

Cross-talk between oxysterol and Wnt pathway in Myelination : New therapeutic avenues for myelin pathologies

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Myelin is essential for the rapid conduction of axonal impulses. Myelination, elicited in the central nervous system by Oligodendrocytes and in peripheral nerves by Schwann cells, is a complex and fine-tuned process. Central and Peripheral myelin gene expression (PLP, MBP, MPZ, PMP22) is tightly regulated. Demyelinating diseases (Multiple Sclerosis, Charcot-Marie-Tooth Disease) or peripheral nerve injuries are frequent, and the functional outcomes are often not satisfactory. Demyelination can occur as a result of neuronal or glial cell injury and is usually accompanied or followed by axonal degeneration. Our aim is to identify new signalling pathways that govern myelination process. We have identified Wnt/beta catenin (Tawk et al, Journal of Neuroscience, 2011) and Oxysterol pathways (Makoukji et al, Journal of Neuroscience, 2011) as major regulators of myelination. We have used those findings to develop new strategies based on the modulation of Wnt pathway by the mood stabilizer, Lithium, in order to treat myelin injuries (Makoukji et al, PNAS, 2012).

Biography

Charbel MASSAAD is a Professor at the University Paris Descartes. He has completed his Ph.D at the age of 26 years from the University Paris-Sud. He made his postdoctoral studies at a CNRS/Sanofi Aventis lab. He is the Dean of the Faculty of Biomedical Sciences. He has published more than 30 papers in reputed journals and serving as an editorial board member.

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