Chapter 1. Figure 3

Figure 3: Immunocytochemical localization of TLR3 and TLR4 in cultures of glia cells. Primary cultures of glial cells were obtained from white matter samples of control donors. Microglial cells were double stained for TLR3 or TLR4 (green) and CD68 (red) (A, B). Both TLRs were found exclusively localized in distinct vesicular structures inside microglia rather than on the surface of the cells. Astrocytes were stained for GFAP (C), TLR3 (D), and TLR4 (E). The subcellular localization of TLR3 and TLR4 in astrocytes was distinctly different from microglia in that TLR3 and TLR4 were found exclusively on the cell surface.
Figure 4: Elevated expression of TLR3 and TLR4 in multiple sclerosis lesions. Expression of TLR3 and TLR4 in healthy control white matter and sections representing MS lesions. Low-power photomicrographs of white matter from MS stained for either TLR3 (C, E, G) or TLR4 (D, F, H). Numbers of TLR-expression cells are strongly increased in MS lesions, with relatively high expression of TLR3 and TLR4 observed particularly in perivascular areas (*). TLR3 (A) and TLR4 (B) were almost absent from control brains. Inserts show TLR-positive cells at high magnification.
Figure 5: Lack of TLR3 expression in infiltrating leukocytes. While TLR3 expression is prominent in resident microglia, no TLR3 expression can be detected by immunohistochemistry in leukocytes infiltrating the CNS parenchyma in MS. Low-power photomicrograph shows inflamed blood vessel in MS. The insert shows a high magnification detail.
Figure 4: The effect of poly I:C on oligodendrocytes. Oligodendrocytes were treated with different concentration of poly I:C and then stained with GalCer, Sulfatide immunofluorescence, Apoptag and DAPI.
Figure 5: Morphological and western blot evaluation A) Immunofluorescence staining of oligodendrocytes treated with 10 µg/mL zymosan, 1 µg/mL poly I:C and 200 ng/mL LPS after 10 days differentiation in vitro (from stage I to stage IV). Cells were stained for phalloidin and GalCer/sulfatide. B) Representative western blot for CNPase and PLP in differentiated OPCs after zymosan, poly I:C and LPS treatment.
Chapter 4. Figure 6

Figure 6: PLP protein expression in oligodendrocytes. Oligodendrocytes were treated from stage III and stage IV onwards with 10 µg/mL zymosan, 1 µg/mL poly I:C or 200 ng/mL LPS and were stained at stage IV for PLP.
Chapter 5. Figure 4

**Figure 4: Poly I:C-conditioned medium promotes survival of neurons in organotypic human brain slice cultures.** Organotypic human cortical brain slice cultures were kept for 1 week in poly I:C- or LPS-conditioned astrocyte medium that had been harvested after 48 h. A: A calcein-AM/ethidium homodimer-1-stained slice kept in control astrocyte conditioned medium. B: A slice kept in poly I:C-conditioned medium. Red nuclei highlight dead cells, including neurons and glial cells. C: Results of an experiment with slice cultures from another brain donor focusing on neurons only. Percentages are given of either live or dead neurons that are the mean ± standard deviation of four individual slices examined for each condition. Significance marked * indicates p < 0.03 by analysis of variance (Kruskal–Wallis test).