

Johns Hopkins Engineering

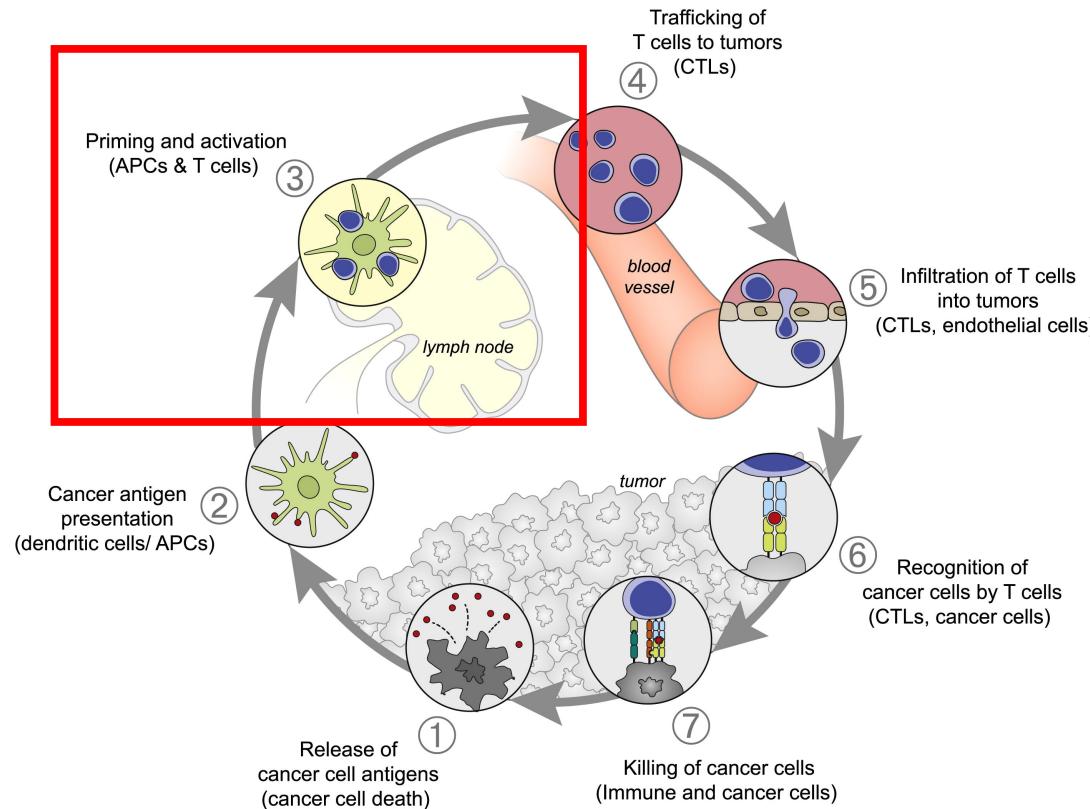
Immunoengineering

Immune Response to Cancer: Effector Cells

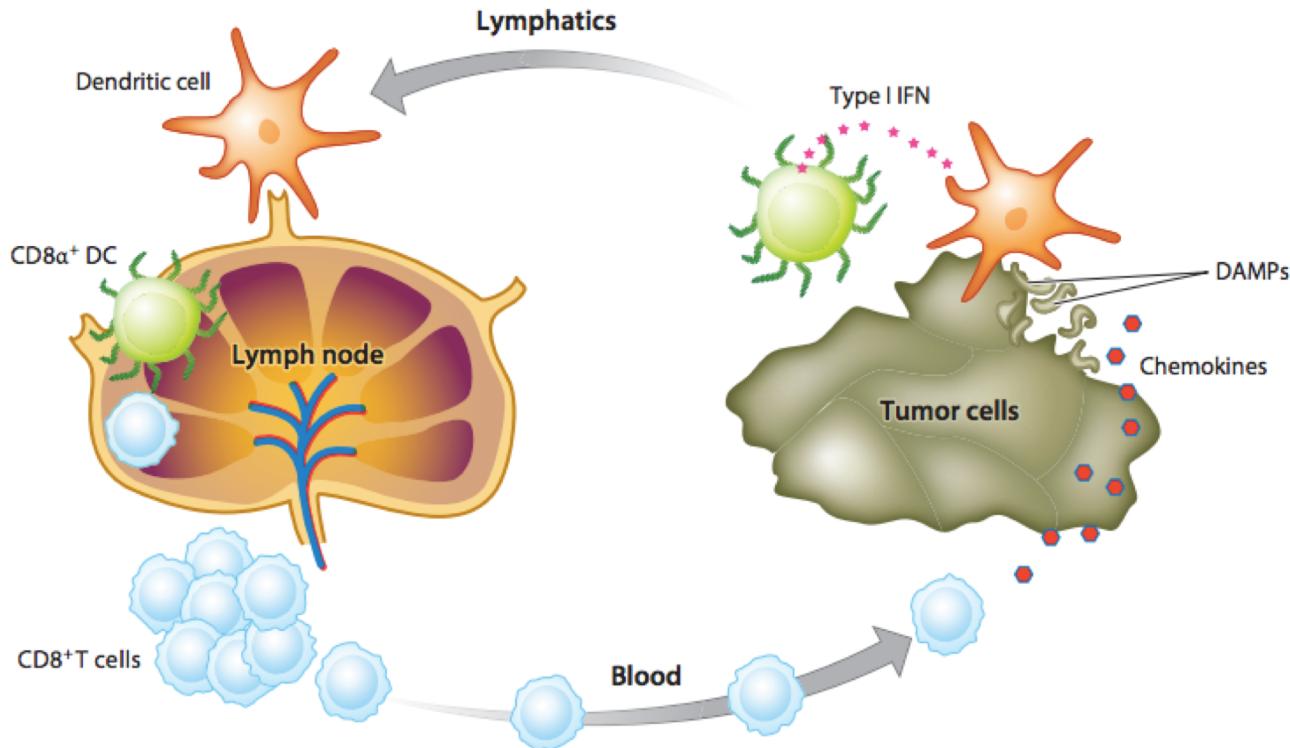


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Cancer Immunity Cycle



Dendritic Cell Maturation and Migration



