Gynecology, Gayathree Medical Center, India (9/2002 - 4/2003)

## **Multi-center phase II / III clinical trials:**

- Assist with planning and implementation of specific research procedures, conduct clinical dummy runs on MRI sequences from multiple sites, visually verify that MRI sequences are according to protocol, and quality-check the MRI parameters on all MRI sequences, assess different neuro anatomical structures using various medical imaging software, assess lesion detection on conventional and non-conventional MRI sequences including DWI, DIR, SWI both cross-sectionally and longitudinally, maintain close communications with project coordinators of clinical trials about the participant's MRI results including incidental findings, disease activity and their response to therapy in clinical trials, routine communications with site regarding status/resolution of queries, filing and collating trial documentation and reports, supervise analysis of clinical trial research assistants, maintain quality assurance and integrity of clinical trial data, prepare final reports for data analysis, and for scientific presentations

## General responsibilities:

- Develop Standard Operating Procedures and train MRI Fellows and research assistants in MS lesion analysis from MRI scans. Develop imaging research techniques for the analysis of brain imaging data to facilitate the understanding, diagnosis and prognosis of neurological disorders. Implement tool boxes enabling researchers to use medical imaging algorithms that have been developed and approved by Center.
- **Journal Manuscript review** – Journal of Neuroimaging, BMC Neurology, Human Brain Mapping

## Awards and Honors:

- Employee of the quarter, 2009
- Employee of the year, 2010
- Young Scientific Talent Travel Grant –ECTRIMS (2007)
- Oral platform presentation at the European Neurological Congress in Rhodes, Greece, 2007

## IN PRESS

- Siddiqui AH, Zivadinov R, Benedict RHB, Karmon Y, Jihnhee Y, Marr K, Valnarov V, Kennedy C, Ramanathan M, **Ramasamy DP**, Dolic K, Hojnacki D, Carl E, Levy EI, Hopkins NL, Weinstock-Guttman B. Prospective randomized trial of venous angioplasty in MS (PREMiSe). *Neurology*

## PREPUBLISHED ARTICLES

- Modica CM, Bergsland N, Dwyer MG, **Ramasamy DP**, Carl E, Zivadinov R, Benedict RHB. Cognitive reserve moderates the impact of subcortical gray matter atrophy on neuropsychological status in multiple sclerosis. *Mult Scler* 2015; 10.1177/1352458515579443.
- Kappus N, Weinstock-Guttman B, Hagemeyer J, Kennedy CL, Melia R, Carl E, **Ramasamy DP**, Cherneva M, Durfee J, Bergsland N, Dwyer MG, Kolb C, Hojnacki D, Ramanathan M, Zivadinov R. Cardiovascular risk factors are associated with increased lesion burden and brain atrophy in multiple sclerosis. *JNNP* 2015; doi: 10.1136/jnp-2014-310051.

## PEER-REVIEWED ARTICLES PUBLISHED

### 2015

- Tao Y, Zhang X, Zivadinov R, Dwyer MG, Kennedy C, Bergsland N, **Ramasamy D**, Durfee J, Hojnacki D, Hayward B, Dangdon B, Weinstock-Guttman B, Markovic-Plese S. Immunological and MRI Markers of IFN- $\beta$ -1a's therapeutic effect in relapsing-remitting MS. *Neurol Neuroimmunol Neuroinflamm* 2015; 2(6):e176.
- Dwyer MG, Zivadinov R, Tao Y, Zhang X, Kennedy C, Bergsland N, **Ramasamy DP**, Durfee J, Hojnacki D, Weinstock-Guttman B, Hayward B, Dangond F, Markovic-Plese S. Immunological and short-term brain volume changes in relapsing forms of multiple sclerosis treated with interferon beta-1a subcutaneously three times weekly: an open-label two-arm trial. *BMC Neurol* 2015; 15:232.
- Graziano E, Hagemeyer J, **Ramasamy DP**, Weinstock-Guttman B, Zivadinov R. Increased contrast enhancing lesion activity in relapsing-remitting multiple sclerosis migraine patients. *Neuroimage Clin* 2015;9:110-16.
- Zivadinov R, Dwyer MG, **Ramasamy DP**, Davis MD, Steinerman JR, Khan O. The effect of three times a week glatiramer acetate on cerebral T1 hypointense lesions in relapsing-remitting multiple sclerosis. *J Neuroimaging* 2015; 25:989-995
- Mak F, Dwyer MG, **Ramasamy DP**, Au WL, Tan LCS, Zivadinov R, Kandiah N. White matter hyperintensities and mild cognitive impairment in Parkinson's disease. *J Neuroimaging* 2015; 25:754-760.
- Uher T, Horakova D, Kalincik T, Bergsland N, Tyblova M, **Ramasamy DP**, Seidl Z, Vaneckova M, Krasensky J, Havrdova E, Zivadinov R. Early magnetic resonance imaging predictors of clinical progression after 48 months in clinically isolated syndrome patients treated with intramuscular interferon beta-1a. *Eur J Neurol* 2015;22:1113-1123.

