

CURRICULUM VITAE, V. WEE YONG

September 2015

Synopsis:

Dr. V. Wee Yong is a Professor at the Hotchkiss Brain Institute and the Departments of Clinical Neurosciences and Oncology at The University of Calgary. He holds the Canada Research Chair in Neuroimmunology. Dr. Yong co-directs the Multiple Sclerosis (MS) NeuroTeam of the Hotchkiss Brain Institute, providing the basic science leadership, and he directs the Alberta MS Network. Dr. Yong's research interests lie in the area of neuroimmunology, neuroprotection and CNS regeneration, and his projects are guided by MS, spinal cord injury and brain tumors. Dr. Yong has published 250 peer-reviewed manuscripts and his research has been translated into Phase III clinical trials in MS and spinal cord injury. His work has been cited over 14,500 times by other authors in scientific publications. Dr. Yong is the immediate past chair of the Medical Advisory Committee of the MS Society of Canada; this and other volunteer activities resulted in him receiving the Queen's Golden Jubilee Year Medallion. Dr. Yong is on the editorial board of 7 international journals. He is the current President of the International Society of Neuroimmunology. Dr. Yong is an elected fellow of both the Canadian Academy of Health Sciences (2010) and the Royal Society of Canada (2014), which represent top honors for those working in the medical and academic sciences, respectively.

A. IDENTIFICATION

Name: V. Wee Yong
Current Position: Professor, University of Calgary
Canada Research Chair in Neuroimmunology (Tier 1)
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B. EDUCATION

Undergraduate: University of Manchester, Manchester, England
Pharmacology, B.Sc. (Hons), 1978 - 1981
Graduate: University of British Columbia, Vancouver, Canada
Pharmacology and Neurochemistry, Ph.D., 1981 - 1986
Supervisor: Dr. Thomas L. Perry Sr.

Post-graduate: University of British Columbia, Canada, on Glial Cell Biology, 1986 - 1988
Supervisor: Dr. Seung U. Kim

C. APPOINTMENTS

- 1986 – 1988:** Lecturer, Department of Pharmacology and Therapeutics,
University of British Columbia
- 1989 – 1994:** Assistant Professor, Department of Neurology and Neurosurgery,
McGill University
- 1994 – 1996:** Associate Professor, Department of Neurology and Neurosurgery,
McGill University
- 1996 – 2001:** Associate Professor, Departments of Oncology and Clinical Neurosciences,
University of Calgary
- 2001 – present:** Professor, Departments of Oncology and Clinical Neurosciences, University
of Calgary
- 2006 – present:** Co-director, Hotchkiss Brain Institute Multiple Sclerosis Program,
University of Calgary
- 2009 – present:** Director, Alberta Regional Research and Training Centre, endMS Network
of the MS Society of Canada
- 2013 – present:** Head, Division of Translational Neurosciences, Department of Clinical
Neurosciences

D. SPECIAL DISTINCTIONS

Scholar. Medical Research Council of Canada, 1989 – 1994

Scholar. Fonds de la Recherche en Santé du Québec, 1989 – 1994

Senior Scholar, Alberta Heritage Foundation for Medical Research, 1998 - 2003

Scientist, Canadian Institutes for Health Research, 1998 – 2003

Cochrane Distinguished Achievement Award for excellence in research, Faculty of Medicine,
University of Calgary, 2000

Multiple Sclerosis Society of Canada 2000 National Certificate of Merit. This award is given to one individual for “outstanding contribution in furthering the work of the Multiple Sclerosis Society of Canada on a national basis”.

Awardee, Queen Elizabeth II’s Golden Jubilee Year Medallion, Canada, for Multiple Sclerosis volunteer activities, 2002

Canada Research Chair (Tier I) in Neuroimmunology, 2004 - present

Medical Scientist, Alberta Heritage Foundation for Medical Research, 2005 - 2009

Multiple Sclerosis Society of Canada 2007 National Certificate of Merit. This award is given to one individual for “outstanding contribution in furthering the work of the Multiple Sclerosis Society of Canada on a national basis”.

“Compelling Calgarian”. I am one of 20 Calgarians honored by the Calgary Herald (main Calgary newspaper in a city of 1.1 million) on New Year’s Day, 2008, for various successes

“U make a difference” award, University of Calgary, 2009

Fellow of the Canadian Academy of Health Sciences, 2010. This is considered one of the highest honors for members of the Canadian Health Sciences community.

Killam Annual Professorship, University of Calgary, July 2012 – June 2013

Vice President, International Society of Neuroimmunology (elected position), 2012 – 2014

Order of the University of Calgary, 2014

Fellow of the Royal Society of Canada, 2014. This is considered one of the highest honors for members of the Canadian research community.

President, International Society of Neuroimmunology, 2014 – 2016

E. OTHER SCHOLARLY NATIONAL/INTERNATIONAL ACTIVITIES (past 8 years)

I) For MS Societies

1. Chair, Medical Advisory Committee, Multiple Sclerosis Society of Canada, 2007 – 2011 (the first basic scientist to head this committee)
2. Member, Future Directions Task Force of the Multiple Sclerosis Society of Canada, 2010 – present (tasked with setting the priorities of the MS Society of Canada)

3. Director, Alberta endMS Research and Training Center, 2009 – present, responsible for increasing research activities, participation, interaction and training across the tertiary research institutions of Alberta (Universities of Alberta, Calgary and Lethbridge)
4. Member, Medical Advisory Committee, Multiple Sclerosis Society of Canada, 1999 – present
5. Host and organizer, endMS summer school on Neuroprotection and repair, May 23-27, 2011, attended by 45 MS trainees from across Canada
6. Member, National Multiple Sclerosis Society (USA) task force on “Overcoming the glial scar”. This is an international task force to determine whether glial scar is an impediment to axonal regeneration or remyelination. 2009
7. Chair, Organising committee, National meeting of the MS Society of Canada’s grantees and trainees (240 participants), Banff, Dec 10-13, 2007
8. Member, Senior Research Programs Advisory Committee, National Multiple Sclerosis Society (USA), 2002 – 2007

II) Advisory Boards of international scientific societies

9. Elected member, International Advisory Board of the International Society of Neuroimmunology, 2007 - present
10. Councilor, American Society of Neurochemistry, 2009 – 2011
11. Elected Vice-President, International Society of Neuroimmunology (2012); will become President in November, 2014

III) Editorial boards of international journals

12. Handling editor of the journal Multiple Sclerosis International, 2009 - present
13. Associate Editor, Frontiers in Multiple Sclerosis and Neuroimmunology, of Frontiers in Neurology, 2011 – present
14. Editorial board member, Clinical and Experimental Neuroimmunology, 2013 - present
15. Editorial board member of Neurotherapeutics, 2010 - present
16. Member, Review Editorial Board of Frontiers in Neurotrauma, 2010 - present
17. Editorial board member of the journal GLIA, 2001 – 2012
18. Editorial board member of the Journal of Neuroscience Research, 2001 – present
19. Editorial board member of the Journal of Neuroimmunology, 2005 – present

IV) Grant review panels (past 5 years)

20. Grant review panel member, Fast Forward program of the US National MS Society, on evaluating proposals with prospects of commercialization for neuroprotection and repair in MS, 2011, 2013 and 2014
21. Invited panelist, US Department of Defense Congressionally Directed Medical Research Program, Idea Development Award on MS, 2013
22. Grant review panel member, Canadian Institutes of Health Research, Neuroscience A committee, 2013
23. Program project review panel member, Terry Fox new frontiers program in Cancer, 2012
24. Grant review panel member, Heart and Stroke Foundation of Canada, 2011
25. Grant review panel member, California Institute of Regenerative Medicine Stem Cell Transplantation Immunology Awards, 2010
26. Grant review panel member, Neural Regeneration and Repair (NRR) peer review panel of the 2009 Spinal Cord Injury Research Program (SCIRP) for the USA Department of Defense (DoD) Congressionally Directed Medical Research Programs (CDMRP), 2009
27. Grant review panel member, National MS Society Fast Forward Serono Partnership program, 2009
28. Grant review panel member, Canadian Institutes of Health Research, Neuroscience B committee, 2009

V) Advisory boards of pharmaceutical companies

29. Scientific Advisory Board, Osprey Pharmaceuticals, San Francisco, 2005 – 2010
30. Scientific Advisory Board, JustBio, Quebec, 2008 – present
31. Advisory Board member, Teva Neuroscience USA, 2005 – present
32. Advisory Board member, Bayer's International Neuroprotection Advisory Board, 2009 – 2011
33. Besides the above, I have consulted for Biogen-Idec, Novartis, NovoNordisk, EMD Serono

VI) External Scientific Advisory Board of Research Teams

34. I-ONE FP7 project, Implantable Organic NanoElectronics project supported by the European Seventh Framework Program for Research and Technological Development, Coordinated by Dr. Fabio Biscarini (CNR Bologna, Italy) 2012 - present

VII) Miscellaneous

35. **Director and principal investigator, Canadian Institutes of Health Research, Interdisciplinary Health Research Team Program** on: Matrix metalloproteinases in multiple sclerosis: Environmental influence, biology, pathology and therapeutic strategies. There are 14 other investigators in this program (Jack Antel, Amit Bar-Or, Pierre Duquette, Dylan Edwards, Peter Forsyth, Charlie Hao, Paul Kubes, Luanne Metz, Ross Mitchell, Trevor Owens, Scott Patten, Jim Peeling, Christopher Power and Steven Robbins). The award is a total of \$989,650 per annum for the whole team, from 2001 – 2006. \$119,863 is awarded for equipment in 2001
36. **Director and principal investigator, Neuroscience Canada**, on: Harnessing beneficial aspects of neuroinflammation for regenerating the central nervous system. Team members: F Costello, L Metz, C Power, S Rivest, P Stys, \$500,000 per annum, 2007-2010.
37. **Honorary councilor**, Calgary chapter of the MS Society of Canada, 2000 – present
38. **Principal consultant, meeting co-organizer and lecturer**, the Kelowna Neuroimmunology series funded through Teva Neuroscience, which brings together MS clinicians from Western Canada once a year in Kelowna for updates on neuroimmunology, MS medications and mechanisms of action of MS therapeutics. **Held yearly from 2007 – 2013.**
39. I am honored to have been a teacher of neuroimmunology and the basic science of MS to MS neurologists and MS nurses in Canada for several years.
40. Member, **MS Connector Services Working Group**, an advisory group for Alberta Health and Wellness, 2010 – present
41. Member, **Provincial Steering Committee** for Basic Science Discovery and Translational Science, 2013 - present

F. CURRENT ACTIVE RESEARCH OPERATING GRANTS

1. **Canadian Institutes for Health Research**, Defining EMMPRIN as a key regulator of neuroinflammation and neural injury in multiple sclerosis, 2014 - 2019, \$184,150 per annum
2. **Canadian Institutes for Health Research**, Rejuvenating deficient remyelination in aging by harnessing a beneficial inflammatory response, 2015 - 2020, \$156,384 per annum
3. **Multiple Sclerosis Society of Canada**, Chondroitin sulfate proteoglycans (CSPGs) as inhibitors of remyelination in MS, 2013 - 2016, \$100,000 per annum
4. **Multiple Sclerosis Society of Canada Foundation Grant**, on: A phase III double-blind, randomized, placebo-controlled trial of minocycline in clinically isolated syndromes (CIS), July 2007- ongoing (PI: L. Metz, involving 15 MS centers across Canada; scientific leader: Yong). \$4.1 million total.

