
BIOGRAPHICAL SKETCH

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NAME Miller, Robert H	POSITION TITLE Professor		
eRA COMMONS USER NAME MILLE008	Vice Dean for Research		
EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i>)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University College of London	BSc	1973-1976	Zoology
University College of London	PhD	1977-1980	Zoology

A. Positions and Honors

Positions and Employment

- 1980-1984 Postdoc Fellow, Neuroimmunology Group, Department of Zoology, University College of London
- 1984-1986 Senior Research Associate, Department of Developmental Genetics & Anatomy, Case Western Reserve University School of Medicine, Cleveland, OH
- 1986-1987 Senior Research Fellow, Developmental Neurobiology Group, Department of Zoology, University College of London
- 1987-1991 Assistant Professor, Department of Neurosciences, Case Western Reserve University School of Medicine, Cleveland, OH
- 1991-1999 Associate Professor, Department of Neurosciences, Case Western Reserve University School of Medicine, Cleveland, OH
- 1999- Professor, Department of Neurosciences, Case Western Reserve University School of Medicine, Cleveland, OH
- 2002- Founding Member, Research Coordinator, Myelin Repair Foundation, Saratoga, CA
- 2004- Director, Center for Translational Neuroscience, CWRU School of Medicine, Cleveland, OH
- 2005- Allen C. Holmes Professor of Neurological Diseases, Case Western Reserve University School of Medicine, Cleveland, OH
- 2007- Vice Dean for Research, Case Western Reserve University School of Medicine, Cleveland, OH

Other Experience and Professional Memberships - Honors

- 1989 Alfred P. Sloan Fellow
- 1989 Charles Judson Herrick Award, American Association of Anatomists
- 1995 John S. Diekhoff Award for Graduate Teaching
- 1998 Member, MDCN2 NIH Study Section 2000 (**Chair**)
- 2001 Jacob Javits Investigator NINDS
- 2003 Outstanding Faculty Award Case Western Reserve University School of Medicine

B. Selected Peer-Reviewed Publications

- Segal AW, Geisow M, Garcia R, Harper A, Merzhach D, Miller RH. The respiratory burst of phagocytic cells elevates intravacuolar pH. *Nature* 290:406-409, 1981.
- Raff MC, Miller RH, Noble M. A glial progenitor cell that develops *in vitro* into an astrocyte or an oligodendrocyte depending on the culture medium. *Nature* 303:390-396, 1983.
- Miller RH, Raff MC. Fibrous and protoplasmic astrocytes are distinct classes of glial cells. *J Neurosci* 2:585-592, 1984.
- Miller RH, Lasek RJ. Cross-bridges mediate anterograde and retrograde vesicle transport along microtubules in squid axoplasm. *J Cell Biol* 101:2181-2193, 1985.
- Miller RH, Abney ER, David S, French-Constant C, Lindsay R, Patel R, Stone J, Raff MC. Is reactive gliosis a property of a distinct subpopulation of astrocytes? *J Neurosci* 6:22-29, 1986.
- Hynes RO, Patel R, Miller RH. Migration of neuroblasts along preexisting axonal bundles during prenatal cerebellar development. *J Neurosci* 6:867-877, 1986.
- Miller, RH, Katz, MJ and Lasek, RJ. Preferred microtubules for vesicle transport in lobster axons. *Science*, 235:4785, 1987.