### 2014

- Gabelic T, **Ramasamy DP**, Weinstock-Guttman B, Hagemeyer J, Kennedy C, Melia R, Hojnacki D, Ramanathan M, Zivadinov R. Prevalence of radiologically isolated syndrome and white matter signal abnormalities in healthy relatives of patients with familial multiple sclerosis. *AJNR* 2014;35:106-112.

- Uher T, Benedict RH, Horakova D, Bergsland N, Blahova-Dusnkova J, Tyblova M, **Ramasamy DP**, Seidl Z, Vaneckova M, Krasensky J, Havrdova E, Zivadinov R. Relationship between gray matter volume and cognitive learning in CIS patients on disease-modifying treatment. *J Neurol Sci* 2014;347:229-34.
- Gupta S, Zivadinov R, **Ramasamy DP**, Ambrus J. Reversible cerebral vasoconstriction syndrome (RCVS) in anti-phospholipid antibody syndrome (APLA): The role of centrally acting vasodilators. Case series and review of literature. *Clin Rheumatol* 2013;doi:10.1007/s10067-013-2434-9.
- Uher T, Horakova D, Bergsland N, Tyblova M, **Ramasamy DP**, Seidl Z, Vaneckova M, Krasensky J, Havrdova E, Zivadinov R. Development of gray matter atrophy is associated with disability progression in patients with CIS. *Neuroimage Clinical* 2014;6:312-319.
- Uher T, Blahova Dusankova J, Horakova D, Tyblova M, Bergsland N, Benedict RH, Kalincik T, **Ramasamy DP**, Hagemeyer J, Seidl Z, Vaneckova M, Krasensky J, Havrdova E, Zivadinov R. Longitudinal MRI and neuropsychological assessment of patients with clinically isolated syndrome. *J Neurol* 2014;261:1735-44.
- Jacobsen C, Hagemeyer J, Myhr KM, Nyland H, Lode K, Bergsland N, **Ramasamy DP**, Dalaker TO, Larsen JP, Farbu E, Zivadinov R. Brain atrophy and disability progression in multiple sclerosis patients: A 10-year follow-up study. *JNNP* 2014;doi:10.1136/jnnp-2013-306906.
- Siddiqui AH, Zivadinov R, Benedict RHB, Karmon Y, Jihnhee Y, Marr K, Valnarov V, Kennedy C, Ramanathan M, **Ramasamy DP**, Dolic K, Hojnacki D, Carl E, Levy EI, Hopkins NL, Weinstock-Guttman B. Prospective randomized trial of venous angioplasty in MS (PREMiSe). *Neurology* 2014 Jul 29;83(5):441-9.
- Cappellani R, Bergsland N, Weinstock-Guttman B, Kennedy C, Carl E, **Ramasamy DP**, Hagemeyer J, Dwyer MG, Patti F, Zivadinov R. Subcortical deep gray matter pathology in multiple sclerosis patients is associated with white matter lesion burden and atrophy but not with cortical atrophy: a diffusion tensor mri study. *AJNR* 2013;DOI:10.3174/ajnr.A3788.
- Zivadinov R, Dwyer MG, Markovic-Plese S, Hussein S, Kennedy C, Bergsland N, **Ramasamy DP**, Durfee J, Hojnacki D, Hayward B, Dangond F, Weinstock-Guttman B. Effect of interferon beta-1a on changes in voxel-wise magnetization transfer ratio in normal appearing brain tissue and lesions of patients with relapsing–remitting multiple sclerosis measured: a 24-week, controlled pilot study. *PLoS One* 2014;9(3):e91098.
- Cappellani R, Bergsland N, Weinstock-Guttman B, Kennedy C, Carl E, **Ramasamy DP**, Hagemeyer J, Dwyer MG, Patti F, Zivadinov R. Diffusion tensor MRI alterations of subcortical deep gray matter in clinically isolated syndrome. *J Neurol Sci* 2014;338:128-134.