5. **Multiple Sclerosis Society of Canada Foundation Grant**, on: Pathobiology of MS: complex interplay between degeneration and inflammation, PI: Peter Stys. My portion is \$175,000 per year, 2011 – 2014
6. **Alberta/Pfizer Translational Research Fund Opportunity**, on: N-acetylglucosamine analogs that promote remyelination and reduce detrimental inflammation: Novel therapeutics for multiple benefits in multiple sclerosis (PI: Yong, Co-PI: CC Ling). \$200,000 for 18 months, 2014 – 2016
7. **Alberta Innovates – Health Solutions/Alberta Cancer Foundation**, Activating microglia and macrophages to suppress brain tumor-initiating cells (PI: Yong, Co-PIs: J Dunn and J Kelly). \$250,000/year, 2014 – 2017
8. **Alberta Innovates – Health Solutions CRIO Team grant**, Medicines for Remyelination in Multiple Sclerosis: The Next Frontier (PI: Yong, Co-PI: L Metz, with C Power, CC Ling, G Metz, B Pike, Y Zhang, J Dunn, P Stys, M Koch, D Broadhurst). \$1 million/year, 2014 - 2019
9. Industry grants are not listed

G. BRIEF DESCRIPTION OF MY RESEARCH INTERESTS

Neuroimmunology is the study of inflammation in the nervous system. Virtually all neurological disorders have inflammatory components, and these include diseases traditionally associated with overt inflammation, such as multiple sclerosis (MS), and those previously thought to be purely degenerative, including Alzheimer's disease. Neuroinflammation originates from the trafficking of several leukocyte subsets into the nervous system and through the production of immune molecules by neural cells themselves. The interaction between leukocytes and neural cells further promotes neuroinflammation and injury. In recent years, reparative properties of neuroinflammation have been appreciated, so that the balance between beneficial and detrimental neuroinflammation is a crucial determinant of outcome. My research projects have been guided by 3 diseases of the central nervous system (CNS): MS, spinal cord injury (SCI) and brain tumors (malignant gliomas). MS and SCI provide my research program with diseases of chronic and acute neuroinflammation, respectively. In contrast, malignant gliomas present a disease of immunosuppression, whereby the cancer cells neutralize the activity of leukocytes that infiltrate into these tumors. My research has been translated into clinical trials in MS and in spinal cord injury. Collectively, my studies of neuroimmunology are aimed at understanding, controlling and tipping the balance of neuroinflammation towards one of neuroprotection and regeneration from CNS insults.

H. LIST OF PUBLICATIONS

Citations of VW Yong (in Thomson Reuters Web of Science, Sept 10 2015): 14,627 citations, h index: 67. Number of manuscripts cited over 100 times: 49
Number of citations according to Google Scholar: 21,200 (July 2 2015)

Refereed papers in the past 8 years (there are 146 publications pre-2007)

147. Nuttall RK, Silva C, Bar-Or A, Patel K, Edwards DR, **Yong VW**, Metalloproteinases (MMPs and ADAMs) are enriched in microglia compared to leukocytes and they link microglia activation with cytokine levels, *GLIA* 55:516-526, 2007
148. Gregg C, Shikar V, Larsen P, Mak G, Chojnacki A, **Yong VW**, Weiss S, White matter plasticity and enhanced remyelination in the maternal CNS, *J Neurosci* 27:1812-1823, 2007
149. Rice T, Larsen J, Rivest S, **Yong VW**, Characterization of the early neuroinflammation after spinal cord injury in mice, *J Neuropath Exp Neurol* 66:184-195, 2007
150. Zabad RK, Metz LM, Todoruk TR, Zhang Y, Mitchell JR, Yeung M, Patry DG, Bell, RM, **Yong VW**, The clinical response to minocycline in MS is accompanied by immune changes, *Multiple Sclerosis Journal* 13:517-526, 2007
151. Agrawal SM, **Yong VW**, Immunopathogenesis of multiple sclerosis, *Int Rev Neurobiol* 79:99-126, 2007
152. **Yong VW**, Giuliani F, Xue M, Bar-Or, Metz LM, Experimental models of neuroprotection relevant to multiple sclerosis, *Neurology* S32-S37, 2007
153. **Yong VW**, Zabad RK, Agrawal S, Goncalves DaSilva A, Metz LM, Elevation of Matrix Metalloproteinases (MMPs) in Multiple Sclerosis and Impact of Immunomodulators, *J Neurol Sci* 259:79-84, 2007
154. Schellenberg AE, Buist R, **Yong VW**, Del Bigio MR, Peeling J, Magnetic resonance imaging of blood-spinal cord barrier disruption in mice with experimental autoimmune encephalomyelitis, *Mag Reson Med* 58:298-305, 2007
155. **Yong VW**, Agrawal SM, Stirling DP, Targeting MMPs in acute and chronic neurological conditions, *NeuroRx*, special volume on Neuroimmunology in *Neurotherapeutics* 4:580-589, 2007
156. Agrawal SM, Lau L, **Yong VW**, MMPs in the Central Nervous System: Where the Good Guys Go Bad, *Seminars Cell and Dev Biol* 19:42-51, 2008
157. Zhang Y, Metz LM, **Yong VW**, Bell RB, Yeung M, Patry DG, Mitchell RJ, Pilot Trial of Minocycline in Relapsing Remitting Multiple Sclerosis, *Can J Neurol Sci* 35:185-191, 2008
158. Stirling DP, **Yong VW**, Dynamics of the inflammatory response after murine spinal cord injury revealed by flow cytometry, *J Neurosci Res* 86:1944-1958, 2008
159. Goncalves DaSilva A, **Yong VW**, Expression and regulation of matrix metalloproteinase-12 in experimental autoimmune encephalomyelitis and in culture, *J Neuroimmunol* 199:24-24, 2008
160. Casha S, **Yong VW**, Midha R, Minocycline for Axonal Regeneration After Nerve Injury: A

- Double-Edged Sword, editorial for *Exp Neurol* 213:245-248, 2008
161. Xue M, **Yong VW**, Matrix metalloproteinases in intracerebral hemorrhage, *Neurol Res* 30:775-782, 2008
 162. Sarkar S, **Yong VW**, Inflammatory cytokine modulation of matrix metalloproteinase expression and invasiveness of glioma cells in a 3-dimensional collagen matrix, *J Neurooncology* 91:157-164, 2009
 163. Xue M, Fan Y, Liu S, Zygum D, Demchuk A, **Yong VW**, Contributions of multiple proteases to neurotoxicity in a mouse model of intracerebral hemorrhage, *Brain* 132:26-36, 2009
 164. Lu JQ, Metz L, Storek J, **Yong VW**, Nash RA, Joseph JT, Continued disease activity of multiple sclerosis after allogeneic hematopoietic cell transplantation in a complete chimera: case report with histopathological findings, *Arch Neurol* 66:116-120, 2009
 165. Stirling DP, Liu S, Kubes P, **Yong VW**, Depletion of Ly6G/Gr-1 leukocytes after spinal cord injury in mice alters wound healing events and worsens neurological outcome, *J Neurosci* 29 753-764, 2009
 166. Lu JQ, Fan Y, Mitha AP, Bell R, Metz L, Moore W, **Yong VW**, Association of α -synuclein immunoreactivity with inflammatory activity in multiple sclerosis lesions, *J Neuropath Exp Neurol* 68:179-189, 2009
 167. **Yong VW**, Prospects of repair in multiple sclerosis, *J Neurol Sci* 277S1:S16-S18, 2009
 168. Goncalves DaSilva A, **Yong VW**, Matrix metalloproteinase-12 deficiency worsens relapsing-remitting experimental autoimmune encephalomyelitis through cytokine and chemokine dysregulation, *American J Pathol* 174:898-909, 2009
 169. Xue M, Hollenberg MD, Demchuk A, **Yong VW**, Relative importance of proteinase-activated receptor-1 versus matrix metalloproteinases in intracerebral hemorrhage-mediated neurotoxicity in mice, *Stroke* 40:2199-2204, 2009
 170. McCreary CR, Bjarnason TA, Skihar V, Mitchell JR, **Yong VW**, Dunn JF, Multiexponential T₂ and Magnetization Transfer MRI of Demyelination and Remyelination in Murine Spinal Cord, *Neuroimage* 45:1173-1182, 2009
 171. Kalyvas A, Baskakis C, Magrioti V, Constantinou-Kokotou V, Stephens D, López-Vales R, Lu JQ, **Yong VW**, Dennis EA, Kokotos G, David S, Differing roles for members of the Phospholipase A2 superfamily in experimental autoimmune encephalomyelitis, *Brain* 132:1221-1235, 2009
 172. Ellestad K, Tsutsui S, Noorbakhsh F, **Yong VW**, Pittman QJ, Power C, Early life exposure to lipopolysaccharide suppresses experimental autoimmune encephalomyelitis by promoting tolerogenic dendritic cells and regulatory T cells, *J Immunol* 183:298-309, 2009
 173. **Yong VW**, Rivest S, Taking advantage of the systemic immune system to cure brain diseases, *Neuron* 64:55-60, 2009

174. Šišková Z, **Yong VW**, Hoekstra D, Baron W, Fibronectin perturbs process outgrowth in oligodendrocytes by misregulating MMP-9 activity, *Molecular and Cellular Neuroscience* 42:234-242, 2009
175. Skihar V, Silva C, Chojnacki A, Doering A, Stallcup WB, Weiss S, **Yong VW**, Promoting oligodendrogenesis and myelin repair using the multiple sclerosis medication glatiramer acetate, *Proc Natl Acad Sci USA* 106:17992-17997, 2009
176. Metz LM, Li D, Traboulsee A, Myles ML, Duquette P, Godin J, Constantin M, **Yong VW** for the GA/minocycline study investigators, Glatiramer Acetate in Combination with Minocycline in Patients with Relapsing-Remitting Multiple Sclerosis: Results of a Canadian, Multicenter, Double-Blind, Placebo-Controlled Trial, *Multiple Sclerosis*, 15:1183-1194, 2009
177. **Yong VW**, Marks S, The interplay between the immune and central nervous systems in neuronal injury, *Neurol* 74 Suppl 1:S9-S16, 2010
178. Sarkar S, **Yong VW**, Reduction of protein kinase C delta attenuates tenascin-C stimulated glioma invasion in three-dimensional matrix, *Carcinogenesis* 31:311-317, 2010
179. Xue M, Mikliaeva E, Casha S, Zygun D, Demchuk A, **Yong VW**, Improving outcomes of neuroprotection by minocycline: Guides from cell culture and intracerebral hemorrhage in mice, *American J Pathol* 176:1193-2202, 2010
180. Rodrigues JC, Gonzalez GC, Zhang L, Ibrahim G, Kelly JJP, Forsyth PA, **Yong VW**, Parney IF, Normal human monocytes exposed to glioma cells acquire myeloid-derived suppressor cell-like properties, *NeuroOncology* 12:351-365, 2010
181. Lu JQ, Joseph JT, Nash RA, Storek J, Stevens AM, Metz L, Clark AW, Johnson ES, **Yong VW**, Inflammation and demyelination in multiple sclerosis after allogeneic hematopoietic stem cell Transplantation, *Arch Neurol* 67:716-722, 2010
182. Yong VW, Inflammation in neurological disorders: A help or a hindrance, *The Neuroscientist* 16:408-420, 2010
183. Goncalves DaSilva A, Liaw L, **Yong VW**, Cleavage of osteopontin by matrix metalloproteinase-12 (MMP-12) modulates severity of experimental autoimmune encephalomyelitis, *American J Pathol* 177:1448-1458, 2010
184. Zhang Y, Metz LM, **Yong VW**, Mitchell RJ, Baseline deep gray matter 'black' T2 predicts third-year disability in multiple sclerosis, *J Neurol Sci* 297:76-81, 2010
185. Carnini A, Hurlbert RJ, **Yong VW**, Casha S, Braun JEA, Reduction of PrP^C in Human Cerebrospinal Fluid after Spinal Cord Injury, *Prion* 4:80-86, 2010
186. Agrawal S, **Yong VW**, The many faces of EMMPRIN - roles in neuroinflammation, *Biochem Biophys Acta*, in *Molecular Basis of Disease Special Issue: Multiple Sclerosis*, 1812:213-219, 2011
187. Sloka S, Silva C, Pryse-Phillips W, Patten S, Metz L, **Yong VW**, A quantitative analysis of

