Bio I
Notes: Viruses

Characteristics:

- Viruses are not cells. They do no have a cell membrane or other living cell components.
- Host cell required for reproduction.
- They do not respond to stimuli.
- They have genetic material and can evolve.

Structure:

- Capsid: Constructed of protein and encapsulates genetic material.
- Envelope: Made up of host cell membrane and surrounds capsid of some viruses.
- Glycoproteins: Found on envelope and allows virus to penetrate cell.
- Genetic material: Viruses contain either RNA or DNA core.

Host/Virus Categories

Bacterial (Bacteriophage)

- Structure: Contains helical capsule with specialized structures for attachment.
- Life cycle: DNA → mRNA → Protein
  Bacterophage inserts DNA which directs the production of mRNA and protein using the host cells machine. Bacteriophage can be broken into two cycles:
  1. Lytic cycle
  2. Lysogenic cycle

Lytic cycle: In the lytic cycle, the bacteriphage generates new virus particles and destroys

the host cell.

a. Host cell
b. Attachment of virus to host cell
c. Insertion of DNA into host cell.
d. mRNA and proteins are produced.
e. New virus particles are assembled.
f. Host cell is lysed and destroyed releasing new virus particles.

Lysogenic cycle: In the lysogenic cycle, the bacteriophage incorporates its DNA into the host cell DNA. The host will replicate the viral DNA every time it replicates its DNA. The lysogenic cycle can switch to the lytic cycle in times of host stress.

a. Host cell
b. Attachment of virus to host cell
c. Insertion of DNA into host cell.

d. DNA incorporated into.
e. New virus particles are assembled.
f. Host cell is lysed and destroyed releasing new virus particles.

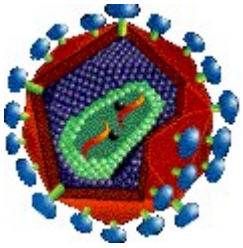
Animal Virus:

DNA Virus

Structure: Varied in shape and size.

Life cycle: DNA → mRNA → Protein
Animal virus are slightly different than the bacteriophage discussed above. The virus recognizes certain proteins on the host cell and the host cell uptakes the virus through phagocytosis.

Retro Virus(AIDS)



Structure: Varied in shape and size.

Life cycle: RNA→ DNA → mRNA → Protein
Animal virus that carries with it an enzyme (reverse transcriptase) that converts RNA to DNA.