Epicutaneous immunization with myelin basic protein protects from the experimental autoimmune encephalomyelitis

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Abstract:
Multiple sclerosis (MS) is a chronic inflammatory autoimmune disease of the central nervous system (CNS) with limited treatment modalities. One of the experimental methods that protect from autoimmune diseases is oral tolerance. However, this method failed to show therapeutic efficacy in clinical trials. In our previous work, we found that epicutaneous (ec) immunization with a protein antigen induces a state of profound immunosuppression that inhibits inflammatory response in contact sensitivity (CS), experimental autoimmune encephalomyelitis (EAE) in B10.PL mice that develop chronic form of disease, and also delayed allogeneic skin graft rejection.

In the current work, we showed that ec immunization with MBP protects from relapsing and remitting EAE. Protection from the disease correlated with decreased number of mononuclear cells isolated from CNS. Additionally, histological examination showed only a slight mononuclear cell infiltration in spinal cords of mice ec immunized with MBP when compared to positive control where animals were ec treated with PBS before disease induction.

Key words:
epicutaneous immunization, suppression, myelin basic protein, experimental autoimmune encephalomyelitis