**T-lymphocytes**

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

**T cell receptor**

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

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**Figure 16.15** – Two different T cell receptors

**Figure 16.16**

MHC molecules

- Peptide-binding groove

**Figure 16.17**

Antigen recognition by T cells

**T – cytotoxic cells**

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

Activation of T cells

- Dendritic cells
- Activated macrophages
Natural Killer (NK) cells

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

Lymphocyte development

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

Negative selection

- Eliminate B cells that recognize “self” molecules (i.e., “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”)