- Chung CP, Beggs C, Wang PN, Bergsland N, Shepherd S, Cheng CJ, **Ramasamy DP**, Dwyer MG, Hu HH, Zivadinov R. Jugular venous reflux and periventricular white matter signal abnormalities in Alzheimer's disease. *J Alzh Dis* 2014;39:601-609.

## 2013

- Gabelic T, Weinstock-Guttman B, Melia R, Lincoff N, Masud MW, Kennedy CL, Brinar V, **Ramasamy DP**, Carl E, Bergsland NP, Ramanathan M, Zivadinov R. Retinal nerve fiber thickness and MRI white matter abnormalities in healthy relatives of multiple sclerosis patients. *Clin Neurol Neurosurg* 2013;115:S49-S54.
- Hagemeyer J, Dwyer MG, Bergsland N, Schweser F, Magnano CR, Heininen-Brown M, **Ramasamy DP**, Carl E, Kennedy C, Melia R, Polak P, Deistung A, Geurts JJ, Reichenbach JR, Zivadinov R. Effect of age on MRI phase behavior in the subcortical deep gray matter of healthy individuals. *AJNR* 2013;doi:10.3174/ajnr.A3569.
- Weinstock-Guttman B, Horakova D, Zivadinov R, Tamaño-Blanco M, Badgett D, Bergsland N, **Ramasamy DP**, Hagemeyer J, Havrdova E, Ramanathan M. Interactions of serum cholesterol with anti-herpesvirus responses affect disease progression in clinically isolated syndromes. *J Neuroimmunol* 2013;263:121-127.
- Zivadinov R, Treu CN, Weinstock-Guttman B, Turner C, Bergsland N, O'Connor K, Dwyer MG, Carl E, **Ramasamy DP**, Qu J, Ramanathan M. Interdependence and contributions of sun exposure and vitamin D to MRI measures in multiple sclerosis. *JNNP* 2013;doi: 10.1136/jnnp-2012-304661.
- Wack DS, Dwyer MG, Bergsland N, **Ramasamy D**, Di Perri C, Ranza L, Hussein S, Zivadinov R. Improved operator agreement and efficiency using the minimum area contour change method for delineation of hyperintense multiple sclerosis lesions on FLAIR MRI. *BMC Med Imag* 2013;13:29.
- Zivadinov R, Tekwe C, Bergsland N, Dolezal O, Havrdova E, Krasensky J, Dwyer MG, Seidl Z, **Ramasamy DP**, Vaneckova M, Horakova D. Bi-monthly evolution of cortical atrophy in early relapsing-remitting multiple sclerosis over 2 years. A longitudinal study. *Mult Scler Int* 2012: Article ID 231345, 8 pages, 2013. doi:10.1155/2013/231345.

## 2012

- Zivadinov R, Ramanathan M, Ambrus J, Hussein S, **Ramasamy DP**, Dwyer MG, Bergsland N, Minagar A, Weinstock-Guttman B. Anti-phospholipid antibodies

are associated with response to interferon-beta1a treatment in MS: results from a 3-year longitudinal study. *Neurol Res* 2012;34:761-9.

