

Maddur MS, Sharma M, Hegde P, Stephen-Victor E, Pulendran B, Kaveri SV and Bayry J. (2014). Human B cells induce dendritic cell maturation and favor Th2 polarization by inducing OX-40 ligand. *Nature Commun.* Jun 9;5:4092

Dendritic cells (DCs) play a critical role in immune homeostasis by regulating the functions of various immune cells, including T and B cells. Notably, DCs also undergo education on reciprocal signalling by these immune cells and environmental factors. Various reports demonstrated that B cells have profound regulatory functions, although only few reports have explored the regulation of human DCs by B cells. Here we demonstrate that activated but not resting B cells induce maturation of DCs with distinct features to polarize Th2 cells that secrete interleukin (IL)-5, IL-4 and IL-13. B-cell-induced maturation of DCs is contact dependent and implicates signalling of B-cell activation molecules CD69, B-cell-activating factor receptor, and transmembrane activator and calcium-modulating cyclophilin ligand interactor. Mechanistically, differentiation of Th2 cells by B-cell-matured DCs is dependent on OX-40 ligand. Collectively, our results suggest that B cells have the ability to control their own effector functions by enhancing the ability of human DCs to mediate Th2 differentiation.