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NF- κ B pathways in the pathogenesis of multiple sclerosis and the therapeutic implications

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Nuclear factor kappa-light-chain-enhancer of activated B cells (NF- κ B) signaling pathways are involved in cellular immune responses, apoptosis and infections. In multiple sclerosis (MS), NF- κ B expression is increased in cells, indicating that the signaling pathways are altered in some way. Therefore, this suggests that NF- κ B may play a key role in MS pathogenesis. NF- κ B signaling is complex, with many elements involved in its activation and regulation. Interestingly, current MS treatments are found to be directly or indirectly linked to NF- κ B pathways and act to adjust the innate and adaptive immune system in patients. This poster will summarize the current understanding of how NF- κ B signaling is activated and regulated and will highlight the theories about the role of NF- κ B in MS pathogenesis, based on current research findings, including the role of Epstein-Barr virus in MS. The poster will demonstrate the influence that the animal model of MS, experimental autoimmune encephalomyelitis, has had on the current understanding of NF- κ B in MS pathogenesis. Finally, this poster will explore the therapeutic implications of these findings and exhibit how four new MS treatments– fingolimod, teriflunomide, dimethyl fumarate and laquinimod– interrupt NF- κ B pathways. This research will hopefully help contribute to a better understanding of MS pathogenesis and provide possible strategies for MS treatments in the future.

Biography

Saskia Leibowitz is a Senior Medical Student at the University of Queensland, currently undergoing an Honors degree at the University of Queensland Centre for Clinical Research under the supervision of Dr. Jun Yan. She recently published her review on this topic of NF- κ B signalling in MS.

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