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Herbal A ameliorates experimental autoimmune encephalomyelitis by suppressing T cells and macrophage through NF-κB signaling pathway

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Multiple sclerosis (MS) is a neuroinflammatory disease of the central nervous system (CNS) without effective treatment or medication so far. Current medication cannot fundamentally alter the progressive disease course or reverse of existing deficits and long-term disability in MS patients. Herbal A, a kind of Traditional Chinese Medicine (TCM), has been widely used for the treatment of immune system diseases in clinical application and has a better therapeutic effect. However, the relevant report about Herbal A as a therapy for MS is rare. In this study, we demonstrated that Herbal A treatment effectively ameliorated clinical disease severity with reduced spinal cord inflammation/demyelination and alleviated CNS infiltration of encephalitogenic T cells and activated macrophages in experimental autoimmune encephalomyelitis (EAE), a laboratory murine model of MS. Furthermore, the underlying mechanism of Herbal A-induced effects was also investigated. On one hand, Herbal A treatment inhibited the generation reactive nitrogen species (RNS) through suppressing Nuclear factor-κB (NF-κB) signaling pathways, both *in vivo* and *in vitro*. On another hand, Herbal A treatment also protected neuron SHSY5Ycells from the

toxicity induced by peroxynitrite (ONOO⁻), a representative RNS, or inflammatory challenge produced by LPS triggered raw264.7 cells. Together, these results indicated that Herbal A exerted anti-inflammatory and neuroprotective effects partially through suppressing macrophage by targeting RNS scavenging or generation through NF-κB signaling pathway, which could be a promising therapeutic agent for the treatment of neuroinflammatory diseases.

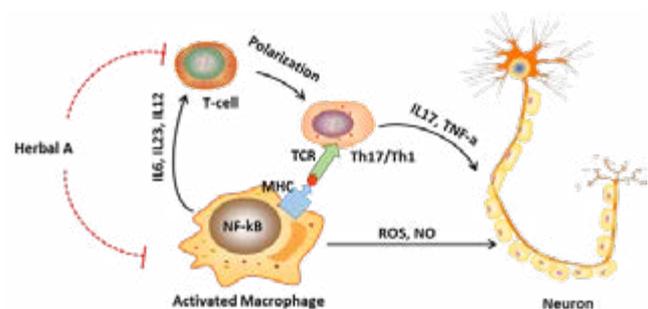


Figure1. The potential mechanism of Herbal A preventing from EAE.

Biography

Wen-Ting Li has her expertise in isolation, identification and characterization of bioactive compounds in Traditional Chinese Medicine (TCM). She also focuses on evaluating bioactivities of chemical compounds, especially in the aspect of autoimmune disease.

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