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RECOMBINANT T-CELL RECEPTOR LIGAND 1000: A NOVEL THERAPEUTIC FOR STROKE

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The worldwide prevalence of stroke continues to rise despite recent successes in treating acute ischemic stroke. With limited patient eligibility and associated risk of tissue plasminogen activator (tPA) and mechanical thrombectomy, new preventive and therapeutic modalities are needed to stave the rising wave of stroke. Inflammation plays a key role in brain damage after cerebral ischemia and novel therapies that target pro-inflammatory cells have demonstrated promise for treatment for stroke. Partial MHC class II constructs have been shown to prevent and/or reverse clinical signs of various inflammatory diseases such as experimental autoimmune encephalomyelitis, collagen-induced arthritis and experimental autoimmune uveitis, by reducing the number and frequency of activated cells in the damaged CNS. Herein, we review the use of partial MHC class II constructs as a novel treatment for ischemic stroke. These constructs have been shown to reduce infarct volume and neurological deficit in various cerebral ischemia models in young adult and aging male and female mice. In addition, partial MHC class II constructs were shown to reverse stroke-associated splenic atrophy and promote a protective M2 macrophage/microglia phenotype in the CNS which contributes to tissue repair and recovery after stroke. By addressing remaining STAIR criteria, such as efficacy in large animal models of stroke, these constructs will be prime candidates for clinical trials of acute ischemic stroke.

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