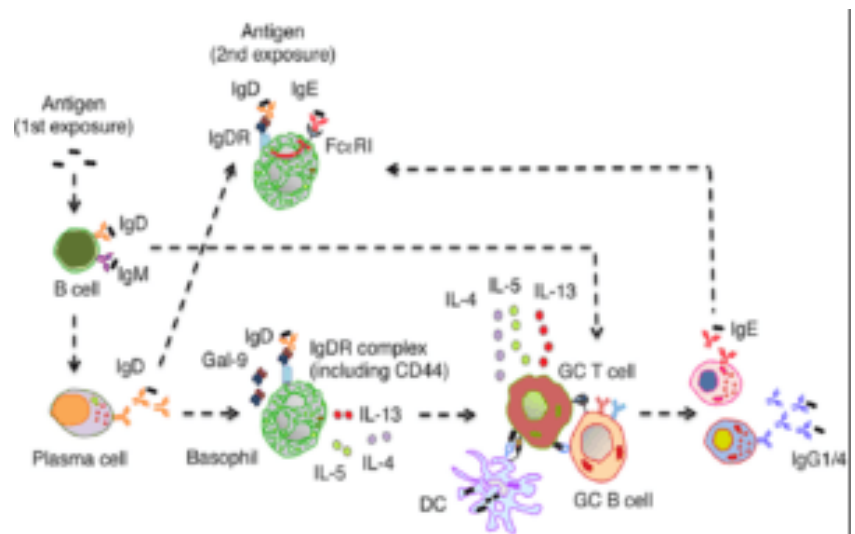
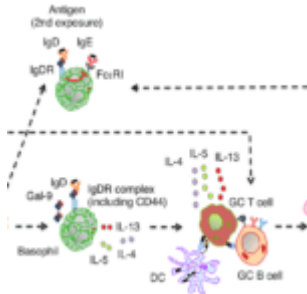


IgD: the lesser known antibody



Shan *et al.*, 2018. Graphical Abstract

Unlike immunoglobulin (Ig) M, IgG, IgA and IgE, the role of IgD in antibody mediated immunity is unknown. IgD is co-expressed with IgM on mature B cells, and is best known for its function as a B cell antigen receptor. Upon antigen exposure and B cell interaction with T follicular helper T cells, B cells down regulate IgD and differentiate into IgM secreting plasma cells. Some of these plasma cells can secrete IgD, which make up approximately 1% of total antibodies. Unlike IgM, IgD does not recruit pro-inflammatory complement proteins, suggesting that it may play a role in non-inflammatory mediated immunity. The specific contribution of secreted IgD has not been explicitly defined.

Shan *et al.*, researchers from Spain, Sweden, Switzerland and

USA, showed that secreted IgD can bind to basophils via galectin-9 and CD44, resulting in increased basophil expression of IL-4. Using *in-vivo* subcutaneous immunisation murine models Shan *et al.*, showed that IgD via basophils contributes but is not necessary for induction Th2 cell mediated immune responses. The study also demonstrated that IgD antibodies can react to food derived proteins such as lactoglobulin, a milk derived protein. Finally, to determine the relationship between IgD and IgE (antibody that also bind to galectin-9) Shan *et al.*, used an acute lung inflammation model to show that IgD inhibits IgE-induced basophil degranulation, a finding they also confirmed in humans.

In summary Shan *et al.*, illustrated one of the functional roles of IgD where, secreted IgD binds to basophils via the CD44 interaction protein galectin-9. Binding then induces expression of IL-4, IL-5 and IL-13 by basophil-bound IgD, creating an immune microenvironment favouring Th2 cell type activity. Finally, IgD also dampens IgE mediated immunity, could be used to attenuate IgE dependent allergic reactions to food allergens.

Journal Article: Shan *et al.*, 2018. [Secreted IgD Amplifies Humoral T Helper 2 Cell Responses by Binding Basophils via Galectin-9 and CD44.](#) Immunity

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