- Warf BC, Fok-Seang J, Miller RH. Evidence for the ventral origin of oligodendrocyte precursors in the rat spinal cord. *J Neurosci* 11:2477-2488, 1991.
- Miller RH, Szigeti V. Clonal analysis of astrocyte diversity in neonatal rat spinal cord cultures. *Development* 113:353-362, 1991.
- Fok-Seang J, Miller RH. Astrocyte precursors in neonatal rat spinal cord cultures. *J Neurosci* 12:2752-2764, 1992.
- Gillaspy, G, Miller, RH, Samols, D, Goldthwait, RA. Relationship of human glioblastomas to glial developmental images. *Cancer Ltrs* 68:215-224, 1993.
- Noll E, Miller RH. Oligodendrocyte precursors originate at the ventral ventricular zone, dorsal to the ventral midline in the embryonic rat spinal cord. *Development* 118:563-573, 1993.
- Ono K, Bansal R, Payne J, Rutishauser U, Miller RH. Early development and dispersal of oligodendrocyte precursors in the embryonic chick spinal cord. *Development* 121:1743-1754, 1995.
- Orentas D, Miller RH. The origin of spinal cord oligodendrocytes is dependent on local influences from the notochord. *Dev Biol* 177:43-53, 1996.
- Miller RH. Oligodendrocyte Origins. *TINS* 19:92-95, 1996.
- Ono, K, Yasui, Y, Rutschhauser, U, Miller, RH (1997) Focal origin and migration of oligodendrocyte precursors into the chick optic nerve. *Neuron* 19, 283-292.
- Robinson S, Tani M, Streiter RN, Ransohoff RM, Miller RH. The chemokine growth-regulated oncogene-a promotes spinal cord oligodendrocyte precursor proliferation. *J Neurosci* 18:10457-10463, 1998.
- Orentas DM, Miller RH. Regulation of oligodendrocyte development. *Mol Neurosci* 18:247-259, 1998.
- Vartanian T, Fischbach G, Miller RH. Failure of spinal cord oligodendrocyte development in mice lacking neuregulin. *Proc Natl Acad Sci USA* 96:731-735, 1999.
- Orentas DM, Hayes JE, Dyer KL, Miller RH. Sonic hedgehog signaling is required during the appearance of spinal cord oligodendrocyte precursors. *Development* 126:2431-2439, 1999.
- Robinson S, Miller RH. Contact with central nervous system myelin inhibits oligodendrocyte progenitor maturation. *Dev Biol* 216:359-368, 1999.
- Nakatsuji Y, Miller RH. Selective cell-cycle arrest and induction of apoptosis in proliferating neural cells by ganglioside GM3. *Exp Neurol* 168:290-299, 2001.
- Noll, EN, Lin, J, Nakatsuji, Y, Miller, RH, Black, PMcL. GM3 as a novel growth regulator for human gliomas. *Experimental Neurol* 168:300-309, 2001.
- Robinson S, Cohen M, Prayson R, Ransohoff RM, Tabrizi N, Miller RH. Constitutive expression of growth-related oncogene and its receptor in oligodendrogliomas. *Neurosurgery* 48:864-873, 2001.
- Davies JE, Miller RH. Local sonic hedgehog signaling regulates oligodendrocyte precursor appearance in multiple ventricular zone domains in the chick metencephalon. *Dev Biol* 233:513-525, 2001.
- Nakatsuji Y, Miller RH. Density dependent modulation of cell cycle protein expression in astrocytes. *J Neurosci Res* 66:487-496, 2001.
- Nakatsuji Y, Miller RH. Control of oligodendrocyte precursor proliferation mediated by density-dependent cell cycle protein expression. *Dev Neurosci* 23:356-363, 2001.
- Viehover, A, Miller, RH, Park, S-K, Fischbach, G, Vartanian, T. Neuregulin: An oligodendrocyte growth factor absent in active Multiple Sclerosis Lesions. *Dev Neurosci* 23, 377-386. 2001.
- Park, S-K, Miller, RH, Krane, I, Vartanian, T. The erbB2 gene is required for terminal differentiation and formation of myelin internodes by developing spinal cord oligos. *J Cell Biol* 154, 1245-1258. 2001.
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- Tsai, H-H, Miller, RH. Glial cell migration directed by axon guidance cues. *TINS* 25, 173-175 2002.
- Tsai, H-H, Frost, E, To, V, Robinson, S, French-Constant, C, Geertman, R, Ransohoff, R, Miller, RH. The chemokine receptor CXCR2 controls the positioning of oligodendrocyte precursors in developing spinal cord by arresting their migration. *Cell* 110,373-383. 2002.
- Sussman, C, Davies, J, Miller RH. Extracellular and intracellular regulation of oligodendrocyte precursor development: Roles of sonic hedgehog and E proteins. *Glia* 40, 55-64. 2002.
- Miller, R.H. Regulation of oligodendrocyte development in the vertebrate CNS. *Progress in Neurobiology* 67, 451-467. 2002.
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- Jacobsen, CT, Miller RH. Control of astrocyte migration in the cerebral cortex. *Dev Neurosci* 25: 207-216. 2003.
- Bambakidis, NC, Wang, R-Z, Franic, L, Miller, RH. 2 Sonic hedgehog induces neural precursor proliferation after adult rodent spinal cord injury. *J Neurosurgery* 99:70-75. 2003.
- Bambakidis, NC, Miller RH. Transplantation of oligodendrocyte precursors and sonic hedgehog results in improved function and white matter sparing in the spinal cord of adult rats after contusion. *The Spine Journal* 4: 16-24. 2004.
- Miller, RH, Reynolds, R. Oligodendrocyte Lineage. In *Myelin Biology and Disorders Vol. 1*. 289- 309. Lazarini, R. et al., Eds. Elsevier Academic Press. 2004.
- Miller, RH, Maier, CE, Wang, R, Geertman, R, Dinsio, K, Hall, AK. Patterning of spinal cord oligodendrocyte development by dorsally derived BMP4. *J Neurosci Res* 76:9-19. 2004.
- Hall, AK, Miller, RH. Emerging roles for Bone Morphogenetic Proteins in CNS glial biology. *J Neurosci Res* 76:1-8. 2004.
- Nakatsuji, Y, Miller, RH. Regulation of Cell Cycle Progression in Astrocytes. In *Non-neuronal cells of the nervous system: Function and dysfunction. Advances in Molecular and Cell Biology* Vol. 31. 75-79. L. Hertz Ed. Elsevier Science. 2004.
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- Mouse Cochlear Stem Cells. *Dev. Neuroscience*. 29(3):251-60. 2007.
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- Miller RH, Bai L. Cellular approaches for stimulating CNS remyelination. *Regen Med*, 2(5):817-29. 2007
- Mi, S, Miller, RH. Dissecting Demyelination. *Nat Neurosci*, 10(11):1351-1354. 2007
- Selkirk, SM, Morrow, J, Barone, T, DeChant, A, Fuller, M, Hoffer, A, Lock, J, Plunkett, R, Miller, RH. Elevation of osteopontin levels in brain tumor cells reduces burden and promotes survival through the inhibition of cell dispersal. *J Neuro-oncology*, 86(3):285-96. 2007