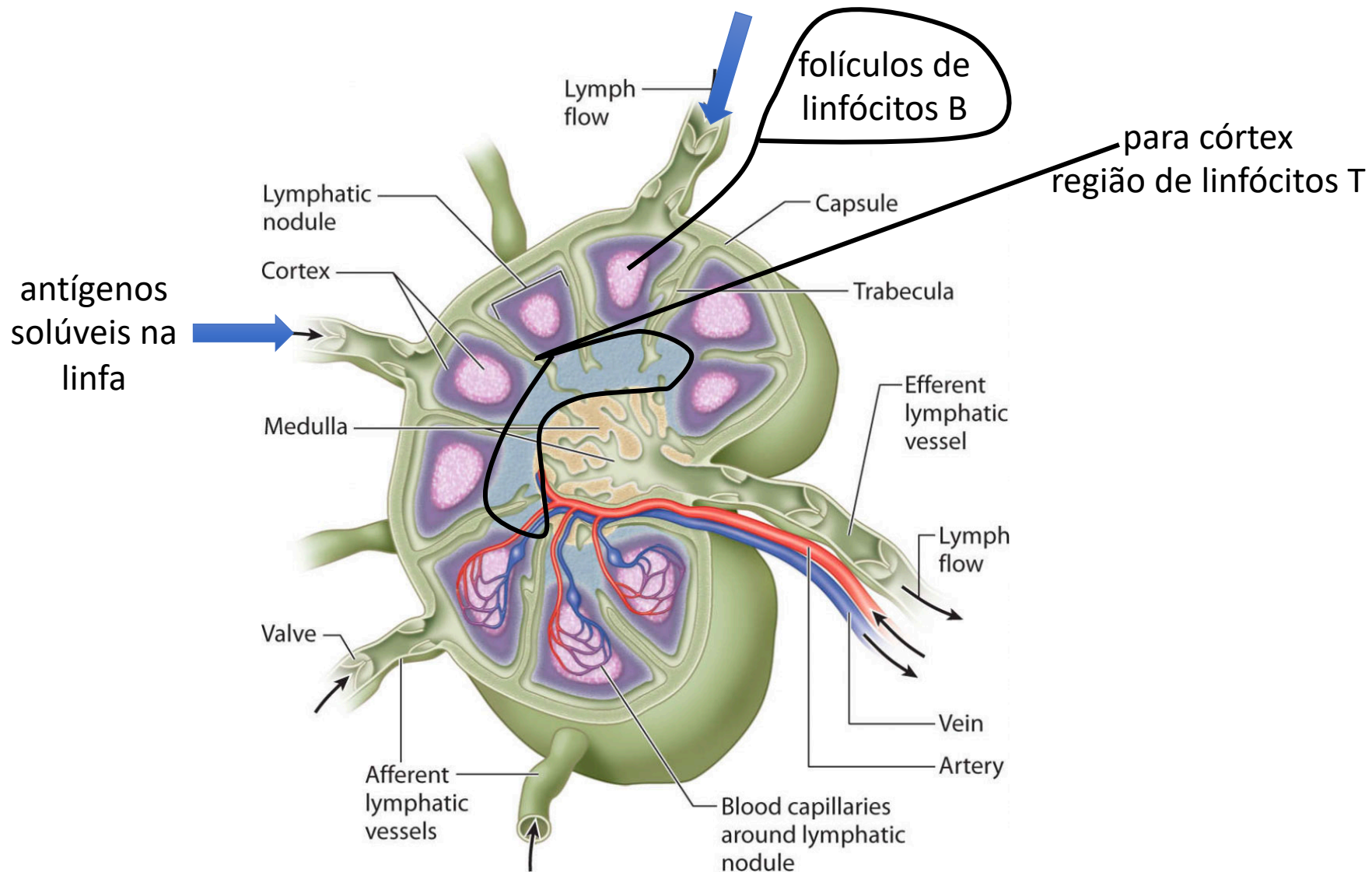


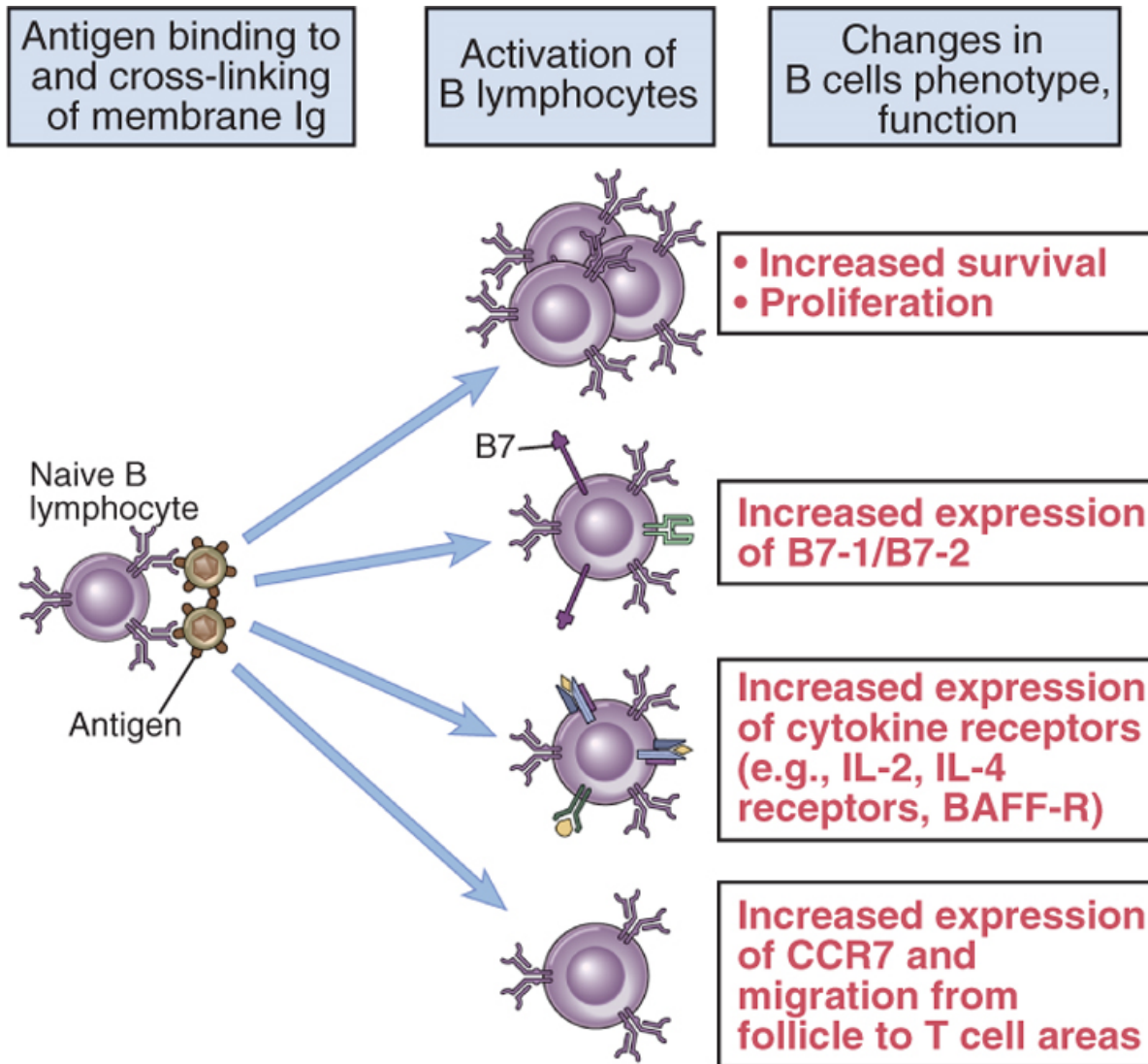
B cell activation

- Quick review T dependent and independent B cell activation
- Dynamics
- Thf T cells
- The role of CD40/CD40L
- Organization of the immunoglobulin locus and constant regions
- Isotype switching
- Affinity maturation

Ativação de linfócitos B também acontece principalmente em tecidos linfóides secundários



B lymphocyte activation



- Quick review T dependent and independent B cell activation

T independent

Antigens have varied chemical structure or composition

Production of IgM>IgG

T dependent

Protein antigens (haptens)

Antigen presentation to T cells

More potent, isotype switching, affinity maturation

IgG, IgE, IgA

- Quick review T dependent and independent B cell activation – still need to signals....

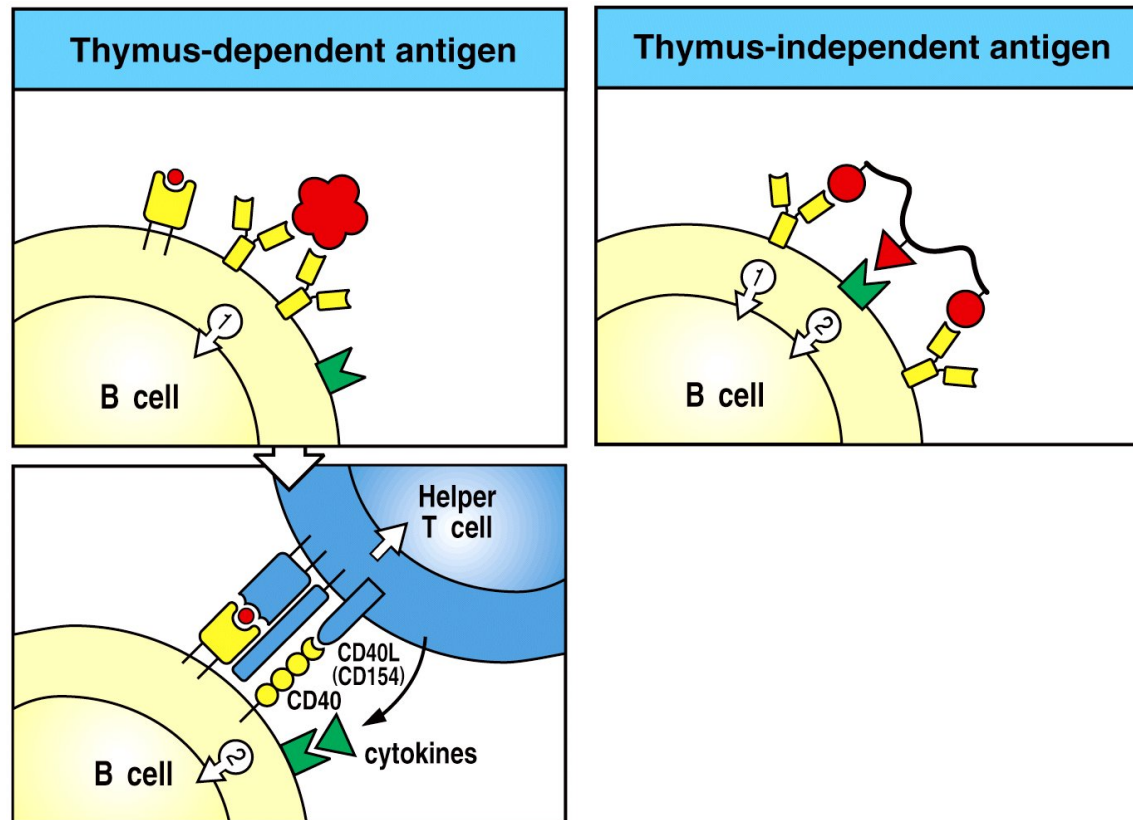
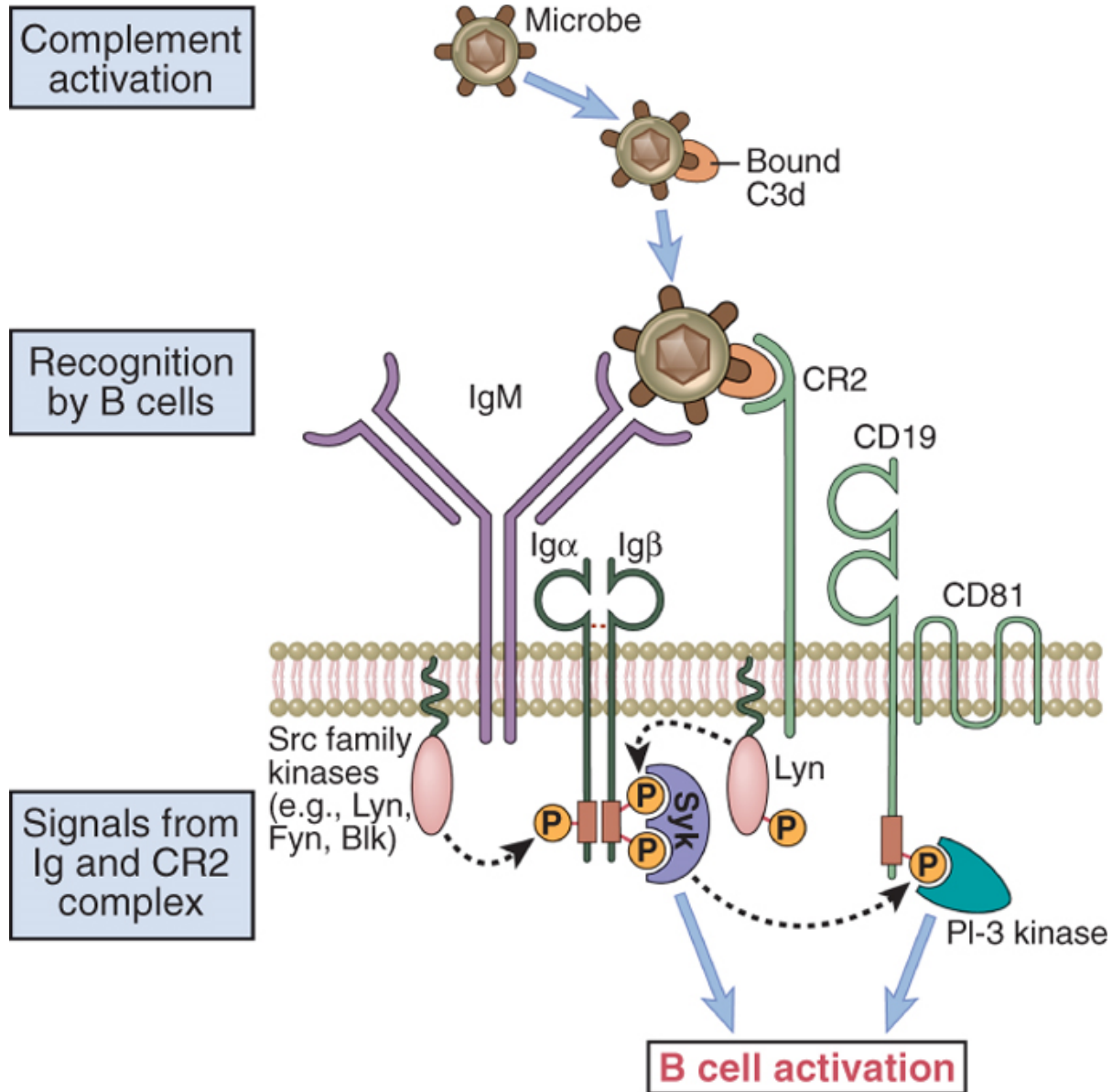


