

Serum Electrophoresis

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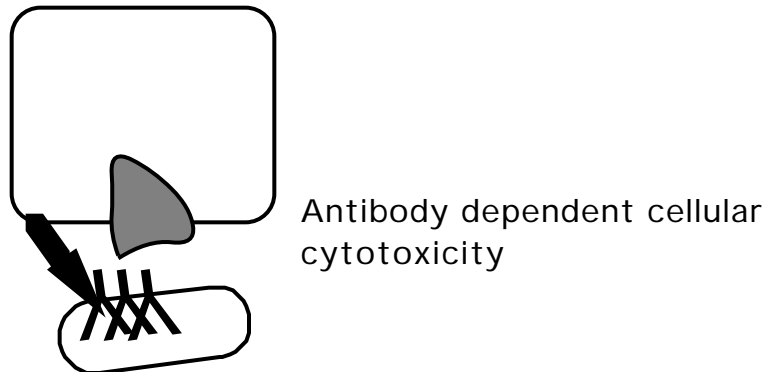
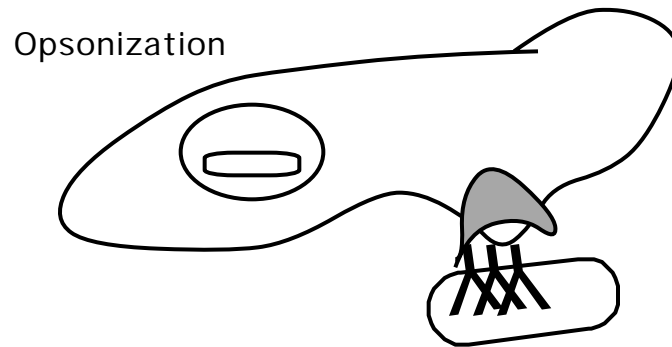
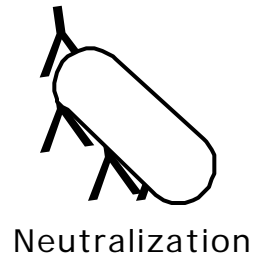
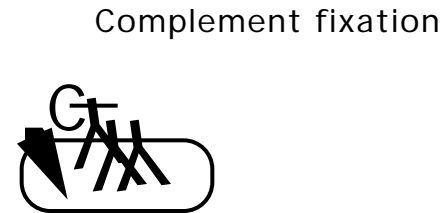
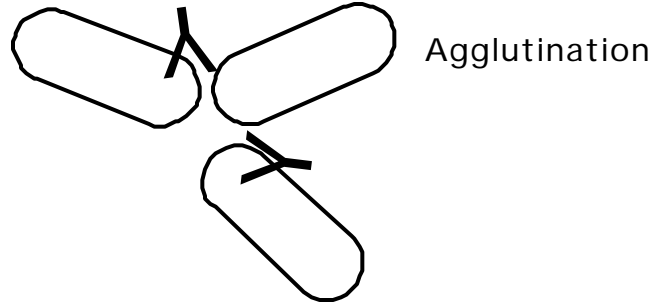
Albumin

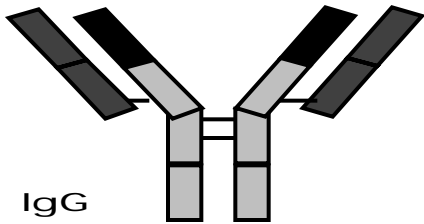
Globulins

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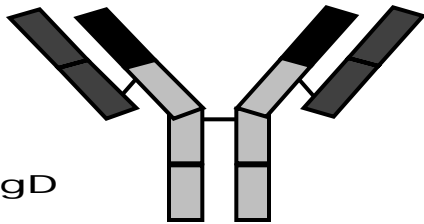


