

T -lymphocytes

- **T cell receptor**
- **T – cytotoxic (CD8) cells**
- **T – helper (CD4) cells**
- **Activation of T cells**

16-1

T cell receptor

- **Alpha and beta polypeptide chains**
- **Antigen - major histocompatibility (MHC) binding site**

16-2

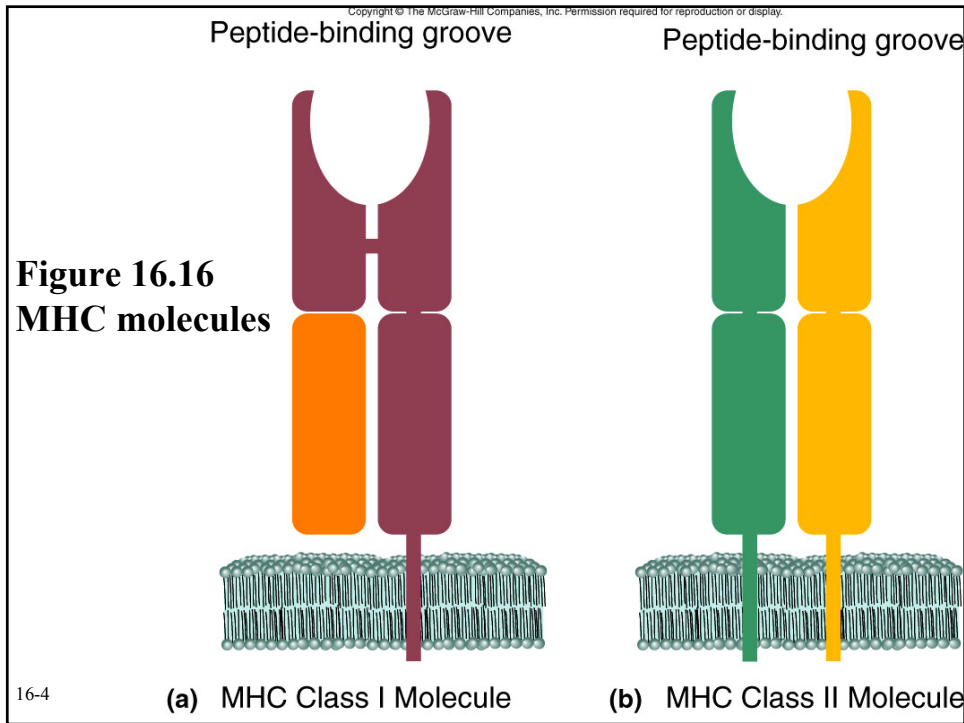
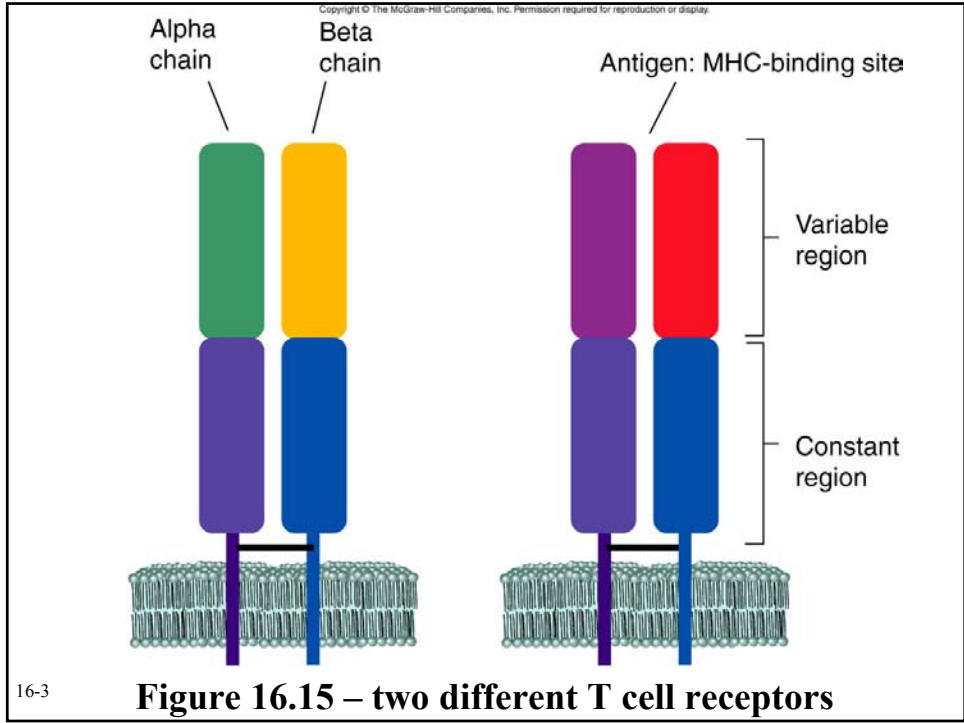
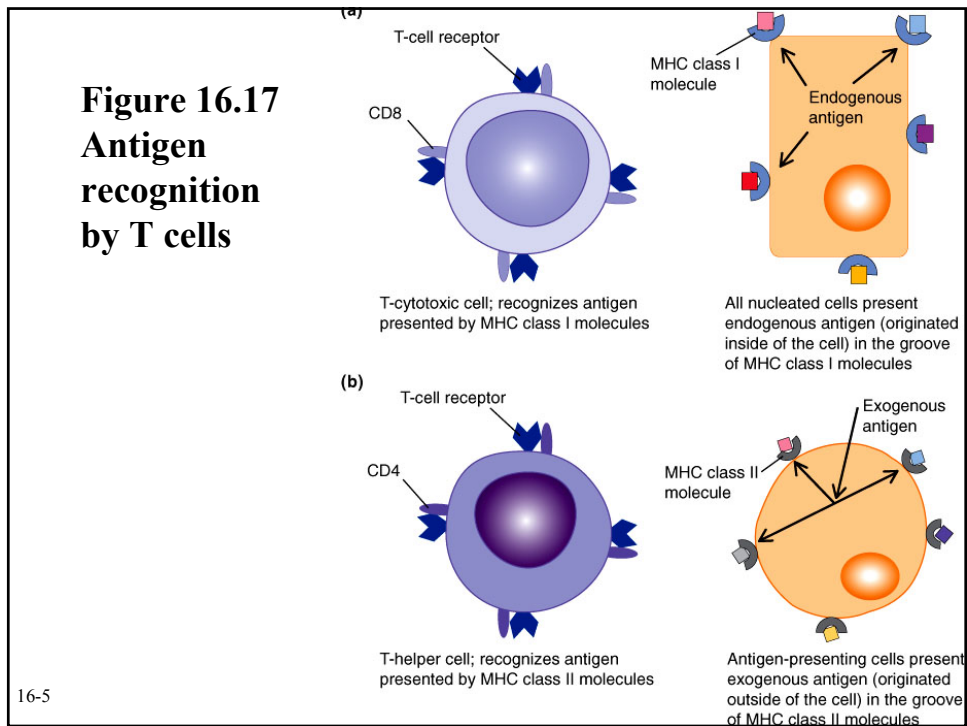


