

## SUPPLEMENTARY REFERENCES

- 1 Redford EJ, Kapoor R, Smith KJ. Nitric oxide donors reversibly block axonal conduction: demyelinated axons are especially susceptible. *Brain* 1997;120 ( Pt 1):2149–57.<http://www.ncbi.nlm.nih.gov/pubmed/9448570>
- 2 Barnett MH, Prineas JW. Relapsing and remitting multiple sclerosis: pathology of the newly forming lesion. *Ann Neurol* 2004;55:458–68. doi:10.1002/ana.20016
- 3 Bø L, Vedeler C, Nyland H, et al. Intracortical multiple sclerosis lesions are not associated with increased lymphocyte infiltration. *Mult Scler* 2003;9:323–31. doi:10.1191/1352458503ms917oa
- 4 Howell OW, Reeves C a, Nicholas R, et al. Meningeal inflammation is widespread and linked to cortical pathology in multiple sclerosis. *Brain* 2011;134:2755–71. doi:10.1093/brain/awr182
- 5 Irvine K a, Blakemore WF. Remyelination protects axons from demyelination-associated axon degeneration. *Brain* 2008;131:1464–77. doi:10.1093/brain/awn080
- 6 Franklin RJM, Ffrench-Constant C. Remyelination in the CNS: from biology to therapy. *Nat Rev Neurosci* 2008;9:839–55. doi:10.1038/nrn2480
- 7 Woodruff RH, Franklin RJ. Demyelination and remyelination of the caudal cerebellar peduncle of adult rats following stereotaxic injections of lysolecithin, ethidium bromide, and complement/anti-galactocerebroside: a comparative study. *Glia* 1999;25:216–28.<http://www.ncbi.nlm.nih.gov/pubmed/9932868>
- 8 Patrikios P, Stadelmann C, Kutzelnigg A, et al. Remyelination is extensive in a subset of multiple sclerosis patients. *Brain* 2006;129:3165–72. doi:10.1093/brain/awl217
- 9 Prineas JW, Barnard IR, Kwon EE, et al. Multiple Sclerosis : Remyelination of Nascent Lesions. *Ann Neurol* 1993;33:137–51.
- 10 Bieber AJ, Ure DR, Rodriguez M. Genetically dominant spinal cord repair in a murine model of chronic progressive multiple sclerosis. *J Neuropathol Exp Neurol* 2005;64:46–57.<http://www.ncbi.nlm.nih.gov/pubmed/15715084>
- 11 Li W-W, Penderis J, Zhao C, et al. Females remyelinate more efficiently than males following demyelination in the aged but not young adult CNS. *Exp Neurol* 2006;202:250–4. doi:10.1016/j.expneurol.2006.05.012
- 12 Goldschmidt T, Antel J, König FB, et al. Remyelination capacity of the MS brain decreases with disease chronicity. *Neurology* 2009;72:1914–21. doi:10.1212/WNL.0b013e3181a8260a

- 13 Huang JK, Jarjour A a, Nait Oumesmar B, et al. Retinoid X receptor gamma signaling accelerates CNS remyelination. *Nat Neurosci* 2011;14:45–53. doi:10.1038/nn.2702
- 14 Rudick R a, Mi S, Sandrock AW. LINGO-1 antagonists as therapy for multiple sclerosis: in vitro and in vivo evidence. *Expert Opin Biol Ther* 2008;8:1561–70. doi:10.1517/14712598.8.10.1561
- 15 Mi S, Miller RH, Lee X, et al. LINGO-1 negatively regulates myelination by oligodendrocytes. *Nat Neurosci* 2005;8:745–51. doi:10.1038/nn1460
- 16 Mi S, Hu B, Hahm K, et al. LINGO-1 antagonist promotes spinal cord remyelination and axonal integrity in MOG-induced experimental autoimmune encephalomyelitis. *Nat Med* 2007;13:1228–33. doi:10.1038/nm1664
- 17 Bordet T, Buisson B, Michaud M, et al. Identification and Characterization of Cholest-4-en-3-one , Oxime (TRO19622), a Novel Drug Candidate for Amyotrophic Lateral Sclerosis. *J ff Pharmacol Exp Ther* 2007;322:709–20. doi:10.1124/jpet.107.123000.
- 18 Magalon K, Zimmer C, Cayre M, et al. Ole索xime accelerates myelination and promotes repair in models of demyelination. *Ann Neurol* 2012;71:213–26. doi:10.1002/ana.22593
- 19 Uccelli A, Laroni A, Freedman MS. Mesenchymal stem cells for the treatment of multiple sclerosis and other neurological diseases. *Lancet Neurol* 2011;10:649–56. doi:10.1016/S1474-4422(11)70121-1
- 20 Connick P, Kolappan M, Crawley C, et al. Autologous mesenchymal stem cells for the treatment of secondary progressive multiple sclerosis: an open-label phase 2a proof-of-concept study. *Lancet Neurol* 2012;11:150–6. doi:10.1016/S1474-4422(11)70305-2
- 21 Fancy SPJ, Baranzini SE, Zhao C, et al. Dysregulation of the Wnt pathway inhibits timely myelination and remyelination in the mammalian CNS. *Genes Dev* 2009;23:1571–85. doi:10.1101/gad.1806309
- 22 Franklin RJM, ffrench-Constant C, Edgar JM, et al. Neuroprotection and repair in multiple sclerosis. *Nat Rev Neurol* 2012;8:624–34. doi:10.1038/nrneurol.2012.200
- 23 Schumacher M, Hussain R, Gago N, et al. Progesterone synthesis in the nervous system: implications for myelination and myelin repair. *Front Neurosci* 2012;6:10. doi:10.3389/fnins.2012.00010
- 24 Miron VE, Ludwin SK, Darlington PJ, et al. Fingolimod (FTY720) enhances remyelination following demyelination of organotypic cerebellar slices. *Am J Pathol* 2010;176:2682–94. doi:10.2353/ajpath.2010.091234
- 25 Dousset V, Gayou a., Brochet B, et al. Early structural changes in acute MS lesions assessed by serial magnetization transfer studies. *Neurology* 1998;51:1150–5. doi:10.1212/WNL.51.4.1150

- 26 Filippi M De Stefano N, et al RMA. Magnetic resonance techniques in multiple sclerosis: The present and the future. *Arch Neurol* 2011;68:1514–20.<http://dx.doi.org/10.1001/archneurol.2011.914>