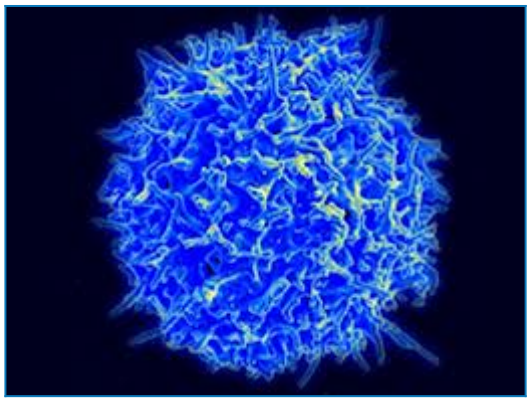
CD45 ligation expands Tregs by promoting interactions with dendritic cells



Regulatory T cells (Tregs), which express CD4 and FOXP3, are critical for modulating the immune response and promoting immune tolerance. It is therefore of great therapeutic importance to find ways to expand Tregs in vivo. This study shows that targeting the CD45 tyrosine phosphatase with a tolerogenic anti-CD45RB monoclonal antibody (mAb) acutely increases Treg numbers in wild type mice, even without exogenous antigen. They found that Treg expansion occurred through substantial augmentation of homeostatic proliferation in the preexisting Treg population. Moreover, anti-CD45RB specifically increased Treg proliferation in response to cognate antigen. Compared with conventional T cells, Tregs differentially regulated their conjugation with dendritic cells (DCs). Live imaging showed that CD45 ligation specifically reduced Treg motility in an integrin-dependent manner, resulting in enhanced interactions between Tregs and DCs . Increased conjugate formation, in turn, augmented nuclear translocation of nuclear factor of activated T cells (NFAT) and Treg proliferation. Thus demonstrating Tregs can be specifically modulated in vivo to promote Treg expansion and tolerance by increasing conjugation between Tregs and DCs.

Camirand, G. et al. 2014. CD45 ligation expands Tregs by promoting interactions with DCs. *The Journal of Clinical Investigation.*