Figure 9-2 Immunobiology, 6/e. (© Garland Science 2005)

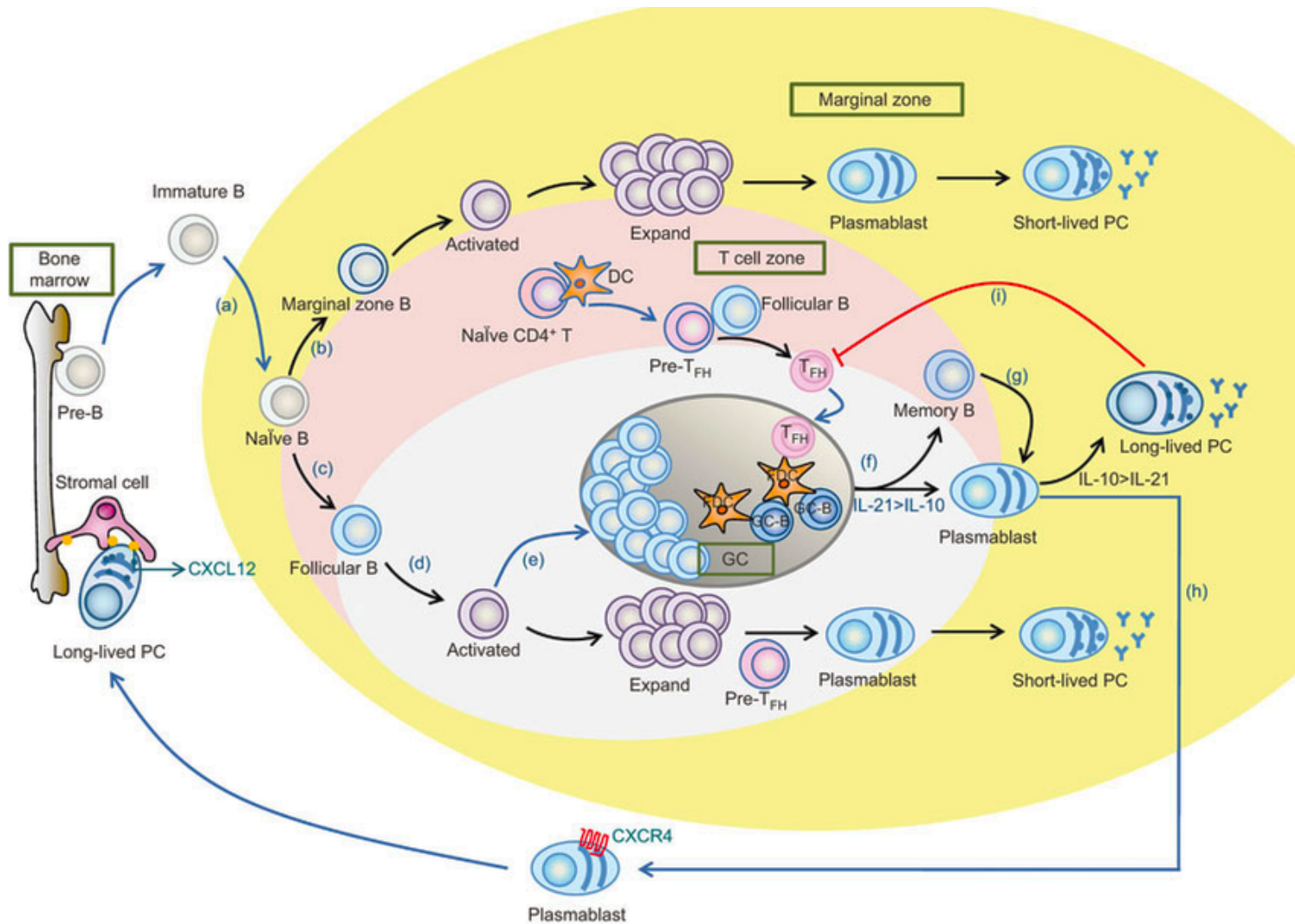
- proteins
- Lymph nodels
- estímulo de maturação
- estímulo de troca de Ig

