

Basic Principles of Immunology

Learning Objectives

1. List and define the various types of nonspecific immunity.
2. Be aware of the complexity of the acquired (adaptive) immune response, knowing the types and roles of the various B cells and T cells. Know how the acquired immune response works together with nonspecific immunity.
3. Understand the role of the major histocompatibility complex (MHC) in the immune response, as well as in the rejection of organs.
4. Know the structure of an antibody and know how antibodies can be specific for such a large number of antigens. List and define the roles of each of the five types of antibodies.
5. List the steps of the cell-mediated and antibody-mediated immune responses.
6. Name the different ways vaccines are created. How do vaccines prepare the immune system for an infection?
7. Be familiar with the various types of disorders of the immune system.
8. Know how polyclonal and monoclonal antibodies are generated, and why monoclonal antibodies are so important in biotechnology.
9. Western blotting, fluorescent antibody technique, and the enzyme-linked immunosorbent assay are three techniques in biotechnology that employ antibodies. Be familiar with how each of these techniques is performed. Compare the techniques in terms of what each technique is looking for, and if one technique is favored over another.