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Poster Presentation

The Immunoregulatory Effect of Cyclic Dinucleotides on Human Immune Cells

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Abstract

In multiple sclerosis (MS) beneficial effects have been assigned to the interferon (IFN)-I subclass IFN-ß, making its administration a first-line disease-modifying treatment in MS. IFN-I responses can be induced by cyclic-dinucleotide (CDN) triggered activation of Stimulator-of-interferon-genes (STING) and have essential immunomodulatory effects. A beneficial effect of STING activation on neuroinflammation has been demonstrated in recent in vivo experiments using animal models. Here, we investigate the impact of the CDN-STING-pathway on the regulation of innate and adaptive immune responses. We first disclosed the expression of Sting via real-time PCR (rt-PCR) in murine immune cells linked to MS pathophysiology. Next, we demonstrated that the high expression in some murine immune cells can also be shown in corresponding human-cell subsets. Flow cytometric and rt-PCR analysis showed that in vitro activation of immune cells by CDN leads to strong IFN responses in human peripheral blood monocytes. Consequently, we scrutinized the resulting cytokine effector profile and depicted activation and apoptosis processes in immune cell subsets. Overall, further investigations are needed to clarify the impact of CDNs on individual cell-subsets of innate-adaptive-interface and resulting interactions. By conducting ongoing studies, we aim to achieve insights into CDN and INF specific effects and potential applications for translational medicine.

Keywords: Multiple Sclerosis, Neuroinflammation, Immune Cells, Interferon

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