CD93 expression and function in the late B-cell development

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Abstract | CD93 is a C-type lectin protein known to be expressed during the early B-cell development in the bone marrow until the transitional stage II in the spleen. Here we show that this surface molecule is re-expressed during the late stage of B-cell development on the surface of antibody secreting cells (ASCs). In vitro, culture of naïve B cells in presence of either LPS or anti-CD40 and IL-4, which mimic a T-independent type I and a T-dependent response, respectively, leads to the expression of CD93. In vivo, this expression can be observed in T-dependent and T-independent B-cell responses.

More detailed analyses have allowed us to demonstrate that CD93 expression could be correlated with a more mature plasma cell stage, characterized by decreased cell cycle activity and isotype-switched antibody secretion.

The potential role of CD93 as a homing receptor involved in intercellular adhesion led us to investigate the impact of the absence of CD93 on the humoral response. CD93 deficient mice were immunized with different types of antigens and the antibody levels were monitored by ELISA. At the peak of the response, the antibody levels in wild type and CD93 deficient mice were indistinguishable. Nevertheless, analyses performed at later time points showed a significant decrease in antibody levels in the CD93 deficient mice. This defect in sustaining a normal long-term antibody production suggests that CD93 might play a role in either survival or migration of long-lived plasma cells in the bone marrow through a mechanism that remains to be elucidated.