

Unit 3 C21 Worksheet 10

Illustrations for Activation of Cytotoxic and Helper T Cells

1. What is the protein associated with the immature helper-t-cells?
2. What class MHC molecule will the immature (not activated) h-T-cell bind with? The MHC molecule is on what type of cell?
3. What is the protein associated with the immature cytotoxic-T-cells?
4. What class MHC molecule will the immature (not activated) c-T-cell bind with? The MHC molecule is on what type of cell?

Please Read:

So sometimes in the literature immune cells are called CD4 or CD8 (the CD stands for clusters of differentiation proteins). You learned in a previous video that the HIV (virus) selectively infects helper-t-cells. This is why AIDS patients are identified clinically when they have a “drop in their CD4 cells”.

The MHC (major histocompatibility proteins) play a key role in the activation of immune cells. Remember, the MHC is all about displaying the foreign antigen (epitope).

Host cells display foreign antigen and their good cytoplasmic proteins with MHC-I

Macrophage (APC) display foreign antigen with MHC II

B cells (APC) display foreign antigen with MHC II

Dendritic cells (APC) display foreign antigen with both MHC-I and MHC-II

Cytotoxic T cells receptors only bind with MHC I // So c-T-cells may be activated by dendritic cells but can also bind to infected host cells. (note: macrophage can not activate a c-T-cell)

Helper T cell receptors only bind with MHC II. So h-T-cells maybe activated by macrophage or dendritic cells. H-T-c may also interact with B cell's MHC-II protein to stimulate B cell development.