- suspected environmental causes of MS, *Can J Neurol Sci* 38:98-105, 2011
188. Agrawal SM, Silva C, Tourtellotte WW, **Yong VW**, EMMPRIN: A novel regulator of neuroinflammation in multiple sclerosis and experimental autoimmune encephalomyelitis, *J Neurosci* 31:669-677, 2011
 189. Kwon B, Casha S, Hurlbert RJ, **Yong VW**, Inflammatory and Structural Biomarkers in Acute Traumatic Spinal Cord Injury, *Clinical Chemistry and Laboratory Medicine* 49:425-33, 2011
 190. Broadwater L, Pandit A, Azzam S, Clements R, Vadnal J, **Yong VW**, Freeman EJ, Gregory RB, McDonough J, Analysis of the Mitochondrial Proteome in Multiple Sclerosis Cortex, *Biochimica et Biophysica Acta - Molecular Basis of Disease* 1812:630-41, 2011
 191. Doring A, **Yong VW**, The good, the bad and the ugly of macrophages/microglia with a focus on myelin repair, *Frontiers in Bioscience*, 3:846-856 2011.
 192. Sloka S, Silva C, Wang J, Metz L, **Yong VW**, Predominance of Th2 polarization by Vitamin D through a Stat6-dependent mechanism, *J Neuroinflammation* 8:56, 2011
 193. Bar-Or A, Reickmann P, Traboulsee A, **Yong VW**, Targeting Progressive Neuroaxonal Injury: Lessons From Multiple Sclerosis, *CNS Drugs* 25:783-799, 2011
 194. Haylock-Jacobs S, Keough MB, Lau L, **Yong VW**, Chondroitin sulfate proteoglycans: Extracellular matrix proteins that regulate immunity of the central nervous system, *Autoimmunity Reviews* 10:766-772, 2011
 195. Kucharova K, Chang Y, Boor A, **Yong VW**, Stallcup W, Reduction of both myelin damage and myelin repair in the NG2 null mouse after demyelination, *J Neuroinflammation* 8:158, 2011
 196. Zhang J*, Sarkar S*, Cua R, Zhou Y, Hader W, **Yong VW**, A dialog between glioma and microglia that promotes tumor invasiveness through the CCL2/CCR2/interleukin-6 axis, *Carcinogenesis* 33:312-319, 2012 (*co-first authors)
 197. Agrawal SM, Silva C, Wang J, Tong J, **Yong VW**, A novel anti-EMMPRIN function blocking antibody reduces T cell proliferation and neurotoxicity: Relevance to multiple sclerosis, *J Neuroinflammation* 9:64, 2012
 198. Casha S, Zygun D, McGowan D, Baines I, **Yong VW**, Hurlbert RJ, Results of a Phase II Placebo-Controlled Randomized Trial of Minocycline in Acute Spinal Cord Injury, *Brain* 135:1224-1236, 2012
 199. Berard JL, Arbour N, Prat A, Jacques F, **Yong VW**, Akira S, David S, Lipocalin 2 is a novel immune mediator of EAE pathogenesis and is modulated in multiple sclerosis, *Glia* 60:1145-1159, 2012
 200. Mishra M, Wang J, Silva C, Mack M, **Yong VW**, Relationship between circulating pro-inflammatory monocytes with disease severity in a model of multiple sclerosis: perturbation by laquinimod, *Am J Pathol* 181:642-651, 2012
 201. Lau L, Keough MB*, Haylock-Jacobs S*, Cua R, Doring A, Sloka S, Stirling DP, Rivest S,

- Yong VW**, Chondroitin sulfate proteoglycans in demyelinated lesions impair remyelination, *Annals Neurol* 72:419-432, 2012 (*co-second authors)
202. Lu JQ, Wilson BA, **Yong VW**, Pugh J, Mehta V, Immune cell infiltrates in atypical teratoid/rhabdoid tumors, *Can J Neurol Sci* 39:605-612, 2012
203. Chang A, Staugaitis SM, Dutta R, Batt CE, Easley KE, Chomyk AM, **Yong VW**, Fox RJ, Kidd GJ, Trapp BD, Cortical remyelination: A new target for repair therapies in multiple sclerosis, *Annals Neurol* 72:918-926, 2012
204. Koch MW, Metz L, Agrawal S, **Yong VW**, Environmental factors and immunity in multiple sclerosis, *J Neurol Sci* 324:10-16, 2013
205. Rogers J, Metz LM, **Yong VW**, Endocrine disrupting chemicals and immune responses: A focus on bisphenol-A and its potential mechanisms, *Molecular Immunol* 53:421-430, 2013
206. Zhornitsky S, **Yong VW**, Weiss S, Metz LM, Prolactin in multiple sclerosis, *Multiple Sclerosis J* 19:15-23, 2013
207. Keough MB, **Yong VW**, Remyelination therapy for multiple sclerosis, *Neurotherapeutics* 10:44-54, 2013
208. Nathoo N, Agrawal S, Wu Y, Haylock-Jacobs S, **Yong VW**, Foniok T, Barnes, Obenaus A, Dunn JF, Susceptibility weighted imaging in the experimental autoimmune encephalomyelitis model of multiple sclerosis indicates elevated deoxyhemoglobin as well as iron deposition and demyelination, *Multiple Sclerosis J* 19:721-731, 2013
209. Cua RC, Lau LW, Midha R, Apte SS, **Yong VW**, Overcoming neurite-inhibitory chondroitin sulfate proteoglycans in the astrocyte matrix: Evaluations of matrix metalloproteinases and ADAMTS-4, *GLIA* 61:972-984, 2013
210. Agrawal SM, Williamson J, Sharma R, Kebir H, Patel K, Prat A, **Yong VW**, Extracellular matrix metalloproteinase inducer shows active perivascular cuffs in multiple sclerosis, *Brain* 136:1760-1777, 2013
211. Sloka S, Metz LM, Hader W, Starreveld Y, **Yong VW**, Reduction of microglia activity in a model of multiple sclerosis by dipyridamole, *J Neuroinflammation* 10:89, 2013
212. Zemp F, McKenzie BA, Lun X, Reilly K, McFadden G, **Yong VW**, Forsyth PA, Resistance to oncolytic Myxoma Virus therapy in $NF1^{-/-}/p53^{-/-}$ syngeneic mouse glioma models is independent of anti-viral type-1 interferon, *PLOS One* 8(6):e65801, 2013
213. Rawji KS, **Yong VW**, The benefits and detriments of macrophages/microglia in models of multiple sclerosis, *Clinical and Developmental Immunology* 2013:948976, 2013
214. Lau L*, Cua R*, Keough MB, Haylock-Jacob S, **Yong VW**, Pathophysiology of the brain extracellular matrix: A new target for remyelination, *Nature Rev Neuroscience* 14:722-729, 2013 (*co-first authors)
215. Koch M, Cutter G, Stys P, **Yong VW**, Metz L, Treatment trials in progressive MS: current challenges and future perspectives, *Nature Rev Neurology* 9:496-503, 2013

216. Zhornitsky S, **Yong VW**, Koch MW, Mackie A, Potvin S, Patten SB, Metz LM, Quetiapine fumarate for the treatment of multiple sclerosis: focus on myelin repair, *CNS Neuroscience and Therapeutics* 19:737-744, 2013
217. Samanani S, Mishra M, Claudia S, Verhaeghe B, Wang J, Tong J, **Yong VW**, Screening for inhibitors of microglia to reduce neuroinflammation, *CNS & Neurological Disorders – Drug Targets* 12:741-749, 2013
218. Lu JQ, Power C, Blevins G, Giuliani F, **Yong VW**, The regulation of reactive changes around multiple sclerosis lesions by pSTAT3, *J Neuropath Exp Neurol* 72:1135-1144, 2013
219. Roberts DJ, Jenne CN, Leger C, Kramer AH, Gallagher CN, Todd S, Parney IF, Doig CJ, **Yong VW**, Kubes P, Zygun D, A Prospective Evaluation of the Temporal Matrix Metalloproteinase Response After Severe Traumatic Brain Injury in Humans, *J Neurotrauma* 30:1717-1726, 2013
220. Roberts DJ, Jenne CN, Leger C, Kramer AH, Gallagher CN, Todd S, Parney IF, Doig CJ, **Yong VW**, Kubes P, Zygun D, Association Between the Cerebral Inflammatory and Matrix Metalloproteinase Responses After Severe Traumatic Brain Injury in Humans, *J Neurotrauma* 30:1727-1736, 2013
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microglia and macrophages: Impact on the aging white matter, revised at Brain

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257. Zygun D, Hurlbert RJ, **Yong VW**, Jacobs B, Kramer A, McGowan D, Todd S, Bains I, Peets A, Casha S, Spinal cord perfusion pressure management in acute traumatic spinal cord injury: A prospective randomized controlled feasibility study, submitted
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259. Zhang Y, Jonkman L, Klauser A, Barkhof F, **Yong VW**, Metz LM, Geurts J, T2 MRI spectra detect myelin differences between types of multiple sclerosis lesions, submitted
260. Gerrard B, Gauthier I, Babenko O, **Yong VW**, Kovalchuk I, Luczak A, Metz GAS, Chronic stress exacerbates symptoms and biomarkers of multiple sclerosis in experimental autoimmune encephalomyelitis, submitted
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264. Johnson TW, Wu Y, Nathoo N, Rogers J, **Yong VW**, Dunn JF, Cerebellar and cortical hypoxia in the experimental autoimmune encephalomyelitis model of multiple sclerosis, submitted
265. Mishra MK, **Yong VW**, Myeloid antigen-presenting cells: targets for medications in multiple sclerosis, submitted

Book chapters (last 10 years)

17. Giuliani F, Zabad R, **Yong VW**, Neuroprotective effects of interferon- β in multiple sclerosis, in: Inflammatory disorders of the nervous system: Pathogenesis, immunology and clinical management, Ed: A. Minagar, JS Alexander, Humana Press, New Jersey, pp 133-144, 2005
18. Larsen PH, **Yong VW**, Matrix metalloproteinases in myelin formation, in: Matrix metalloproteinases in the central nervous system, Ed: K Conant, P Gottschall, Imperial College Press, London, pp189-205, 2005

