MICROBIOLOGY AND IMMUNOLOGY

AUTOREACTIVE B CELL DEVELOPMENT IN THE PERIPHERY

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Self-reactive B lymphocytes are frequently produced as a consequence of B cell antigen receptor rearrangement. Autoreactive B cells that are not eliminated or inactivated by tolerance mechanisms survive and mature in the periphery. In the spleen, the marginal zone serves as a reservoir for autoreactive B lymphocytes. Marginal zone B cells are known for their rapid and robust responses to T-independent stimuli and serve functions in both the innate and adaptive arms of the immune system. Anti-insulin transgenic B cells are preferentially selected into the marginal zone and are functionally anergic. These cells provide an opportunity to study how autoreactive B cells mature into the marginal zone subset. Using the anti-insulin transgenic model, we find that multiple factors influence marginal zone B cell maturation. These elements include B cell receptor specificity, lineage regulators such as Notch2, and a differentially expressed transcriptional profile. Understanding the processes that regulate marginal zone B cell maturation and how anergy is maintained in this population will impact our ability to manage these cells in host defense and autoimmune disease.

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