Functions of Antibodies

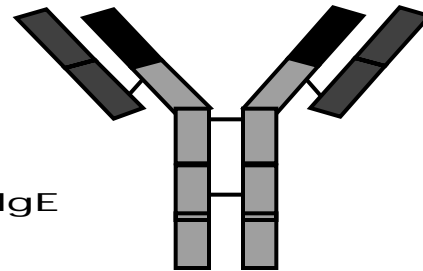




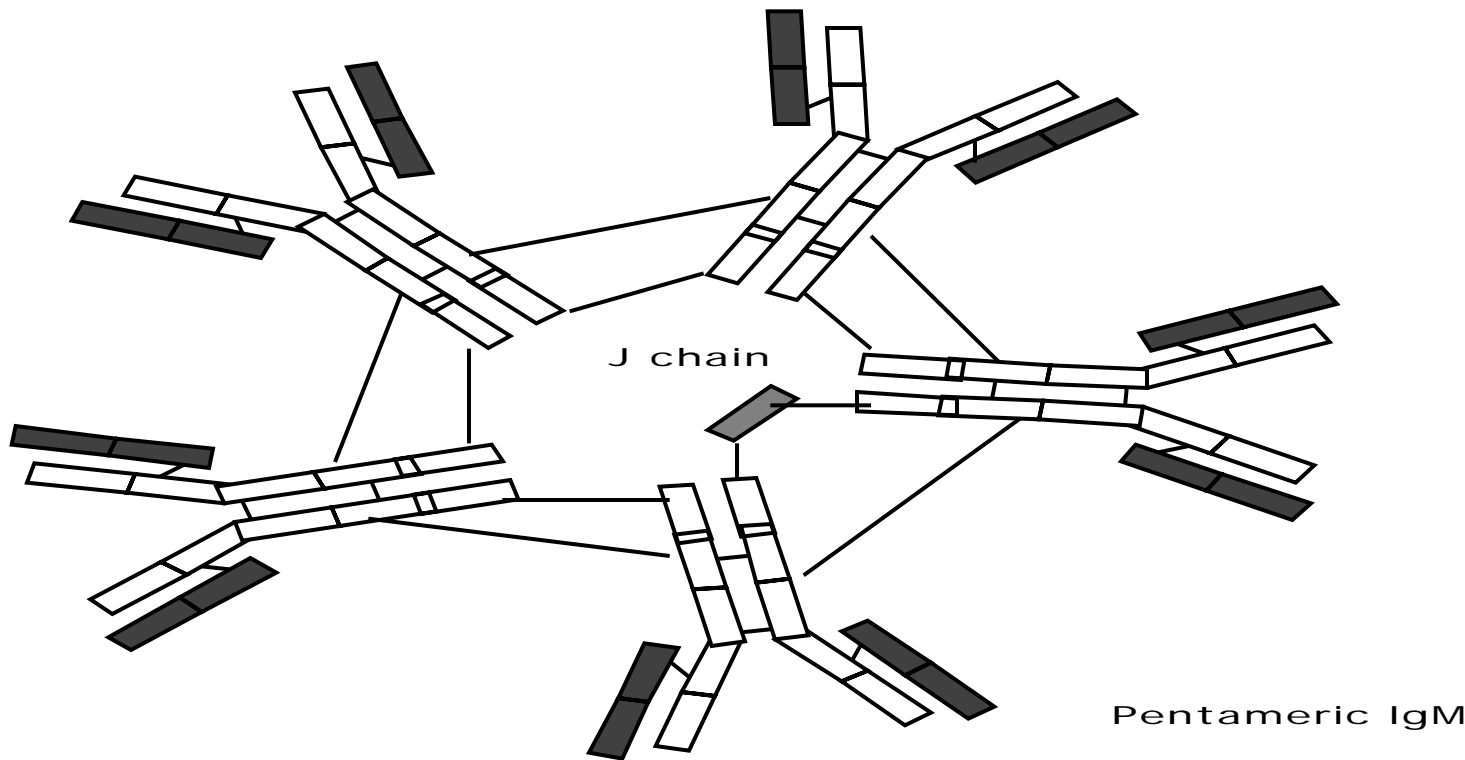
IgG



IgD

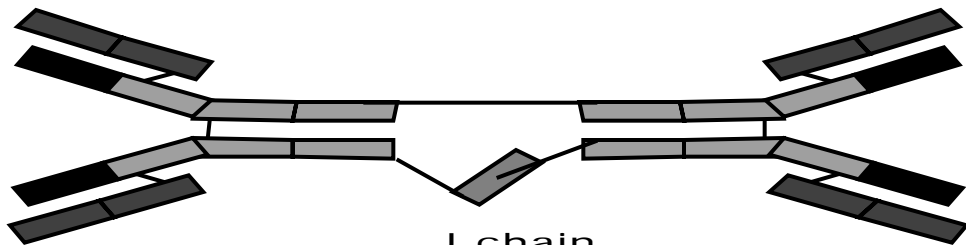


IgE



J chain

Pentameric IgM



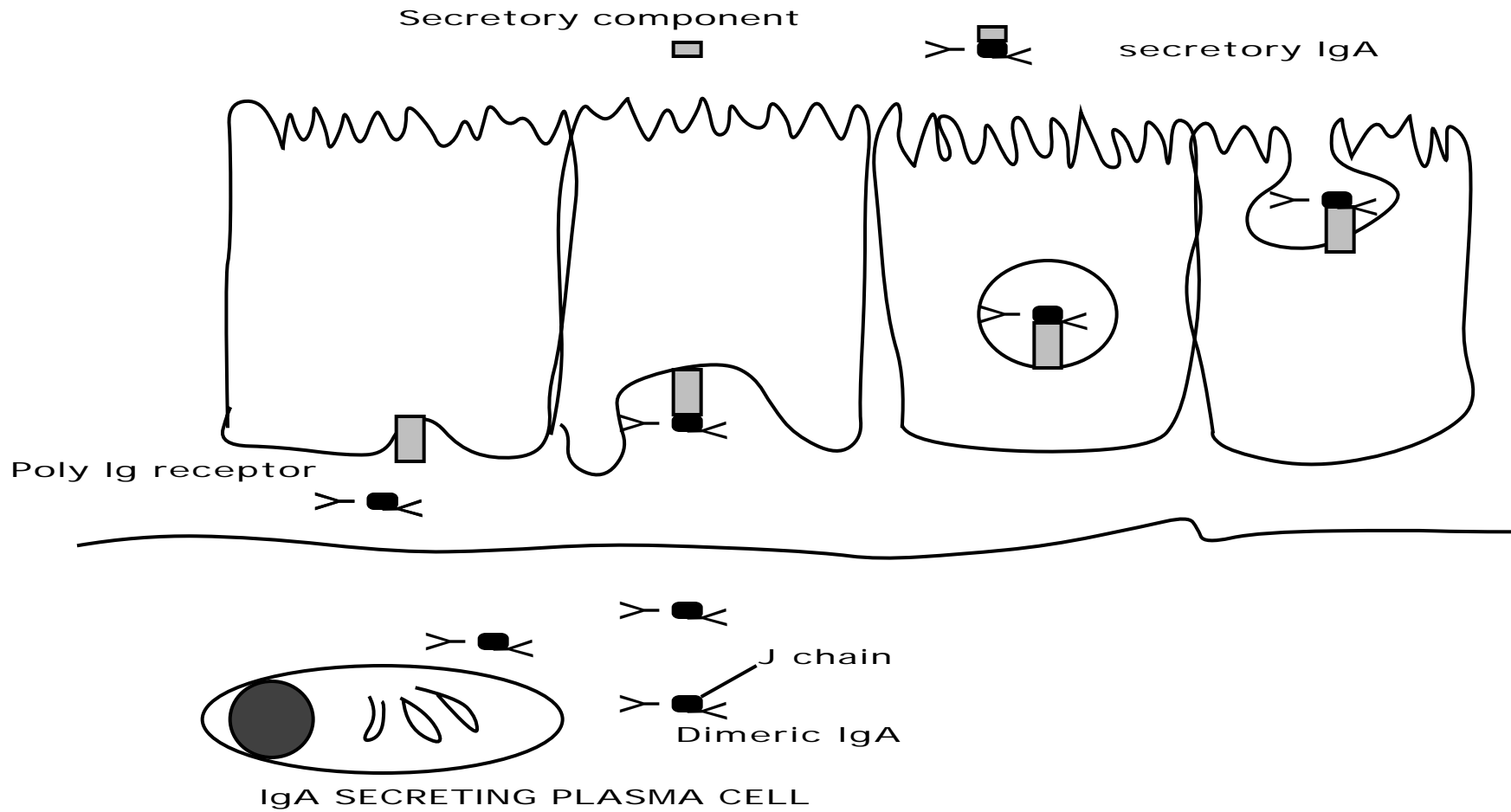
J chain

Dimeric IgA

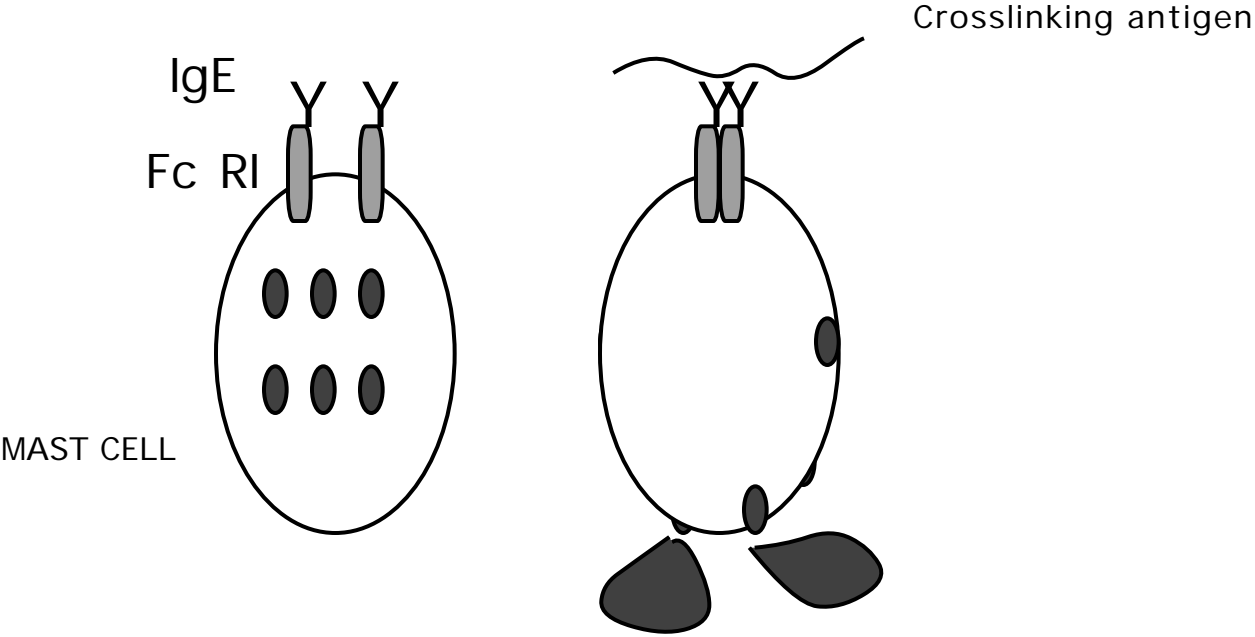
Different Ig isotypes mediate distinct functions

