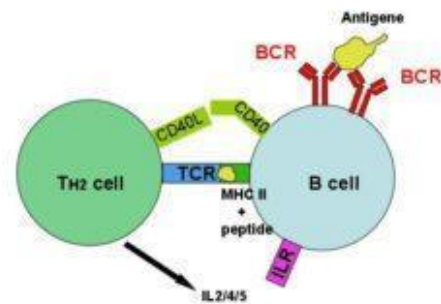
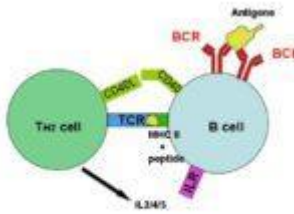


Recycling of B cells in the humoral immune response



T-cell dependent B-cell activation (Altaileopard, Wikimedia Commons)

Studies have shown that B-cell antigen recognition is a transient, dynamic process. Scientists have now discovered that in the absence of T cell help, B cells that have been antigen-primed are able to return to a naïve-like state and be activated again in the presence of T cell help.

B cell activation has been studied for a long time and most of the steps are well understood. T cell help is required to induce an effective humoral immune response. Previous studies have shown that naïve antigen-specific B cells are able to transiently contact antigens and then return to B cell follicles.

It has been hypothesized that in the absence of T cell help, B

cells which contact antigens must die to maintain tolerance. In this study, the authors, led by Irina Grigorova, investigated the fate of in vivo B cells which are exposed to antigen transiently, in the absence of T cell help.

The authors show that B cells with transient antigen interaction are only able to contribute to immune responses in the presence of T cell help. To understand the fate of B cells which are antigen-primed in the absence of T cell help, the authors used a mouse model of MD4 mice. They found that these B cells were unable to undergo class switching. In addition, these B cells which do not acquire T cell help return to a naïve-like condition. They do not in fact die by apoptosis or undergo anergy.

In summary, this study demonstrates that transient antigen acquisition by B cells in the absence of T cell help does not always result in apoptosis or cell anergy. These cells are able to revert back to a naïve-like state. This allows numerous opportunities for B cell cells to take part in the humoral immune response, increasing the efficiency of the immune system.

Journal article: [Turner et al., 2017. Transiently antigen-primed B cells return to naive-like state in absence of T-cell help. *Nature Communications*](#)

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