

HST.035 Homework Assignment #2

(Due March 4th)

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PLEASE PRINT YOUR NAME:

1. For each of the descriptions on the left, write the corresponding letter from the list of terms on the right:

| Descriptions | Terms |
|--|-----------------------------|
| ___ Deposition of calcium salts in dead or dying tissue. | A. Atrophy |
| ___ Is mediated by activation of caspases. | B. Hypertrophy |
| ___ Increase in the size of cells/tissues. | C. Hyperplasia |
| ___ Replacement of one cell type with another. | D. Apoptosis |
| ___ Decrease in the size of cells/tissues. | E. (Coagulative) necrosis |
| ___ Deposition of calcium salts in normal tissues. | F. Metastatic calcification |
| ___ Are responsible for lipid peroxidation & DNA damage. | G. Dystrophic calcification |
| ___ Adaptive increase in the number of cells. | H. Free radical |
| ___ Results in random and diffuse DNA breakdown. | I. Metaplasia |

2. Indicate which of the following statement about acute inflammation are True:

| Statement | True or False |
|---|----------------------|
| Rolling of leukocytes on endothelial cells is mediated by selectins | |
| Leukocyte adhesion to endothelial cells is mediated by cadherins | |
| Components of the complement system can act as chemotactic agents | |
| Margination of leukocytes is mediated by integrins | |
| Deficiency of myeloperoxidase (MPO) results in a defect in bacterial internalization into neutrophils | |
| Defensins, lysozyme and major basic protein are examples of oxygen-independent antimicrobial agents | |
| Swelling at the site of acute inflammation is the result of leukocyte transmigration into the interstitial tissues | |
| Direct endothelial injury results in a rapid and short-lived increase in vascular permeability (so-called immediate transient response) | |
| Patients with NADPH oxidase deficiency are highly susceptible to viral infections | |

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3. Activated complement products can (circle ALL that apply):

- A. Generate pores in cell membranes
- B. Enhance antigenic response to infections
- C. Recruit and activate inflammatory cells
- D. Opsonize microbes

4. A 5-year-old child presents with a history of recurrent bacterial infections. During each infection, there is an appropriate increase in his total white cell count (including neutrophils), but his biopsies generally show very few neutrophils at the sites of infection. A defect or deficiency in which of the following can result in this clinical scenario? (Circle ALL that apply.)

- A. Selectins
- B. NADPH oxidase
- C. Myeloperoxidase
- D. Integrins

5. Which of the following statements are true about immediate hypersensitivity reaction (circle ALL that apply):

- A. Is mediated by immunoglobulin E (IgE)
- B. Can result in hives/rash because of vasodilation and increased vascular permeability
- C. Can result in wheezing because of bronchoconstriction in the lungs
- D. Is mediated by Fc-specific activation of neutrophils

6. Indicate which of the following statement about cell-mediated immunity are True:

| Statement | True or False |
|--|---------------|
| T cell mediated cytotoxicity results in extensive "bystander" injury | |
| Immediate hypersensitivity is responsible for clearance of intracellular infections such as tuberculosis | |
| Cell-mediated immune damage is responsible for tissue damage in viral infections such as hepatitis B | |
| Delayed-type hypersensitivity is a cytokine-mediated reaction initiated by helper T cells | |
| Delayed-type hypersensitivity results in a highly specific immune response to infected cells | |
| Granulomatous inflammation is a variant of delayed-type hypersensitivity | |