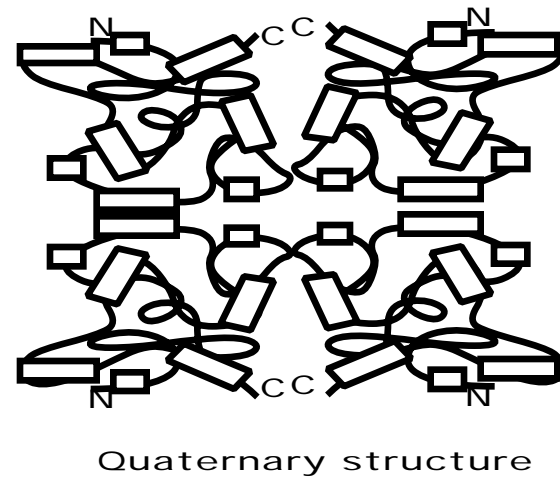
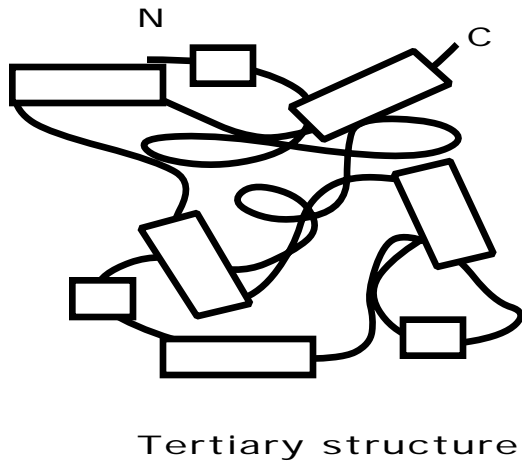
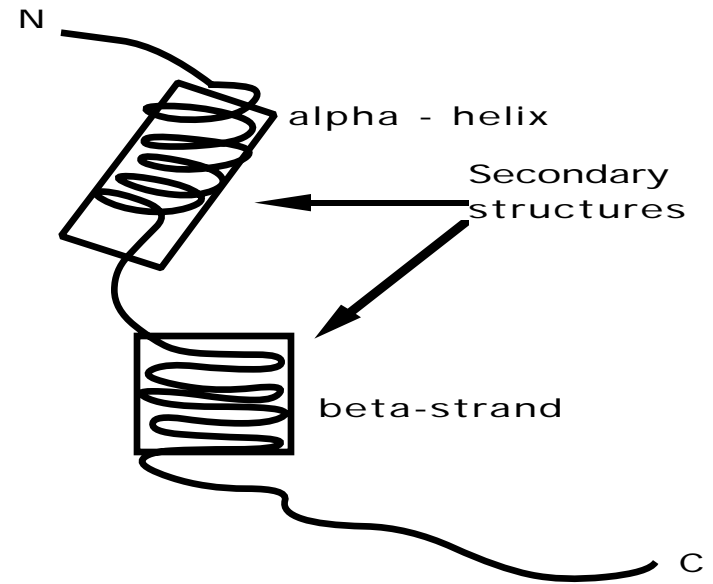
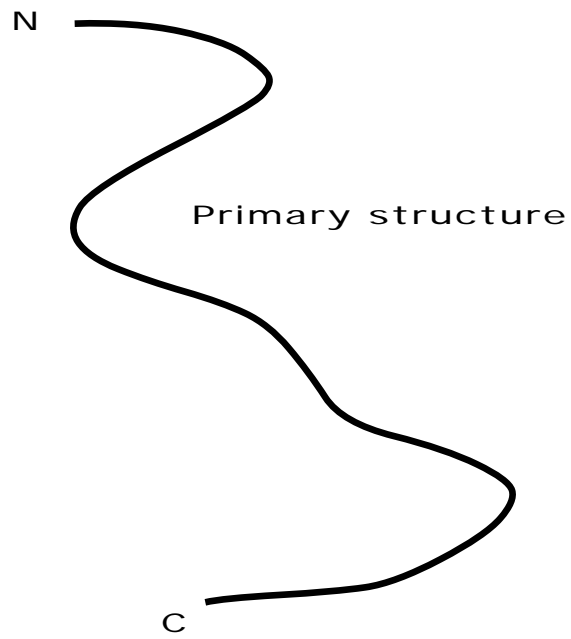
1. Complement fixation- (IgM, IgG1, and IgG3)
2. Opsonization- (IgG1 and IgG3)
3. Placental transfer- (IgG2 and IgG4)
4. Mucosal immunity - (IgA1, IgA2, and IgM)
5. Immediate type hypersensitivity - (IgE)
6. Antibody Dependent Cellular Cytotoxicity

Generation of secretory IgA



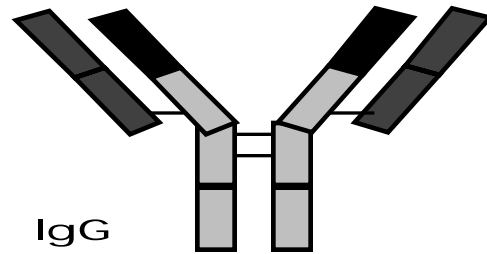
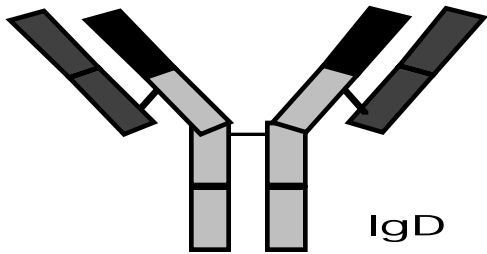
IMMEDIATE TYPE HYPERSENSITIVITY



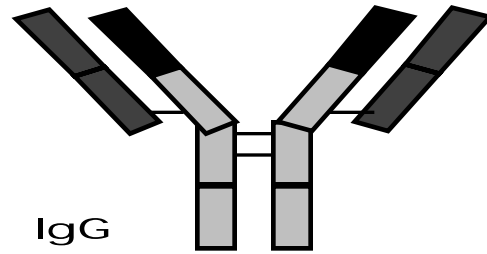
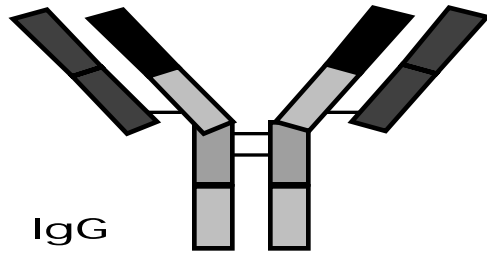


Complementarity determining regions = CDRs = HVRs

See Immunobiology, by Janeway, C., Travers, P., Walport, M. and Capra, J., Garland Publishing, 5th edition, 2001 & Cellular and Molecular Immunology by Abbas, A., Pober, J., and Lichtman, A., W B Saunders; 4th edition.