## 2011

- **Ramasamy DP**, Ramanathan M, Cox JL, Antulov R, Weinstock-Guttman B, Bergsland N, Benedict RHB, Dwyer MG, Minagar A, Zivadinov R. Effect of the BDNF rs6265 SNP on regional gray matter volumes in patients with MS: A voxel based morphometry case-control study. *Pathophysiol* 2011;18-53-60.
- Dalaker TO, Zivadinov R, **Ramasamy DP**, Beyer MK, Alves G, Bronnick KS, Tysnes OB, Aarsland D, Larsen JP. Ventricular enlargement and mild cognitive impairment in early Parkinson's disease. *Mov Dis* 2011;26:297-301.
- Weinstock-Guttman B, Benedict RHB, Tamaño-Blanco M, **Ramasamy DP**, Stosic M, Polito J, Zivadinov R, Ramanathan M. The rs2030324 SNP of brain derived neurotrophic factor (BDNF) is associated with visual cognitive processing in multiple sclerosis. *Pathophysiology*. 2011 Feb;18(1):43-52.

## 2009

- **Ramasamy DP**, Benedict RHB, Cox JL, Fritz D, Abdelrahman N, Hussein S, Minagar A, Dwyer MG, Zivadinov R. Extent of cerebellum, subcortical and cortical atrophy and disease severity in patients with MS. A case control study. *J Neurol Sci* 2009; 282(1-2):47-54.
- Benedict RHB, **Ramasamy D**, Munschauer FE, Weinstock-Guttman B, Zivadinov R. Memory impairment in multiple sclerosis: correlation with deep gray matter and mesial temporal atrophy. *JNNP* 2009;80:201-6.
- Yeh EA, Weinstock-Guttman B, Ramanathan M, **Ramasamy DP**, Willis L, Cox JL, Zivadinov R. Magnetic resonance imaging characteristics of children and adults with pediatric-onset multiple sclerosis. *Brain* 2009;132:3392-400.

## 2008

- Zivadinov R, Stosic M, Cox JL, **Ramasamy DP**, Dwyer MG. The place of conventional MRI and newly emerging MRI techniques in monitoring the different aspects of treatment outcomes. *J Neurol* 2008;255 (Suppl 1):61-74.

## Conference Platform Presentations

- Zivadinov R, **Ramasamy D**, Ghandi S, Chandra A, Hagemeyer J, Bergsland N, Hojnacki D, Weinstock-Guttman B. Leptomeningeal contrast enhancement is associated with development of gray matter atrophy over 5 years in multiple sclerosis. American Academy of Neurology, Vancouver, BC, Canada, April, 2016
- Dwyer MG, Silva D, Bergsland N, Horakova D, **Ramasamy D**, Durfee J, Vaneckova M, Havrdova E, Zivadinov R. Neurological Software Tool for Reliable Atrophy Measurement (NeuroSTREAM) in Multiple Sclerosis. American Academy of Neurology, Vancouver, BC, Canada, April, 2016
- Kappus N, Weinstock-Guttman B, Hagemeyer J, Kennedy C, Melia R, Carl E, **Ramasamy D**, Cherneva M, Durfee J, Bergsland N, Dwyer M, Kolb C, Ramanathan M, Zivadinov R. The effect of cardiovascular risk factors on lesion burden and brain atrophy in multiple sclerosis. Annual Meeting of the American Academy of Neurology, Philadelphia, PA, May, 2014
- Jacobsen C, Hagemeyer J, Myhr KM, Nyland H, Lodel K, Bergsland N, Dalaker TO, **Ramasamy DP**, Benedict RHB, Farbu E, Larsen JP, Zivadinov R. Cortical, thalamic- and subcortical grey matter atrophy as predictors of cognitive dysfunction in patients with multiple sclerosis: A 10-year follow-up study. Annual Meeting of the American Academy of Neurology, San Diego, CA, March 21 2013; P06.118.
- **D.P. Ramasamy**, D. Fritz, J.L. Cox, N. Abdelrahman, S. Hussein, M.G. Dwyer, R. Zivadinov. Extent of deep grey matter atrophy in patients with multiple sclerosis. A case control study. European Neurological Society, Rhodes, Greece June, 2007
- R. Benedict, **D.P. Ramasamy**, J.L. Cox, M.G. Dwyer, D. Fritz, F.E. Munschauer, B. Weinstock-Guttman, R. Zivadinov. Hippocampal atrophy does not correlate with cognitive decline in patients with multiple sclerosis. European Neurological Society, Rhodes, Greece. June, 2007