19. Zhang J, Sarkar S, Zhou Y, **Yong VW**, Glia promotes tumorigenicity in the glioma microenvironment, in: Trends in Glial Research – Basic and Applied, ST Dheen and EA Ling (eds), Research Signpost, Kerala, India (publisher), 153-162, 2008
20. David S, López-Vales R, Yong VW, Harmful and Beneficial Effects of Inflammation after Spinal Cord Injury: Potential Therapeutic Implications, In: Handbook of Clinical Neurology Vo. 109: Spinal Cord Injury, Verhaagen J and JW McDonald (eds) pp. 485-502, 2012
21. Mishra MK, Yong VW, Macrophages and microglia in experimental autoimmune encephalomyelitis and multiple sclerosis, in Multiple sclerosis immunology – a foundation for current and future treatments, Ed: Yamamura T, Gran B, Springer publisher, pp 177-196, 2013
22. Rogers JA, Yong VW, Immune functions and consequences of Bisphenol-A exposure, In: Bisphenol A: Sources, Risks of Environmental Exposure and Human Health Effects, ed: Y Gilbert, Nova Publishers, in press

I. Translational research activities

Several of my basic science discoveries have been translated into the clinic. In the quest to derive medications to inhibit the matrix metalloproteinases (MMPs) that drive neuroinflammation and neurotoxicity in MS (*Yong et al., Nature Rev Neurosci 2:502, 2001; Yong, Nature Rev Neurosci 6:931, 2005*), my laboratory discovered that the commonly used anti-microbial medication, minocycline, inhibits MMPs. We tested minocycline's efficacy in an animal model of MS, experimental autoimmune encephalomyelitis (EAE), and discovered that minocycline reduced disease activity (*Brundula et al., Brain 125:1297, 2002*). These findings were translated by my clinical colleagues into a pilot trial of minocycline in patients with relapsing-remitting MS. The 3 year trial results show that minocycline rapidly decreased brain MRI activity indicative of inflammation (*Metz et al., Ann Neurol 55:756, 2004*) and serum inflammatory biomarkers including MMP-9 (*Zabad et al., MS Journal 13:517, 2007*); the majority of patients remained stable on minocycline treatment (*Zhang et al., Can J Neurol Sci 35:185, 2008*). Moreover, from my laboratory findings that minocycline adds to the ability of glatiramer acetate (a first line treatments in MS) in reducing EAE severity in mice (*Giuliani et al., J Neuroimmunol 165:83, 2005*), our group conducted a Phase II clinical trial in relapsing-remitting MS, where we found that the combination of glatiramer acetate and minocycline provided better benefits than glatiramer acetate alone (*Metz et al., MS J 15:1183, 2009*). A particular advantage of minocycline in MS is that this is an oral medication compared to most approved MS immunomodulators that are delivered parenterally. Moreover, minocycline is cheap (\$800 pa) relative to over \$30,000 pa for current MS drugs. Led out of Calgary, minocycline is now in a Phase III trial in early MS across 12 centers in Canada (Clinicaltrials.gov NCT00666887); results are expected in the fall of 2015. I have continued to be the scientific leader in these trials.

Early in our evaluation of minocycline, we discovered that it has neuroprotective activities. Moreover, minocycline administered after traumatic spinal cord injury in mice reduced tissue loss and improved functional recovery from the insult (*Wells et al., Brain 126:1628, 2003*). These results were shared with my neurosurgical colleagues who initiated in 2004 a placebo-controlled, randomized, double-blinded trial to test high dose iv minocycline following **acute spinal cord injury in humans**. The recently completed study shows that patients with cervical spinal cord injury regained significant improvement in motor outcomes over a one year assessment period

when given minocycline compared to placebo (*Casha et al., Brain 135:1224, 2012*). We have begun a Phase III trial of minocycline in cervical spinal cord injury that is taking place at several Canadian centers (Clinicaltrials.gov NCT01828203). I continue to be the scientific leader.

My recent translational efforts are in **repair discoveries**. Noting that prolactin stimulates remyelination (*Gregg et al., J Neurosci 27:1812, 2007; Zhornitsky et al., Multiple Sclerosis J 19:15, 2013*), and that the chondroitin sulfate proteoglycans inhibit remyelination (Lau et al., *Ann Neurol 72:419, 2012; Change et al., Ann Neurol 72:918, 2012; Lau et al., Nature Rev Neurosci, 14:722-729, 2013*), we have teamed with our neurology colleagues for trials of remyelination in relapsing-remitting and progressive MS that are anticipated to begin this year (supported by a \$5 million AIHS grant 2014-2019, where I am the principal investigator).

J. NATIONAL OR INTERNATIONAL CONFERENCE INVITATIONS: (last 10 years)

(presentations at academic institutions are listed in Section J)

1. Speaker, Keystone Symposium on: Central nervous system inflammation: mechanisms, consequences and therapeutic strategies, Jan 11-15, 2005, Snowbird, Utah. My presentation topic: Matrix metalloproteinases
2. Symposium speaker, American Society for Neurochemistry, Madison, June 26-29, 2005, on: The promise of minocycline in neurology
3. Symposium speaker, sponsored by UMDNJ-Robert Wood Johnson Medical School, New Jersey, Neuroprotective Strategies for Multiple Sclerosis, May 21, 2005. My topic: Immunopathology and beneficial neuroinflammation
4. Symposium Speaker, 28th Canadian College of Neuropsychopharmacology, St. John's, July 2-5, 2005, on: Neuroinflammation in psychiatric and neurodegenerative diseases: Friend and foe
5. Speaker, Gordon Research Conference on MMPs, Big Sky, Montana, Aug 28 – Sept 2, 2005. My presentation topic: MMPs in MS and spinal cord injury: Pathology and repair
6. Co-chair and speaker, Minisymposium on MMPs: Mediators of CNS pathology and regeneration, at the Society for Neuroscience, Nov 12- 16. My presentation title: Metalloproteinases mediate repair in the CNS
7. Speaker, Charcot MS Symposium on Treatment Strategies in MS, Lisbon, Nov 16-18, 2005. My topic: Emerging MS treatment: Minocycline
8. Speaker, International symposium on Rare Neuroimmunologic disorders, July 20-22, 2006, Baltimore. My topic: MMPs and their interactions in the inflamed micro-environment
9. Discussant, National Multiple Sclerosis Society, USA's symposium on Stem cells in MS, San Francisco, Jan 16-19, 2007

10. Special speaker from outside the ALS field, at the 3rd Annual ALS Society of Canada meeting, March 23, 2007, Toronto
11. Speaker, New Jersey School of Medicine international symposium, May 13-15, 2007, on Neuroprotection in MS
12. Co-chair and speaker, Symposium on neuroinflammation, First Canadian Association of Neuroscience meeting, Toronto, May 23-25, 2007 My subject: Beneficial neuroinflammation
13. Speaker, Symposium on Current Status of clinical and basic research in multiple sclerosis, USC Kerk School of Medicine, August 4, 2007, Newport Beach, CA. My subject: Modulating the microenvironment for remyelination.
14. Speaker, Myelin satellite symposium of the International Society of Neurochemistry, Chichen Itza, Mexico, Aug 18, 2007, on: Harnessing beneficial inflammation for remyelination
15. Speaker, Symposium on Neuronal signaling by extracellular metalloproteases, International Society of Neurochemistry, Cancun, Aug 19-24, 2007
16. Panelist, one of 6 North American experts on panel to discuss neuroprotection and repair in multiple sclerosis, Dallas, Feb 29 – March 2, 2008
17. Speaker, 7th International Teva and Sanofi-Aventis Symposium, Vienna, May 23-24, 2008, on: Prospects of repair in MS
18. Chair and speaker, in Symposium on “Common or contrasting mechanisms of neurodegeneration across diseases and the implications for neuroprotection”, Second Canadian Association of Neuroscience meeting, Montreal, May 25-29, 2008 My subject: Inflammation as determinants of injury and protection in multiple sclerosis and other neurological conditions
19. Symposium speaker on MS, Annual Meeting of the American College of Osteopathic Neurologists and Psychiatrists, October 27, 2008, on: Current understanding of MS immunopathogenesis and what this means for therapy
20. Symposium speaker, Keystone Symposium on MS, Santa Fe, Jan 21-25, 2009, on: EMMPRIN: A new regulator of neuroinflammation in multiple sclerosis
21. Keynote speaker, 4th MS-Expert Workshop in Helsinki, Finland, February 6, 2009, on: Prospects of neuroprotection and repair in MS
22. Roundtable discussant and speaker, in roundtable on “Multiple Sclerosis disease modifying therapies: Mechanisms of action and practical implications”, organised through UMDNJ–Robert Wood Johnson Medical School, New Brunswick, NJ and Bioscience Communications, US, February 28 – March 1 2009. My presentation topic: The interplay of the immune system with the CNS
23. Symposium speaker, CNSF, Halifax, June 12, 2009 on Immunopathogenesis of MS"

24. Speaker, Advanced Imaging techniques in multiple sclerosis symposium, on: Linking Immunology and MRI: Implications for Better Interpretation of Clinical Trials in MS, New York City, Oct 23-24, 2009
25. Plenary Speaker, 9th Annual Practicum in Neurology, on: The next frontier: Repair in MS, Montreal, March 26-27, 2010
26. Symposium Speaker, Symposium on Glia and neurological disorders, Japanese Society of Neurology, May 20-22, 2010
27. Plenary Speaker, Anatomical Sciences and Cell Biology Conference, 26-29 May 2010, Singapore, on: Harnessing the benefits of inflammation for remyelination
28. Speaker, ECTRIMS, Goteborg Sweden October 15, 2010, on: Reduction of chondroitin sulfate proteoglycans in demyelinated lesions promotes remyelination
29. Speaker, endMS conference, Whistler, Dec 6-9, 2010, on: Animal models for evaluating MS medications
30. Speaker, Keystone symposium on MS, Taos, New Mexico, Feb 15 – 20, 2011, on: Overcoming the inhibitory microenvironment to promote remyelination
31. Symposium speaker, American Society of Neurochemistry, session on Proteases, March 20-22, 2011, on: EMMPRIN regulation of matrix metalloproteinases mediates neuroinflammation and neuropathology
32. Symposium speaker, Multiple Sclerosis: Imaging, Immunology, Genetics and Treatment Strategies to Enhance Clinical Outcomes, Denver, June 25 2011. My presentation topic: Immunology and Biomarkers in MS: Inflammatory vs. Degenerative Components
33. Symposium speaker, BIT's 3rd Annual World Congress of NeuroTalk-2012, Beijing, May 18-20, 2012. My presentation topic: Targeting EMMPRIN (CD147) to alleviate neuroinflammation: Relevance to multiple sclerosis
34. Speaker, International Society of Neuroimmunology, Boston, Nov 4-8, 2012, on: T cell killing of neurons is promoted by microglia
35. Symposium speaker, Glia satellite meeting of the International Society of Neurochemistry – American Society of Neurochemistry Joint meeting, April 17-19 2013, Merida, Yucatan, Mexico. My presentation topic: The battle for the brain: Macrophages/microglia versus brain tumor initiating cells
36. Symposium speaker, 5th Cooperative Meeting of the Consortium of MS Centers and the Americas Committee for Treatment and Research in MS (ACTRIMS), May 29 – June 1 2013. My presentation title: Targeting the extracellular matrix to enhance remyelination
37. Symposium speaker, endMS meeting, Saint Sauveur, Quebec, December 10-13, 2013. My presentation title: Overcoming an inhibitory microenvironment for remyelination