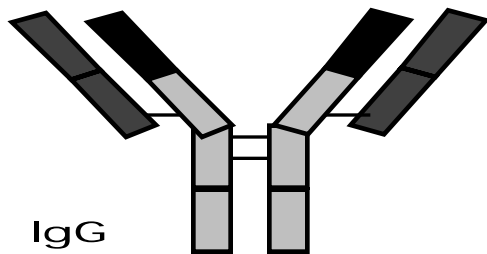


Isotypes

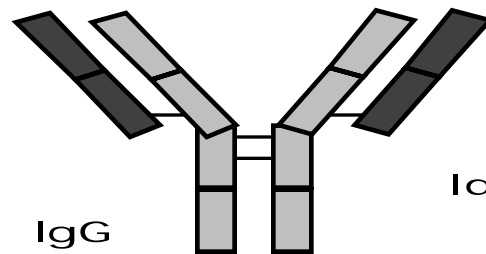


Allotypes

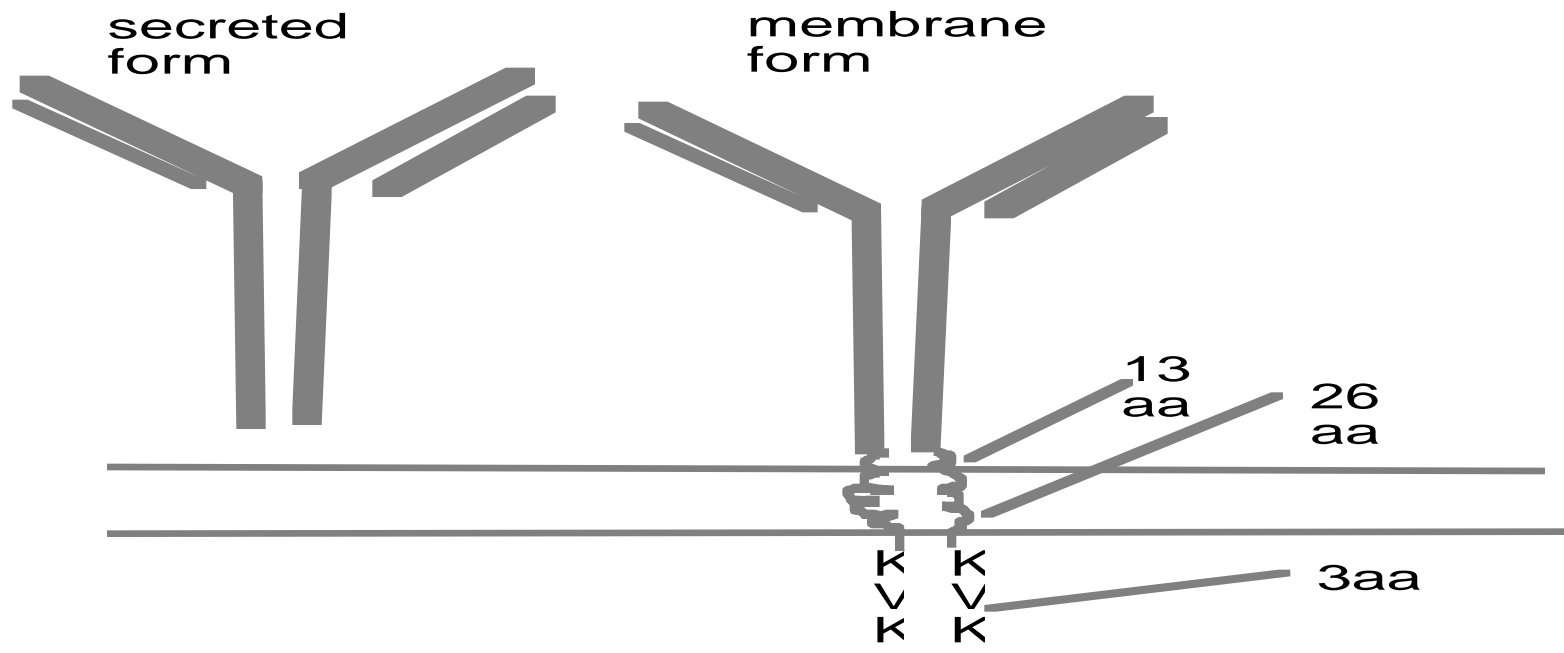
Anti -mannose

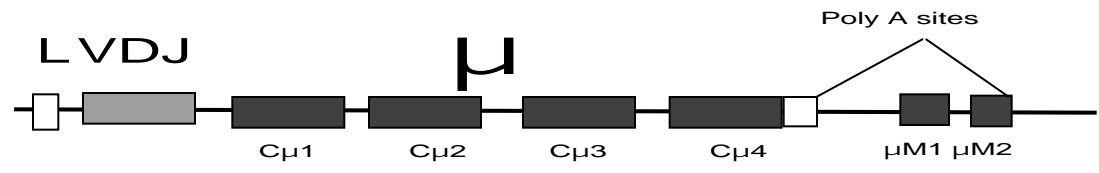


Anti-glucose

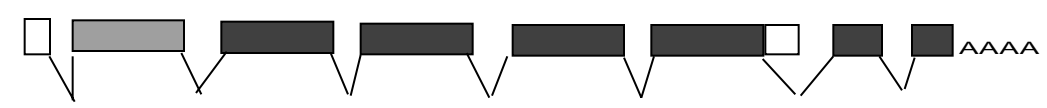


Idiotypes





Choice of first polyadenylation site



Choice of second polyadenylation site

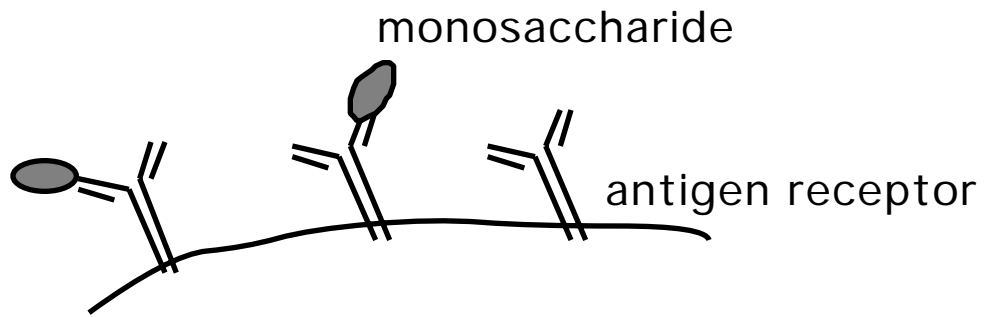


μ_s mRNA



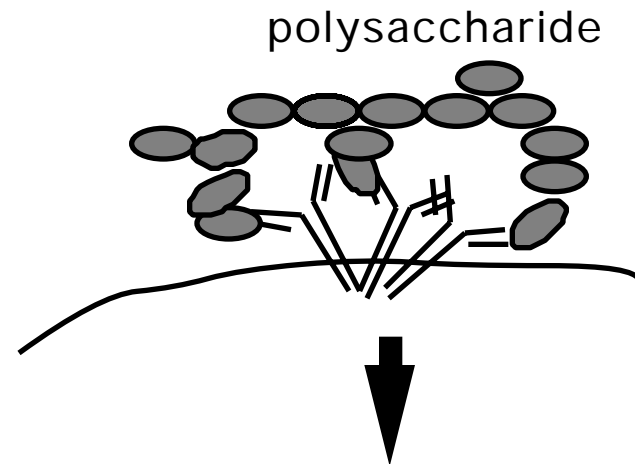
μ_m mRNA

Hapten