- Multivalent antigens
- Different chemical compounds
- spleen

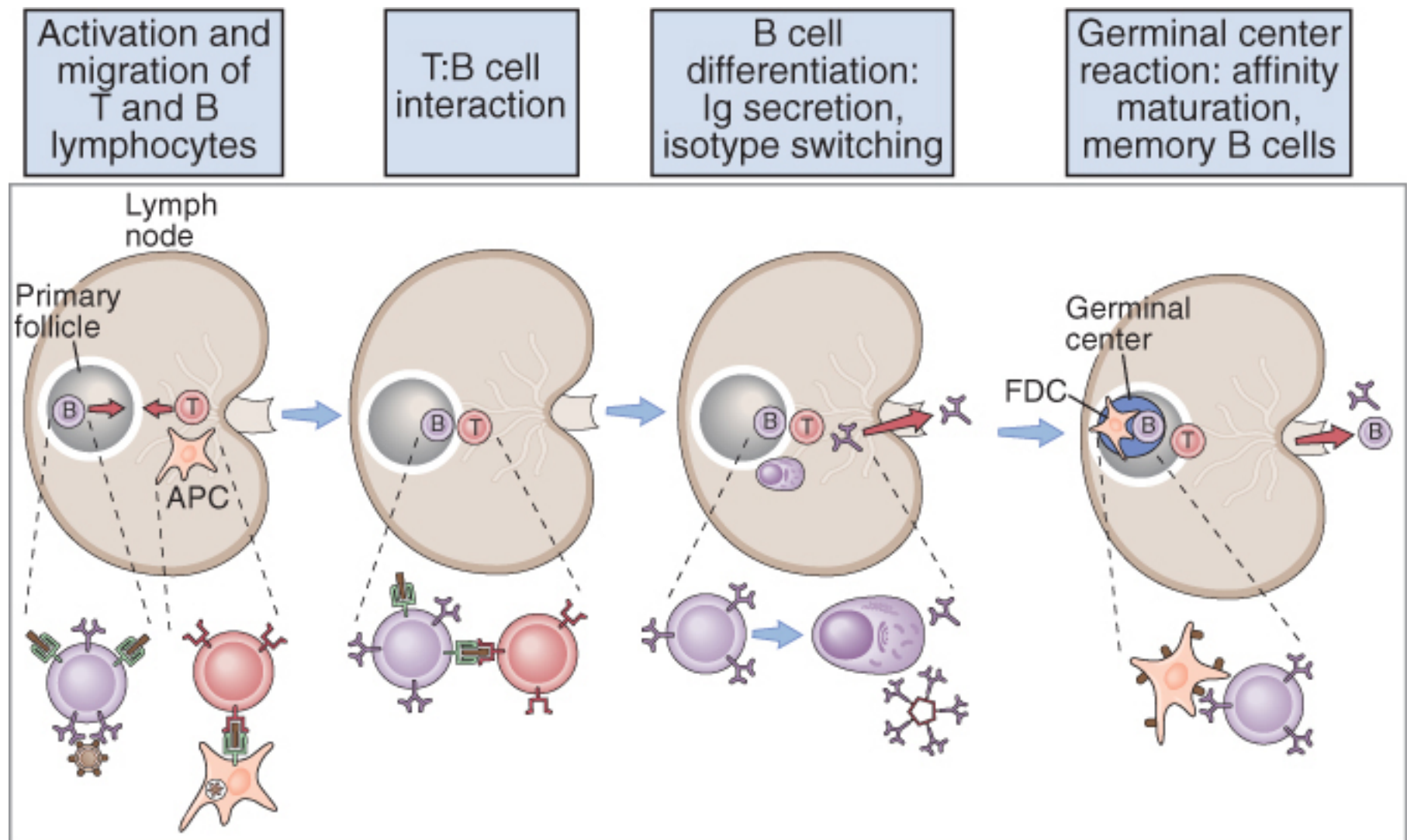
T independent activation



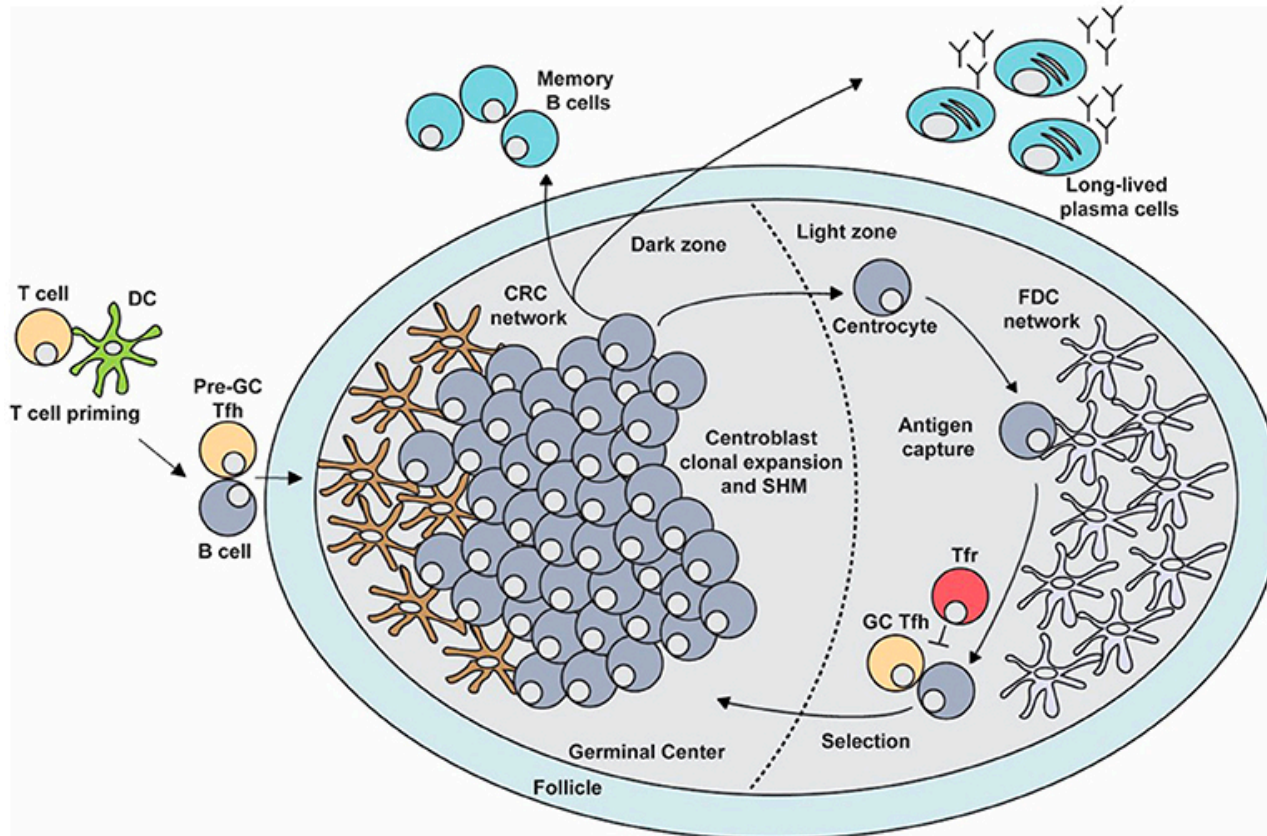
- Dynamics of T dependent activation



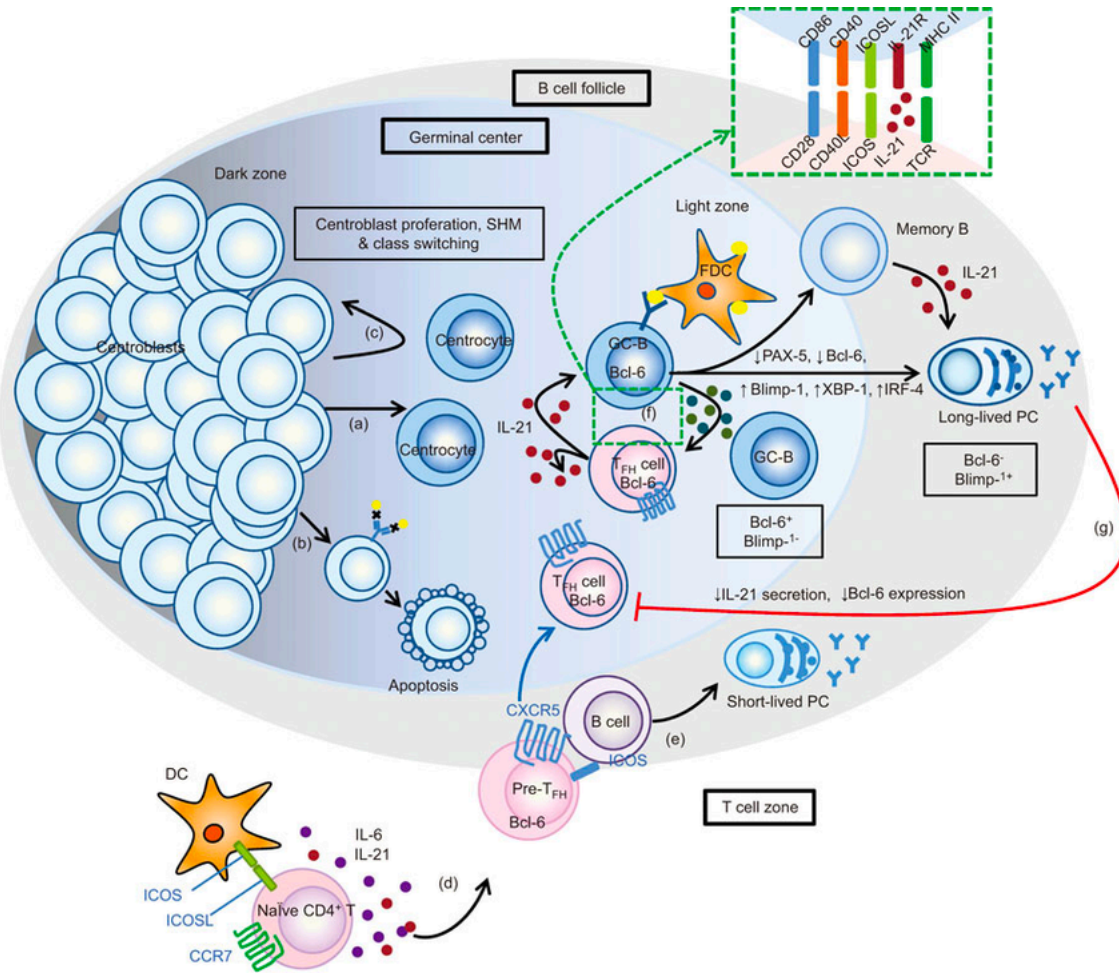
- Dynamics of T dependent activation



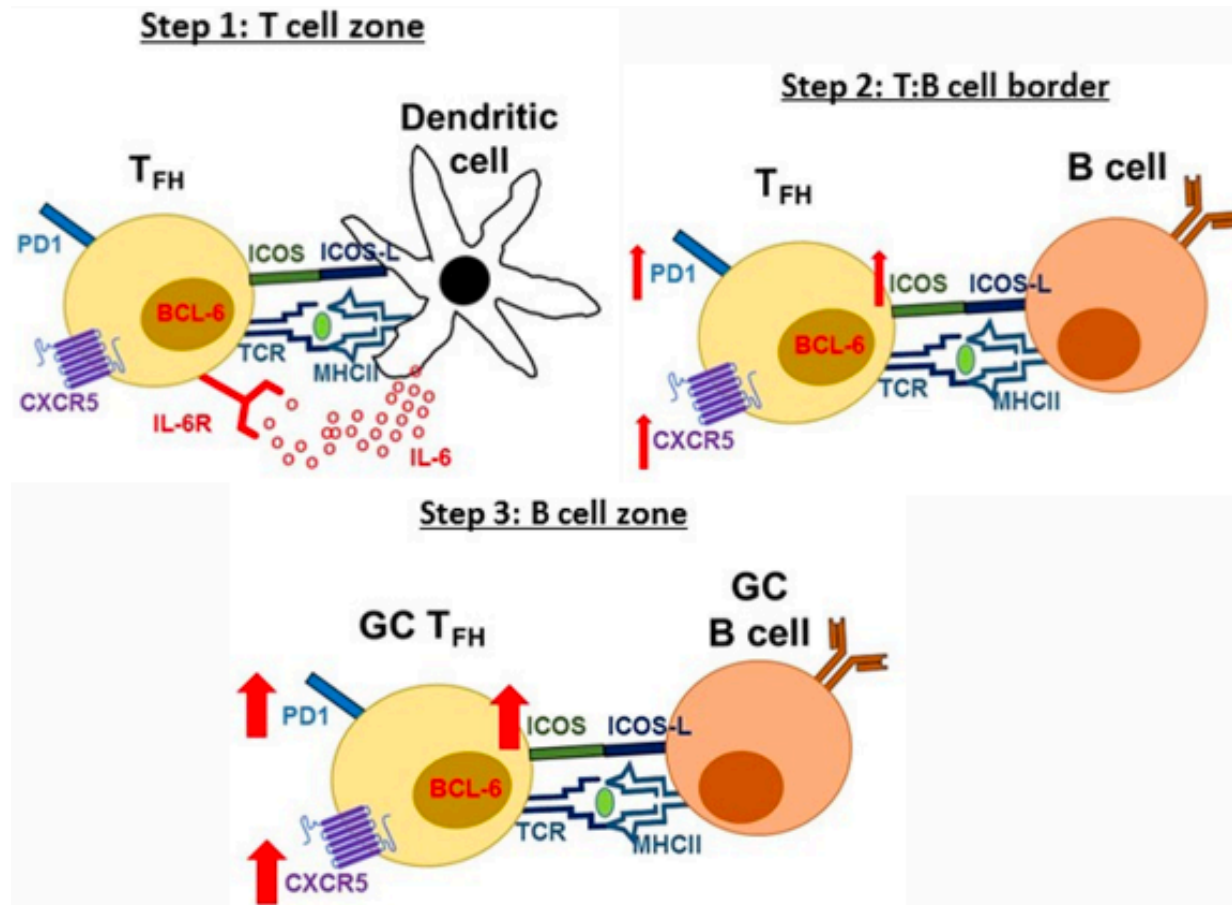
- Dynamics of T dependent activation



- Dynamics of T dependent activation

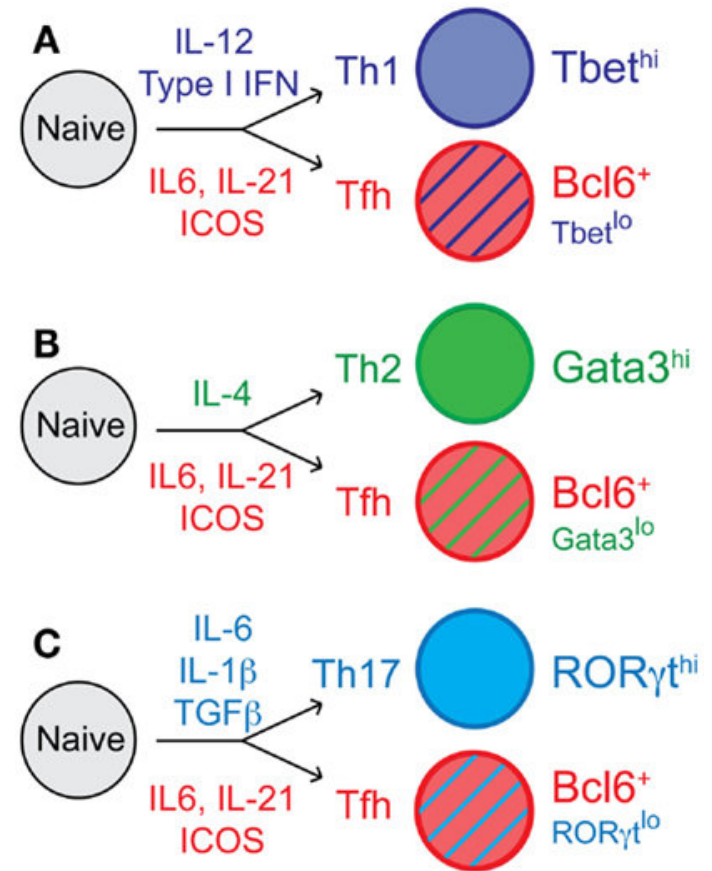
