

JOHN GORDON BOYD
CURRICULUM VITAE
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Assistant Professor, Department of Medicine (Neurology and Critical Care)
Southeastern Ontario Medical Association Clinician-Scientist
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TRAINING/EDUCATION

- 2011-2013 Critical Care Medicine fellowship
 Department of Critical Care Medicine, Queen's University, Kingston, ON
- 2006-2011 Fellow of the Royal College of Physicians Canada, Neurology
 Queen's University, Kingston, ON.
- 2002-2006 Doctor of Medicine
 Faculty of Health Sciences, Queen's University, ON
- 2001-2004: Post-doctoral fellowship, Dept. of Anatomy and Cell Biology, Queen's University, ON
- 1997-2001: PhD Neuroscience (with Distinction)
 University Centre of Neuroscience, University of Alberta, Edmonton, AB
- 1993-1997: BSc. (Hons) Psychology
 Lakehead University, Thunder Bay, ON

RESEARCH PROGRAMS AND AWARDS

- 2013-present: **Principal Investigator:** Southeastern Ontario Medical Association Clinician-Scientist Award. A five-year award to establish a translational and clinical research program with a focus on predictive biomarkers and neurological function and recovery from critical illness.
- 2013-present: **Sub-Principal Investigator:** EXPAND Trial: Phase 2 study of sponimod in patients with secondary progressive multiple sclerosis. Involved in monitoring first dose of medication.
- 2013-present: **Sub-Principal Investigator:** OVATION STUDY: A phase 1 study examining the optimal titration of vasopressors for patients with shock.
- 2010-present: **Co-Investigator:** The PREDICT Study: Funded by the Botterell Foundation of Queen's University. Serum proteomics to predict neurological recovery after cardiac arrest
- 2002-2004: **Fellowship:** The Ontario Neurotrauma Foundation Post Doctoral Fellowship: The role of olfactory ensheathing cells to promote axon regeneration and remyelination after spinal cord injury
- 2001-2002: **Fellowship** Queen's Principals's Development Fund Post-Doctoral Fellowship: Using olfactory ensheathing cells to promote axon regeneration and functional recovery after spinal cord injury.
- 1999-2001: **Studentship:** Rick Hansen Foundation/Alberta Paraplegic Foundation for Spinal Cord Injury. Neurotrophic Factors and Their Receptors in Motor Axonal Regeneration.

POSITIONS HELD/TEACHING EXPERIENCE.

- 2009-present: Critical Care Medicine Queen's University
"Approach to the comatose patient", core curriculum ICU Junior Residents
- 2009-present: Critical Care Medicine Queen's University
"Neurologic emergencies in the ICU", core curriculum ICU Junior Residents
- 2006-present: Queen's University Undergraduate Medical Program
Neuroanatomy, Clinical Correlates of Neuroanatomy, Neurological Emergencies.
- 2011-2012: Chief Resident, Critical Care Medicine
- 2009-2011: Chief Resident, Division of Neurology, Department of Medicine
- 2010-2012: Internal Medicine, Queen's University
"The five minute neurological exam", senior resident half day.
- 2004-2005: Queen's University Class of 2006 Undergraduate Medicine Education Committee Representative
- 2003: Queen's University Search Committee (Associate Dean of Undergraduate Medicine)
- 2001-2002: I have given several lectures on the basic biochemistry and physiology of trophic factors in the nervous system for the undergraduate Life Sciences program a Queen's University.
- 2001: Part time sessional lecturer
Department of Community Research and Disability Studies
University of Calgary
- 1998-2001: University of Alberta
Undergraduate and graduate courses on central and peripheral neurodegenerative diseases as well as mechanisms of neurotrophin signaling
- 1999-2001: Vice president Neuroscience Graduate Students Association/Chair-Clinical Neurosurgery Liaisons
- 1996-1997: Teaching assistant for Lakehead University's Department of Psychology/Distance Education-Behavioural Neuropharmacology
- 1996-1997: Teaching assistant for Lakehead University's Department of Biology- Human Anatomy Lab
- 1996 (summer) English tutor for Jun-Book Equestrian Club (South Korea)