DC Migration and T Cell Activation

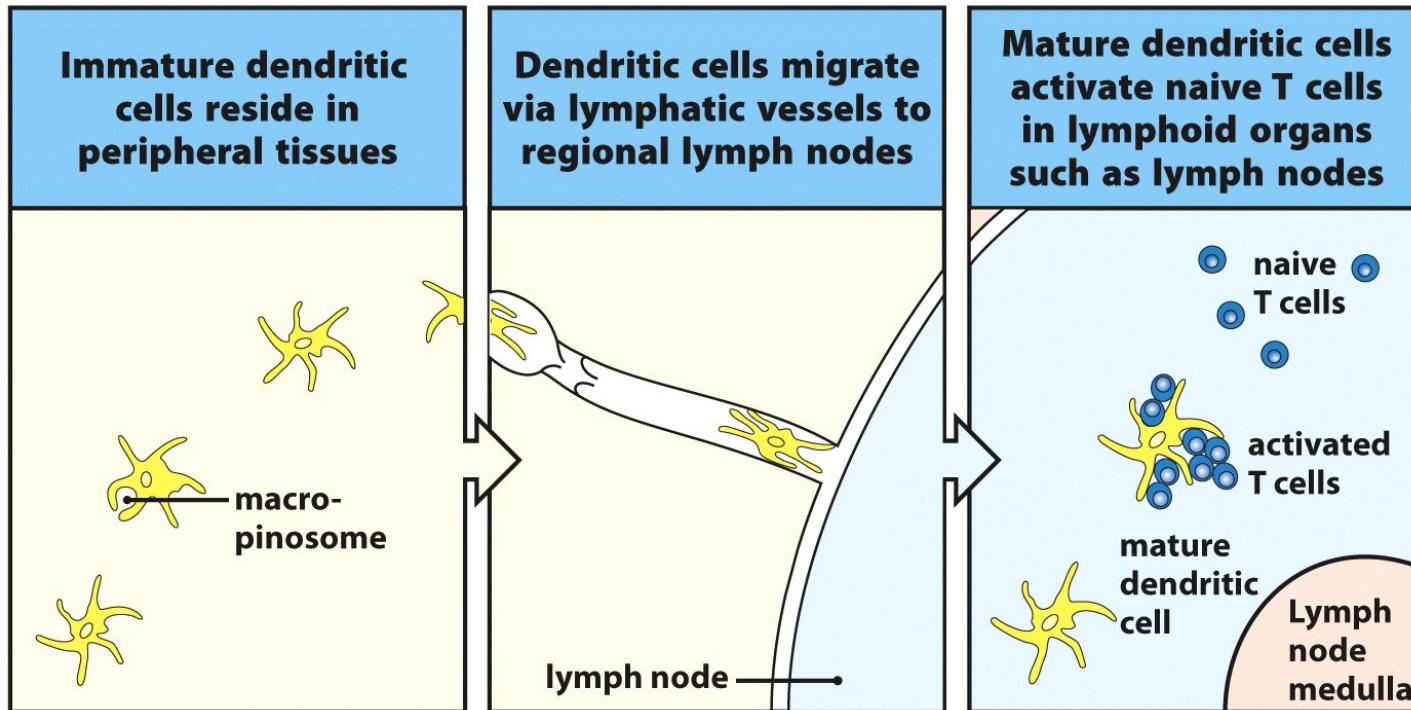


Figure 1.11 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

APC-T Cell Interaction

- Signal 1: MHC loaded with antigen binds TCR
- Signal 2: Costimulatory signal
- Signal 3: cytokines

