

Human B cell activating factor (BAFF) co-stimulates B lymphocytes with CD19 phosphorylation

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BAFF is expressed on activated monocytes and dendritic cells (DCs), and is known to be a powerful regulator of B cell developmental homeostasis. In this study, to elucidate the role of human BAFF as a B cell co-stimulatory molecule in DC-B cell interactions, we established BAFF-expressing transfectant cells and BAFF specific mAb (1D6). Co-culture of human peripheral blood B cells with BAFF-transfected cells revealed a blast formation of B cells without any Ag stimulation, and enhanced B cell proliferation in the presence of suboptimal dose of Ag. Interestingly, BAFF induced a high expression of CD40 and ICAM-I, and the up-regulation of AID and Pax5 transcripts in B cells stimulated with suboptimal dose of Ag. Using 1D6 mAb, we confirmed the obvious expression of BAFF on macrophages stimulated with both IFN γ and LPS and monocyte-derived DCs *in vitro*, and identified the follicular DCs (FDCs) expressing BAFF within germinal centers of lymph nodes *in vivo*. Importantly, the addition of BAFF-transfected cells synergistically enhanced tyrosine-phosphorylation of CD19 in some B cell lines in concert with Ag stimulation. Taken together, our data demonstrate that the BAFF system might enhance antigen-specific B cell responses through the Pax5 / CD19 pathway in T cell-independent (F)DC / B cell interactions.