

Bacteria, viruses and infection

What is a capsid?

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Which of Ebola, TMV, HIV and lambda phage have an envelope?

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Which nucleic acid does each of these viruses have: HIV, TMV, lambda phage?

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Which organisms do TMV and lambda phage infect?

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What is the lytic cycle?

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What is latency?

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What is a provirus?

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How does Mycobacterium tuberculosis avoid destruction by macrophages?

Ebola and HIV. TMV and lambda phage do not.

The protein coat made of subunits that surrounds the nucleic acid of a virus.

TMV infects plants (tobacco). Lambda phage infects bacteria (E. coli).

HIV: single-stranded RNA. TMV: single-stranded RNA. Lambda phage: double-stranded DNA.

Viral nucleic acid persists in the host cell without producing new virus, often integrated into the host DNA.

A cycle in which a virus replicates at once inside the host cell, making many new virus particles, and the cell bursts.

It prevents lysosomes fusing with the phagosome and has a waxy cell wall, so it survives and multiplies inside.

HIV DNA, made from RNA by reverse transcriptase, integrated into the host chromosome.

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What is a tubercle?

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Which cells does HIV infect, and which receptor does it bind?

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What does reverse transcriptase do?

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Why do people with HIV die?

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Name the major routes by which pathogens enter the body.

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How does stomach acid protect against infection?

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How do gut flora protect against pathogens?

Bacteria, viruses and infection

How does the skin protect against infection?

Helper T cells (and some macrophages), by binding the CD4 receptor with gp120.

A ball of macrophages, T cells and dead tissue formed around TB bacteria in the lungs.

Helper T cells are destroyed, the immune system fails, and opportunistic infections such as TB cause death.

Makes a DNA copy from the viral RNA genome.

Hydrochloric acid at pH 1 to 2 kills most pathogens in food and drink.

Gas exchange system, digestive system, breaks in the skin, mucous membranes (genital tract, eye), and across the placenta.

A keratinised physical barrier, acidic sebum, skin flora competing with pathogens, and blood clotting at cuts.

They compete for nutrients and space and make substances that inhibit pathogens.