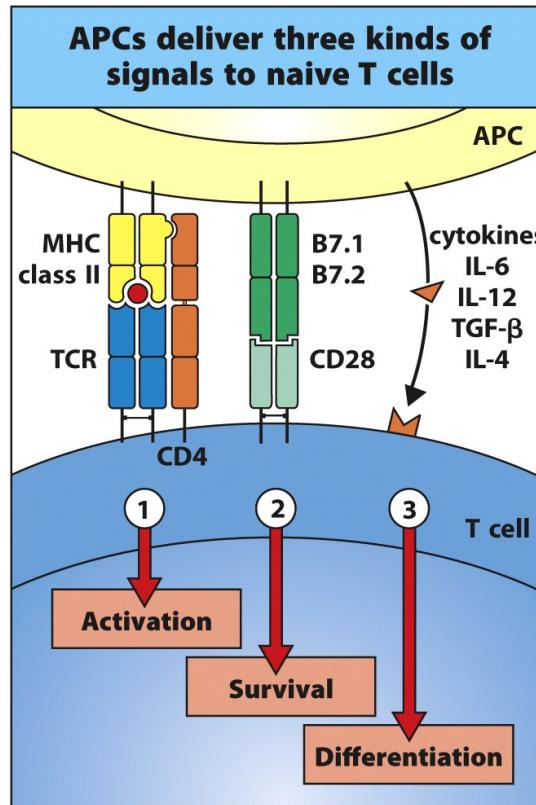


Figure 9.19 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

MHC I vs. MHC II

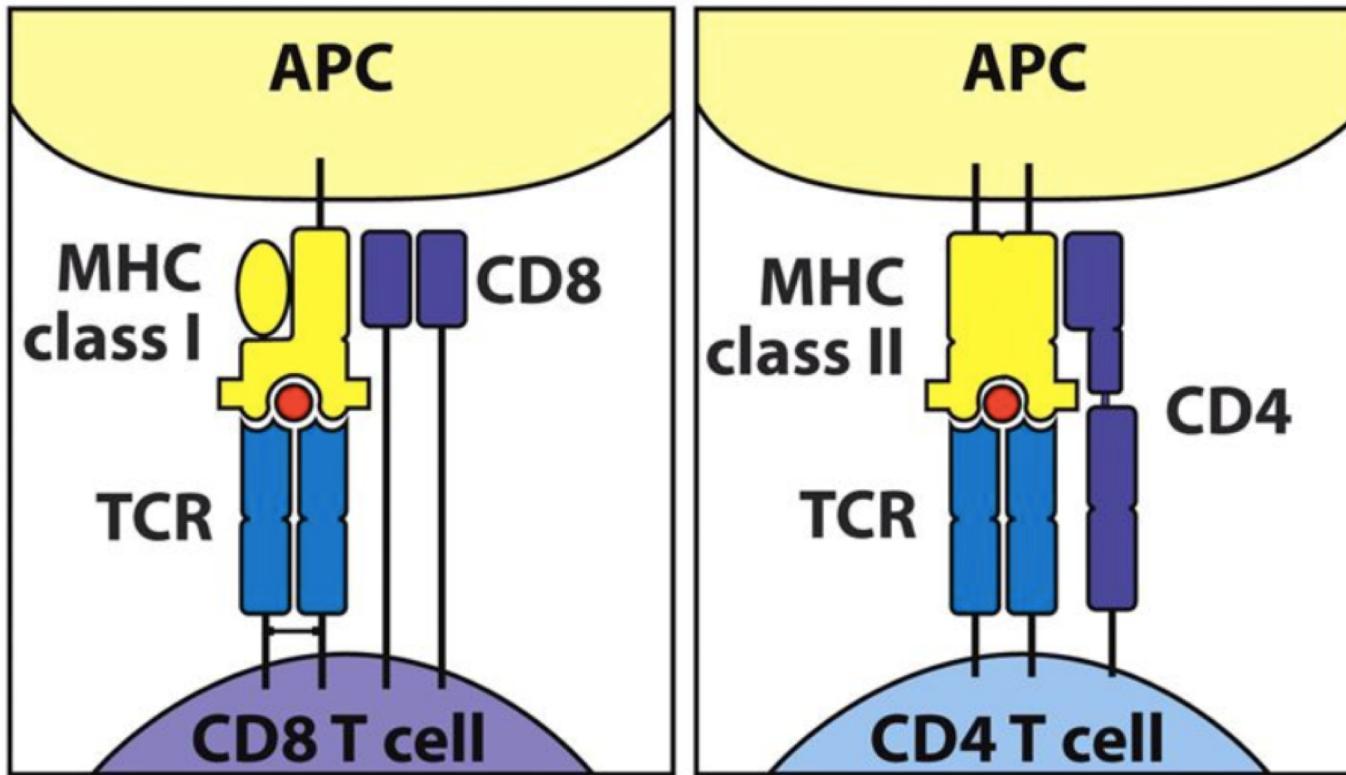


Figure 3.9 The Immune System, 3ed. (© Garland Science 2009)

Immunological Synapse

- Interface between T cell and APC
 - Clustering of signaling molecules in the cSMAC (central supramolecular activation cluster)
 - Adhesion molecules in the pSMAC (peripheral SMAC)