38. Symposium speaker, American Society of Neurochemistry, March 12 2014 Long Beach CA on: The battle for the brain: glioma stem cells versus microglia
39. Workshop Speaker, Joint Americas Committee for Treatment and Research in MS (ACTRIMS) and European Committee for Treatment and Research in MS (ECTRIMS) meeting, Sept 12 2014 Boston, on Fluorosamine: a novel therapeutic that promotes myelin regeneration and reduces inflammation in demyelination models
40. Symposium Speaker, International Society of Neuroimmunology, Nov 11 2014 Mainz, Germany, on: Overcoming inhibitors of remyelination
41. Symposium speaker, American Society of Neurochemistry, March 17 2015, Atlanta, Overcoming extracellular matrix inhibitors of remyelination
42. Speaker, Asia-Pacific School of Neuroimmunology, Aug 30 2015, Tokyo, Japan, The neuroimmunology of repair with a focus on remyelination
43. Speaker, Americas School of Neuroimmunology, Oct 2 2015, Calgary, on Neuroimmunology in repair of the nervous system
44. Symposium speaker, European Committee for Treatment and Research in MS (ECTRIMS), Oct 9 2015, Barcelona, Altering the CNS microenvironment during neurodegeneration to promote remyelination
45. Symposium speaker, Society for Neuroscience satellite symposium on Neuroimmunity: Evolving role of the immune system in brain protection and repair, Chicago, Oct 16 2015. My presentation: Overcoming extracellular matrix inhibitors to promote remyelination

(Not conscientiously documented)

J. Other talks/seminars given (last 9 years), at academic institutions

1. Speaker, Neurology Grand Rounds, Wake Forest University, Feb 8, 2005, on: Progress in MS Research and Treatment
2. Speaker, Neurology Grand Rounds, University of North Carolina, Chapel Hill, Feb 8, 2005, on: Progress in MS Research and Treatment
3. Seminar Speaker, Lerner Research Institute, Cleveland Clinic, Feb 24, 2005, on: Matrix metalloproteinases (MMPs): Mediators of CNS pathology and regeneration
4. Speaker, Neurology Grand Rounds, Jacobs MS Center, University of Buffalo, Rochester, March 10, 2005, on: Emerging concepts and treatment in MS
5. Speaker, Neurology Grand Rounds, Ohio State University, Columbus, April 5, 2005, on: Emerging concepts and treatment in MS

6. Speaker, Neurology Grand Rounds, University of Alabama, Birmingham, April 26, 2005, on: Emerging concepts and treatment in MS
7. Biochemistry seminar speaker, University of South Florida, Tampa, on: Matrix Metalloproteinases (MMPs): Mediators of CNS pathology and regeneration, April 27, 2005
8. CME Speaker, University of South Florida, on: Progress in MS Research and Treatment, April 27, 2005
9. Speaker, Neurology Grand Rounds, RUSH University, June 16, 2005, on: Treatment strategies in MS
10. Speaker, Orange County Neurological Society, California, July 2, 2005, on: The promise of minocycline in neurology
11. Seminar speaker, Jewish General Hospital, Montreal, September 15, 2005, on: Neuroprotection and regeneration in multiple sclerosis
12. Grand Rounds, University of Sherbrooke, Quebec, September 16, 2005, on: Neuroprotection and regeneration in multiple sclerosis
13. CME Speaker, Second Annual Neuroprotection Meeting: Defining a clinical strategy in neurodegenerative disease, Oct 22-23, 2005, Sonoma, California, CME program organized through University of South Florida
14. Speaker, Medicine Grand Rounds, Fairview General Hospital (Cleveland Clinic), Cleveland, Feb 13, 2006, on: Neuroprotection and regeneration in neurological diseases: MS as a prototype
15. Speaker, Hospital for Sick Children, Toronto, Feb 22, 2006, on: Immunology of MS and the impact of therapies
16. Speaker, Visiting Scholar Seminar Series, Neuroinflammation Training Program, McGill University, March 21, 2006, on: MMPs in pathology and regeneration of the nervous system
17. Speaker, McMaster University, March 24, 2006, Promoting beneficial aspects of neuroinflammation for CNS recovery
18. CME Speaker, Providence, Rhode Island, April 24, 2006, on The two faces of multiple sclerosis: Inflammatory and degenerative
19. CME Speaker, Worschester, Massachusetts, April 24, 2006, on The two faces of multiple sclerosis: Inflammatory and degenerative
20. Speaker, Montreal Neurological Institute, June 19, 2006, on: Modulating neuroinflammation: Bench to bedside and back
21. CME Speaker, Portland, Maine, Sept 11, 2006, on The two faces of multiple sclerosis: Inflammatory and degenerative

22. CME Speaker, Boston, Massachusetts, Sept 12, 2006, on The two faces of multiple sclerosis: Inflammatory and degenerative
23. Neurology Grand Rounds, Louisiana State University, Shreveport, Oct 13, 2006, on: Modulating inflammation to promote neurological recovery: Bench to bedside and back
24. Neurology Grand Rounds, Queen's University, Kingston, Oct 26, 2006, on: Modulating inflammation to promote neurological recovery: Bench to bedside and back
25. Neurology Grand Rounds, University of Ottawa, Ottawa, Oct 27, 2006, on: Modulating inflammation to promote neurological recovery: Bench to bedside and back
26. CME Speaker, in CME program in Inflammation and neurodegeneration in multiple sclerosis as evidenced by MRI: Implications for current and future therapies, Oct 28, 2006, Chicago. My presentation topic: Immunology of multiple sclerosis
27. Special invited speaker, St. Michael Hospital's MS Research Day, Nov 25, 2006, on: Neuroprotection and repair in MS
28. Seminar speaker, Novartis symposium, Basel, March 13, 2007, on: Matrix metalloproteinases in MS
29. Speaker, Lerner Research Institute, Cleveland Clinic Foundation, February 12, 2007, on: Managing the microenvironment of demyelinating lesions to enhance repair
30. Seminar Speaker, Neuroimmunology Group, University of California, San Francisco, May 11, 2007: Repair of the nervous system
31. Neurology Grand Rounds speaker, UCLA VA Hospital, Los Angeles., August 3, 2007, on: Multiple Sclerosis, Focus on Neuroprotection and Repair
32. Seminar Speaker, The Neural Systems and Plasticity Research Group, University of Saskatchewan, Aug 9, 2007, on: Managing the microenvironment for remyelination
33. CME Speaker, Louisville, Kentucky, September 24, 2007, on: Multiple Sclerosis, Focus on Neuroprotection and Repair
34. Speaker, Neurology/Neurosurgery Grand Rounds Speaker, University of Louisville, Sept 25, 2007, on: Modulating neuroinflammation for neurological recovery: Bench to bedside and back
35. CME Speaker, Lexington, Kentucky, September 25, 2007, on: Multiple Sclerosis, Focus on Neuroprotection and Repair
36. Speaker. MS Clinical Rounds, University of Calgary, Oct 3 2007 on: Current understanding of MS immunopathogenesis and what this means for therapy

37. Speaker, Department of Neurological Sciences Grand Rounds, University of Nebraska, Omaha, Nov 1, 2007, on: Modulating neuroinflammation with minocycline for neurological recovery: Bench to bedside and back
38. CME program, Tuscaloosa, Alabama, March 10, 2008, on: Multiple Sclerosis, Focus on Neuroprotection and Repair
39. Speaker, Neurology Grand Rounds, March 11, 2008, University of Alabama, Birmingham, on: Modulating neuroinflammation and conferring neuroprotection with minocycline: Bench to bedside and back
40. CME Speaker, Nashville, Tennessee, March 12, 2008, on: Multiple Sclerosis, Focus on Neuroprotection and Repair
41. Speaker, University of Alberta, March 20, 2008, on: Inflammation-induced repair of the CNS
42. CME Speaker, Charleston West Virginia, May 13, 2008, on: Multiple Sclerosis, Focus on Neuroprotection and Repair
43. CME Speaker, Knoxville, Tennessee, May 14, 2008, on: Multiple Sclerosis, Focus on Neuroprotection and Repair
44. Speaker, Program organized by the MS Association of America, Denver, Colorado, June 26, 2008, on: Research Update in the field of Multiple Sclerosis
45. Speaker, Residency program, St. John West Shore Hospital, Cleveland, July 14, 2008, on: Neuroimmunology in the neurological sciences
46. CME Speaker, Cleveland, July 16, 2008, on: Multiple Sclerosis, Focus on Neuroprotection and Repair
47. Speaker, Halifax, July 24, 2008, on: Inflammation-induced repair of the CNS
48. Speaker, Neurology Grand Rounds, UT Southwestern Medical School, Dallas, Sept 3 2008, on: "The challenge and promise of minocycline in neurology"
49. Speaker, MS Group seminar, Southwestern Medical School, Dallas, Sept 3 2008, on: Repair in MS
50. Speaker, Neurology Grand Rounds, University of Saskatoon, Sept 10 2008, on: Update on research in multiple sclerosis
51. CME Speaker in "Advanced Imaging Techniques in Multiple Sclerosis: A Gaze into the Future" symposium, Oct 24 2008. My presentation topic is: Linking Immunology and MRI: Implications for Better Interpretation of Clinical Trials in MS
52. Seminar speaker, MS Clinical Rounds, University of Calgary, Nov 5 2008, on: The continuing promises and challenges of minocycline in the neurological sciences, University of Calgary

53. Speaker, Neurology Grand Rounds, Louisiana State University, Shreveport, Dec 12 2008, on: Bench to bedside: Minocycline in the neurological sciences
54. Seminar speaker, University of Montreal, Jan 17 2009, on: Using an old drug for neurological recovery: The story of minocycline and translational research
55. Seminar Speaker, Novo Nordisk, Copenhagen, March 31, 2009, on: Matrix metalloproteinases (MMPs) and EMMPRIN in MS
56. Seminar Speaker, University of Utah Brain Research Institute, April 2 2009, on: Inflammation promotes both injury and recovery from neurological insults
57. Seminar Speaker, University of Utah MS group, April 2 2009, on: Prospects for neuroprotection in MS
58. Neuroscience Rounds, Trillium Hospital, Toronto, April 17 2009, on: Towards promoting repair in multiple sclerosis
59. Seminar speaker, Immunopathogenesis of MS and what this means for MS medications, Michigan Institute of Neurological Disorders, Detroit, May 5 2009
60. Seminar Speaker, Detroit, May 6, 2009, on: Prospects of inducing neural repair in MS
61. Speaker, Grand Rounds, University of South Florida, Tampa, May 15 2009 on: Update in Multiple Sclerosis
62. Speaker, Grand Rounds, Department of Clinical Neurosciences grand round, University of Calgary, May 22 2009, on: An update of minocycline in spinal cord injury
63. Speaker, Institute of Inflammation, Infection and Immunity, University of Calgary, May 25 2009, on: Inflammation promotes both injury and recovery from neurological insults
64. Speaker, MS Workshop, University of British Columbia, June 5 2009, on: Inducing repair in the CNS: Taking basic research through to clinical trials
65. Speaker, Brain Research Centre Research Day, University of British Columbia, June 6 2009, on: Inflammation a double-edged sword in the pathophysiology of MS
66. Speaker, University of Alberta, June 23 2009, on EMMPRIN-mediated neuroinflammation in MS
67. Speaker and consultant, Bayer, Science and MRI of Neuroprotection Expert Advisory Board, July 24 2009, Berlin
68. Speaker and consultant, Teva Neuroscience Advisory Board, Pittsburgh, August 7 2009.
69. Organizer and speaker, Workshop for Western Canada neurologists, on: Managing the new era of risk – the future of MS treatment, Kelowna, Sept 25- 27, 2009. My presentation topic: The impact of new MS treatments on the CNS.