NO SIGNAL

Polyvalent antigen

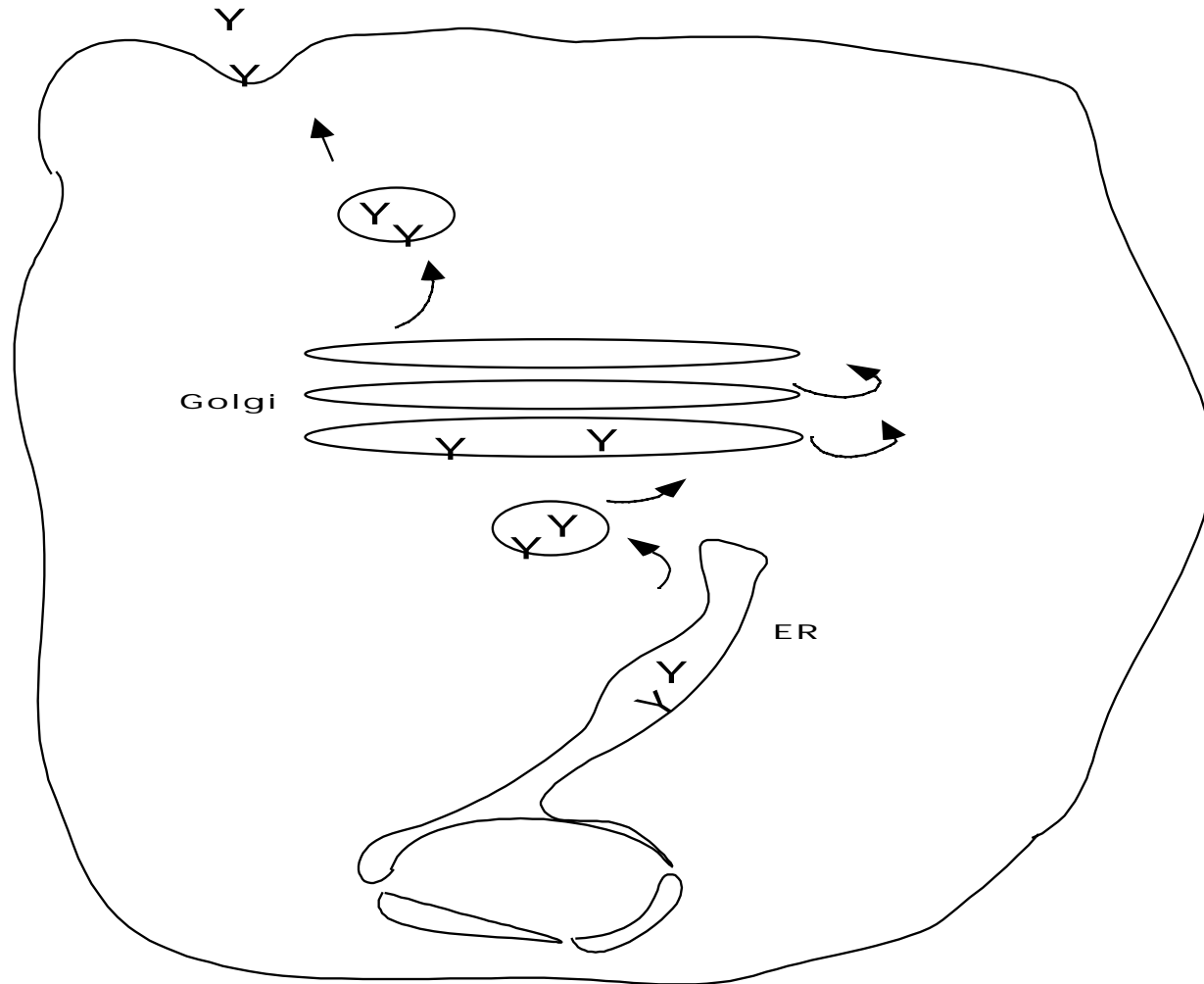


SIGNAL TRANSDUCTION

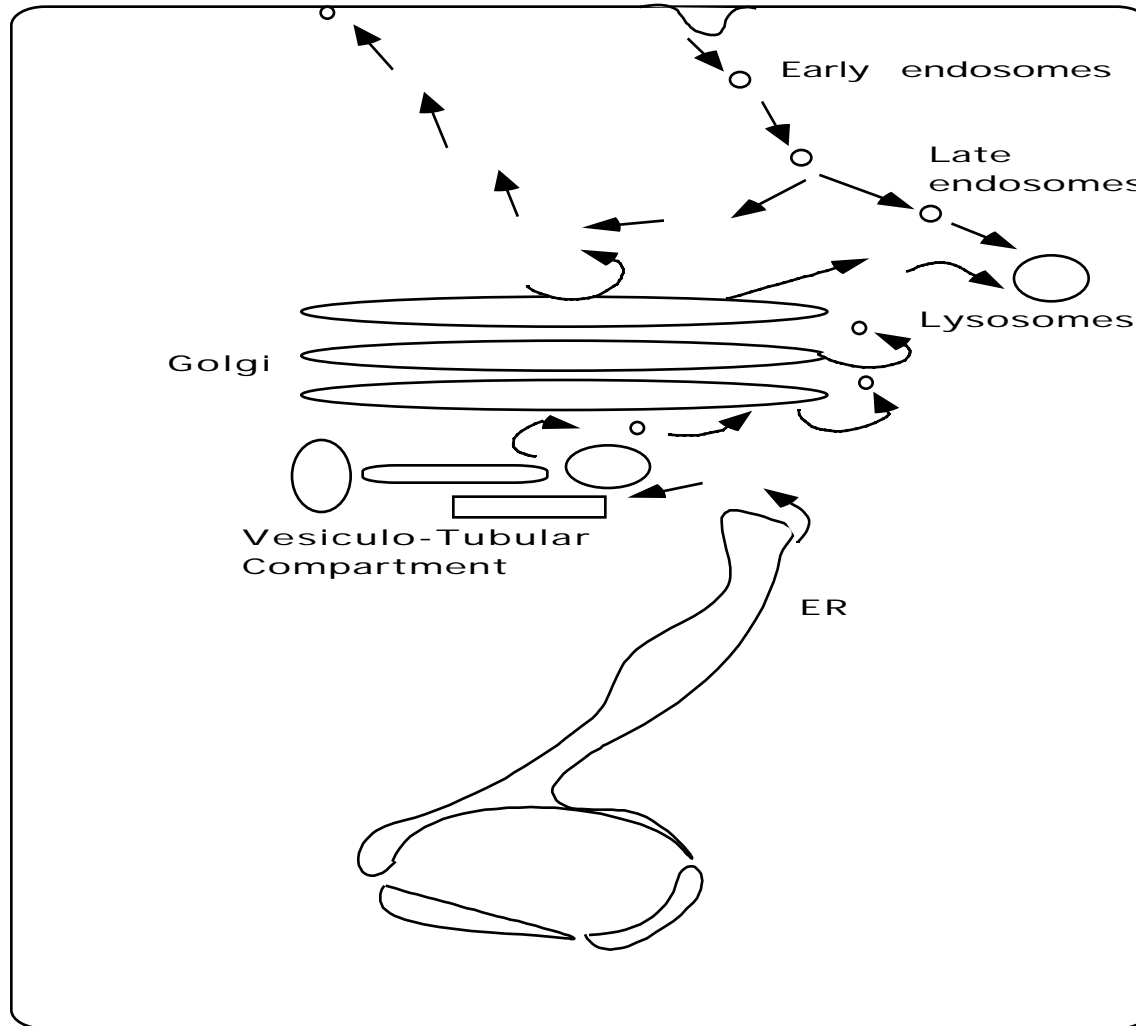
Haptens, Antigens, Immunogens

- Haptens are small molecules or moieties.
They are antigens but not immunogens
- All immunogens are antigens
- All antigens are not immunogens

Igs and the secretory pathway



Endocytosis, recycling, and lysosomes



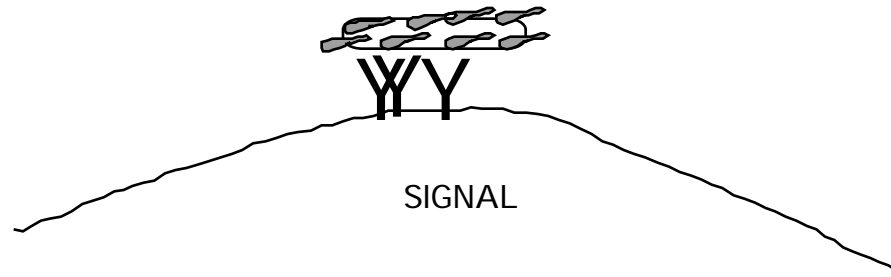
Proteins are endocytosed after they are seen by the BCR

