

1. An immune response that does not involve antibodies but rather involves the activation of macrophages and NK-cells, the production of antigen-specific cytotoxic T-lymphocytes is called:

- A. Humoral immunity.
- B. Cell-mediated immunity.
- C. Innate immunity.
- D. Hypersensitivity.

2. In marking an infected cell or tumor for destruction by CTLs, \_\_\_\_\_ and bind peptides from those antigens to \_\_\_\_\_ that are then placed on the surface of that cell.

- A. lysosomes process exogenous antigens; MHC-II molecules.
- B. proteasomes process endogenous antigens; MHC-I molecules.
- C. the Golgi complex process exogenous antigens; MHC-II molecules.
- D. proteasomes process endogenous antigens; MHC-II molecules.
- E. lysosomes process exogenous antigens; MHC-I molecules.

3. CTLs use the \_\_\_\_\_ on their surface to bind to \_\_\_\_\_ on infected cells and tumor cells.

- A. MHC-I molecules with bound peptide epitopes from endogenous antigens; TCRs and CD8 molecules
- B. TCRs and CD8 molecules; MHC-I molecules with bound peptide epitopes from endogenous antigens
- C. TCRs and CD4 molecules; MHC-II molecules with bound peptide epitopes from exogenous antigens
- D. MHC-II molecules with bound peptide epitopes from exogenous antigens; TCRs and CD4 molecules

4. The function of granzymes in CTLs is to:

- A. Activate the caspase enzymes that lead to apoptosis of the infected cell or tumor cell.
- B. Allow the lysosomes in the CTL to fuse with the cytoplasmic membrane for extracellular killing of the infected cell or tumor cell.
- C. Put pores in the cytoplasmic membrane of the infected cell or tumor cell.
- D. Recognize infected cell or tumor cell that suppress MHC-I production.

5. During apoptosis, \_\_\_\_\_ destroy the protein structural scaffolding of the cell - the cytoskeleton - and degrade both the target cell's nucleoprotein and microbial DNA within the cell.

- A. perforins
- B. granzymes
- C. lysosomes
- D. caspase enzymes