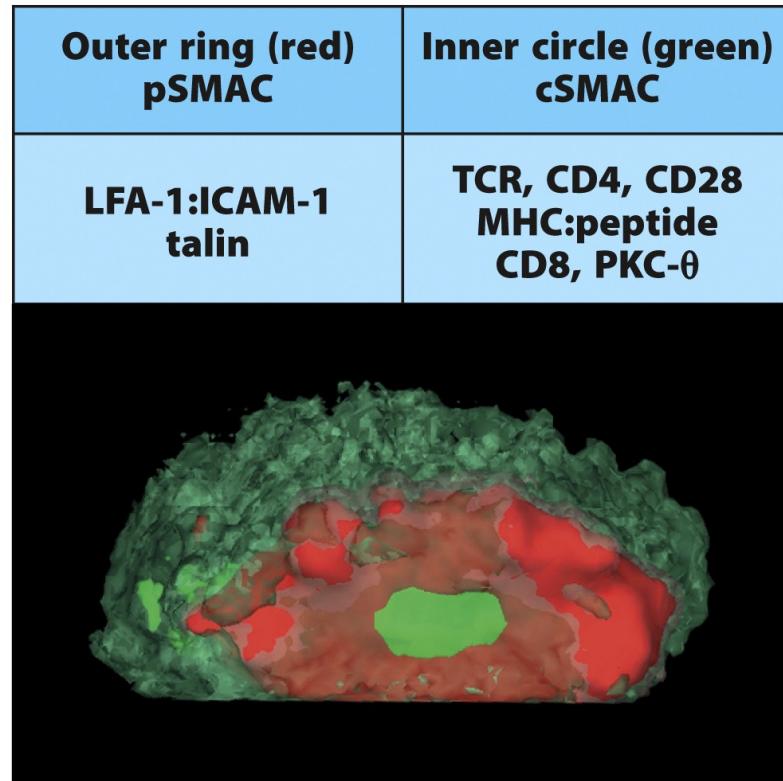


Figure 9.31 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

