CONCEPT: BACTERIOPHAGE: LYSOGENIC PHAGE INFECTIONS

Recal	all:(Temperate) Phage infections may NOT immediately produce new phages.					
	□ After lysogenic phage DNA enters cell, one of two scenarios are possible:					
	1) Lead to <i>production</i> of new phages by the cycle.					
2) Leads to of phage DNA forming a prophage by the lysogenic cycle.						
●Lyso	genic Cycle (Lysogeny): lysoge	nic phage replication where	e phage DNA remains	s (inactive) in the cell.		
	□ Lysogen : a bacterial cell carr	ying a	in its chromosome	e can pass it on via replication.		
Example: Lysogenic cycle of a lambda (λ) phage.						
				ttachment		
		1 Attachment	acterial romosome	Phage attaches to specific receptors on host bacterium.		
		2 Genome Entry	Phage DNA Ph	hage injects its DNA into host bacterium. Protein coat remains outside.		
-	Lytic Cycle	Lysogenic Cycle 🎇				
	Assembly Release (Lysis)	3	Prophage	Phage DNA integrates into host's chromosome, forming a prophage. = Bacterium + Prophage		
		4 Replication		Prophage replicates with chromosome. All offspring are lysogens.		
			Prophage DNA	Prophage excised by viral enzyme. Lytic cycle begins.		

PRACTICE: Which steps of the lytic and lysogenic cycles are the same?

a) Attachment & genome entry.

c) Integration & excision.

b) Replication & synthesis.

d) Assembly & release.

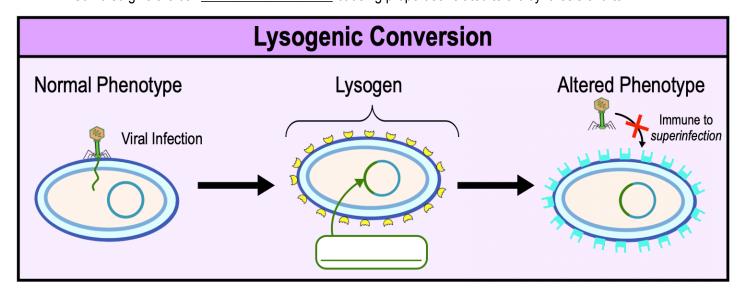
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PRACTICE: Some bacterial viruses (lysogenic phages) carry viral DNA that acts like an episome. When a bacterial cell that is infected by a lysogenic phage replicates, what happens to the viral DNA?

- a) The viral DNA remains separate from the bacterial chromosome and is not passed on to the daughter cells.
- b) The viral DNA is incorporated into the bacterial chromosome and passed on to the daughter cells.
- c) The viral DNA remains separate from the bacterial chromosome but is still passed on to the daughter cells.
- d) The viral DNA is degraded by the bacterial cell.

Lysogenic Conversion

•Lysogenic Conversion: phenotypic	of a lysogen based the prophage it carries.			
□ Typically results in the change of the host cell surface structures.				
□ Cell becomes	to a superinfection (infection by the same type of phage).			
□ Can also give the cell	-causing properties related to the synthesis of a toxin			



PRACTICE: A strain of Corynebacterium diphtheriae has been infected by the Phage-beta and the phage genome has been integrated into the host chromosome. Thus, the Corynebacterium diphtheriae cell is a _____ and the integrated phage genome is a _____.

- a) Lytic, lysogen.
- b) Lysogen, prophage.
- c) Lytic cell, temperate phage.

- d) Lysen, prophage.
- e) Lysogenic, lysogen.
- f) None of the answers are correct.