Figure 16.17
Antigen
recognition
by T cells

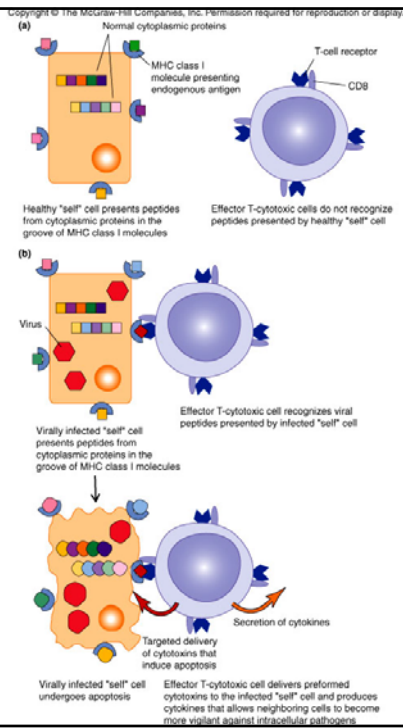


T – cytotoxic cells

- **Induce apoptosis**
- **Produce cytokines**
- **Recognize MHC class I molecules and endogenous antigen**

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Figure 16.18
T-cytotoxic cells



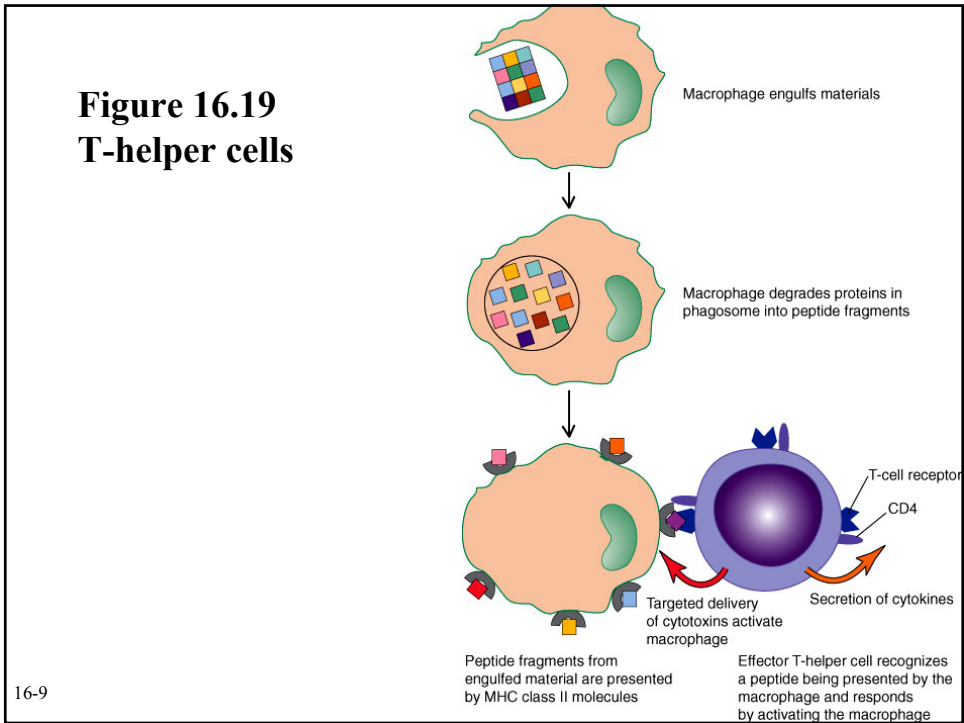
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T – helper cells

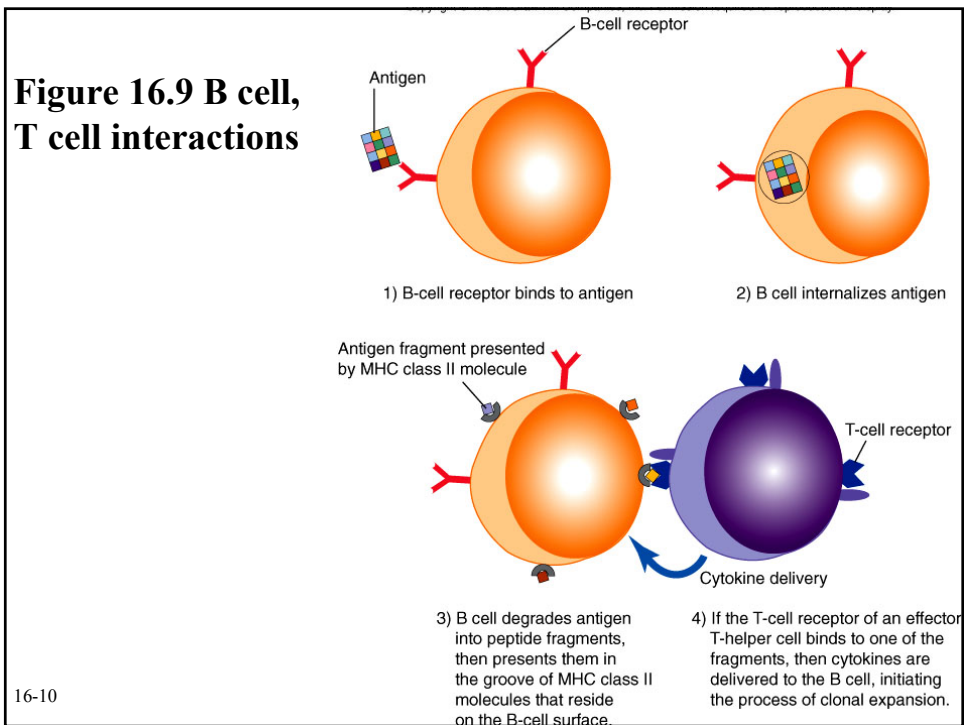
- Recognize MHC class II and exogenous antigen
- Ex. Th1 cells recognize antigens bound to MHC II molecules on macrophages
- Ex. Th2 cells recognize antigens bound to MHC II molecules on B cells