T Cell Activation

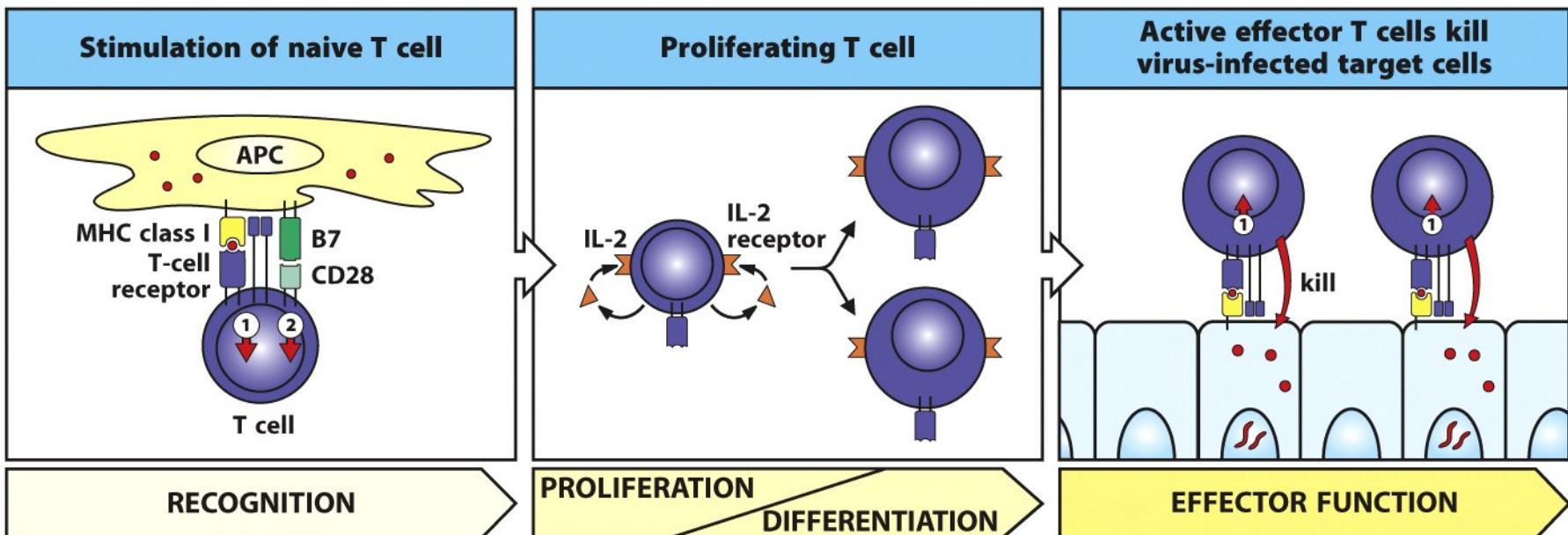
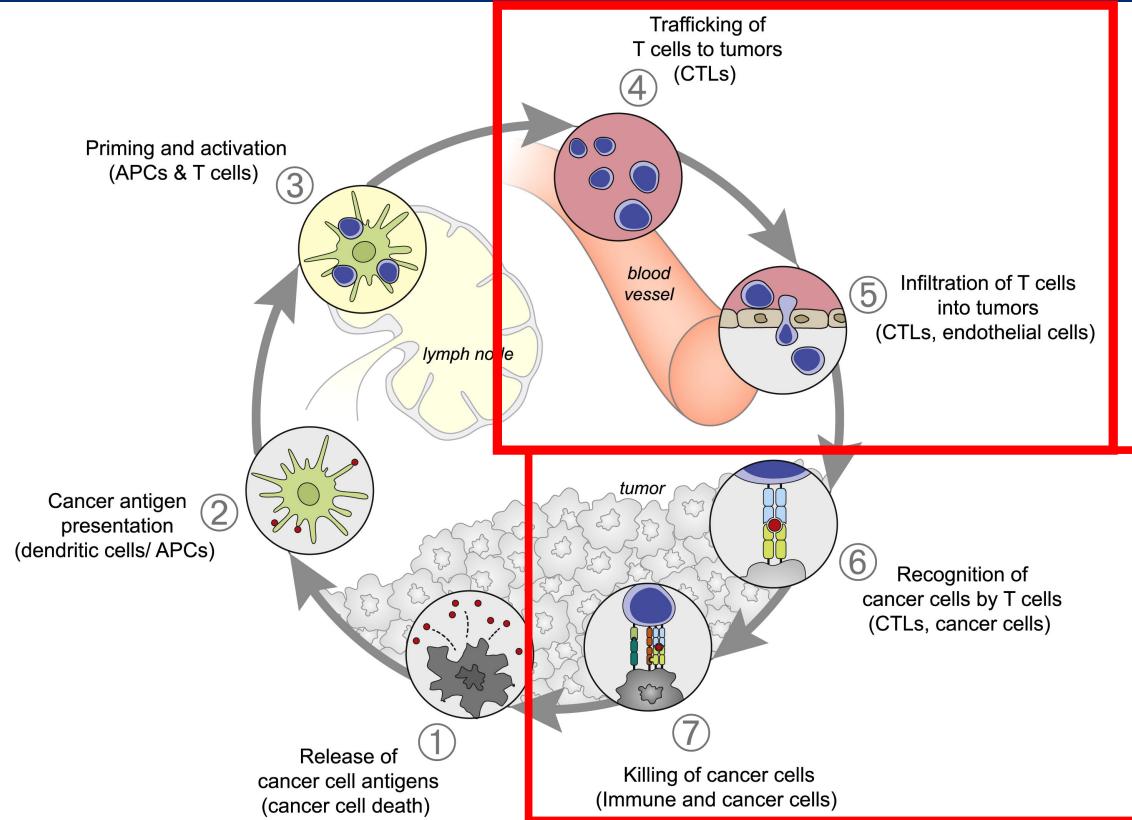
