Differential regulation of Notch ligands in dendritic cells upon interaction with T helper cells

Sauma, D.

Espejo, P.

Ramirez, A.

Fierro, A.

Rosemblatt, M.

Bono, M. R.

The Notch signalling pathway has recently been linked to T helper 1 (Th1)/T helper 2 (Th2) cell polarization via a mechanism involving differential expression of Notch ligands, Delta-like and Jagged, in antigen-presenting cells. However, whether stimuli other than pathogen-derived factors are involved in the regulation of Notch ligand expression in dendritic cells (DCs) remains unknown. Here, we address the effect of T helper cells (Th1 and Th2) on Delta-like 4 and Jagged 2 expression in bone marrow-derived DCs. We demonstrate that both Th1 and Th2 cells induce Delta-like 4 mRNA expression in DCs, in a process that is, in part, mediated by CD40 signalling. In contrast, only Th2 cells induce a significant increase in Jagged 2 mRNA levels in DCs. Additionally, we show that IL-4, a hallmark Th2 cytokine, plays a role in Jagged 2 expression, as evidenced by the fact that cholera toxin, a Th2-promoting stimulus, induces Jagged 2 mRNA expression in DCs only in the presence of IL-4. Finally,