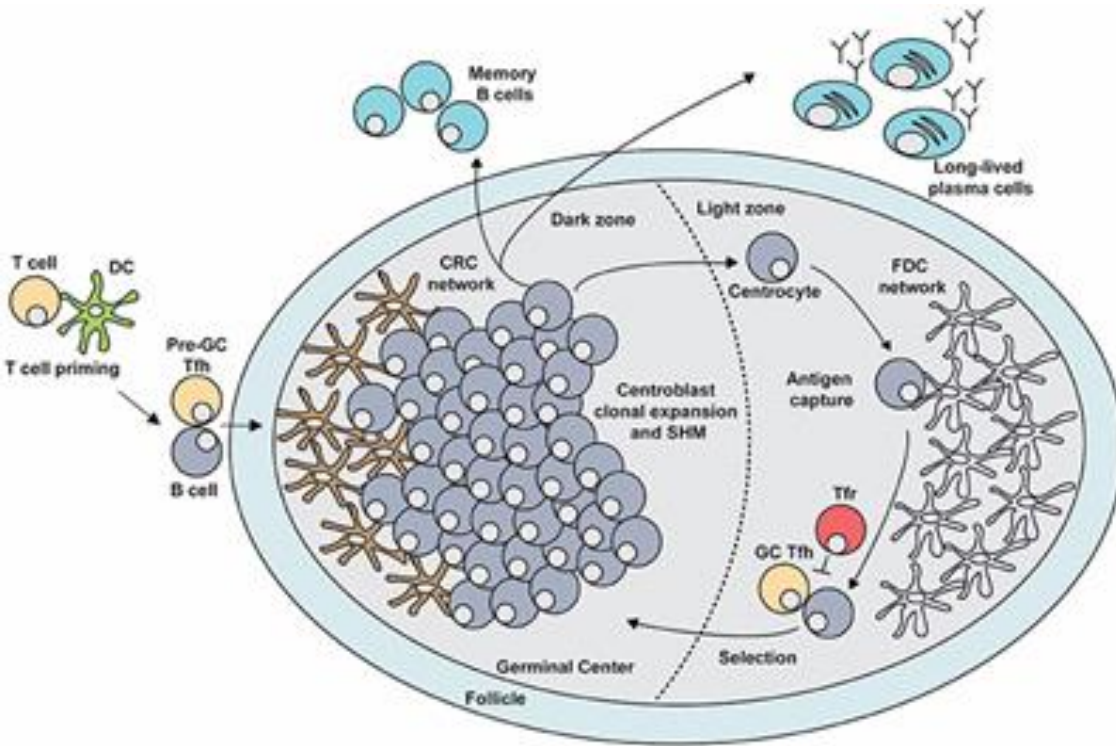


- Th17 T cells – follicular helper T cells

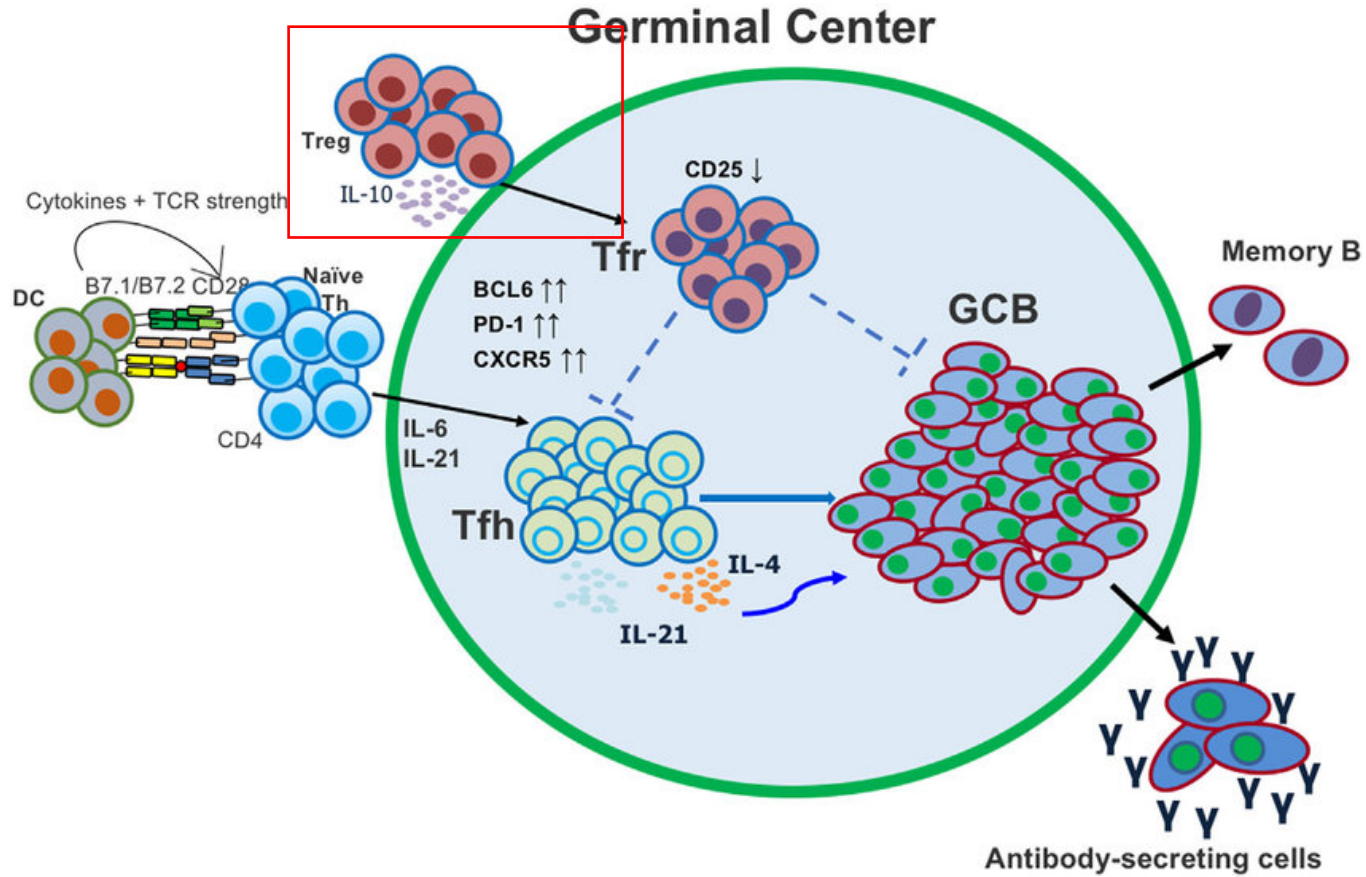


Necessary for the formation of germinal centers, essential helpers for B cells, characterized by Bcl6, PD-1, CXCR5 and ICOS expression.

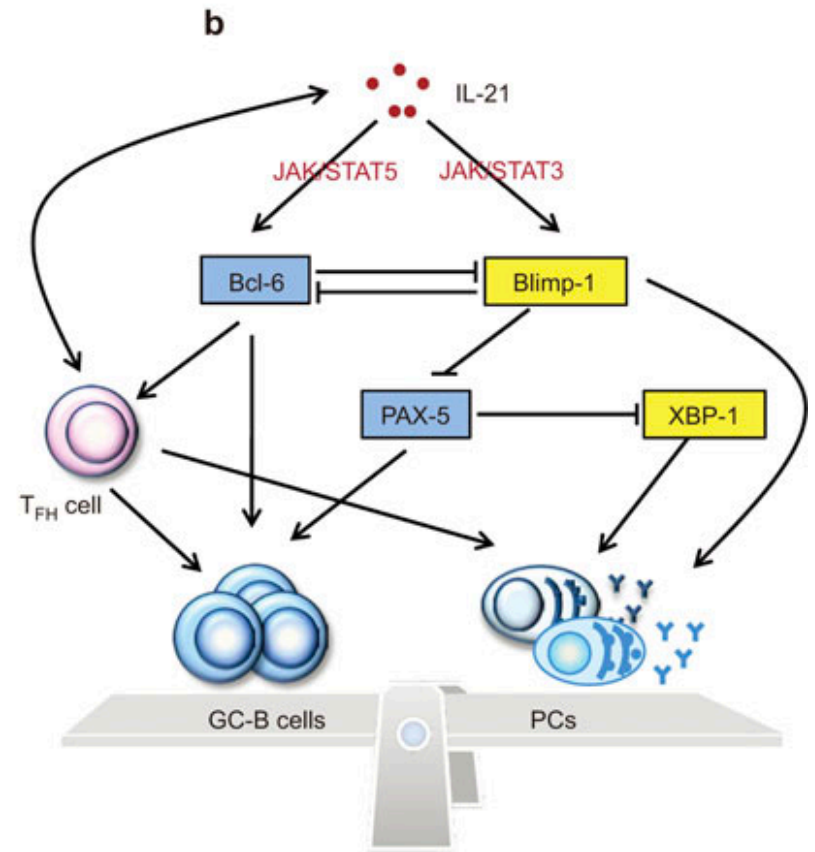
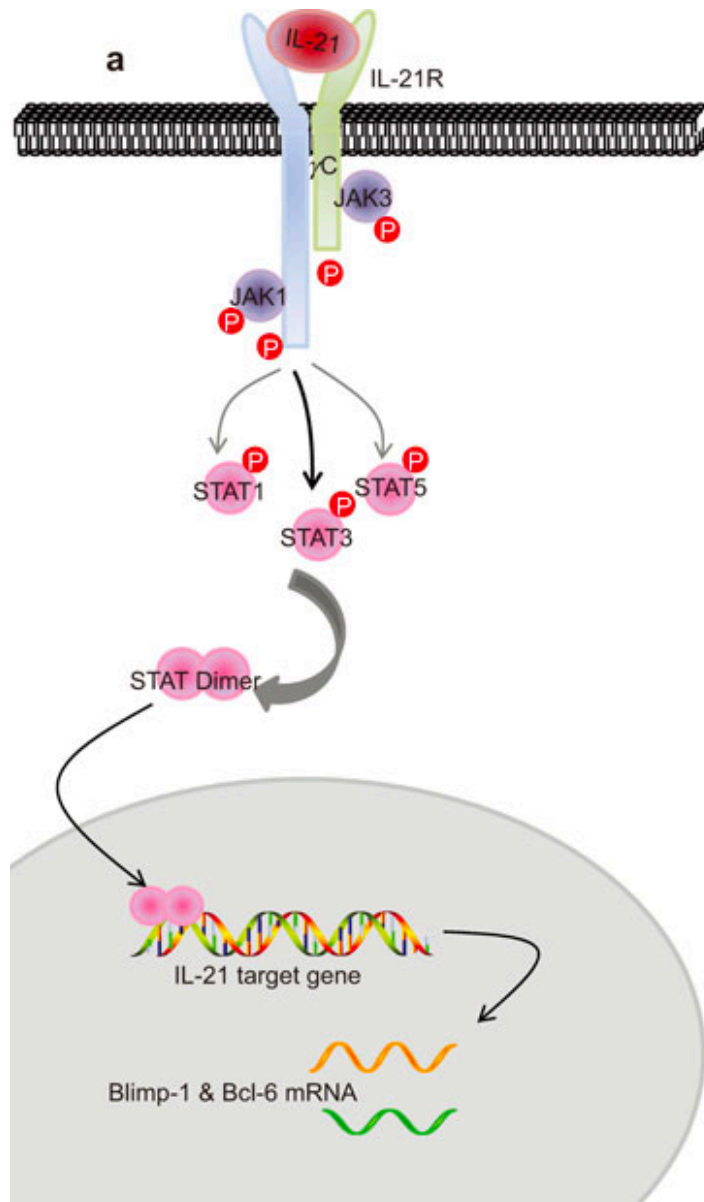
Tfhs differentiate into various phenotypes depending on cytokines and environment