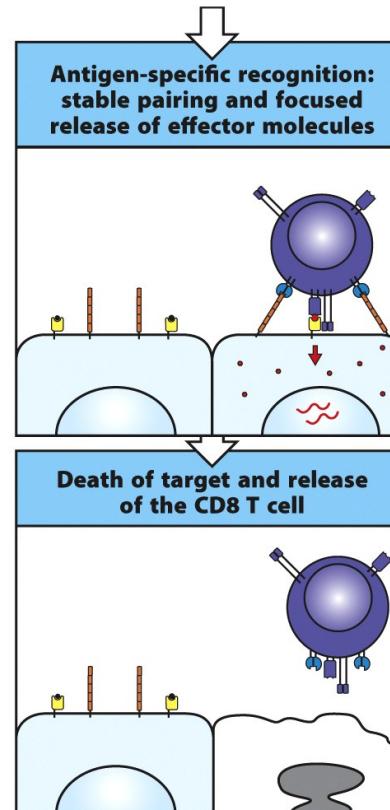
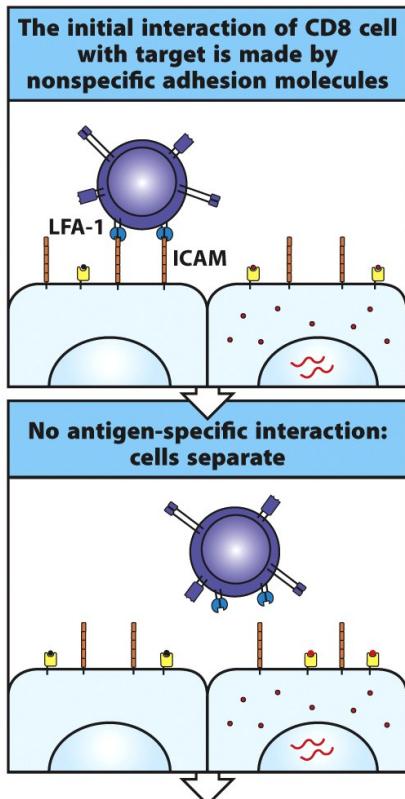


