

Chapter 28 – Protists

LECTURE OBJECTIVES:

Protist refers to all **eukaryotes** that are **not** plants, animals, or fungi - make up much of the diversity of eukaryotes

1. have a **nucleus** and other **membrane-enclosed organelles**
2. more **complex** than prokaryotic cells
3. **well-developed cytoskeleton** - asymmetric shape leads to change shape over time

Protists - most **nutritionally diverse** of all eukaryotes

1. **photoautotrophs** containing chloroplast
2. **heterotrophs** that absorb organic molecules or ingest larger food particles
3. **mixotrophs** that combine photosynthesis and heterotrophic nutrition – able to survive without photosynthesis by engulfing organic material by **phagocytosis**

VOCABULARY:

Endosymbiosis - relationship between two species in which one organism lives inside the cell of the other organism (the host)

Secondary Endosymbiosis - red and green algae are ingested by heterotrophic eukaryotes

Stramenopiles - most have a “hairy” flagellum paired with a “smooth” flagellum; diatoms, oomycetes, brown algae

Diplomonads – modified mitochondria; have two equal-sized nuclei and multiple flagella; parasites

Diatoms - unicellular with a unique two-part, glass-like wall of silicon dioxide

Brown Algae - largest and most complex multicellular algae; algin, gel-forming substance found in the cell wall, is used as a thickener in many processed foods

Oomycetes include water molds and downy mildews; causes potato blight

Alveolates - have membrane-enclosed sacs (alveoli) just under the plasma membrane

Dinoflagellates - have two flagella housed in the grooves; blooms cause “red tides”

Apicomplexans - parasites of animals that spread through the host

Ciliates are named for their use of cilia to move around - two types of nuclei: macronuclei and micronuclei

Forams - named for their porous calcium carbonate shells, test – threadlike pseudopodia

Red Algae – have an accessory pigment called **phycoerythrin** that masks the green of chlorophyll

Green Algae - their green chloroplasts, similar to land plants; Volvox and Ulva

Amoebozoans - amoebas that have lobe- or tube-shaped pseudopodia; slime molds and entamoebas

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Arshad Iqbal



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