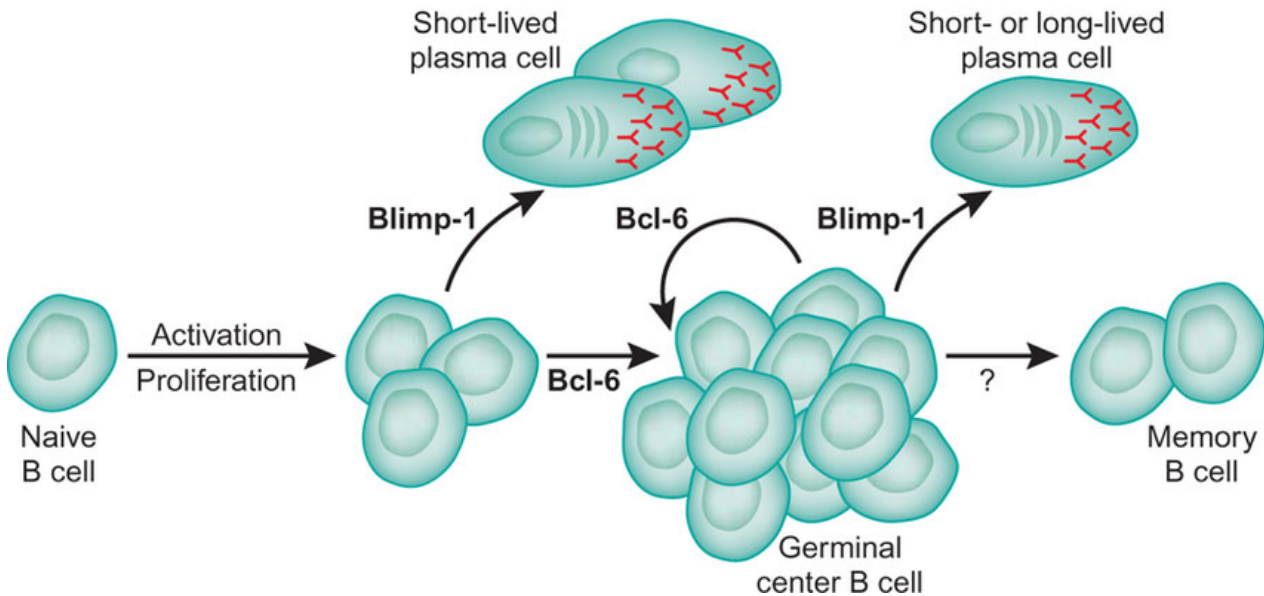
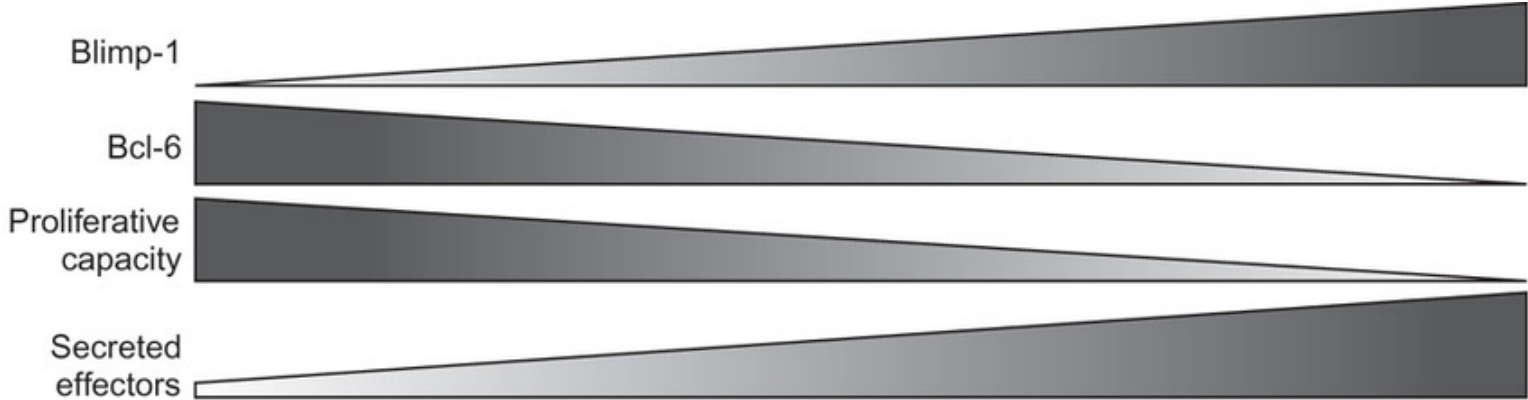
Tfh/Tfr differentiation