Monovalent
small
molecule



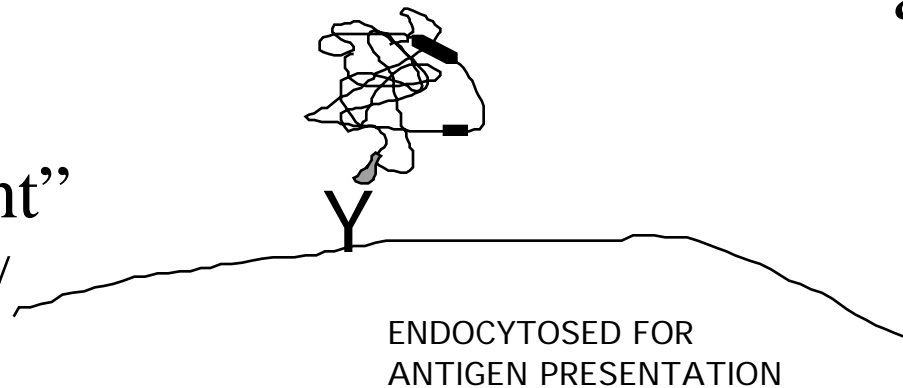
Hapten

Polyvalent
biopolymer

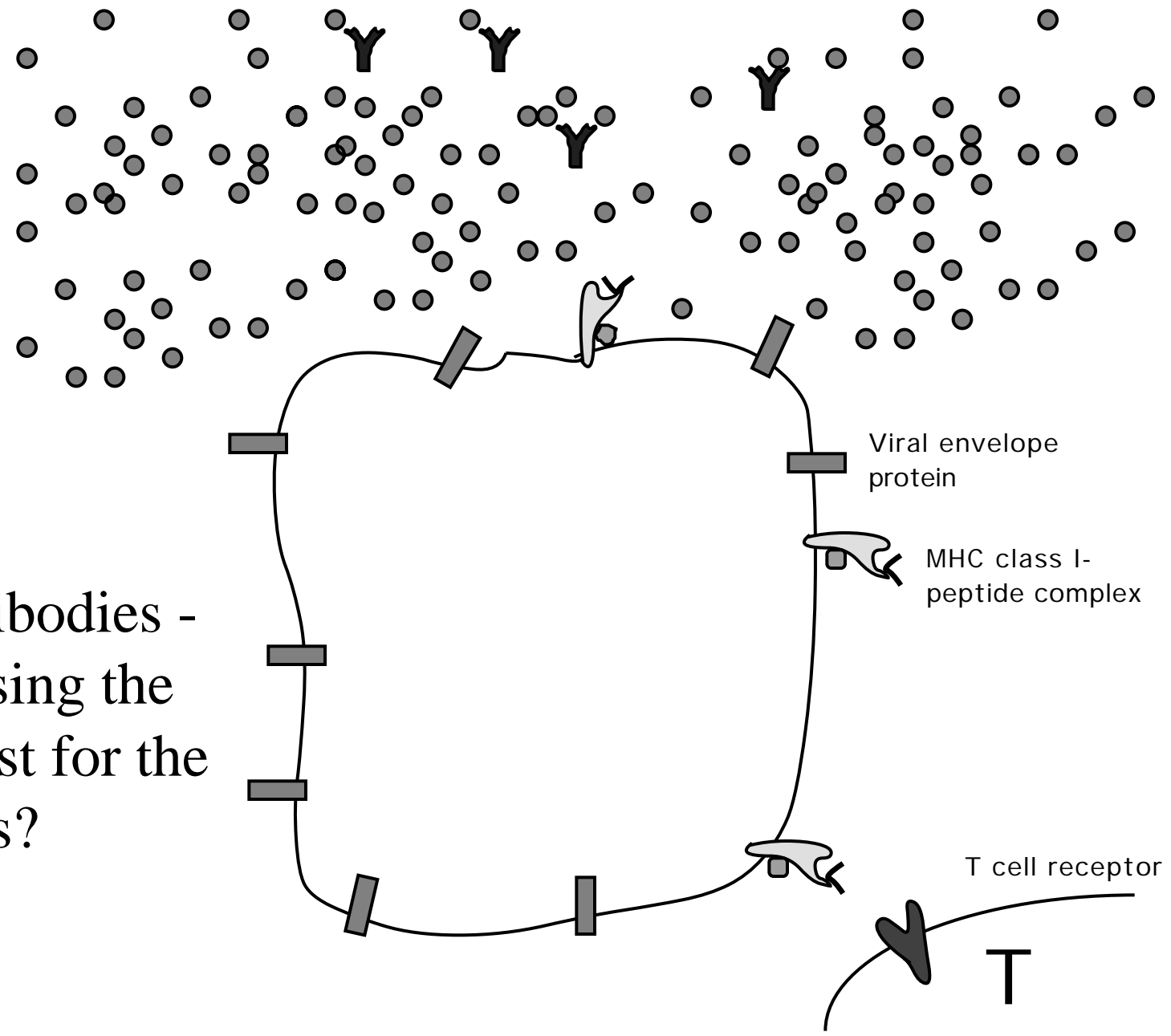


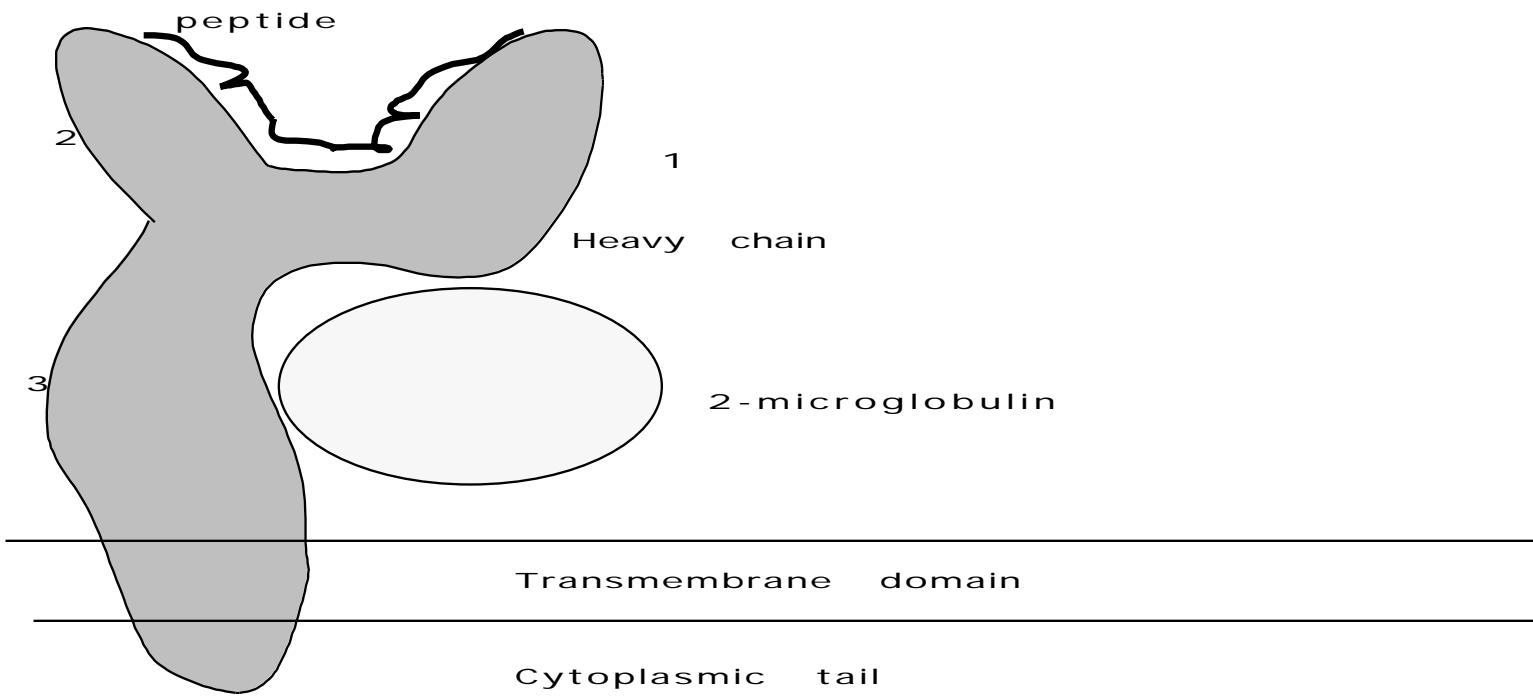
