

Unit 2: Lesson 1 – Development of Disease and Infection

GLOSSARY

Adaptive immunity

An antigen-specific immune response that allows the host's immune defenses to recognize and neutralize a particular pathogen. The pathogen survives by circumventing these responses and maintaining a reservoir of susceptible targets.

Antigenic novelty

A survival mechanism used by pathogens that involves infecting someone whose immune system has not been exposed to the pathogen in the past. This is why babies tend to be more susceptible to many infections.

Antigenic variation

A survival mechanism used by pathogens in which multiple versions of the virus or bacteria exist allowing for multiple infections in a single host. Different versions of the pathogen can be caused by spontaneous genetic changes (point mutations), genetic variety (programmed gene rearrangements) or existence of various types of the same pathogen with different genes for their surface antigens (multiple genotypes).

Chronic infection

When a pathogen remains in cells and replicates indefinitely. Hepatitis B virus is an example of this type. Because the virus keeps replicating, infected individuals often have large amounts of the virus in their blood enabling them to more easily transmit the virus to others.

Latency

A period after infection during which a virus remains in cells without replicating. Symptoms may or may not appear during this period. The virus may reactivate when the immune system is compromised. Herpes simplex virus, zoster virus (which causes chickenpox and shingles), and Epstein-Barr virus (which infects B cells), are examples of viruses that use this mechanism of persistence for survival.

Persistence

A survival mechanism in which a pathogen remains in cells after initial infection. Chronic infection and latency are examples of this type.

Programmed gene rearrangement

An example of antigenic novelty in which a pathogen's genome regularly expresses different surface proteins making it difficult for a host's immune system to recognize different versions of the same pathogen. For example, the trypanosomiasis ("sleeping sickness") genome contains about a thousand genes that can be variably expressed to make different surface molecules. After the host makes antibodies for one set of molecules, the parasite changes its gene expression to make different surface molecules.

Resistance

A survival mechanism in which a pathogen avoids or counteracts the host's immune system by destroying or exploiting it. This mechanism may cause part of the immune response to be ineffective, or it may reduce the overall immune response. This is one of the mechanisms of survival employed by HIV which hinders the typical immune response by infecting T cells.