

Human defences and immunity

How do mucus and cilia protect the airways?

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How does the skin protect against pathogens?

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What are lysozymes?

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What does hydrochloric acid in the stomach do?

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What is an antigen?

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What are antibodies?

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What are memory lymphocytes?

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Describe the secondary immune response.

It is a physical barrier that pathogens cannot easily pass through.

Mucus traps pathogens; cilia move the mucus away from the lungs.

It kills pathogens that are swallowed. A chemical defence.

Enzymes that break down bacterial cell walls. A chemical defence.

Proteins made by white blood cells that bind to specific antigens and help to destroy the pathogen.

A molecule, usually on the surface of a pathogen, that triggers an immune response.

Memory lymphocytes recognise the antigen. The response is faster and produces more antibodies.

White blood cells made after exposure to an antigen that stay in the body and respond quickly if the antigen returns.

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How does immunisation protect against a disease?

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Why does an inactive pathogen in a vaccine not make you ill?

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What is herd immunity?

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Give two advantages of immunisation.

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Give two disadvantages of immunisation.

It is dead or weakened, so it cannot cause the disease, but its antigens still trigger an immune response.

An inactive pathogen triggers antibody and memory lymphocyte production, so a later infection gets a fast secondary response.

Protects the individual and reduces the spread of disease; also protects others through herd immunity.

When a large proportion of the population is immune, so the pathogen spreads poorly and non-immune people are protected.

Side effects can occur; it does not always work or may need boosters.