Axo-glial antigens as targets in multiple sclerosis : implications for axonal and grey matter injury

ID 1197349
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Year 2010
Title Axo-glial antigens as targets in multiple sclerosis : implications for axonal and grey matter injury
Journal Journal of molecular medicine
Volume 88
Number 8
Pages 753-61
Keywords Multiple sclerosis, Neurofascin, Contactin-2, Grey matter injury, Cortical lesions, Node of Ranvier
Multiple sclerosis is thought to be an autoimmune-mediated disease of the central nervous system. For many years, T-cells were regarded as the key players in the pathogenesis, and myelin of white matter was considered as the main victim. However, research during recent years showed a more complex picture. Besides T-cells, also B-cells, antibodies and the innate immunity contribute to the tissue damage. Modern imaging techniques and neuropathological examinations showed that not only myelin but also axons, cortical neurons and nodes of Ranvier are damaged. The autoimmune targets of this widespread injury are so far not known. The identification of the axo-glial proteins contactin-2 and neurofascin provides excellent examples how antibodies can induce axonal injury at the node of Ranvier and how T-cells can destruct cortical integrity. This review will discuss the pathogenic implications of an autoimmune response against these newly discovered antigens.

Publisher Springer
ISSN/ISBN 0946-2716
edoc-URL http://edoc.unibas.ch/dok/A6007504
Full Text on edoc No;
Digital Object Identifier DOI 10.1007/s00109-010-0632-3
PubMed ID http://www.ncbi.nlm.nih.gov/pubmed/20445955
ISI-Number WOS:000279685300003
Document type (ISI) Journal Article, Review