# Germinal center B cells govern their own fate via antibody feedback.

Zhang Y, Meyer-Hermann M, George LA, Figge MT, Khan M, Goodall M, Young SP, Reynolds A, Falciani F, Waisman A, Notley CA, Ehrenstein MR, Kosco-Vilbois M, Toellner KM (2013) Germinal center B cells govern their own fate via antibody feedback. *J Exp Med* 210(3), 457-464.




## Abstract

Affinity maturation of B cells in germinal centers (GCs) is a process of evolution, involving random mutation of immunoglobulin genes followed by natural selection by T cells. Only B cells that have acquired antigen are able to interact with T cells. Antigen acquisition is dependent on the interaction of B cells with immune complexes inside GCs. It is not clear how efficient selection of B cells is maintained while their affinity matures. Here we show that the B cells' own secreted products, antibodies, regulate GC selection by limiting antigen access. By manipulating the GC response with monoclonal antibodies of defined affinities, we show that antibodies in GCs are in affinity-dependent equilibrium with antibodies produced outside and that restriction of antigen access influences B cell selection, seen as variations in apoptosis, plasma cell output, T cell interaction, and antibody affinity. Feedback through antibodies produced by GC-derived plasma cells can explain how GCs maintain an adequate directional selection pressure over a large range of affinities throughout the course of an immune response, accelerating the emergence of B cells

of highest affinities. Furthermore, this mechanism may explain how spatially separated GCs communicate and how the GC reaction terminates.

## Involved units

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