The Immune System: Common Characteristics of B and T Lymphocytes

1. Shared features of B and T lymphocyte function include:

   • _____

   • _____

   • _____

   • _____

2. Lymphocytes must distinguish between normally occurring internal antigens called _____ and those external to the body.

3. The immune system can develop receptors for a specific antigen before that antigen enters the body. Lymphocytes make a wide variety of receptors, and when an antigen binds and activates one of these receptors, the cell divides, making many _____. This process is called_____.

4. Name the two primary lymphoid organs where B and T cells mature:

   • _____

   • _____

5. Both B and T cells originate in the _____.

   • _____Which cells remain in the bone marrow and and mature there?

   • _____Which cells migrate to the thymus for maturation?

6. To become immunocompetent, B and T cells must accomplish two things:

   • _____

   • _____

7. Lymphocyte activiation begins when a T cell recognizes a foreign antigen. It is then tested for recognition of _____ the body's own antigens. Immature T cells that do not recognize the body's own antigens are called _____ and allowed to mature.

8. If lymphocytes attack the body's own cells, this will result in a/an _____ disease.

9. Below is a list of diseases that result when the immune system attacks the body's own cells. State what cells the immune system is attacking in each disease.

   • Grave's Disease: _____

   • Type I diabetes: _____

   • Multiple sclerosis: _____

   • Hemolytic anemia: _____

10. What three events can lead to autoimmune diseases?

   • _____

   • _____

   _____

   • _____

   _____

11. Naive lymphocytes are lymphocytes that have not encountered their one specific antigen. What is the best method for the lymphocyte to find its antigen?

   • _____

12. Clonal selection occurs when a lymphocyte encounters its _____.

13. Clonal expansion involves repeated cell division following lymphocyte activation by its antigen. Descendants of clonal expansion form two types of cells: _____ cells and _____ cells.

14. B cells clone their effector cells into _____ cells which are antibody-producing factories.

15. When an antigen activates a B cell, the cloned plasma cells secrete antibodies in about 7 days. This is known as the _____ immune response.

16. Some cloned B cells become long-lived_____cells which are ready to respond to an antigen if introduced to it again at a later date.w

17. When exposed to the same antigen again, the memory cells generate a _____ immune response. Circle the correct answer: This response is generated (*faster* or *slower?*) and produces a (*larger* or *smaller?*) number of effector cells.

18. The purpose of _____ is to generate memory cells, thus protecting us without the risk of getting sick.