B cell memory of allergic responses

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IgE antibodies are potent mediators of allergic reactions through their ability to bind to high affinity receptors in mast cells and basophils and induce degranulation upon crosslinking. In mice, several mechanisms restrict the production of pathogenic IgE: IgE germinal center cells are transient and do not generate high affinity plasma cells or memory cells, and high affinity IgE is formed from affinity matured IgG1 cells. We determined that in memory responses, high affinity IgE plasma cells originate from a subpopulation of germinal center-derived IgG1 memory B cells with a propensity to differentiate along the plasma cell fate. A different subpopulation of IgG1 memory cells that lacks the germinal center marker CD73, gives rise to low affinity IgE plasma cells. These findings predict that allergic responses are associated with the presence of affinity matured IgG responses, and that the memory of IgE antibodies resides within the IgG memory compartment.