4(a): BACTERIOPHAGES

T4 is perhaps the most studied of all phages.

OTHER PHAGE MORPHOLOGIES

T4 attacks Escherichia coli (E. coli) bacteria

1) flagellum
2) Bacterial “nucleoid” made of DNA
3) cell envelope made of membrane and wall
4) cytoskeleton framework that gives shape to the cell
5) ribosomes
6) enzymes (little task “robots”)
7) inclusions (viral production sites)

Phages have two life cycle options: lytic or lysogenic.

LYTIC (causes bacteria to burst)
The virus replicates quickly (30 minutes) and then causes the cell to burst, releasing 100-150 new viruses. New viruses infect more cells.

1) Virus attaches.
2) DNA is injected.
3) mRNA is made
4) Ribosomes read mRNA and make viral proteins.
5) Viral proteins assemble into complete viruses.
6) New viruses burst the cell open and go off to infect another cell.

LYSOGENIC (hides in bacteria’s DNA)
The viral DNA is incorporated into the bacteria’s DNA, so when the bacteria reproduces by fission, the viral DNA is also copied.

1) Virus attaches.
2) DNA is injected.
3) Viral DNA is incorporated into host DNA.
4) Host cell begins to make a copy of itself (fission). It copies viral DNA along with its own.
5) Cells multiply many times, carrying the viral DNA along with them.

(Enzymes splice and insert the DNA)