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Poster Presentation

The Role of TWIK2 Channels on Immune Cells and its Impact in EAE/ MS Pathophysiology

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Abstract

TWIK2 ion channels (K2P6.1, encoded by a gene named Kcnk6) belong to the family of two-pore domain potassium channels. TWIK2 is also considered as a “silent” channel because of its inability to produce measurable currents in heterologous expression systems and its intracellular retention. It is expressed in different mammalian tissues including lymphoid organs and the vascular system. However, the role that TWIK2 channels play in the immune system is far from being understood. Previous studies have already revealed that some other members of the K2P channel family have a crucial role in the pathogenesis of multiple sclerosis (MS), an autoinflammatory disorder of the central nervous system. We aim at unravelling the reasons of TWIK2 channels being silent and their role on immune cells in respect to the pathophysiology of MS and its animal model experimental autoimmune encephalomyelitis (EAE) which might offer a novel therapeutic target. Hereby, we have investigated the distribution of TWIK2 channels in different tissues and cells, revealing strong TWIK2-expression levels on dendritic cells, macrophages and T-lymphocytes. Future experiments will focus on the role of TWIK2 channels in vivo by inducing MOG-specific EAE in TWIK2-/- and WT animals to investigate the disease course and perform ex vivo functional assays with MOG-specific, autoreactive immune cells.

Keywords: Mammalian, Immune Cells, Macrophages

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