TEACHING AWARDS AND SCHOLARSHIPS

- 2010: Queen's Aesculapian Society Faculty Lectureship Award
- 2009: American Academy of Neurology Resident Travel Scholarship to Annual Meeting
- 2009: Denis N. White Memorial Scholarship, Queen's School of Medicine
- 2006: Neil Currie Polson Memorial Prize, Queen's School of Medicine
- 2004: Awarded Institute of Neurosciences, Mental Health, and Addiction "Brainstar" Award
- 2002: Selected for Young Investigator Award by International and National Neurotrauma Society at 6th annual meeting in Tampa, FL.
- 2001: Nominated by University Centre for Neuroscience for NSERC silver medal for doctoral studies
- 1999: Awarded Marie Louise Imrie Studentship from Faculty of Graduate Studies and Research

RESEARCH PUBLICATIONS**Papers:**

1. **Boyd, J. G.**, Debicki, D., and Young, G.B. (2012). Temporal lobe epilepsy after refractory status epilepticus: an illustrative case and review of the literature. *Epilepsy Research and Treatment*, doi 10.1155/2012/209701.
2. **Boyd J.G.**, Taylor S., Rossiter J, Islam, O, Spiller A, and Brunet DG. (2009). New onset refractory status epilepticus associated with restricted diffusion and neuronophagia in the pulvinar. *Neurology* **74**, 1003-5.
3. Smithson, L., **Boyd J.G.**, and Kawaja, M. D. (2009). Technical strategies to isolate olfactory ensheathing cells for intraspinal implantation. *J. Neurotrauma* **26**, 155-77.
4. Jahed A., Rowland, JW., McDonald, TG., **Boyd J.G.**, Doucette, R., and Kawaja, M.D. (2007). Olfactory ensheathing cells express smooth muscle alpha-actin in vitro and in vivo. *J. Comp. Neurol.* **502**, 209-223.
5. **Boyd, J.G.**, Jahed, A., McDonald, T. G., Doucette, R., Van Eyk, J. E., Kawaja, M. D. (2006) Proteomic evaluation reveals that olfactory ensheathing cells, not Schwann cells, express Calponin. *Glia* **53**, 434-4
6. **Boyd, J. G.**, Doucette, R., and Kawaja, M.D. (2004). Defining the role of olfactory ensheathing cells in facilitating axon remyelination following damaged to the spinal cord (*FASEB J.* **19**, 694-703)
7. **Boyd, J.G.**, Lee, J., Skihar, V., Doucette, R., Kawaja, M.D. (2004). LacZ-expressing olfactory ensheathing cells do not associate with myelinated axons after implantation into the compressed spinal cord. *PNAS* **101**, 2162-6.
8. Gordon, T., Sulaiman, O., **Boyd, J. G.** (2003). Experimental strategies to promote functional recovery after peripheral nerve injuries. *J. Peripher. Nerv. Syst.* **8**, 236-50.
9. **Boyd, J. G.**, Skihar, V. Kawaja, M. D., and Doucette, R. (2003). Olfactory ensheathing glia: Historical perspective and therapeutic potential. *Anat. Rec. Part B: New Anat.* **271B**, 49-60.
10. **Boyd, J. G.**, and Gordon, T. (2003). Exogenous glial cell line-derived neurotrophic factor sustains axonal regeneration of chronically axotomized motoneurons, *Exp. Neurol* **183**, 610-19.
11. **Boyd, J.G.** and Gordon, T. (2003). Functional roles for neurotrophic factors and their receptors in peripheral nerve regeneration. *Mol. Neurobiol.* **27**, 277-324.
12. Sulaiman, O. A. R., **Boyd, J. G.**, and Gordon, T. (2002). Regeneration in the peripheral nervous system of mammals. In *Neuroglia 2nd Ed.*, Kettenmann and Ransom, Eds.
13. **Boyd, J. G.**, and Gordon, T. (2002). A dose-dependent facilitation and inhibition of peripheral nerve regeneration by brain-derived neurotrophic factor. *Eur J Neurosci.* **15**, 613-26.
14. **Boyd, J.G.**, and Gordon, T (2001). The neurotrophin receptors, trkB and p75, differentially regulate motor axonal regeneration. (*J Neurobiol.* **49**, 314-325.).
15. **Boyd, J. G.** (July 2001). Functional roles of neurotrophic factors in the motoneuronal response to axonal injury. PhD Thesis.