70. Speaker, Grand Rounds, University of Sacramento, October 1, 2009, on: Jumping on the Vitamin D band-wagon in MS: Novel insights into mechanisms
71. Speaker, Neuroimmunology Journal Club, University of California at San Francisco, October 2 2009, on: Jumping on the Vitamin D band-wagon in MS: Novel insights into mechanisms
72. Speaker, Centre for Neuroscience and Trauma, Blizzard Institute of Cell and Molecular Science, Barts and the London School of Medicine and Dentistry, London, October 14 2009, on: Jumping on the Vitamin D band-wagon in MS: Novel insights into mechanisms
73. Speaker, Centre for Neuroscience and Trauma, Blizzard Institute of Cell and Molecular Science, Barts and the London School of Medicine and Dentistry, London, October 14 2009, on: Minocycline in spinal cord injury: from bench to clinical trial
74. Speaker, Neurology Grand Rounds, University of Nebraska, Omaha, Jan 16 2010, on: Jumping on the Vitamin D band-wagon in MS: Novel insights into mechanisms
75. Speaker, International Workshop on Neuroprotection and Oxidative Stress in Multiple Sclerosis, organized by Bayer. My presentation: Neuroprotective effects of Treatment in MS, March 18/19, San Francisco
76. Speaker, Teva Canada annual national symposium for MS clinicians, Montreal, March 26 2010, on: The next frontier: Repair in MS
77. Speaker, Myelin Club (for myelin/MS researchers from the Universities of Chicago and Illinois, and from RUSH University), April 27, 2010, on: Overcoming impediments to remyelination in MS, Chicago
78. Speaker, University of Illinois, April 29, 2010, on: Challenges and advances in MS
79. Speaker, CME program of the Buffalo Neuroimaging Analysis Center, New Perspectives in MS: Epidemiology, Pathology, Imaging and Treatment, Washington DC. My presentation topic: Linking Immunology to Better Interpretation of Clinical Trials in MS, May 15 2010
80. Speaker, Neurology Grand Rounds, University of Portland, Harnessing the benefits of inflammation for repair of the CNS, June 11 2010
81. Speaker, Neurology Grand Rounds, Providence Health Care System, Portland, Harnessing the benefits of inflammation for repair of the CNS, June 12 2010
82. Meeting Organiser and speaker, the Alberta endMS Neuroimmunology School, Red Deer Alberta, June 18 – 20, 2010. This school is organized to teach aspects of neuroimmunology to MS trainees in Alberta. My presentation topic: Environmental influences on the neuroimmunology of MS
83. Speaker, Neurology Grand Rounds, University of Southern California, Overcoming impediments to remyelination in MS, September 14 2010

84. Grand Rounds Speaker, University of California at Los Angeles, Overcoming impediments to remyelination in MS, September 15 2010
85. Coordinator and speaker, Teva Neuroscience Western Canada Neurology Program on MS, Kelowna, September 24 2010, on: Ground zero: The mechanisms and risks of emerging MS medications
86. Speaker, CME program, Ann Arbor, Detroit, November 2 2010, on Influencing MS: Focus on environmental factors and repair
87. Speaker, CME program, Cleveland, Ohio, November 3 2010, on Influencing MS: Focus on environmental factors and repair
88. Speaker, CME program, Fort Collins, CO, November 15 2010, on Influencing MS: Focus on environmental factors and repair
89. Speaker, CME program, Denver, CO, November 16 2010, on Influencing MS: Focus on environmental factors and repair
90. Speaker, CME program, Phoenix, Arizona, November 17 2010, on Influencing MS: Focus on environmental factors and repair
91. Speaker, endMS national conference, Whistler, Dec 9 2010, on Animal models of MS
92. Speaker, seminar at Hamilton General Hospital, Dec 14 2010, on: Updates on MS
93. Speaker, seminar at Harvard Medical School, Dec 20 2010, on: Curbing MMPs and neuroinflammation: Minocycline and anti-EMMPRIN
94. Speaker, meeting of the Western Canada MS Nurses, Feb 4, 2011, Vancouver, on: Mechanisms of action and risk/benefit of new medications
95. Speaker, CME program, Minnesota, Feb 8 2011, on Influencing MS: Focus on environmental factors and repair
96. Speaker, CME program, La Crosse Wisconsin, Feb 9 2011, on Influencing MS: Focus on environmental factors and repair
97. Speaker, CME program, Appleton, Wisconsin, Feb 24 2011, on Influencing MS: Focus on environmental factors and repair
98. Speaker, Grand Rounds, University of Portland (OHSU) , March 2 2011, on Multiple Sclerosis
99. Speaker, Seminar, Providence Health Hospital, Portland, March 2 2011, on: Regenerative medicine in multiple sclerosis
100. Speaker, Seminar at the University of Lethbridge, on: Topical issues and challenges in multiple sclerosis research, March 24 2011

101. Speaker, CME program, Madison, Wisconsin, April 6 2011, on Influencing MS: Focus on environmental factors and repair
102. Speaker, CME program, Fargo, North Dakota, April 7 2011, on Influencing MS: Focus on environmental factors and repair
103. Speaker, CME program, Salt Lake City, Utah, May 10 2011, on Influencing MS: Focus on environmental factors and repair
104. Speaker, CME program, Cheyenne, WY, May 11 2011, on Influencing MS: Focus on environmental factors and repair
105. Speaker, CME program, Colorado Springs, CO, May 12 2011, on Influencing MS: Focus on environmental factors and repair
106. Speaker, CME program, Albuquerque, May 18 2011, on Influencing MS: Focus on environmental factors and repair
107. Speaker, CME program, Tucson, AZ, May 19 2011, on Influencing MS: Focus on environmental factors and repair
108. Speaker, CME program, Des Moines, Iowa, Sept 13 2011, on Regenerative medicines in MS
109. Speaker, CME program, Sioux Falls, Sept 14 2011, on Regenerative medicines in MS
110. Coordinator and speaker, Teva Neuroscience Western Canada Neurology Program on MS, Kelowna, September 17 2011, on: New frontiers of MS: Conferring neuroprotection and remyelination
111. Speaker, CME program, Saint Louis, MO, Sept 19 2011, on Regenerative medicines in MS
112. Speaker, CME program, Kansas City, Sept 20 2011, on Regenerative medicines in MS
113. Speaker, CME program, Omaha, Sept 21 2011, on Regenerative medicines in MS
114. Speaker, CME program, Oklahoma City, Oct 4 2011, on Regenerative medicines in MS
115. Speaker, CME program, Tulsa, Oct 5 2011, on Regenerative medicines in MS
116. Speaker, CME program, La Jolla, Oct 12 2011, on Regenerative medicines in MS
117. Speaker, CME program, Pasadena, Oct 13 2011, on Regenerative medicines in MS
118. Speaker, Ontario Summit of Neurologists, Oct 29 2011, Toronto, on Multiple Sclerosis
119. Speaker, Grand Rounds University Malaya Medical Centre, Updates on multiple sclerosis; the story of bench research to the clinic, Jan 4 2012

120. Speaker, Neurology Institute, Hospital Kuala Lumpur, Malaysia, on: Regenerative Medicines in Neurology, with a focus on Multiple Sclerosis, Jan 4 2012
121. Speaker, meeting of the Western Canada MS Nurses, Feb 4, 2012, Vancouver, on: Regenerative medicines in MS
122. Speaker, Practicum in Neurology, Montreal, Feb 24-25, 2012, on: Harnessing the benefits of the immune system for repair in MS
123. Speaker, Neurology Department, University of Oklahoma, March 1 2012, on: Progress in MS: Focus on remyelination
124. Speaker, Grand Rounds, Wayne State University, Detroit, March 9, 2012, on: Overcoming an inhibitory microenvironment to promote remyelination
125. Speaker, Grand Rounds, Neurology, University of Saskatoon, March 16, 2012, on: New targets in MS to curb neuroinflammation and promote remyelination
126. Speaker, Glia club, University of Cambridge, March 19 2012, on: Overcoming an inhibitory microenvironment to promote remyelination
127. Chair, Laquinimod Advisory Board Meeting, March 24, 2012, and speaker on: Impact of laquinimod on monocytoid cells
128. Speaker, Neurology Department, University of Pittsburgh Medical Center, September 11 2012, on: Progress in MS: Focus on remyelination
129. Speaker, Neurology Department, University of Pittsburgh Medical Center, September 11 2012, on: Progress in MS: Focus on remyelination
130. Speaker, Cleveland Clinic Neuroscience Journal Club, October 22, 2012, on: A novel factor in MS: EMMPRIN
131. Speaker, Ontario Neurology Summit (meeting of Ontario neurologists), October 27 2012, Toronto, on: New frontiers of MS: Conferring neuroprotection and remyelination
132. Seminar Speaker, Feb 1 2013, University of California at San Francisco, on: A novel target in MS: EMMPRIN
133. Seminar speaker, Feb 13 2013, Harvard Medical School MS Partners Group, on: Novel factors in MS: EMMPRIN and proteoglycans
134. Seminar Speaker, Feb 22 2013, University of Miami, on: Remyelination
135. Keynote speaker, 16th Annual Rocky Mountain Basic Science Symposium, Kananaskis March 1-3, 2013, on: Neuroimmunology: Basis of injury and repair in neurological conditions
136. Seminar Speaker, Southern Alberta Cancer Research Institute, March 22, 2013, on: Regulation of glioma stem-like cells by the brain microenvironment
137. Speaker, Joint Hotchkiss Brain Institute/Oxford University symposium, Sept 12 2013 Calgary, on: Promoting repair in MS
138. Speaker, Knowledge and Nurturing for MS Nurses symposium, Vancouver Feb 1 2014 on: New frontiers in MS
139. Seminar Speaker, Killam seminar series, Montreal Neurological Institute, Feb 18 2014, on: Overcoming inhibitors in the lesion microenvironment for remyelination
140. Speaker, Grand rounds, Montreal Neurological Institute, McGill University, Feb 19 2014, on: Battle for the brain: glioma stem cells versus microglia
141. Advisory Board Speaker, Teva Pharmaceutical, Tel Aviv, Feb 21 2014 on Laquinimod: a microglia inhibitor and a potential regenerative medication

142. Seminar Speaker, University of Manitoba, Feb 28 2014, on: Overcoming inhibitors in the lesion microenvironment for remyelination
143. Seminar Speaker, University of Virginia, March 31 2014, on: Overcoming inhibitors in the lesion microenvironment for CNS regeneration
144. Symposium Speaker, Western Canada Neuroimmunology symposium, Vancouver, June 21 2014, on: The neuroimmunology of remyelination
145. Speaker, Michigan Institute of Neurological Disorders, July 17 2014, on: Immunology of multiple sclerosis
146. Seminar Speaker, University of Michigan July 18 2014 on The chondroitin sulfate proteoglycans
147. Seminar speaker, University of Singapore, July 25 2014, on: Overcoming inhibitors of remyelination in MS
148. Seminar Speaker, Weill Cornell Medical Center, New York City, Sept 3 2014 on: Remyelination in MS
149. Seminar Speaker, Rutgers MS Diagnostic and Treatment Center, Sept 4 2014 on: Remyelination in MS
150. Seminar Speaker, New York University, Sept 5 2014 on: Remyelination in MS
151. Rounds speaker, Mount Sinai MS Center, New York City, Sept 5 2014 on: Remyelination in MS
152. Seminar Speaker, Rowe Neurology Institute, Kansas City, Sept 30 2014 on: Challenges to CNS repair
153. Speaker, Alberta Neuro Spinal cord injury symposium, Edmonton October 2014, on: Translation from lab to Phase III trials: Experience with minocycline and lessons learned
154. Speaker, Sanford-Burham Institute, San Diego, Jan 22 2015, on: Overcoming extracellular matrix inhibitors of myelin repair
155. Seminar Speaker, The new frontiers of remyelination medicines in neurology, Sept 2 2015, University of Kyushu, Japan