Figure 9.24 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

Cancer Immunity Cycle



CD8+ T Cell Target Recognition



CD8+ T Cell Recognition and Killing of Cancer Cells

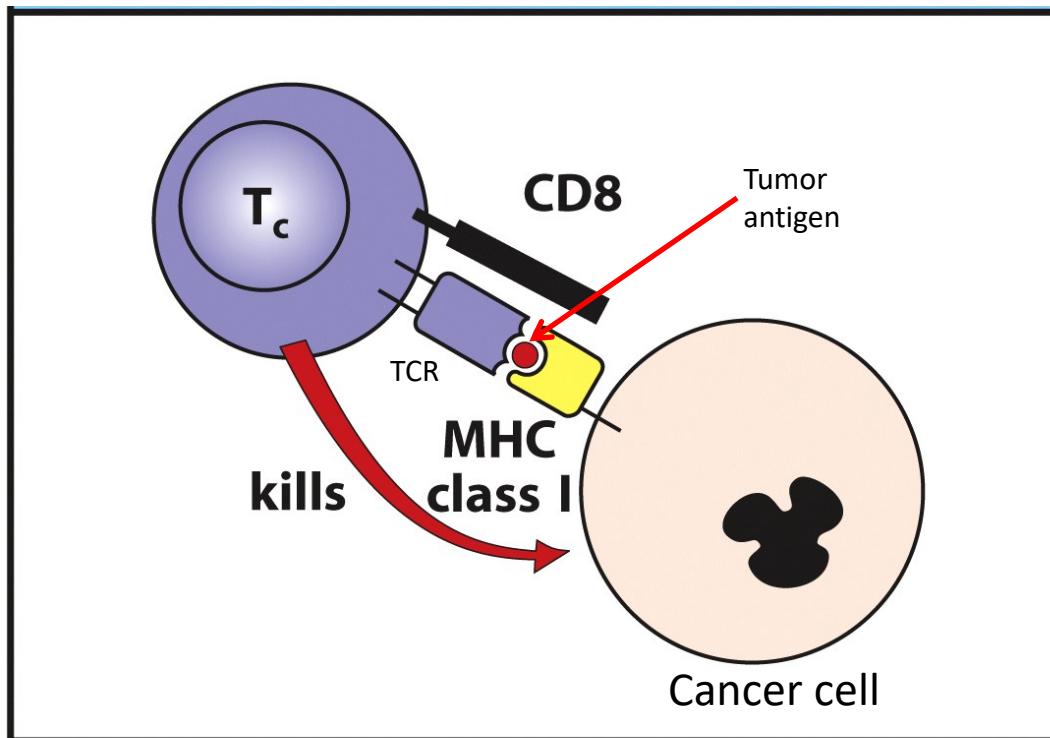


Figure 1.30 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

Antibody-Dependent Cell-Mediated Cytotoxicity (ADCC)