Conference Abstracts

1. Jalini, S., Spiller, A, Brunet, D.G., and **Boyd, J.G. (2013)**. The impact of continuous EEG on management decisions in a tertiary medical/surgical intensive care unit. Submitted to the Neurocritical Care Society Annual Meeting (October 2013).
2. **Boyd, J.G.**, Smithson, L, Muscedere, J., and Kawaja, M. D. (2012). Serum proteomics is a feasible strategy to identify novel biomarkers that predict neurologic recovery after cardiac arrest. ESICM, Lisbon, Portugal.
3. **Boyd, J.G.**, Smithson, L, Petrie, C, Muscedere J, and Kawaja, MD (2012). Serum proteomics to predict neurological recovery after cardiac arrest: a pilot/feasibility study. Canadian Critical Care Conference, Whistler, BC
4. Boisse, L., **Boyd J.G.**, and Brunet, D.G. (2011). The EEG of posterior reversible encephalopathy syndrome (PRES). American Academy of Neurology Annual Meeting, Hawaii, USA.
5. **Boyd J.G.**, Jin, A. (2010). "Alien voice" auditory hallucinations as the presenting symptom of acute left middle cerebral artery infarction. *Canadian Stroke Congress, Canadian Federation of Neurological Sciences*. Quebec City, June 2010.
6. **Boyd, J.G.**, Jichi, D., and Bolton, C. (2010). Isolated phrenic nerve palsy secondary to airbag deployment in a motor vehicle collision. *Canadian Federation of Neurological Sciences Annual Congress*, Quebec City, June 2010
7. **Boyd, J. G.** Rowland J. W., Jahed A., and Kawaja, M. D. (2007). Purified cultures of glial cells from the olfactory lamina propria promote axon growth and remyelination following spinal cord injury. *Society for Neuroscience*, San Diego, CA.
8. Smithson, L., **Boyd, J.G.**, and Kawaja, M. D. (2007). A comparative ultrastructural study of olfactory tissues from adult mice, rats, and cats. *Society for Neuroscience*, San Diego, CA.
9. **Boyd, J. G.**, Rowland J. W., Jahed A., and Kawaja, M. D. (2007). Purified cultures of glial cells from the olfactory lamina propria promote remyelination following experimental spinal cord injury in rats. *American Academy of Neurology Annual Meeting*. Boston, MA.
10. Jahed, A., **Boyd, J.G.**, Rowlands, J. and Kawaja, M. D. (2006). Olfactory ensheathing cells express smooth muscle alpha actin. *National Neurotrauma Society Meeting*, San Diego, CA.
11. **Boyd, J. G.**, Jahed, A., McDonald, T. G., Van Eyk, J. E., and Kawaja, M. D. (2004). Characterization of the olfactory ensheathing cell (OEC) proteome and its utility in distinguishing OECs from Schwann cells in vitro and in vivo. *National Neurotrauma Society Meeting, San Diego, CA. Oct. 2004*.
12. **Boyd, J. G.** Skihar, V., Doucette, R., and Kawaja, M. D. (2003). Ultrastructural characterization of retrovirally infected olfactory ensheathing cells (OECs) following compressive spinal cord injury. *Soc. Neurosci. Abs*.
