

Definitions and Concepts for CAIE Biology IGCSE

Topic 10: Diseases and Immunity

*Definitions in **bold** are for supplement only*

Active immunity - Resistance in an organism that has developed through the production of specific antibodies in response to a pathogen. This may occur due to infection by a pathogen or by vaccination. It provides long-lasting immunity as memory cells are produced.

Antibodies - Proteins produced by white blood cells (**lymphocytes**) in response to a specific antigen, triggering an immune response. **Antibodies have binding sites complementary to a particular antigen.**

Antigen - A unique chemical present on the surface of a cell that induces an immune response.

Autoimmune disease - A disease in which the immune system targets and destroys its own healthy body cells.

Chemical barrier - A non-specific defence that destroys invading pathogens, e.g. mucus, stomach acid.

Host - The organism from which a pathogen or parasite obtains nutrients and/or shelter.

Mechanical barrier - A non-specific defence that physically blocks the entry of a pathogen, e.g. skin, nose hairs.

Memory cell - A type of white blood cell that remains in the blood and provides immunological memory to a specific antigen on a pathogen.

Passive immunity - Resistance in an organism acquired via the transfer of antibodies e.g. mother to infant by breastfeeding. It provides short-term immunity as no memory cells are produced.

Pathogen - A disease-causing organism, e.g. virus, fungus, bacterium, protist.

Phagocytosis - The process by which white blood cells (**phagocytes**) engulf and destroy pathogens.

Transmissible disease - A disease that is caused by a pathogen which can be spread between hosts (either directly or indirectly).

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Type 1 diabetes - A type of diabetes in which the pancreas fails to produce enough insulin. It is considered to be an autoimmune disease.

Vaccination - The deliberate exposure of an individual to a harmless pathogen in order to provide active immunity.

Water treatment - Any process that improves water quality and ensures that it is not contaminated by disease-causing bacteria (from untreated sewage for example).

White blood cells - Cells of the immune system that protect the body from invading pathogens.