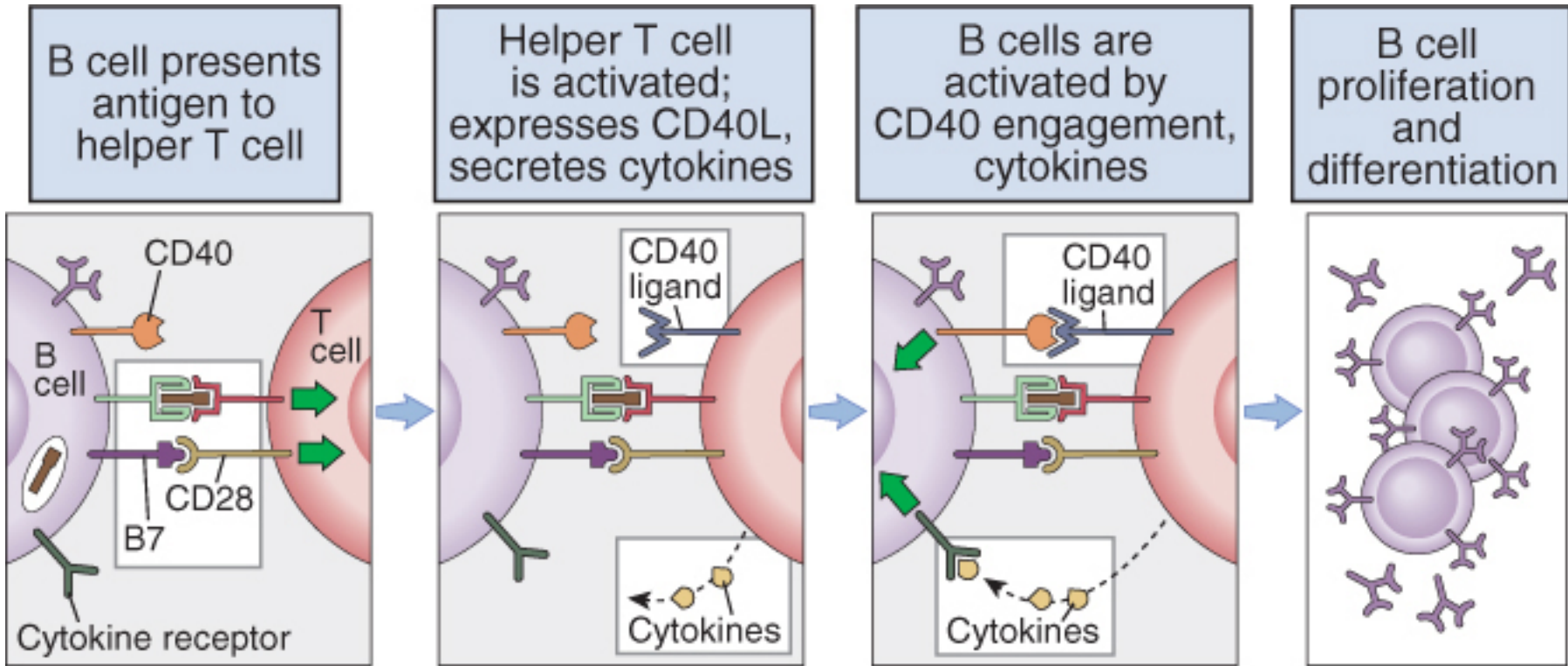
IL-21 signaling



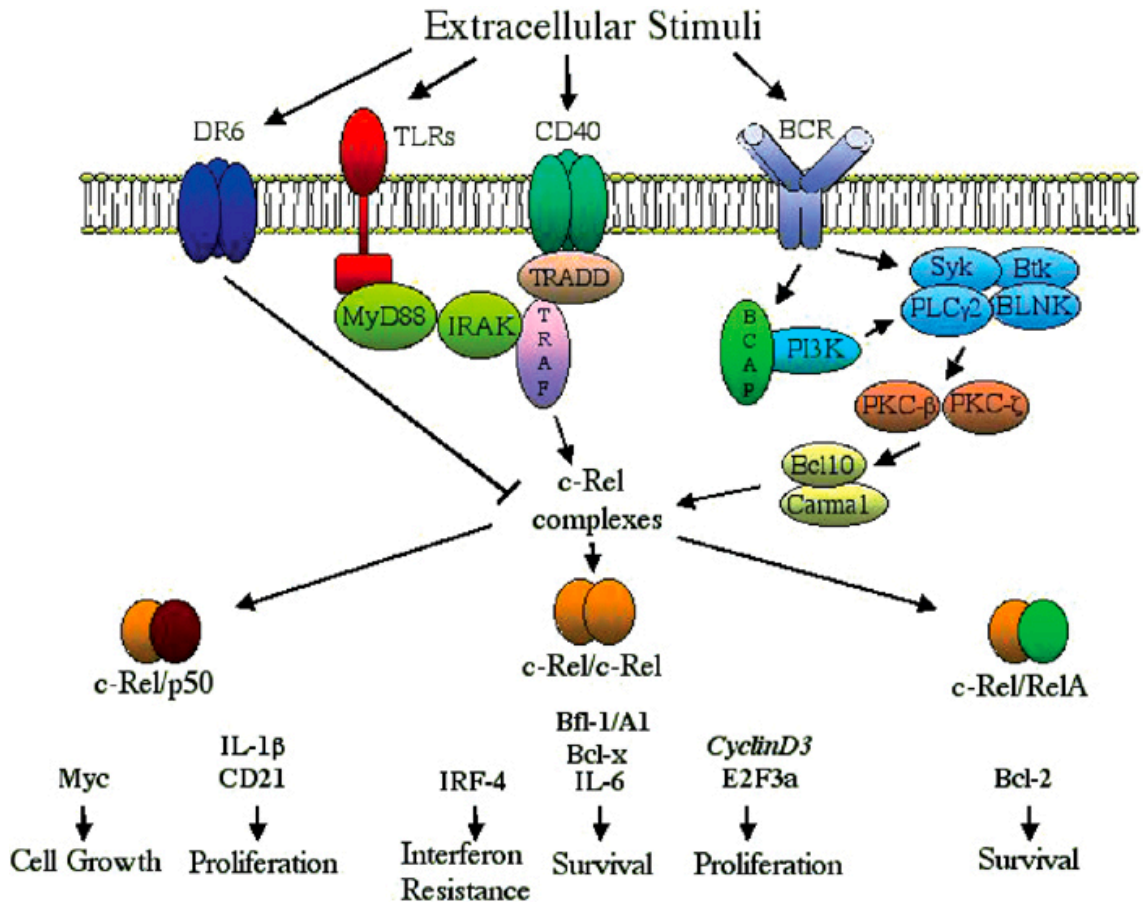
Bcl-6 and Blimp roles in cell fate



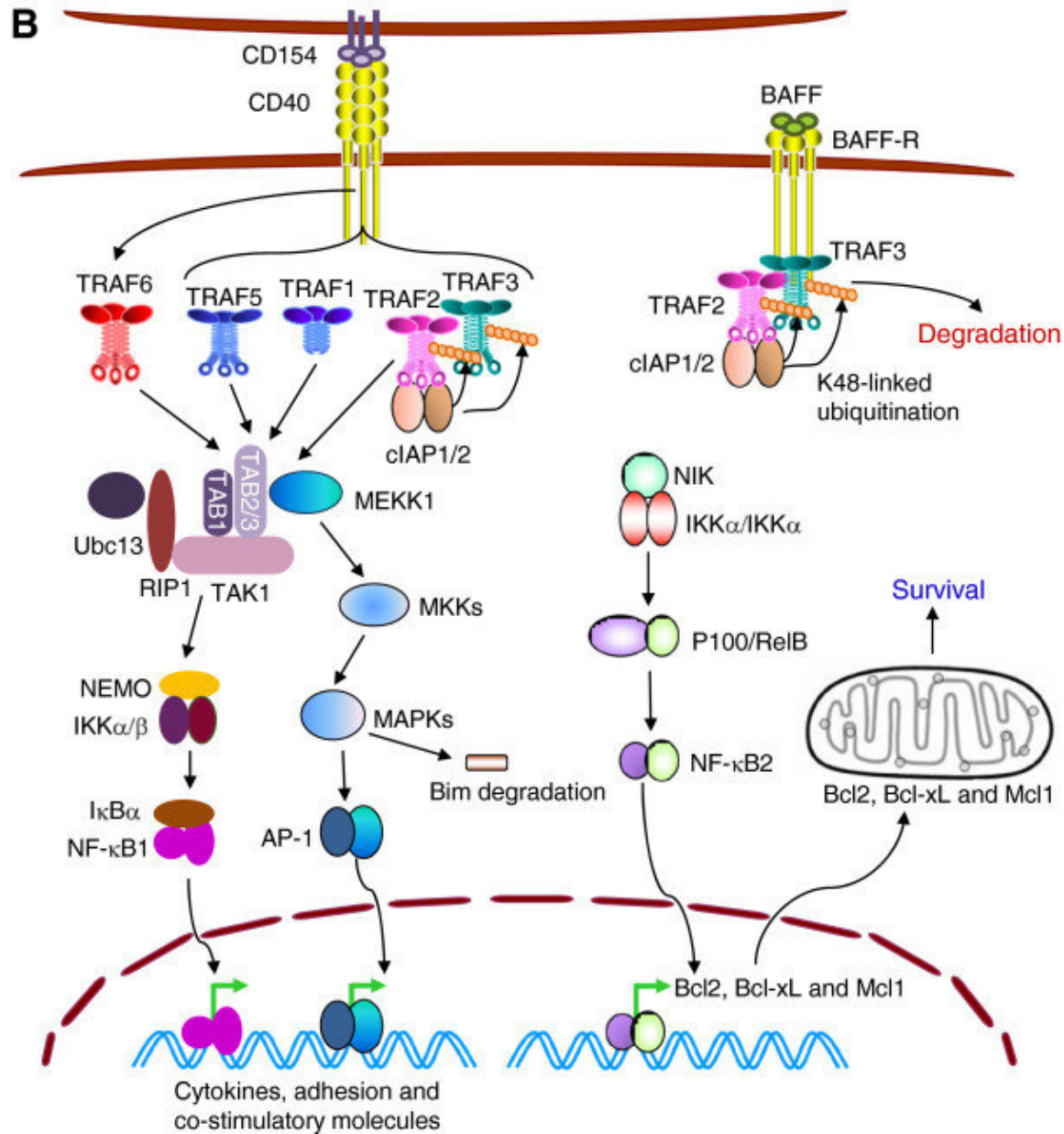
- The role of CD40/CD40L



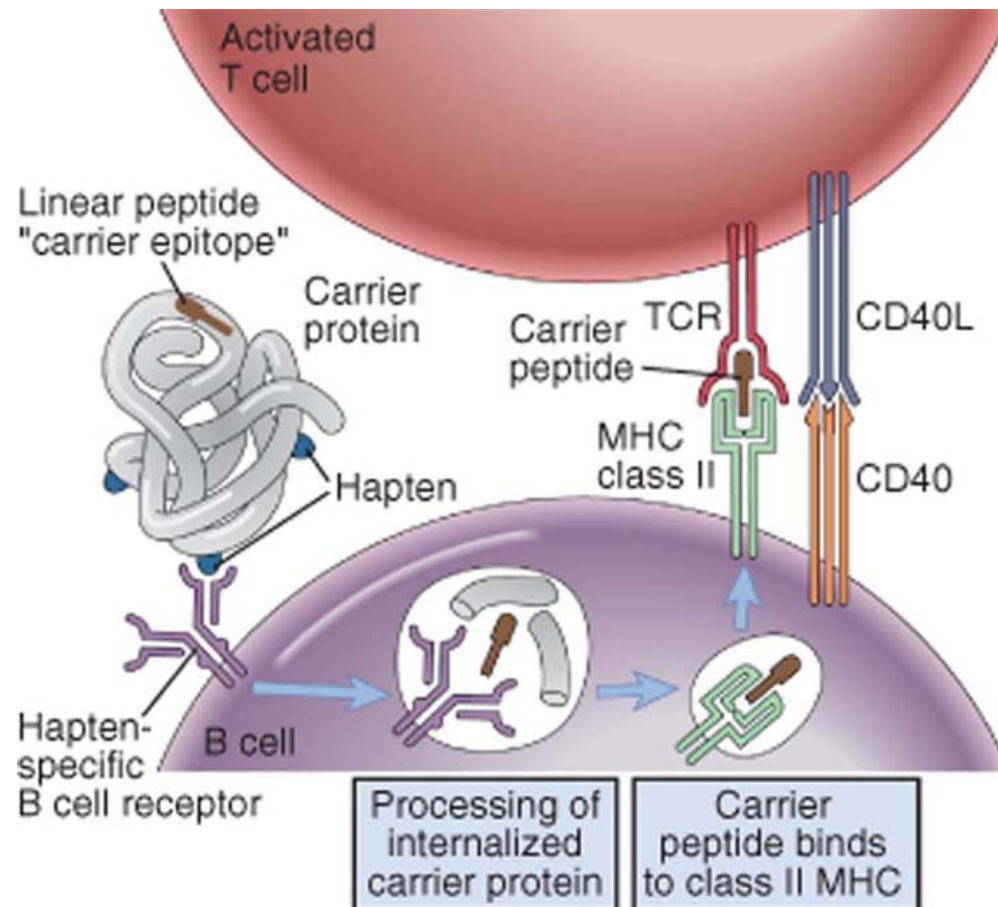
- The role of CD40/CD40L



CD40 and BAFFR cooperate to increase B cell survival

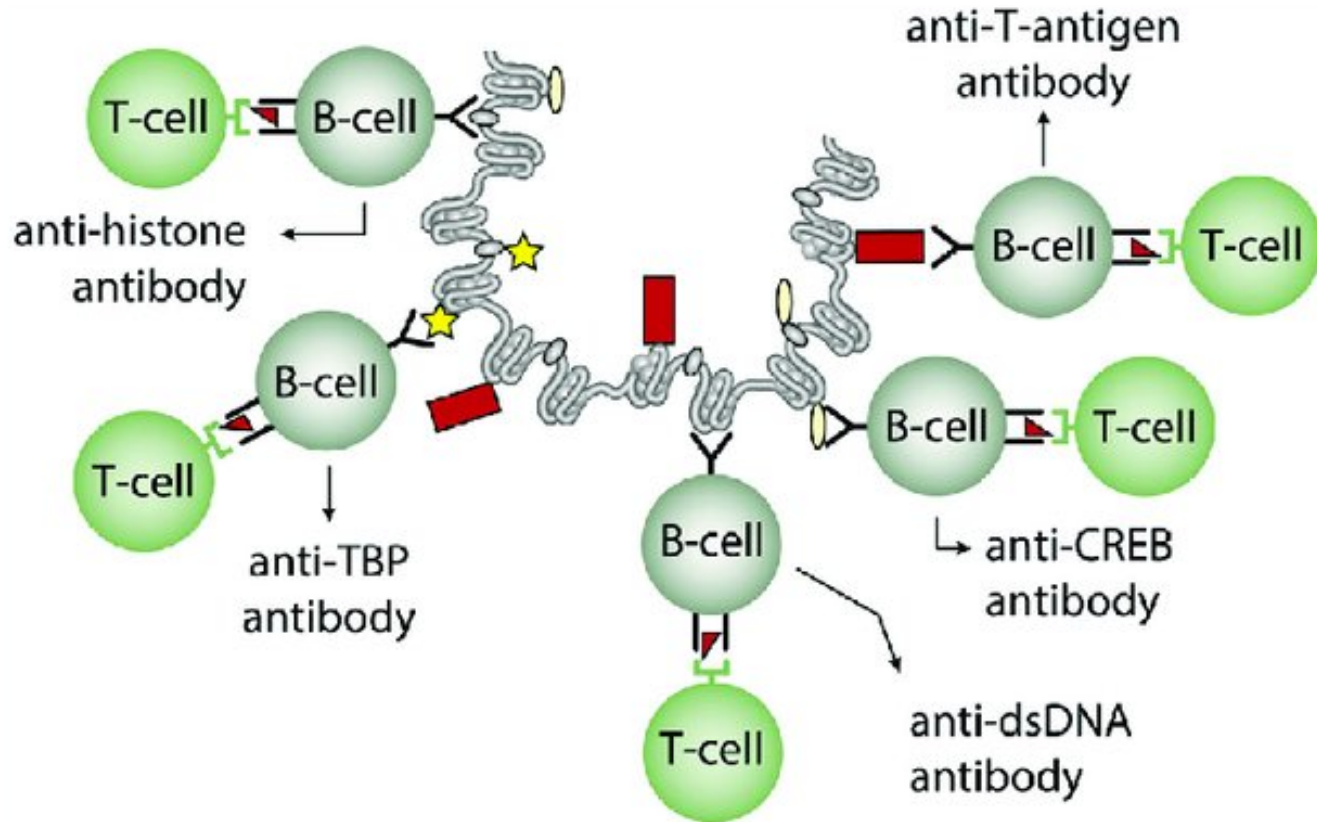


Haptens



Abbas et al: Cellular and Molecular Immunology, Updated 6th Edition.
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Hapten - example