13. Lee, J. Krol, K. M., **Boyd, J. G.**, and Kawaja, M. D. (2003). Alterations in densities of pre-and postganglionic sympathetic axons following high thoracic spinal cord injury in adult rats. ISAN Calgary: Autonomic dysfunction after SCI. Banff, AB.
14. Jahed, A., McDonald, T. G., **Boyd, J. G.**, Skihar, V., Doucette, R., Van Eyk, J. E., and Kawaja, M. D. (2003). Proteomic analysis of fetal rat olfactory ensheathing cells and adult rat Schwann cells. *Soc. Neurosci. Abs*.
15. Lee, J., **Boyd, J. G.**, and Kawaja, M. D. (2003). Electron microscopic and immunohistochemical characterization of the corticospinal tract after clip compression in the adult rat. *Inaugural meeting of the Ontario Neurotrauma Foundation: Building Bridges*. January 2003.
16. **Boyd, J. G.** , Skihar V., Lee, J., Doucette, R., and Kawaja, M. (2002). Olfactory ensheathing cells promote robust axon growth following clip compression injury. *The 20th Annual National Neurotrauma Society Symposium & The Sixth International Neurotrauma Symposium*, Tampa Bay, FL, USA.
17. Gordon, T. and **Boyd, J. G.** (2002). The combined effects of GDNF and BDNF on the axonal regeneration of chronically axotomized motoneurons. *Sunderland society meeting*, August, 2002.
18. **Boyd, J. G.**, Skihar, V., Doucette, R., and Kawaja, M. (2002). Intraspinal grafting of olfactory ensheathing cells promotes robust axon regeneration following compressive spinal cord injury. *Canadian Federation of Biological Sciences*. Montreal, QC, Canada
19. **Boyd J. G.**, Lee, J. Skihar, V., Doucette, R., and Kawaja, M. (2002). Intraspinal grafting of olfactory ensheathing cells promotes robust axon regeneration following compressive spinal cord injury in adult rats. *The 20th Annual National Neurotrauma Society Symposium & The Sixth International Neurotrauma Symposium*, Tampa Bay, FL, USA.
20. **Boyd, J. G.**, and Gordon, T. (2001). The neurotrophin receptors, trkB and p75, differentially regulate motor axonal regeneration. *Soc. Neurosci. Abs. 802.11*.
21. **Boyd, J. G.**, and Gordon, T. (2001). Dose dependent bimodal effects of BDNF on motor axonal regeneration: role of p75 in the BDNF-mediated inhibition. *Sunderland Society Meeting*, San Diego, CA
22. **Boyd, J. G.**, and Gordon, T. (2000). The combined effects of brain derived neurotrophic factor (BDNF) and glial derived neurotrophic factor (GDNF) on motor axonal regeneration after chronic axotomy. *Exp. Neurol.* 163, 291
23. **Boyd, J. G.**, Posse de Chaves, EIP, and Gordon, T. (2000). *In vivo* evidence that high dose brain derived neurotrophic factor (BDNF) binding to p75 receptors inhibits motor axonal regeneration: a ceramide-dependent mechanism. *Soc. Neurosci Abs* 317.10.

