CONCEPT: BACTERIOPHAGE: LYSOGENIC PHAGE INFECTIONS

●*Recall:* _____ **(Temperate) Phage** infections may NOT immediately produce new phages.

□ After lysogenic phage DNA enters cell, one of two scenarios are possible:

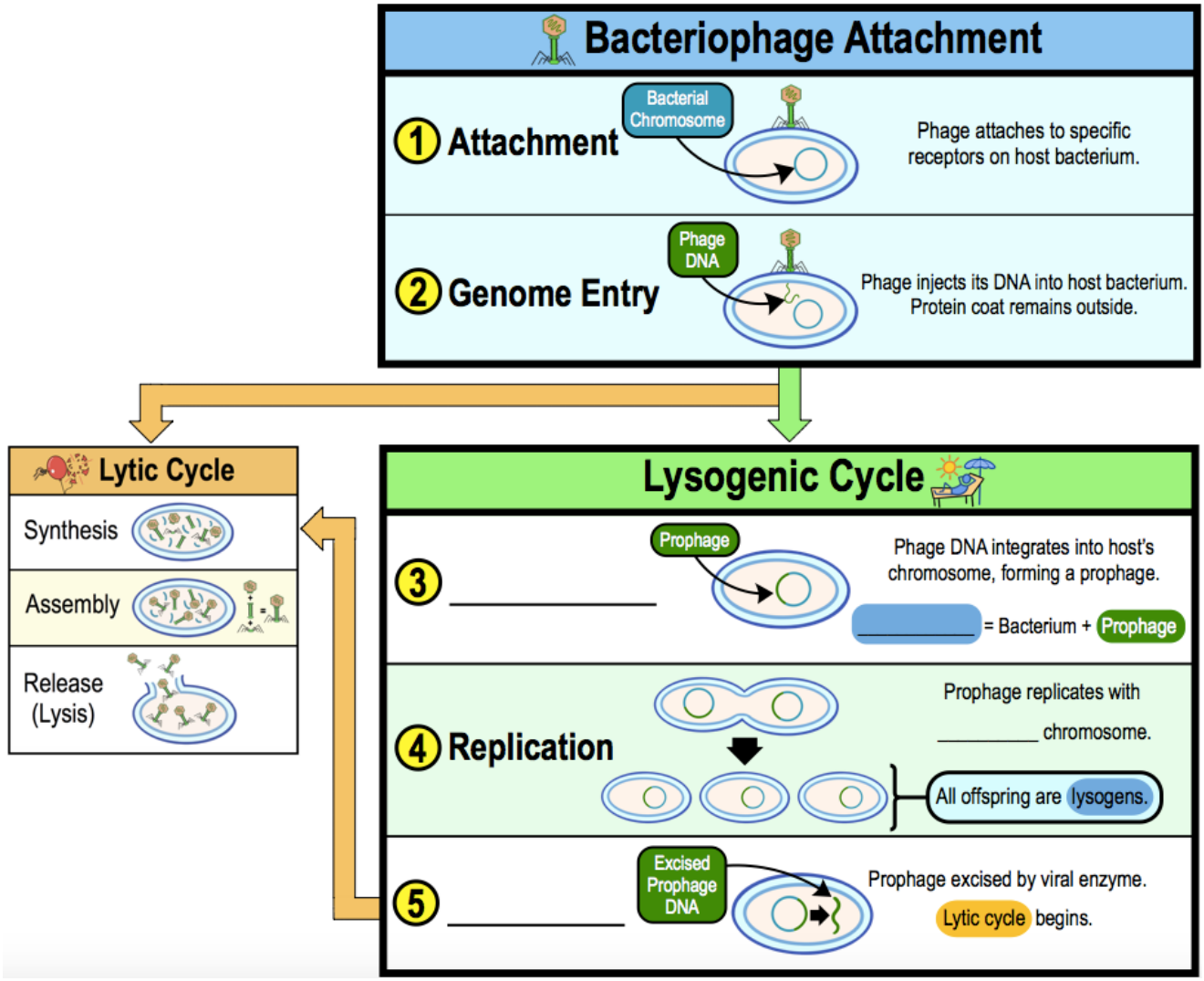
1) Lead to *production* of new phages by the _____ cycle.

2) Leads to _____ of phage DNA forming a *prophage* by the *lysogenic* cycle.

●**Lysogenic Cycle (Lysogeny):** lysogenic phage replication where phage DNA remains _____ (inactive) in the cell.

□ **Lysogen:** a bacterial cell carrying a _____ in its chromosome can pass it on via replication.

Example: Lysogenic cycle of a lambda (λ) phage.



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

a) Attachment & genome entry.

b) Replication & synthesis.

c) Integration & excision.

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.

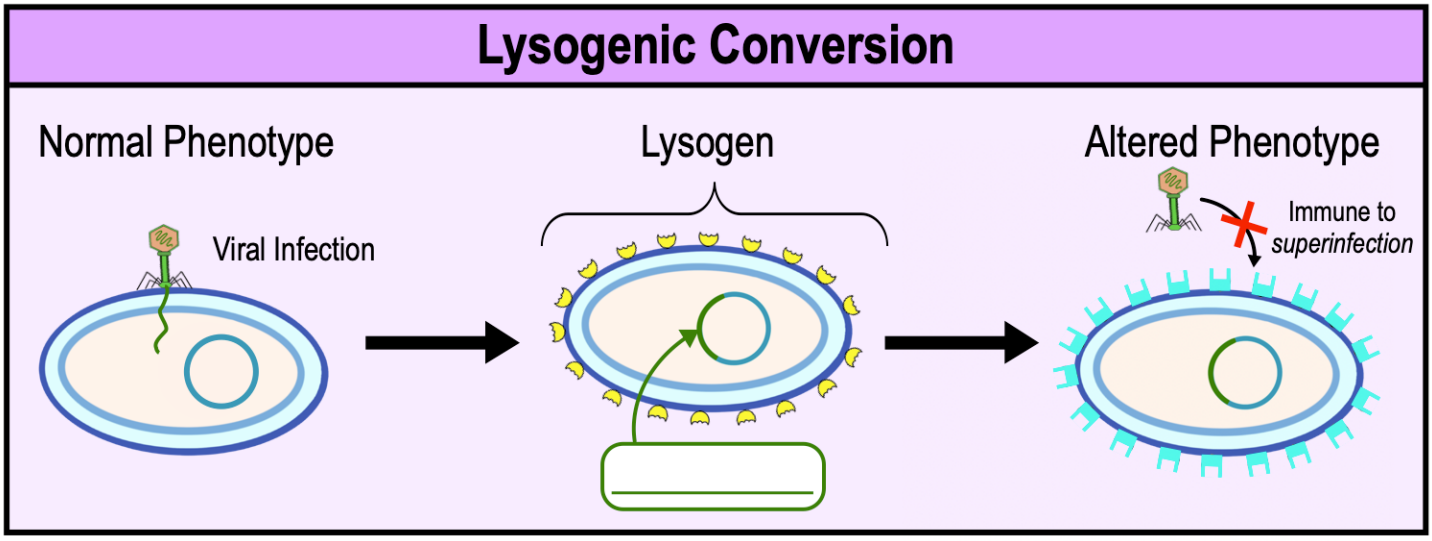
Lysogenic Conversion

●**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.