16-8

**Figure 16.19
T-helper cells**



**Figure 16.9 B cell,
T cell interactions**



Activation of T cells

- Dendritic cells
- Activated macrophages

16-11

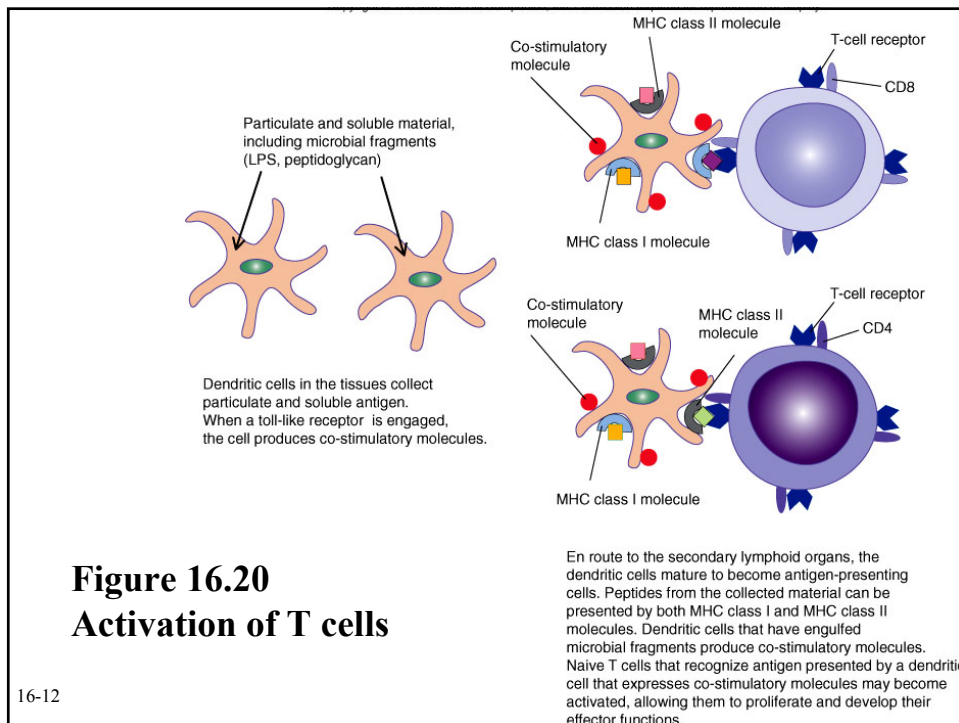


Figure 16.20
Activation of T cells

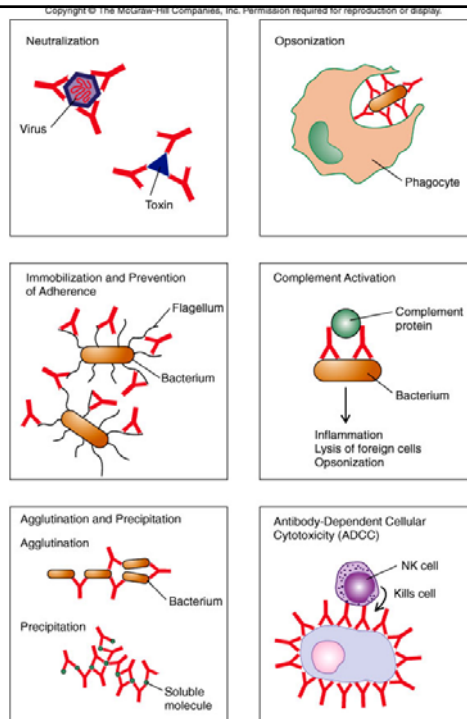
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Natural Killer (NK) cells

- Antibody – dependent cellular cytotoxicity (ADCC)
- Kill cells that do not have the MHC class molecules

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Figure 16.6
Protective outcomes
of Ab-Ag binding