 DNA

 Histones

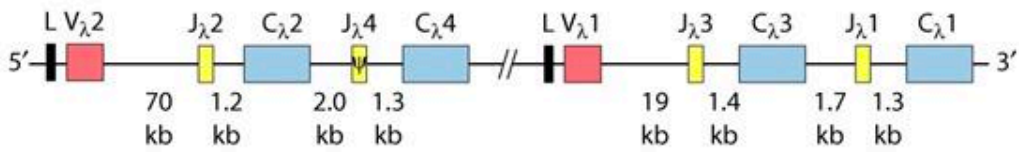
 TBP

 CREB

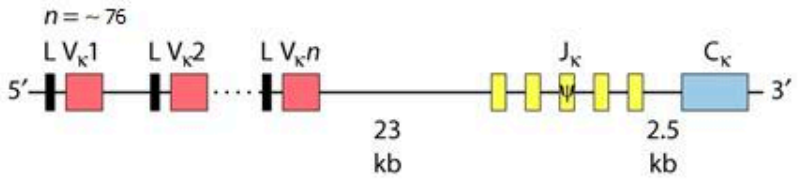
 T-antigen

- Organization of the immunoglobulin locus and constant regions

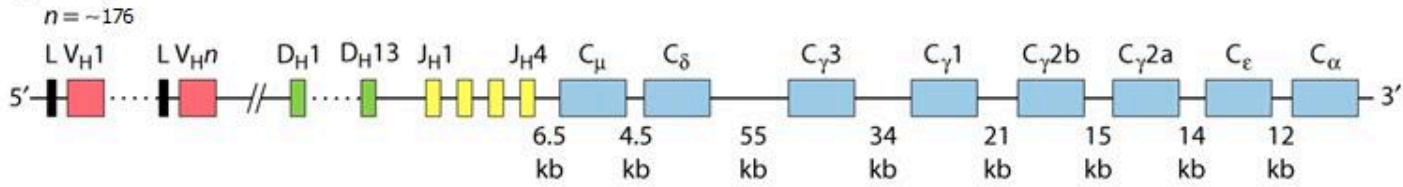
(a) λ -chain DNA



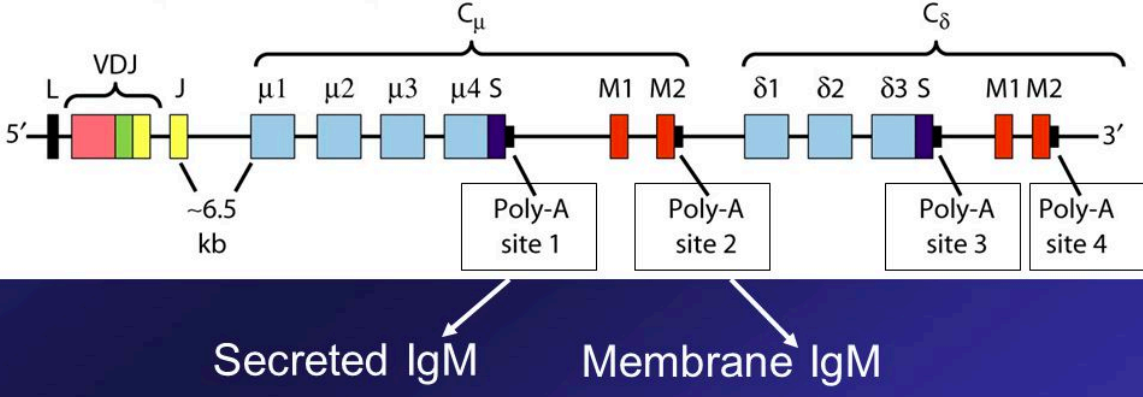
(b) κ -chain DNA



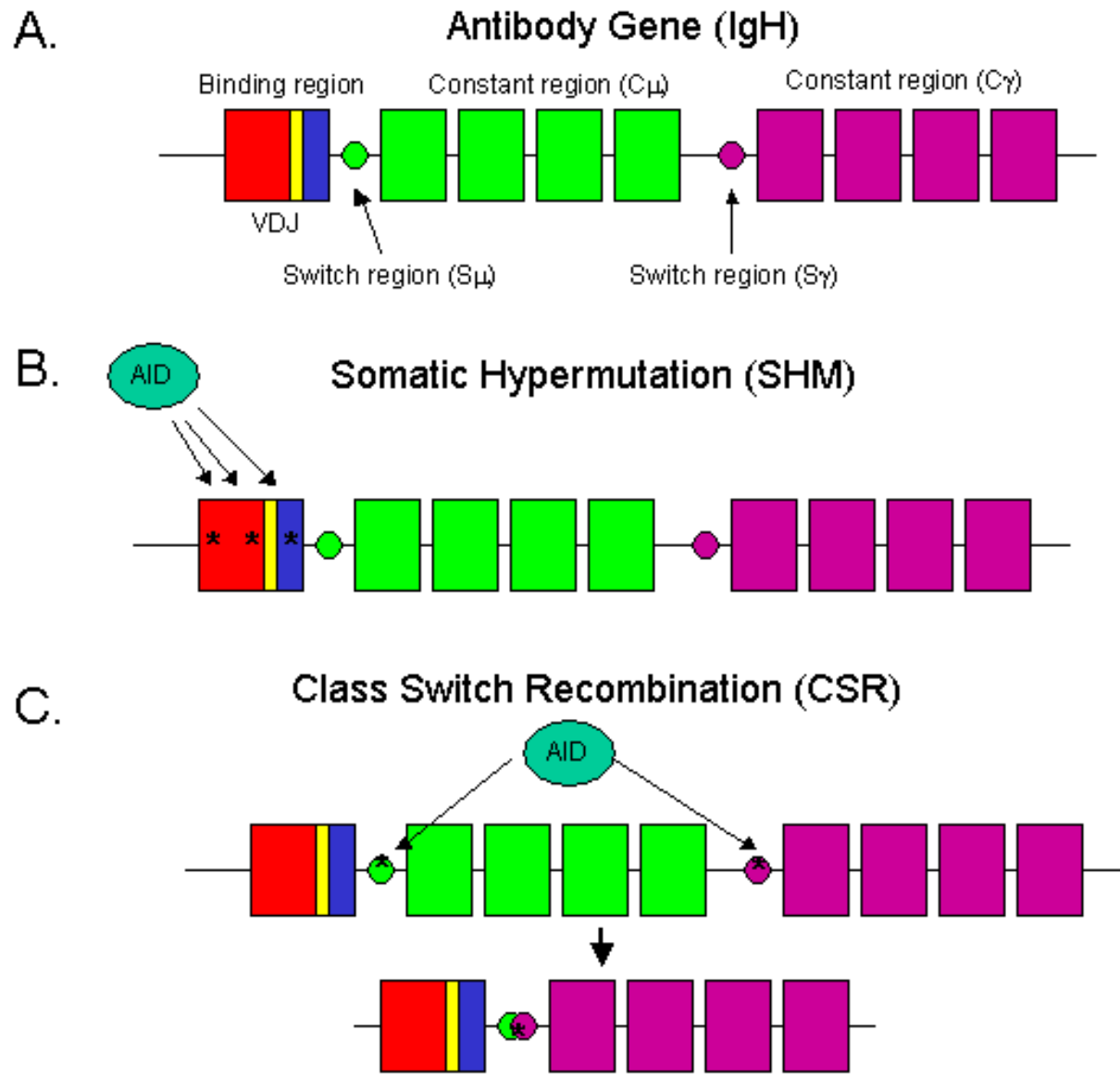
(c) Heavy-chain DNA



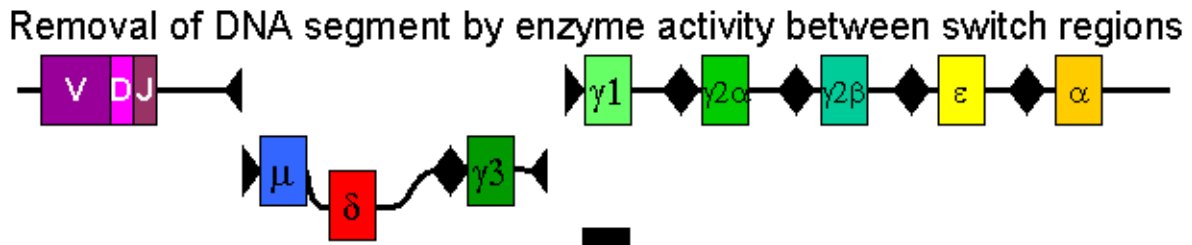
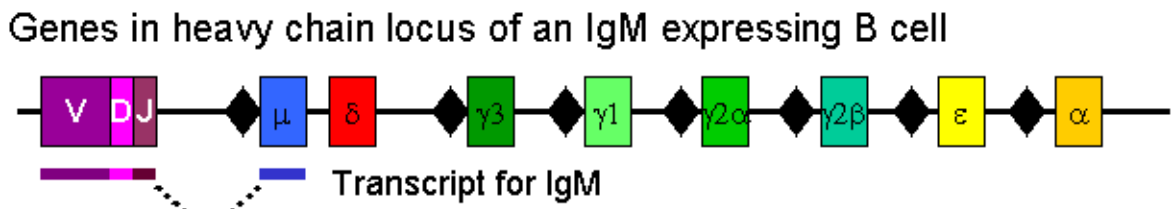
(a) H-chain primary transcript



