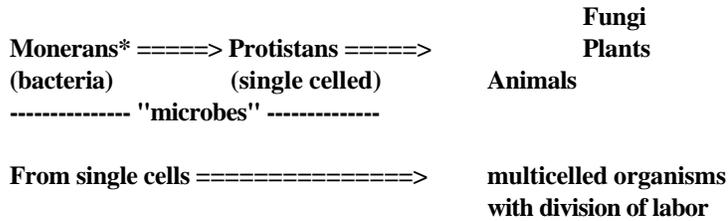


## GENERAL BIOLOGY Lecture 20 - Viruses, Monerans\*, and Protistans

## I. Overall scheme to evolution - important because it helps us understand life

Note that viruses are defined as non-living



## II. Viruses - important because of their role in disease and biotechnology

A. They are not alive, but do affect the 5 (or 6, depending on the classification system) kingdoms

B. Characteristics of viruses

1. Nucleic acid core (DNA or RNA) surrounded by a protective protein
2. Replicates only after genetic material enters a specific host

C. Structure of a virus (T4 Phage)

1. Head - has DNA with protein coat
2. Sheath
3. Tail fibers

D. Examples of important viruses

1. RNA viruses
  - a) Rhinoviruses - common colds
  - b) Influenza viruses - cause worldwide epidemics (winter flu, Asian flu, etc.)
  - c) Retroviruses - tumors, leukemia, and AIDS
2. DNA viruses
  - a) Herpes viruses - fever blisters (type I) and genital infections (type II)

## III. Monerans - prokaryotic

A. Bacteria are the sole members of the Kingdom Monera\*

1. *E. coli*, *Streptococcus*, *Staphylococcus*, blue-green algae

B. Characteristics of bacteria

1. Prokaryotic
2. Have a single chromosome
3. Most have a cell wall composed of peptidoglycan
4. Most reproduce by binary fission
5. Bacteria show metabolic diversity

C. Types of bacteria

1. Photosynthetic autotrophs - use sunlight as energy to drive synthesis of biological molecules
2. Chemosynthetic autotrophs - use simple inorganic compounds as energy source to drive synthesis of organic molecules
3. Heterotrophs (majority of bacteria) - like us - rely on other organisms to obtain food energy

## IV. Protistans - single-celled eukaryotes

A. Examples

1. Slime mold - moves along decaying logs, twigs, etc., engulfing food
2. Euglenids - little organisms found in lakes, etc. and have a flagellum
3. Protozoans - highly motile predators or parasites
4. Green algae, brown algae, golden algae, red algae

*\*The Kingdom Monera, under the new classification scheme, has been divided into the Kingdoms Archaeobacteria and Eubacteria*