Immunological basis for the development of tissue inflammation and organ-specific autoimmunity in animal models of multiple sclerosis.

Abstract: Experimental autoimmune encephalomyelitis (EAE) is an animal model for multiple sclerosis (MS) that has shaped our understanding of autoimmune tissue inflammation in the central nervous system (CNS). Major therapeutic approaches to MS have been first validated in EAE. Nevertheless, EAE in all its modifications is not able to recapitulate the full range of clinical and histopathogenic aspects of MS. Furthermore, autoimmune reactions in EAE-prone rodent strains and MS patients may differ in terms of the relative involvement of various subsets of immune cells. However, the role of specific molecules that play a role in skewing the immune response towards pathogenic autoreactivity is very similar in mice and humans. Thus, in this chapter, we will focus on the identification of a novel subset of inflammatory T cells, called Th17 cells, in EAE and their interplay with other immune cells including protective regulatory T cells (T-regs). It is likely that the discovery of Th17 cells and their relationship with T-regs will change our understanding of organ-specific autoimmune diseases in the years to come.
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