Teasing apart T helper cells

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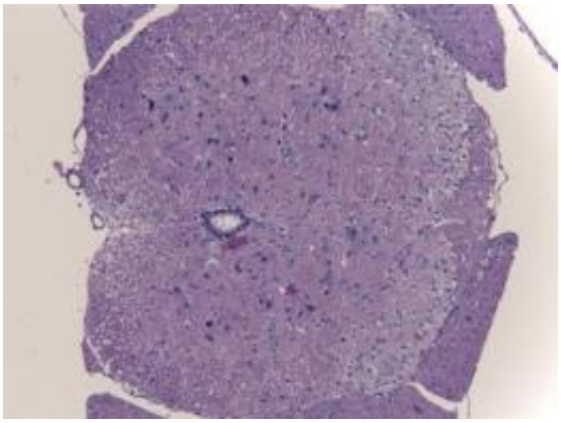

According to Nowak et al., IL-9R deficiency ameliorates the severity of EAE, a Th17-driven autoimmune disease that models multiple sclerosis. Credit: Nowak, E.C., et al. 2009. J. Exp. Med. doi:10.1084/jem.20090246

The cytokine IL-9 promotes a multiple sclerosis-like disease in mice, according to a new study by Nowak et al. published online on July 13th in the *Journal of Experimental Medicine*. In a related Commentary, Richard Locksley discusses the molecular and genetic regulation of cytokine production by CD4+ T helper (Th) cells and the plasticity among different Th subsets. The Commentary will be published online in the Journal of Experimental Medicine on Monday, July 27th.

Since the late 1980s, when the concept of Th1 and -2 were first introduced, several new subsets have arisen, including Th17 cells and regulatory T (T reg) cells. Recent attention has focused on a putative new Th cell subset with the propensity to secrete IL-9. But whether these

"Th9" cells are truly a unique subset or whether many Th cell subsets can produce IL-9 under the right circumstances has been a matter of debate.

Nowak and colleagues now show that a Th17-driven CNS disease was blunted in mice lacking IL-9. In vitro studies showed that IL-9 was produced primarily by Th17 and T reg cells—subsets that depend on TGF-beta for their differentiation. Thus IL-9 production may go hand-in-hand with the presence of TGF-beta rather than with a defined Th cell subset.

More information:

Locksley, R.M., et al. 2009. *J. Exp. Med*. doi:10.1084/jem.200 doi:10.1084/jem.20090246owak, E.C., et al. 2009. *J. Exp. Med.* doi:10.1084/jem.20090246

Source: Rockefeller University (news : web)