24. **Boyd, J. G.**, and Gordon, T. (2000). The bimodal effects of brain derived neurotrophic factor (BDNF) on chronically axotomized motoneurons may be explained by the presence of high and low affinity receptors. *Physiol. Canada* 30, 153.
25. **Boyd, J.G.**, and Gordon, T. (1999) Dose-dependent effects of brain-derived neurotrophic factor (BDNF) on motor axon regeneration. *Can. J. Physiol. Pharmacol.*
26. **Boyd, J.G.**, Bennett, D. and Gordon, T. (1998) The effects of brain derived neurotrophic factor (BDNF) on axonal regeneration after prolonged motoneuron axotomy. *Soc. Neurosci.* 24, 23.4.

Invited Presentations:

1. **Boyd, J. G.** (2013). Critical care aspects of acute stroke. Quinte Health Annual Critical Care Conference, Belleville, ON.
2. **Boyd, J. G.** (2013). The five-minute neurological exam. Southeastern Ontario Regional Stroke Strategy Annual Conference, Kingston, ON.
3. **Boyd, J. G.** (2012). Can serum proteomics be used to identify novel biomarkers to predict neurologic recovery after cardiac arrest? Resuscitation in Motion Scientific Meeting, Toronto, ON.
4. **Boyd, J. G.** (2012). A spoonful of sugar or salt, which will help make the ICP go down? Kingston Annual Critical Care Conference, Kingston, ON.
5. **Boyd, J. G.** (2013). Serum proteomics is a feasible strategy to identify new biomarkers to aid in prognosis after cardiac arrest. Canadian Critical Care Translational Biology Group Meeting, Quebec City, QC.
6. **Boyd, J. G.** (2012). Serum proteomics to identify new biomarkers to aid in prognosis after cardiac arrest. Canadian Critical Care Translational Biology Group Meeting, St Alesis des Monts, QC.
7. **Boyd, J. G.** (2010). Neurological recovery after pediatric cardiac arrest in the therapeutic hypothermia era. Critical Care and Neurology Grand Rounds. Hospital for Sick Children, Toronto, ON.
8. **Boyd, J. G.** (2010). Predictors of neurological recovery following cardiac arrest for patients treated with therapeutic hypothermia. Clinical Neurosciences Grand Rounds, London, ON.
9. **Boyd, J. G.** (2009). New onset refractory status epilepticus: case report and review of the literature. Neurology and Critical Care Grand Rounds. Montreal Neurological Institute, Montreal QC.
10. **Boyd, J. G.** (2009). Akinetic rigid syndromes: clinical and pathological correlations. Queen's Clinical Neurosciences Grand Rounds, Kingston, ON.
11. **Boyd, J. G.** (2009). Neurology-Nuggets: Epilepsy. Queen's Family Medicine Residency Program Academic Session. Kingston, ON.
12. **Boyd, J. G.** (2009). Interventional strategies to treat acute stroke. Regional stroke education day. Kingston, ON.
13. **Boyd, J. G.** (2009). New onset refractory status epilepticus: case report and review of the literature. Intensive Care Grand Rounds, Queen's University, Kingston, ON.
14. **Boyd, J. G.** (2008). The manifestations of varicella zoster infection in the nervous system. Neurosciences Grand Rounds, Queen's University, Kingston, ON.
15. **Boyd, J.G.** (2007). Olfactory ensheathing cells in human spinal cord injury: from rats, to humans, and back again. Neurosciences Grand Rounds, Queen's University, Kingston, ON.
16. **Boyd, J. G.** (2005). Are olfactory ensheathing cells a viable therapy for repair following spinal cord injury? *Combined Neurology and Neurosurgery Rounds*, Vancouver General Hospital, Vancouver, BC.
17. **Boyd, J. G.** (2005). The role of olfactory ensheathing cells and Schwann cells in the remyelination of axons following spinal cord injury. *International Collaboration on Repair Discoveries*. University of British Columbia, Vancouver, BC.
18. **Boyd, J. G.** (2005). Defining the role of olfactory ensheathing cells in promoting axon regeneration and remyelination after spinal cord injury. *University of Alberta Centre for Neuroscience Seminar Series*, Edmonton, AB.
19. **Boyd, J. G.** (2005). Olfactory ensheathing cells: What are they, and what do they do in the damaged spinal cord? *Clinical Neurosciences Rounds*, University of Western Ontario, London, ON.
20. **Boyd, J. G.** (2004). Are growth factors a viable therapy for axon regeneration following peripheral nerve injury? *Neuroscience Rounds*, Dept. of Neurology, Queen's University.
21. **Boyd J. G.,** Lee, J. Skihar, V., Doucette, R., and Kawaja, M. (2002). Intraspinial grafting of olfactory ensheathing cells promotes robust axon regeneration following compressive spinal cord injury in adult rats. *The 20th Annual National Neurotrauma Society Symposium & The Sixth International Neurotrauma Symposium*, Tampa Bay, FL, USA.
22. **Boyd, J. G.** (Oct., 2001). Peripheral nerve injury: Can we use neurotrophic factors to promote axonal regeneration and functional recovery? *Queen's University Centre for Neuroscience Studies Seminar Series*.
23. **Boyd, J. G.** (Oct., 2001). The role of neurotrophic factors in motor axonal regeneration. Queen's University Department of Anatomy and Cell Biology Seminar Series, Queen's University, Kingston, ON.
24. **Boyd, J. G.** (June, 2001). The role of neurotrophic factors and their receptors in motor axonal regeneration. *University Centre for Neuroscience Seminar Series*, University of Alberta, Edmonton, AB.
25. **Boyd, J.G.,** Posse de Chaves, E.I.P., and Gordon, T. (2000). *In vivo* evidence that high dose brain derived neurotrophic factor (BDNF) binding to p75 receptors inhibits motor axonal regeneration: a ceramide-dependent mechanism. *NGF 2000: Nerve growth factor and related molecules*. Montreal, QC. May, 2000.