T-independent
antigen

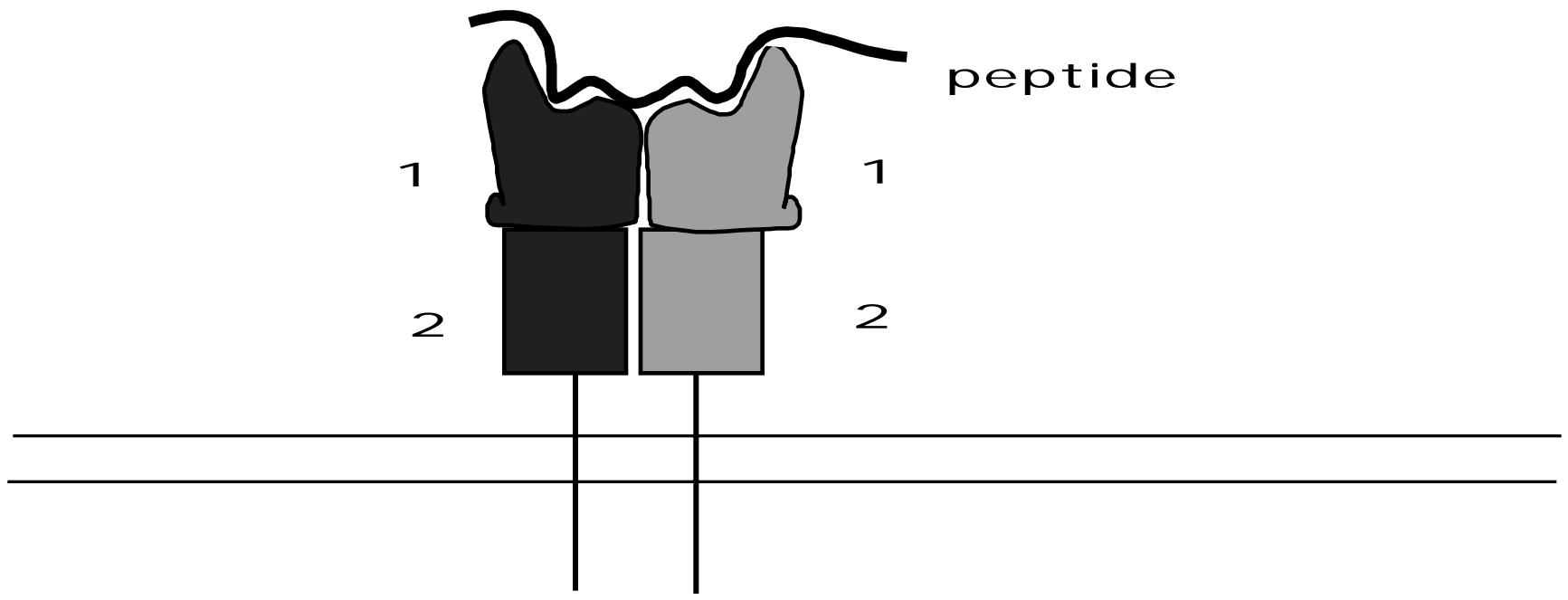
“Monovalent”
biopolymer/
protein

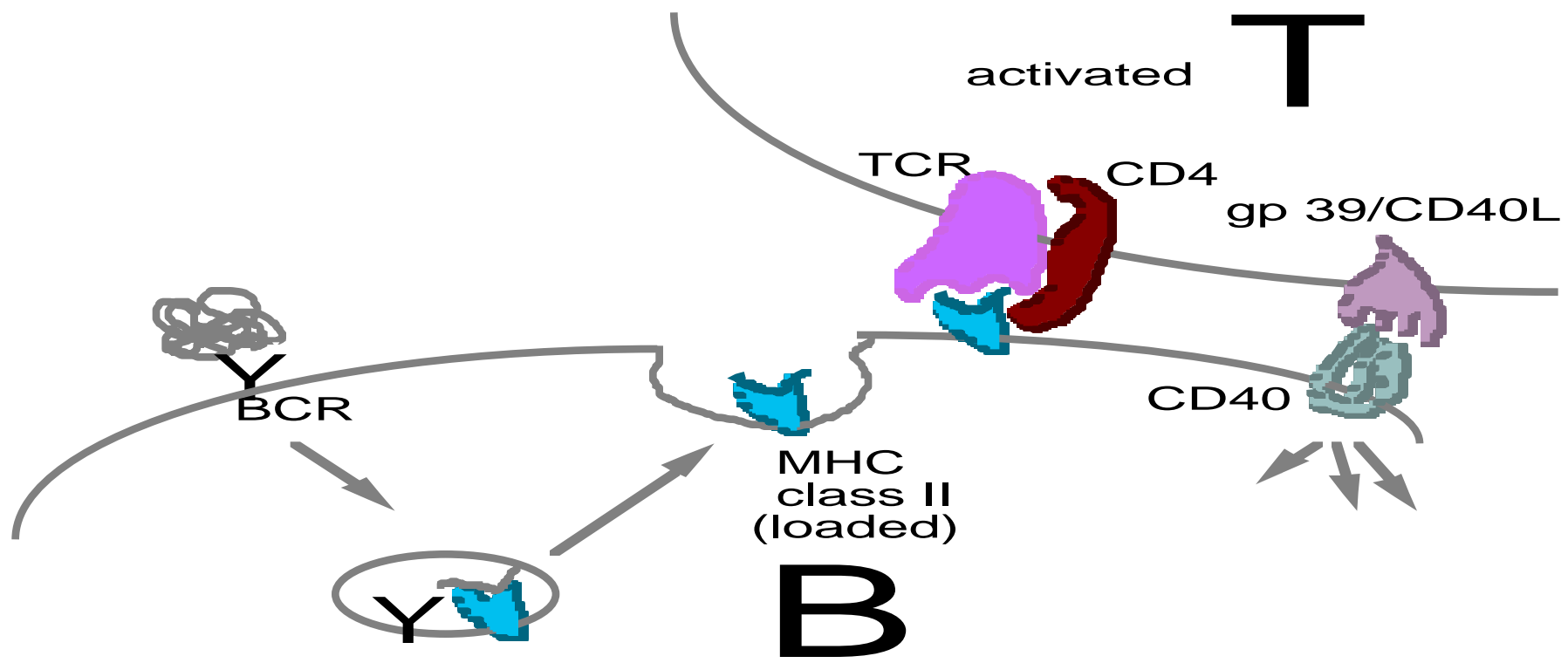


Antibodies -
missing the
forest for the
trees?