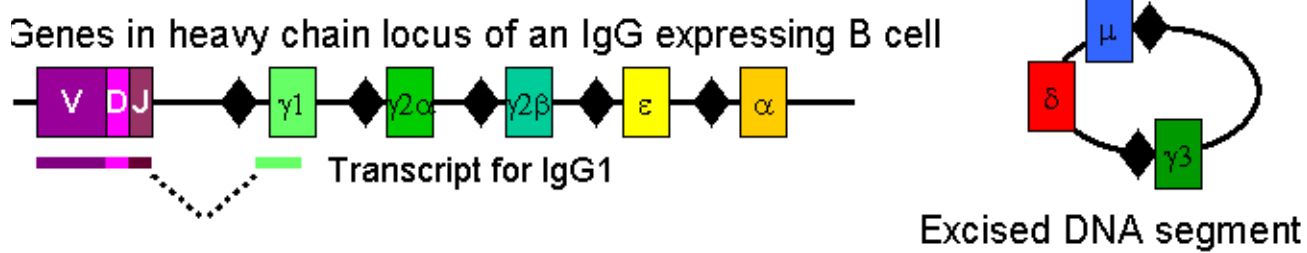
- Isotype switching



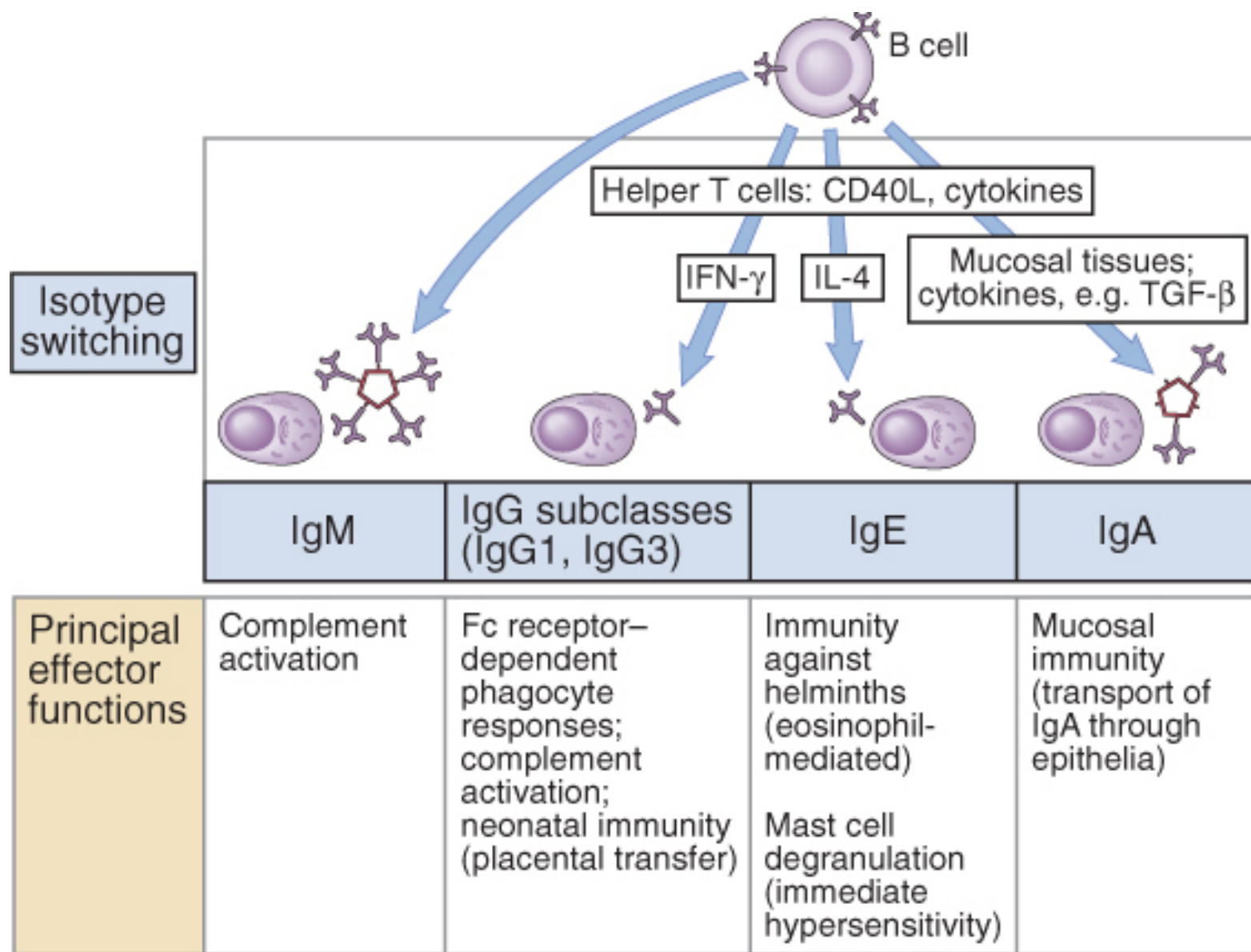
- Isotype switching



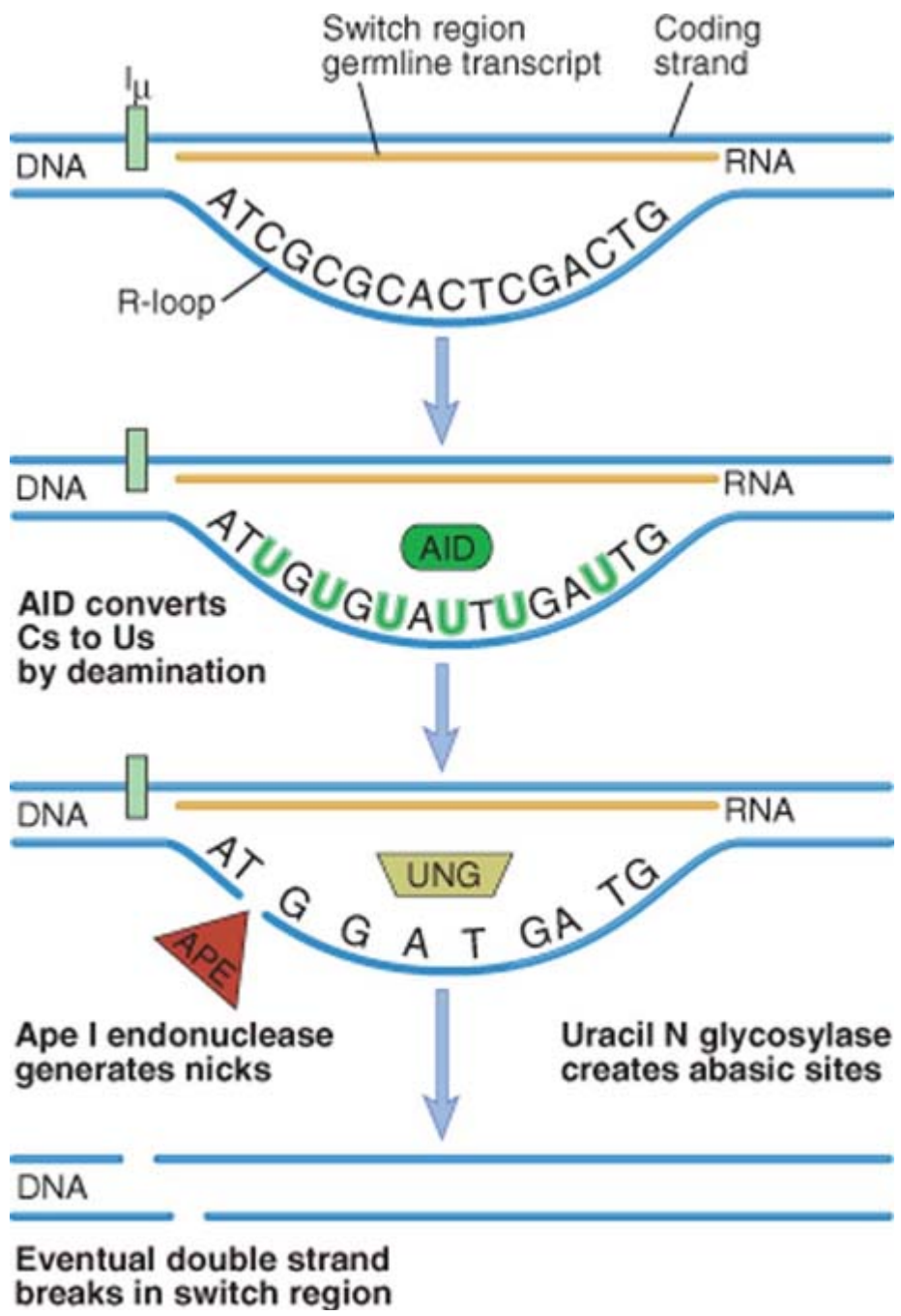
Non-homologous end joining of DNA at switch regions



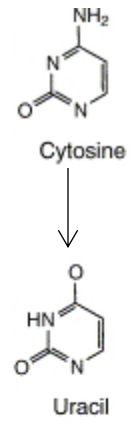
- Isotype switching – the role of cytokines



- Affinity maturation

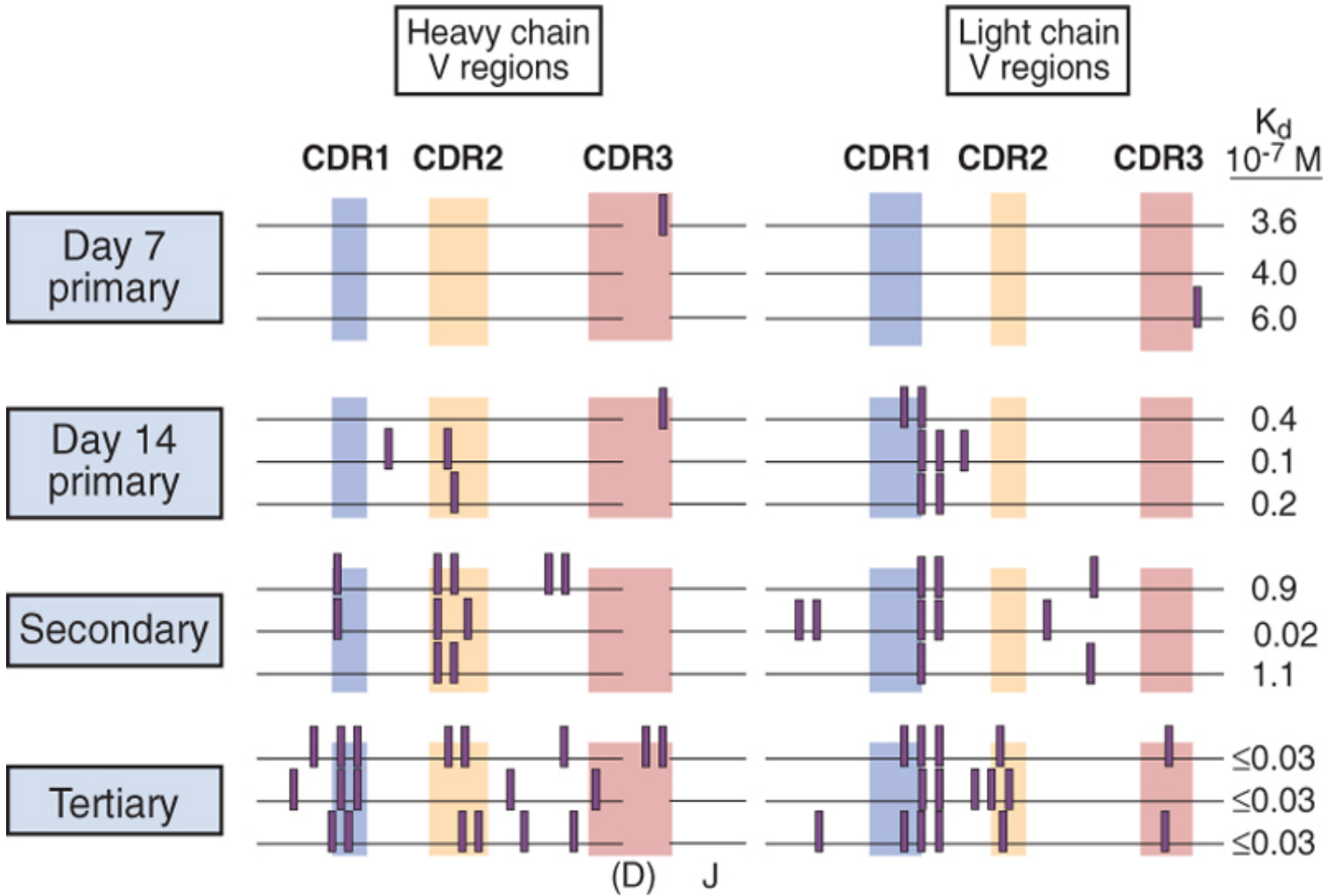


Activation
Induced
Cytidine
deaminase



https://www.youtube.com/watch?v=qGsyBwDVnTU&list=PLS_8RsEvYc3XEoHIXgrhg3uEY6WFc9DtL&index=3

- Affinity maturation



Immunoglobulins

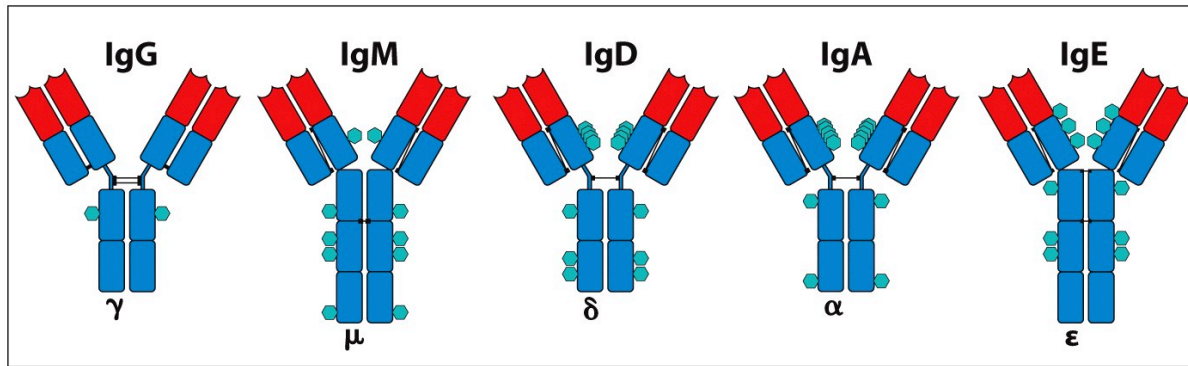
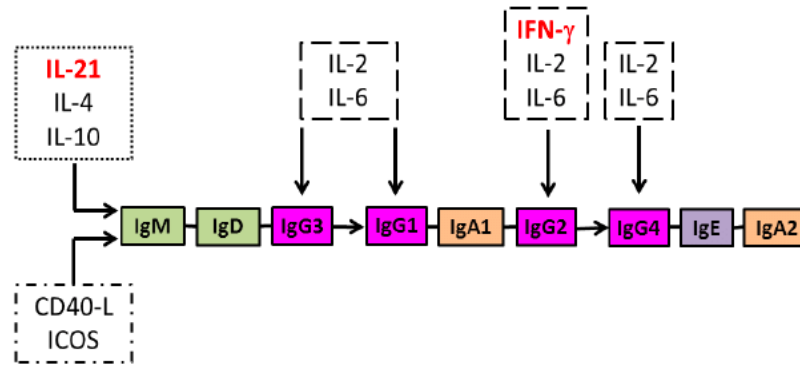
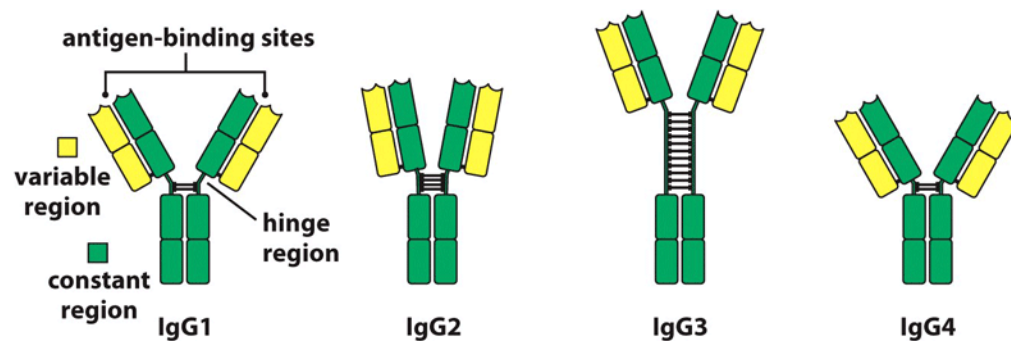


Figure 4.5 The Immune System, 3ed. (© Garland Science 2009)



IgG Subclasses

Kinetics

