NOTES: Viruses and Prions
18.2 Viruses and Prions

Viruses

Very small particle made up of two parts:

1. Core of DNA or RNA
2. Protein coat (capsid)

The capsid enables the virus to enter host cell

AIDS virus
18.2 Viruses and Prions

Viruses

Are considered **non-living** because they:

- do not take in nutrients or use energy
- cannot make proteins
- cannot maintain homeostasis
- cannot replicate on their own

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### Bacteria vs. Viruses

**Bacteria**
- Prokaryotic cell
- Most are free-living (some parasitic)
- Relatively large size
- **Antibiotics** used to kill bacteria

**Virus**
- Not a living cell (genes packaged in protein shell)
- Intracellular parasite
- 1/1000 size of bacteria
- **Vaccines** used to prevent viral infection
- Antiviral treatment
Viral Infection: 2 Types of Cycles

In order to replicate, a virus must enter a host cell.

The virus attaches to the host cell using specific receptors on the plasma membrane.
18.2 Viruses and Prions

**Lytic Cycle**

1. The virus enters the host cell.
2. The host cell makes many copies of the virus.
3. The viruses kill the cell by breaking it open.
4. New viruses go off to infect other cells.
18.2 Viruses and Prions

Lysogenic Cycle

1. Viral DNA inserts, or integrates into the DNA in a host cell.

2. Infected cell will ALWAYS have the viral DNA and makes copies of it when it divides.

3. Eventually, the virus will go into the lytic cycle.
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Retroviruses

- Viruses that have RNA instead of DNA for their genetic material (HIV).
- HIV and some cancer-causing viruses are retroviruses.

Prions

- A protein that can cause infection or disease is called a prion.
18.2 Viruses and Prions

Disease-causing Viruses

- Viruses that cause disease are called **pathogenic**, which means disease-causing.

- Viruses kill cells and can sometimes stay in their hosts for the rest of their lives.
18.2 Viruses

- Many viral diseases can be cured or prevented by:
  - Vaccines
  - Avoiding sick people
  - Chemicals (Lysol)
  - Heat
  - Anti-viral medications