

Name _____

Antibodies: The Guardians of the Body

Open-Ended Response Answer Key

1. Antibodies function to neutralize pathogens by binding to specific antigens on their surface. This binding action can block the pathogen's ability to infect host cells, prevent it from replicating, or mark it for destruction by other components of the immune system, such as phagocytes or natural killer cells.
2. Immunological memory is significant in the immune response because it allows the body to mount a faster and more effective defense upon subsequent exposure to the same pathogen. This memory response is the basis for vaccination and provides long-lasting protection against infections.
3. B lymphocytes produce antibodies through a process called clonal selection and expansion. When a B lymphocyte encounters a specific antigen, it undergoes activation and begins to produce antibodies that are tailored to recognize and bind to that antigen. These antibodies are then released into the bloodstream to neutralize the pathogen and mark it for destruction.
4. Antibodies contribute to the body's defense against infections and diseases by neutralizing pathogens, marking them for destruction by other immune cells, and forming immunological memory. This allows the immune system to mount a coordinated and effective response to protect the body from harm.