(Not dutifully updated)

K. CURRENT/PAST ADMINISTRATIVE RESPONSIBILITIES AT THE UNIVERSITY OF CALGARY

1. Co-Leader, MS Program of the Hotchkiss Brain Institute, 2006 – present
2. Chair, Awards and Recognition Committee, Faculty of Medicine, 2008 – present
3. Member, Leadership Forum, Faculty of Medicine, University of Calgary, 2012 - present
4. Committee member, University of Calgary's Prizes and Awards Advisory Committee, 2008 – present
5. Committee member, Hotchkiss Brain Institute's Strategic Research Committee, 2010 - present
6. Member, Dean's Advisory Committee on recruiting and supporting 'rising stars', 2011

7. Co-organizer, the 2011 Gairdner Foundation – Hotchkiss Brain Institute Symposium on the Frontiers of Neuroscience, March 16-18, 2011
8. Chair, Expert Advisory Committee, Hotchkiss Brain Institute, 2004 – 2007. This expert advisory for the Institute is comprised of Drs. Christian Fibiger (Vice President and Global head, Neuroscience, Amgen), Allen Hauser (Professor, Columbia University), King Li (Chair of Radiology, Methodist Hospital System, Houston), Pierre Magistretti (Director of the Centre for Psychiatric Neuroscience, Lausanne), Joseph Martin (Dean, Harvard Medical School), Richard Murphy (President, Salk Institute), Charles Tator (Professor, University of Toronto) and Li-Huei Tsai (Professor, Harvard Medical school)
9. Member, Executive Committee, Hotchkiss Brain Institute, 2004 – 2007
10. Chair, Organizing committee, Department of Clinical Neurosciences Research Day, April 2000, 2001, 2002 and 2003
11. Chair, Organising Committee, Hotchkiss Brain Institute Research Day, March 12, 2004
12. Chair, Research Committee, Department of Clinical Neurosciences, 1999 – 2003
13. Committee member, Alberta Heritage Lectureship Award, Faculty of Medicine, 2003 – 2005
14. Search Committee, Headship, Division of Neurosurgery, 2003

L. SERVICE TO THE COMMUNITY

1. Talk to the community of Grand Prairie, Alberta, on: Progress in MS Research, February 13, 2004
2. Keynote speaker, Multiple Sclerosis Society of Canada, Saskatchewan Division Annual General Meeting, May 27, 2004, on: Progress in MS Research
3. Keynote speaker, Multiple Sclerosis Society, Calgary Chapter Annual General Meeting, Nov 8, 2004
4. Keynote speaker, Multiple Sclerosis Society of Canada series on Living well with MS: Medical Research and Hope, at:
 West Island Montreal - May 12, 2005
 Newmarket/Richmond Hill, Ontario - May 13, 2005
 Winnipeg - May 14, 2005
 Edmonton - May 25, 2005
 Victoria - May 28, 2005
 Hamilton, Ontario - Oct 14, 2005
 Dartmouth, NS – Oct 15, 2005
 Hull – Oct 16, 2005
 Saskatoon – Nov 23, 2005
 Vancouver – Nov 30, 2005

North Bay, Ontario – April 22, 2006
 Penticton, BC - May 6, 2006
 Grand Prarie, Alberta – May 7, 2006
 Montereui, Quebec - May 27, 2006
 London, Ontario - May 28, 2006
 Sydney, Nova Scotia – Sept 19, 2006
 Blerville, Quebec – Sept 20, 2006
 Brandon, Manitoba – Nov 13, 2006
 Regina, Saskatchewan – Nov 14, 2006
 Calgary, Alberta – Nov 15, 2006
 Kamloops, BC (April 17, 2007)
 Ottawa, Ontario (June 12, 2007)
 St. John's, Newfoundland (June 13, 2007)

5. Keynote speaker, Multiple Sclerosis Society, Calgary Chapter Annual General Meeting, Nov 22, 2007, on An outstanding year of progress in MS research
6. Featured speaker, National MS Society (USA) Oregon chapter Golden Circle Salon, "Challenges and advances in multiple sclerosis", Portland, June 11 2010
7. Plenary speaker, Western Canada Divisions, MS Society of Canada, on Challenges and advances in multiple sclerosis, October 7 2010
8. Featured speaker, Multiple Sclerosis Society, Calgary Chapter, April 4 2011, on: MS Research Update
9. Featured speaker to MS patients and families, organized by the Multiple Sclerosis Association of America, Salt lake City, May 10 2011, on: Advances in MS Research and Treatment
10. Featured speaker to MS patients and families, organized by the Multiple Sclerosis Association of America, Colorado Springs, May 12 2011, on: Advances in MS Research and Treatment
11. Featured speaker to MS patients and families, organized by the Multiple Sclerosis Association of America, Tuscon, May 19 2011, on: Advances in MS Research and Treatment
12. Featured speaker to MS patients and families, Seattle July 28 2011, on: Advances in MS Research and Treatment
13. Featured speaker to MS patients and families, Medicine Hat Sept 6 2011, on: Advances in MS Research and Treatment
14. Featured speaker to MS patients and families, Lethbridge Sept 7 2011, on: Advances in MS Research and Treatment
15. Featured speaker to MS patients and families, organized by the Multiple Sclerosis Association of America, La Jolla, Oct 12 2011, on: Advances in MS Research and Treatment
16. Featured speaker to MS patients and families, organized by the Multiple Sclerosis Association of America, Pasadena, Oct 13 2011, on: Advances in MS Research and Treatment

17. Featured speaker to MS patients and families, Medicine Hat March 18 2013, on: Updates on Progress in MS Research and Treatment
18. Featured speaker to MS patients and families, Lethbridge March 19 2013, on: Updates on Progress in MS Research and Treatment
19. Featured speaker to MS patients and families, MS Connections Conference Calgary Sept 20 2014 on Neuroimmunology: Understanding your medication
20. Speaker, Calgary MS Chapter, MS Society of Canada, November 27 2014 on: A new kind of trial for progressive MS – focus on remyelination
21. Speaker, on Neuroimmunology 101, organized by the MS Society of Canada, to MS lay groups in Calgary (Feb 7 2015), Edmonton (March 21 2015), Lloydminster (March 28 2015) and Lethbridge (June 23 2015).
22. Speaker, on Activity and MS, organized by Action MS, Calgary April 25 2015

Not conscientiously updated

M. CURRENT STAFF IN THE LABORATORY

Trainees (graduate students or postdoctoral/clinical fellows)

1. Manoj Mishra (PhD, National Brain Research Centre, Manesar, India), from Sept 2009. **Postdoctoral fellow**, Source of support: Alberta Innovates Health Solutions
2. James Rogers (BSc, Nipissing University, North Bay Ontario), **PhD candidate**. From August 2011, Source of support: Alberta Innovates Health Solutions
3. Khalil Rawji (MSc, Queen's University), **PhD candidate**, from August 2012. Source of support: Achievers in Medical Science Award, University of Calgary, Multiple Sclerosis Society of Canada, and CIHR Varnier Scholarship
4. Jennifer Hahn (PhD University of Calgary), **postdoctoral fellow** from October 2012. Source of support: Multiple Sclerosis Society of Canada
5. Jason Plemel (PhD University of British Columbia), **postdoctoral fellow** (joint supervision with Peter Stys), from January 2012. Source of support: Multiple Sclerosis Society of Canada and CIHR
6. Sam Jensen (BSc, University of Calgary), **PhD candidate**, from July 2013
7. Erin Stephenson (BSc, University of Guelph, **PhD candidate**, from July 2013. Source of Support: HBI Chen Fong studentship and Alberta Innovates Health Solutions

8. Deepak Kaushik (PhD, National Brain Research Centre, Manesar, India), **postdoctoral fellow** from October 2013. Source of support: University of Calgary Eyes High scholarship
9. Leila Hussieni (MD and neurologist, University of Dusseldorf), **postdoctoral fellow** from April 2014. Source of support: Novartis, Basel
10. Nathan Michaels (BSc, University of Kamloops, **PhD candidate**, from July 2014. Source of support: University of Calgary Eyes High scholarship
11. Runze Yang (BSc, University of Alberta), **MSc candidate**, from September 2014, co-supervisor (Jeff Dunn as primary supervisor)
12. Raveena Dhaliwal (BSc, University of Calgary), **MSc candidate**, from September 2014, co-supervisor (Jeff Dunn as primary supervisor)
13. Candice Poon (MD, University of Alberta, and 3rd year Neurosurgery resident), **PhD candidate**, from September 2014, co-supervisor (John Kelly as primary supervisor)

Undergraduate trainees:

1. Yasamin Mahjoub (3rd Year BSc Neuroscience). While in Grade 11, Yasamin's project with me won her the Calgary BioTalent Challenge Science contest (she then placed 4th in Canada-wide competition). Yasamin's 2013 summer project at the University of Calgary's 2013 Undergraduate Research Symposium won her the Faculty of Science – Biological Science Prize. Her 2014 summer project won her the HBI and University of Calgary Markin's top prize.

Staff

Laboratory manager: Claudia Silva, MSc (from 2005)

Research Associate: Susobhan Sarkar (PhD, University of Calcutta), from May 2003

Technicians:

1. Yan Fan (from 2001)
2. Janet Wang (from December 2008)

Administrative Assistant: Tanna Giroux (from 1997)

Administrative and graphics manager: Fiona P. Yong (from 1989)

Alberta endMS manager: Charlotte Breakey (from 2009), Jessie Trufyn (from 2014)

N. Past Trainees:

1. William Couldwell, 1989 - 1991, **Ph.D. degree**, obtained 1991. Source of support: MRC Centennial Fellowship. Current Position: Chairman, Department of Neurosurgery, University of Utah
2. Robert Moundjian, 1989 - 1991, **M.Sc. degree**, obtained 1991. Source of support: Jeanne Timmins Fellowship. Current Position: Associate Professor, University of Montreal
3. Jason CB Cheung, 1989, Summer Student Source of support: McGill Medical Student Research Program. Current Position: Ophthalmologist, Washington
4. Joon H. Uhm, 1989, Winter Student; also 1990, Summer Student. Also: Neurology Resident on 6 months Basic Science Rotation, 1994 – 1995. Current Position: Staff, Mayo Clinic, Rochester
5. Amit Bar-Or, 1991, Winter Student. Source of support: McGill Medical Student Research Program. Current Position: Associate Professor, McGill University
6. Garnet Fraser, 1991, Summer Student, Source of support: FRSQ. Last known Position: Final Year Medical Student, Queen's University
7. Paul Noble, 1990 - 1992, Neurology Resident on Basic Science Rotation. Current Position: Neurologist in private practice, Montreal
8. Erin Wright, 1991, Summer Student; also 1991, Winter Student. Source of support: McGill Medical Student Research Program. Current position: Professor, Department of Otolaryngology, University of Alberta
9. Trevor Tejada-Berges, 1991 - 1993, **M. Sc. Degree**. Source of support: Supervisor's grant. Current position: Assistant Professor, Department of Obstetrics and Gynecology, Brown University and Women and Infants Hospital of Rhode Island
10. Jolanda Turley, 1992 and 1993, Summer Student. Source of support for 1992: Supervisor's MRC Grant. Source of support for 1993: Challenge 1993, Current position: Assistant Professor, Department of Public Health Services, University of Toronto
11. Anthony Brade, 1993, Summer Student. Source of support: McGill Medical Student Research Program. Current position: Assistant Professor, Department of Radiation Oncology, University of Toronto
12. Gordon Baltuch, 1991 - 1994, **Ph.D. degree**. Source of support: MRC Fellowship. Current Position: Associate Professor, University of Pennsylvania
13. Vijayabalan Balasingam, 1991 - 1995, **M.D./Ph.D. degree**. Source of support: National Centre of Excellence. Current Position: Assistant Professor, Neurosurgery, University of Montreal
14. Olaf Stuve, from 1995 - 1996, **Postdoctoral Fellow**. Source of support: Deutsche Forschungsgemeinschaft (German equivalent of MRC). Current Position: Associate Professor, University of Texas at Dallas

