Immune System Background: Questions to Consider

A. For the reading:

1. What is the main function of the immune system? *The main function of the immune system is to distinguish between self and non-self in the body.*

2. What is an antigen and how is it different from an antibody? *An antigen is an agent that the immune system recognizes. An antibody is an immune produced substance that recognizes and functions against an antibody.*

3. What term describes an object that generates an immune response? *Immunogenic* How is it related to antigens and antibodies? *Production of an antibody is an example of an immunogenic response to an antigen.*

4. What are the (3) main types of immunity? *Humoral, cellular, natural*

5. What are the main groups of cells involved in each type of immunity? *B-lymphocytes are primarily involved in humoral immunity; T-lymphocytes are primarily involved in cellular immunity; “Scavenger cells” such as macrophages and natural killer cells act in the natural immunity. Note that there are overlaps and interactions between immunities and cell types.*

6. What is the group of genes called that determines self/non-self markers? *MHC: major histocompatibility complex*

7. How are B cells related to plasma cells, antibodies, and antigen? *In response to an antigen, a B cell may produce plasma cells; the plasma cells produce antibodies to the antigen; the antibodies mark the antigen.*


10. What are the main differences between T cells and B cells? *T cells have to have antigen molecules presented to them by B cells or macrophages while B cells can respond autonomously to antigen.*

B. For the internet and other resources

1. Give some examples of antigens. *Two examples are bacteria and viruses (see http://www.amfar.org/cgi-bin/iowa/bridge.html).*
2. What is cancer? Cancer is the uncontrolled growth of cells leading to abnormal tissues.


4. What are some traditional cancer treatments? Chemotherapy is common and involves the use of drugs to target cancer cells (not always exclusively possible); bone marrow transplants are used to promote healthy blood cells (for leukemia patients).

5. How might the immune system play a role in fighting cancer? The system could generate an immune response against the cancer cells and help destroy them.

6. What is an immunotherapy cancer treatment? An immunotherapy treatment involves stimulating or using the bodies natural defense system in order to treat the cancer. An example of such a treatment would be a cancer vaccine that tries to stimulate an immune response against an antigen that is present on a tumor cell but not on a normal cell. (See: http://www.cancersupportivecare.com/immunotherapy.html and http://www.oncolink.com/treatment/article.cfm?c=11&s=80&id=247 for example.)