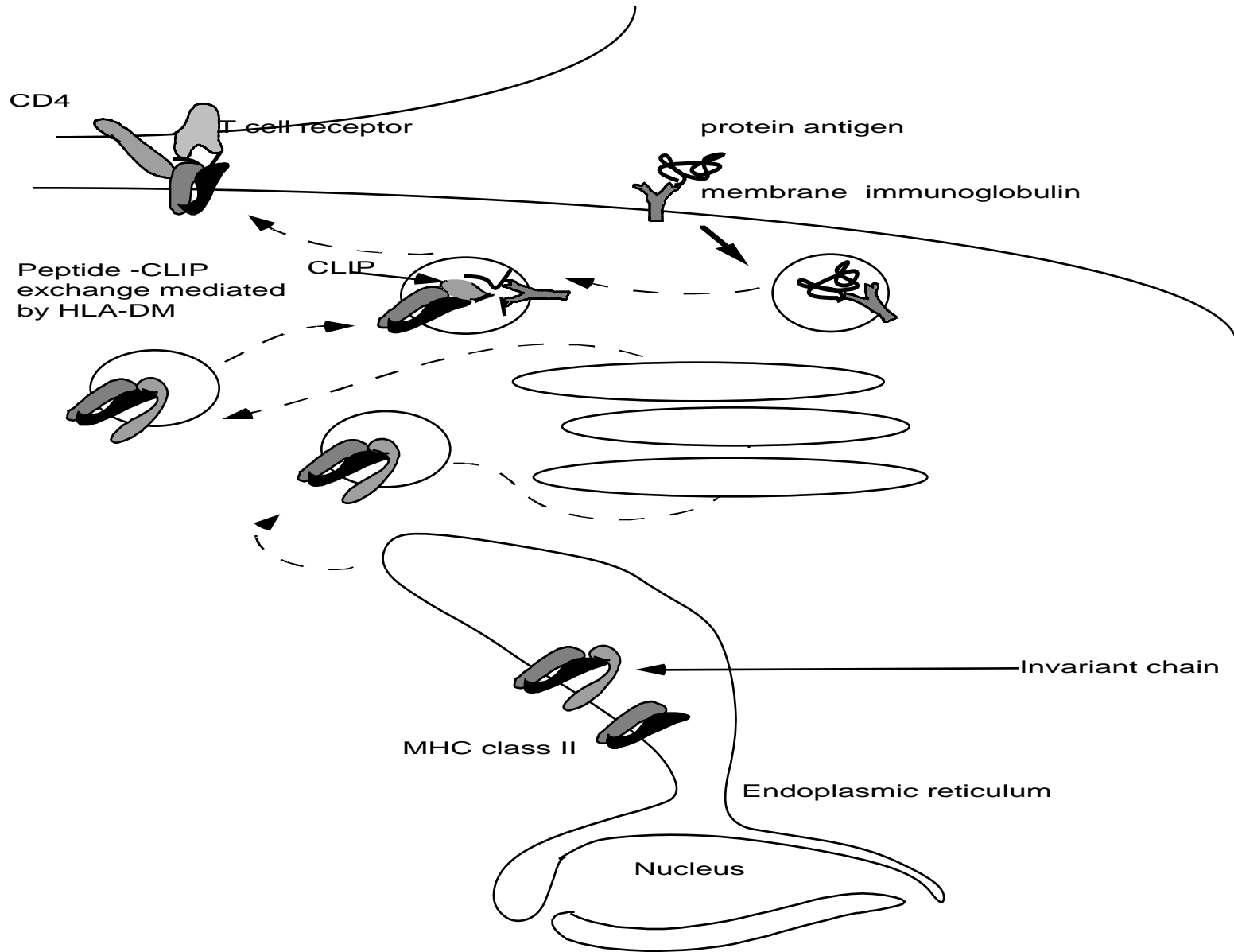


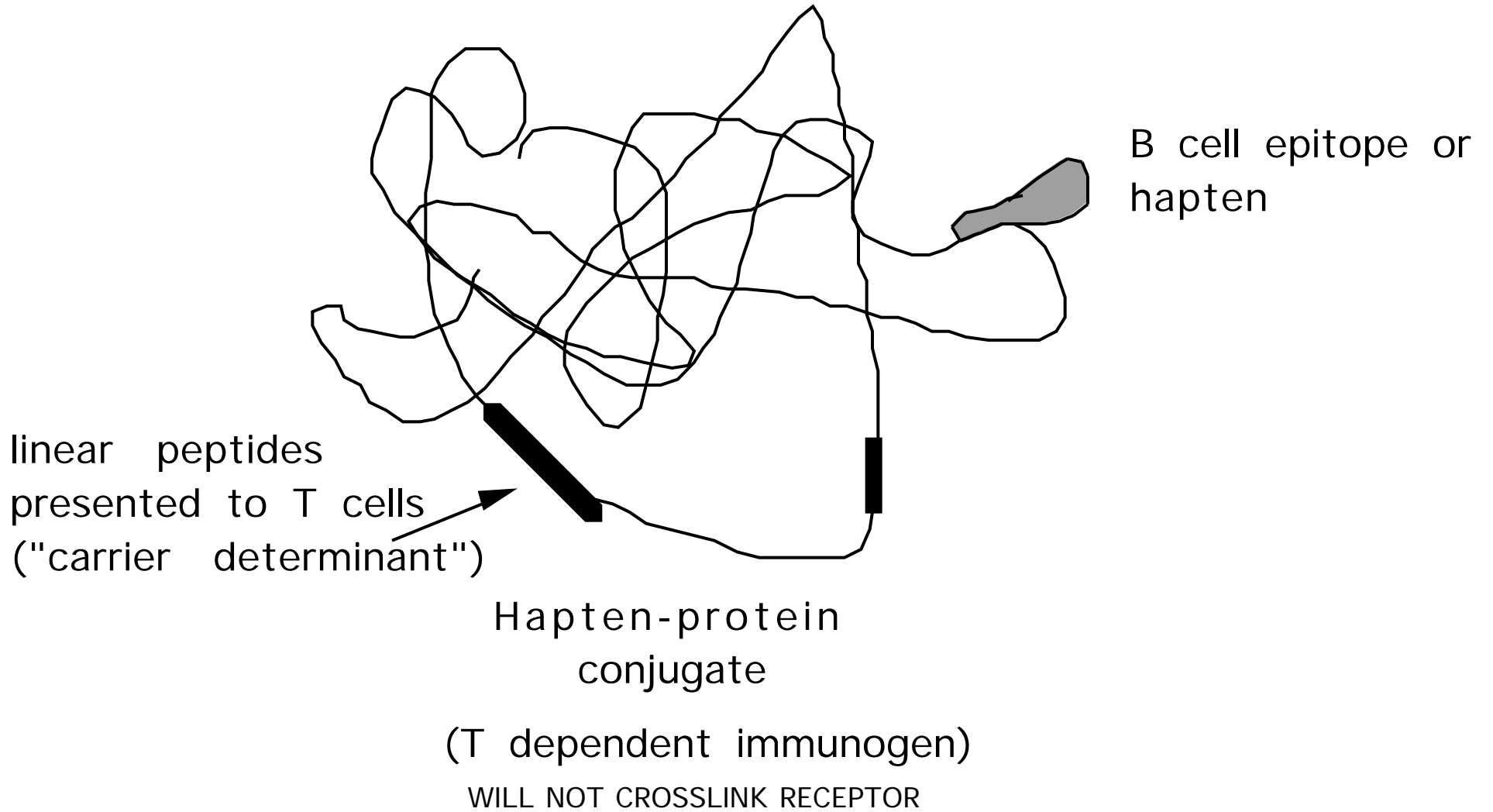






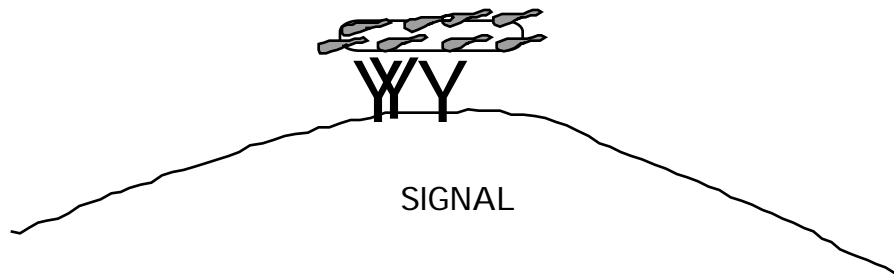
HELPER T CELL



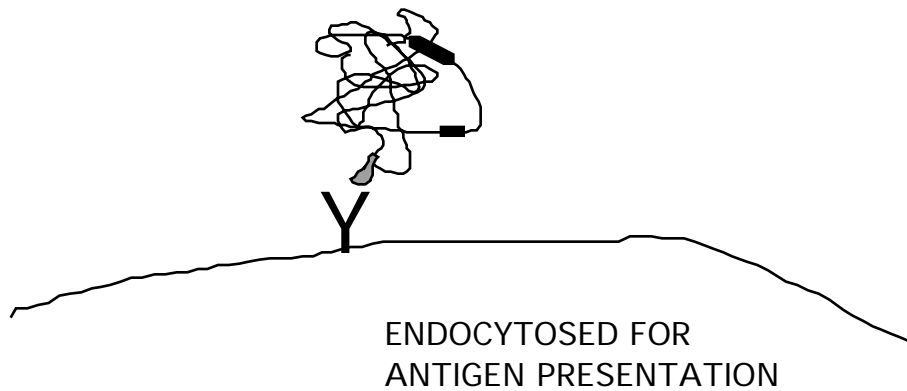




Hapten



T-independent
antigen



T-dependent
antigen