15. Alexis Armour, May - August, 1995, Summer student. Source of support: University of Toronto Medical Student Bursary Program and MRC. Last known position: Plastic Surgery Resident, University of Toronto
16. Tarek Boutros, 1993 - 1997, **M.Sc. degree**. Source of support: Berlex Laboratories. Current Position: Research Technician, McGill University
17. Nora Dooley, 1991 - 1998, **Ph.D. degree**. Source of support: FCAR and NCE. Current Position: Housewife
18. Jack Vecil, 1998, **Neurosurgery Resident on 6 months Basic Science Rotation**. Current position: Neurooncology clinical fellow, MD Anderson Cancer Center
19. Luke Oh, 1994 - 1999, **Ph.D. degree**. Source of support: Multiple Sclerosis Society of Canada. Current position: Scientist, Vertex Pharmaceuticals
20. Sophie Chabot (B.Sc. McGill University), 1995 – 2000, **Ph.D. degree**. Source of support: Multiple Sclerosis Society of Canada. Current position: Founder, Justbio Nutraceuticals Montreal
21. Veronika Brundula (B.Sc. Simon Bolivar University, Venezuela), from 1998 - 2000, **M.Sc. degree**. Current position: WHO, Venezuela
22. Shannon Corley (B.Sc. University of Victoria), from 1998 - 2000, **M.Sc. degree**. Last known position: Scuba diving instructor
23. Uma Ladiwala (M.D. India), from 1999 - 2000, **Postdoctoral fellow**. Current position: Research Scientist, India
24. Arnaud Besson (M.Sc Grenoble University, France), 1997 - 2001, **Ph.D. degree**. Source of support: National Cancer Institute of Canada and AHFMR. Current position: Assistant Professor, University Paul Sabatier, Toulouse, France
25. Leonie Moorhouse-Herx (B.Sc. McGill University), from September 1997, **MD/Ph.D. candidate**. Source of support: MRC MD/PhD Studentship and AHFMR. PhD obtained in 2001. Current position: Neurology resident, University of Calgary
26. Le Duc (B.Sc. University of Waterloo), 1999 –2001, **M.Sc. degree**. Source of support: NSERC studentship and AHFMR. Current position: Resident, Radiology, University of Alberta
27. Charlotte Verhaege, Medical Student from the University of Alberta, for 3 months **summer studentship**, 2001. Current position: Neurology resident, University of Alberta
28. Jennifer Takahashi, **Neurology Resident** at the University of Calgary, for 6 months laboratory basic research program, from July 2001. Current position: Neurologist, British Columbia

29. Yan Zhou (Ph.D. Justus Liebig University, Giessen), from 2000 - 2002, **Postdoctoral fellow**. Source of support: AHFMR. Current position: Scientist and Professor, Vaccine Centre, University of Saskatoon
30. Andrew Weaver (B.Sc. University of Victoria), 2001 – 2003, **M.Sc. degree**. Medical doctor, Alberta
31. Hui Li, (MD China), Neurosurgery resident on basic science rotation in my lab, January – April 2004. Current position: Neurosurgery resident, University of Calgary
32. Peter Larsen (M.Sc. Odense University), 1999-2004, **Ph.D. degree**. Source of support: Danish Academy of Science, Multiple Sclerosis Society of Canada and Alberta Heritage Foundation for Medical Research. Current position: Scientist, Lundbeck, Copenhagen, Denmark
33. Jennifer Larsen nee Wells (PhD, Memorial University), 2000 - 2004, **Postdoctoral fellow**. Source of support: Alberta Heritage Foundation for Medical Research. Current position: Translational Medicine Scientist, Lundbeck, Copenhagen, Denmark
34. Fabrizio Giuliani (Neurologist, University of Bari, Italy), from 2001-2004, **Postdoctoral fellow**. Source of support: Alberta Heritage Foundation for Medical Research. Current position: Assistant Professor, University of Alberta, Edmonton
35. Tiona Toduruk (PhD, University of Calgary), May 2003 – Nov 2005, **Postdoctoral fellow**. Source of support: Alberta Heritage Foundation for Medical Research and Neuroscience Foundation Canada. Current Position: Researcher, Comox Environmental Agency, Calgary
36. Jennifer Ah-Sue (BSc, Queen's University), **M.Sc. degree**, Dec, 2005. Current position: Medical Student, Cork University, Ireland
37. Rana Zabad (Neurologist, Wayne State University), from 2002 - 2005, **Clinical Fellow**. Source of support: Multiple Sclerosis Society of Canada and Biogen Canada. Current position: Assistant Professor and MS clinic director, University of Nebraska
38. Angela Janke (MD, Germany), from August 2004 - 2006, **Clinical Fellow**. Current position: Forensic pathologist, University of Toronto
39. Tiffany Rice (B.Sc. University of Calgary), **Ph.D. degree**, July 2006. Source of support: National Science and Engineering Research Corporation and Alberta Heritage Foundation for Medical Research. Current position: Anesthesia Residency, University of Calgary
40. Erin Ferral, 4th Year **Neurology resident** on 6 month research rotation, from Oct 2006. Current position: Assistant Professor, McGill University
41. Jing Zhang, PhD, **Research Associate** in glioma biology, from July 2006 – April 2008. Current position: Research Associate, University of Western Ontario
42. Trina Johnson (PhD, University of Calgary), July 2007 – March 2008, **Postdoctoral fellow**. Source of support: Supervisor grant. Current position: Associate Director, Experimental Therapeutic Program, Montreal Neurological Institute

43. Angelika Goncalves DaSilva (BSc, Carlton University), Sept 2003 – June 2008, **Ph.D. degree**. Source of support: Multiple Sclerosis Society of Canada and Alberta Heritage Foundation for Medical Research. Current position: Biotech
44. Shuhong Liu, PhD, Research Associate in **molecular biology**, from August 2005 – July 2008. Current position: Research Staff, Calgary Laboratory Services
45. Viktor Sikhar (PhD, University of Saskatchewan), from 2004 - 2008, **Postdoctoral fellow**. Source of support: Multiple Sclerosis Society of Canada. Current position: Surgical resident, University of Saskatoon
46. Dave Stirling (PhD, University of British Columbia), March 2006 – June 2008, **Postdoctoral fellow**. Source of support: Alberta Heritage Foundation for Medical Research. Current position: Assistant Professor, University of Kentucky
47. Jian-Qiang Lu, MD, **Neuropathology resident**. I mentored his basic science projects from 2007 – 2009. Current position: Assistant Professor and staff pathologist, University of Alberta
48. Mengzhou Xue (PhD, University of Manitoba), from Nov 2004 – Dec 2009, **Postdoctoral fellow**. Source of support (2004-2007): Alberta Heritage Foundation for Medical Research and Canadian Institutes of Health Research (CIHR). Source of support from Oct 2007 - 2009: Postdoctoral fellowship for Focus on Stroke from The Heart and Stroke Foundation of Canada, the Canadian Stroke Network, and the CIHR/Rx&D Collaborative Research Program along with AstraZeneca Canada. Current position: Chair and Professor of Neurology; and Director, Institute of Neurological Disorders, Henan University, China
49. Scott Sloka (MD/PhD, Neurology residency from Memorial University), July 2008 – Nov 2009, **Basic science and Clinical fellow**. Source of support: Multiple Sclerosis Society of Canada and Alberta Heritage Foundation for Medical Research. Current position: Neurology director, Waterloo; Adjunct Assistant Professor, McMaster University
50. Rowena Cua (BSc, University of British Columbia), 2004-2010, **Ph.D. degree**. Source of support: Alberta Heritage Foundation for Medical Research and the Multiple Sclerosis Society of Canada
51. Lorraine Lau (MSc, University of Calgary), defended **Ph.D. thesis** Aug 2011. Source of support: Multiple Sclerosis Society of Canada and Alberta Heritage Foundation for Medical Research. Attending medical school, University of Calgary, from August 2012
52. Jackie Williamson, BSc candidate, **summer student**, July- August 2010, and May – August 2011
53. Kevin Tse, BSc **Honors thesis student**, University of Calgary, September 2010 – April 2011. **Summer student** May – August 2011
54. Axinia Doering (PhD, University Bern, Switzerland), from October 2007 – 2011, **Postdoctoral fellow**. Source of support: Multiple Sclerosis Society of Canada and Alberta Heritage Foundation for Medical Research. Currently a manager in another laboratory at U Calgary

55. Yasamin Mahjoub, High School student. While in Grade 11 and as a Sanofi-Aventis Challenge Student (Oct 2010 – March 2011), she won first prize overall in a city wide Sanofi-Aventis BioTalent Challenge Science contest (and then placed 4th in Canada-wide competition).
56. Matei Stoian, Summer Student (2012) from University of British Columbia
57. Mitchel Hurlbert, Summer Student (2011, 2012) from Queen's University
58. Heather Yong, Summer Student (2012), 2012 High School graduate
59. Sarah Haylock (PhD, University of Adelaide), from June 2010. **Postdoctoral fellow**, Source of support: Multiple Sclerosis Society of Canada (on maternity leave from August 2012)
60. Smriti Agrawal (PhD, Lund University), from June 2006, **Postdoctoral fellow** and a **Research Assistant Professor** in my laboratory, now with Novartis as a medical liason
61. Franz Kemp (MSc University of Lethbridge), **PhD candidate** of Peter Forsyth, with me as co-supervisor from March 2011. Obtained PhD degree June 2013. Current position: Postdoctoral fellow, University of Calgary
62. Teresa Li (currently medical student at the University of Alberta), summer student in 2013 and 2014 who comes into the laboratory on an ongoing basis. At the University's 2013 Undergraduate Research Symposium, Teresa won the Faculty of Medicine – Medical Research Prize. Won: Best Oral Student Presentation Award at the Canadian Undergraduate Neuroscience Conference (CUNC), June 24 2015
63. Arjun Nair, 2014 while a Grade 12 high school student, who won the Sanofi BioGENEius Challenge Canada national competition (2013, on work done with Dr. D. Cramb, University of Calgary, while in Grade 11), now at the University of Pennsylvania
64. Nabeela Nathoo (BSc University of Calgary), PhD degree, 2014. Now in the MD part of her MD/PhD degree
65. Michael Keough (BSc Memorial University), PhD degree, 2015. Now in the MD part of his MD/PhD degree