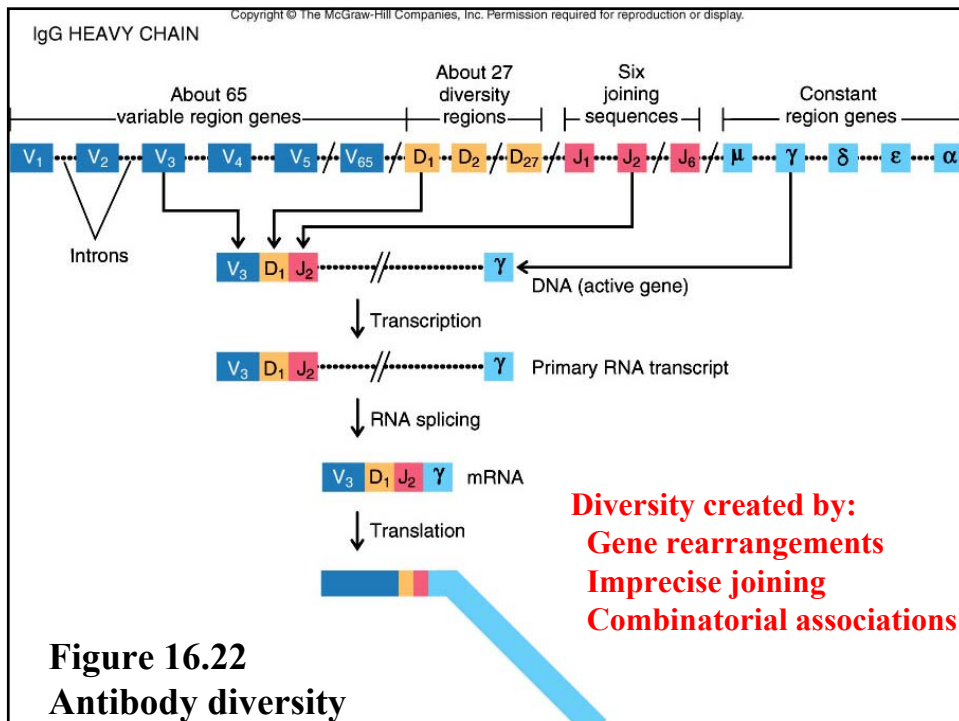


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Lymphocyte development

- **Generation of diversity**
- **Negative selection of self – reactive B and T cells**

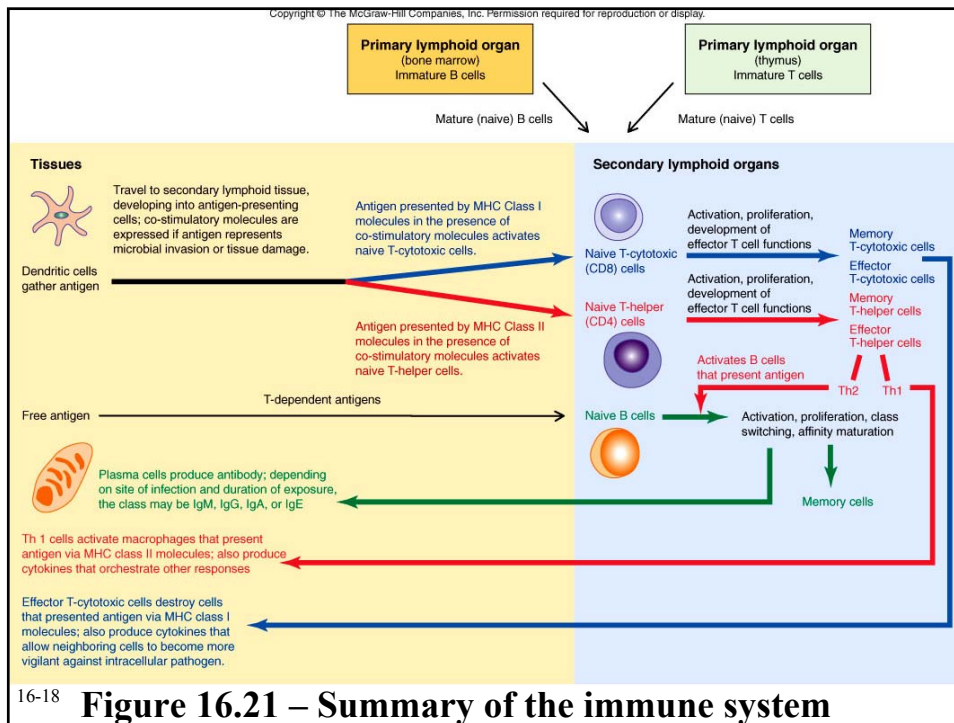
16-15



Negative selection

- **Eliminate B cells that recognize “self” molecules (ie, “clonal deletion”; failure creates autoantibodies)**
- **B cells do not respond (no specific T cell interaction)**
- **Eliminate T cells that do not recognize MHC (“positive selection”)**
- **Eliminate T cells that bind to self peptides presented by MHC molecules (“negative selection”)**

16-17



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