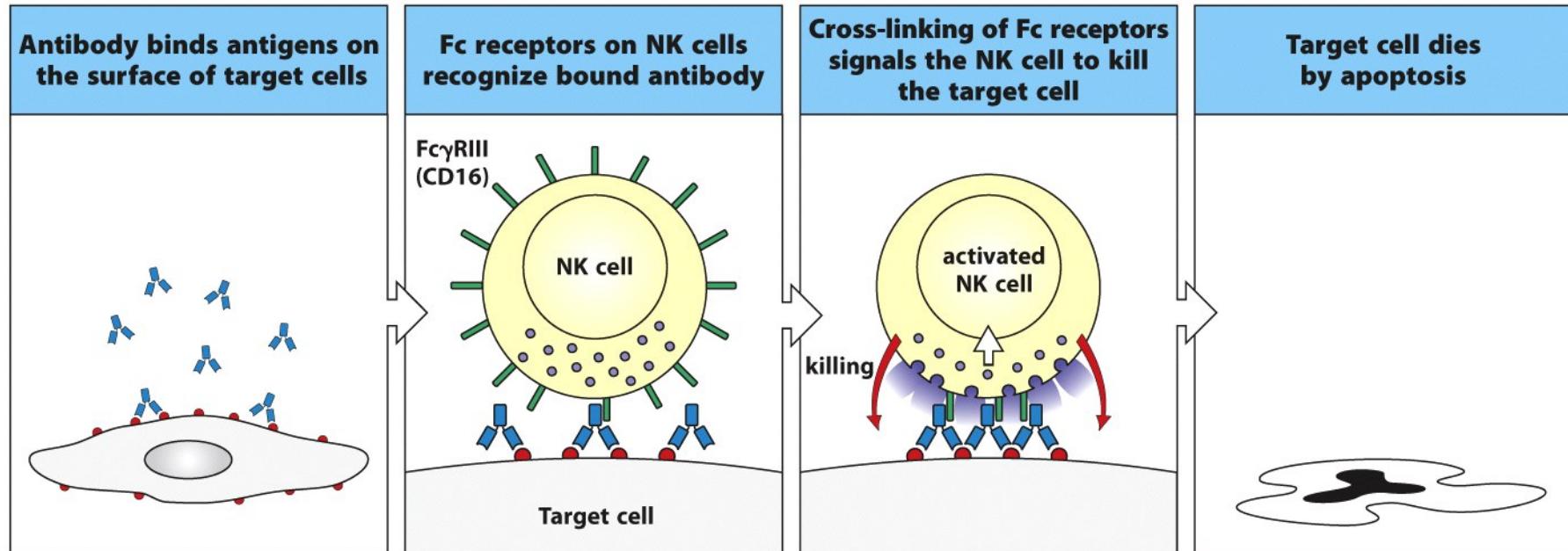


Figure 10.36 Janeway's Immunobiology, 8ed. (© Garland Science 2012)

NK Cells

- Cancer cells downregulate MHC I to avoid CD8+ T cell killing

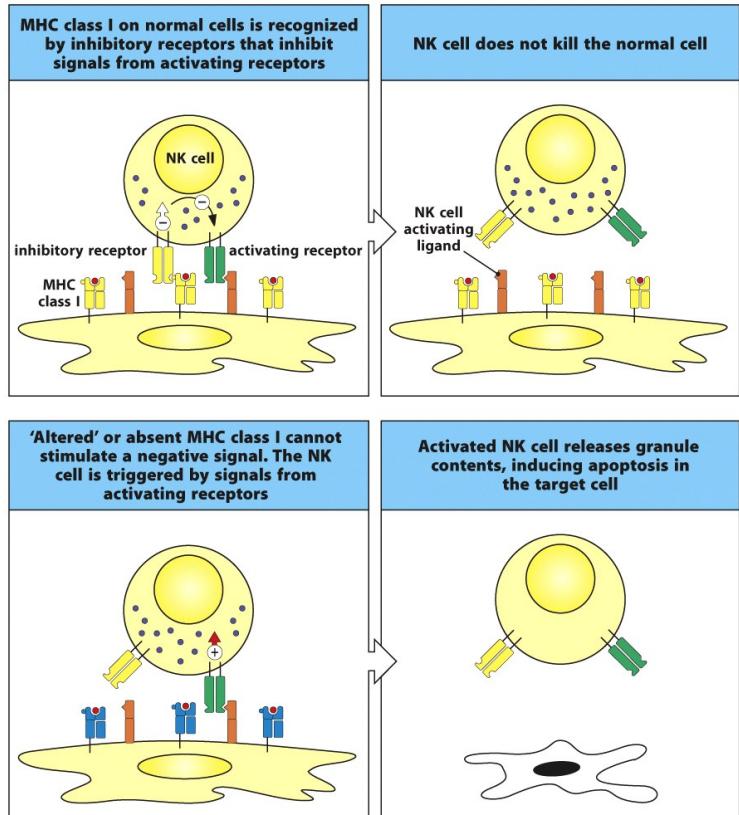


Figure 3.31 Janeway's Immunobiology, 8ed. (© Garland Science 2012)



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