

Differential BLyS Receptor Expression and Responsiveness Following B cell Surface Molecule Ligation

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The B cell antigen receptor (BCR) and the BLyS/BLyS receptor family play crucial roles in the survival of mature follicular (MF) B cells. BLyS can bind to three distinct receptors: BR3 and TACI, which are expressed on MF B cells, and BCMA, which is absent from MF B cells but present on certain antigen-experienced B cell populations. Previous studies have shown that stimulation through IgM can alter the expression of BLyS receptors on the surface of MF B cells, indicating a link between exogenous ligands and the BLyS receptor profile of stimulated B cells. These studies investigate how the expression of each BLyS receptor is influenced by stimulation through BCR, CD40, and Fc receptors. BLyS binding capacity and BLyS receptor expression increase soon after stimulation through IgM and are further enhanced with the addition of anti-CD40, confirming and extending previous findings. These changes primarily reflect increased surface TACI and BR3 levels, with little contribution from BCMA. In contrast, stimulation through IgD or IgM and co-ligation of Fc receptors dampens the anti-BCR response in terms of both BLyS receptor expression and proliferation. Interestingly, this appears to reflect selective down-regulation of BR3 levels, while TACI levels remain relatively constant. Additionally, cells that have undergone co-ligation of BCR and Fc receptors are less responsive to the survival-enhancing effects of BLyS.