

Name _____ Period _____

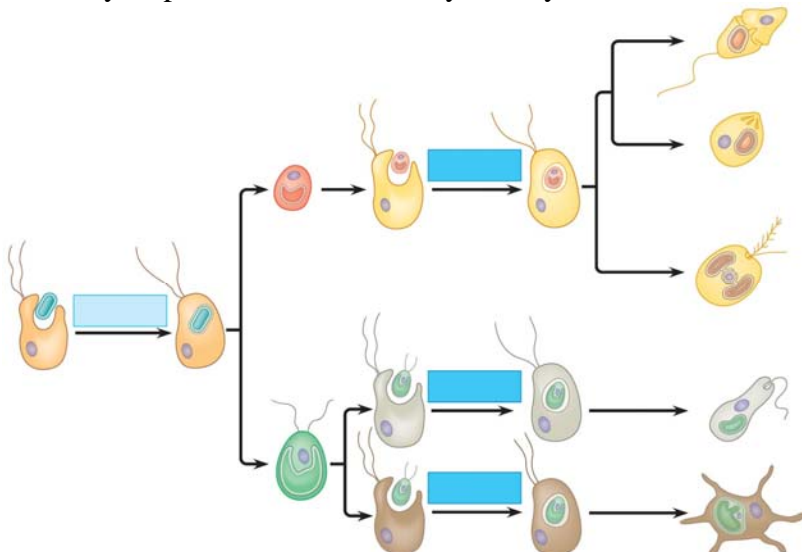
Chapter 28: Protists

Overview

The kingdom you learned as Protista is no longer recognized as an official taxon. Work in *Protista* systematics has revealed that the kingdom is paraphyletic and in need of extensive reworking. The kingdom formally known as Protista has been divided into many separate kingdoms. Biologists now use the term *Protista* in a general, nontechnical way to refer to eukaryotes that are neither plants nor animals nor fungi. As we move through this chapter, we will concentrate on the evolutionary events of significance and the specific protists that are important.

Concept 28.1 Most eukaryotes are single-celled organisms

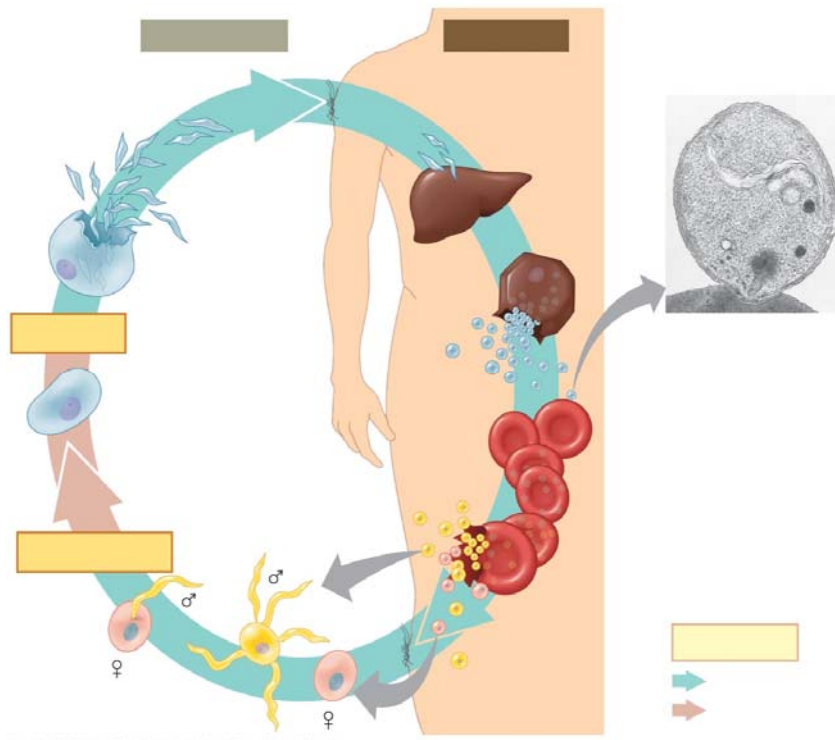
- Protists vary in structure and function more than any other group of organisms. However, here are some common traits:
 - All have membrane-bounded organelles, and so are _____.
 - Most are single-celled, or _____.
 - They get their food in several ways. Some contain chloroplasts and do photosynthesis, and so are considered _____. Others ingest food particles and so are _____.
- Endosymbiosis* is a key component of eukaryotic evolution. Many protists are also the result of *secondary endosymbiosis*. Using Figure 28.2 from the text, label the figure below to show the key steps in several secondary endosymbiotic events.



3. Define *secondary endosymbiosis*.

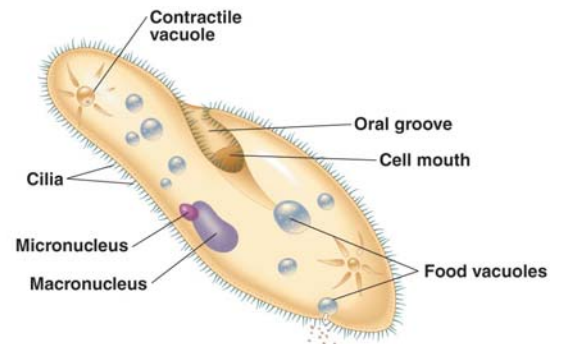
Concept 28.3 Chromalveolates may have originated by secondary endosymbiosis

4. Malaria is a leading cause of infectious disease. Over 300 million people in the tropics are infected each year, and the death rate is 2 million people per year. The parasites that cause malaria are in the genus *Plasmodium*. *Plasmodium* uses both mosquitoes and humans in its complex life cycle, shown below. Explain the eight steps in the *Plasmodium* life cycle.



5. Answer these questions about the ciliate *Paramecium*.

- How does the *Paramecium* obtain food?
- How do food vacuoles and lysosomes help with nutrition?
- The *Paramecium* is hypertonic to its surroundings, so how does this organism maintain water balance?



Concept 28.3 Protists play key roles in ecological relationships

6. Describe one mutualistic symbiotic relationship and one parasitic relationship involving protists.

Mutualistic example:

Parasitic example:

7. What is a key ecological role of protists in many aquatic food webs?
8. This is a large chapter with a great deal of information about many different protists. To give you an idea of some of them, here is a short list gleaned from your text. You may recognize many of these protists:
- a. *Giardia intestinalis* (causes “hiker’s diarrhea”; always treat your water!)
 - b. *Trichomonas vaginalis* (sexually transmitted infection)
 - c. *Trypanosoma sp.* (sleeping sickness and Chagas’ disease)
 - d. *Euglena* (remember seeing the tiny flagellated green cell with a red eyespot in Bio. I?)
 - e. Dinoflagellates (blooms cause “red tides”; many are bioluminescent)
 - f. *Plasmodium* (causative agent of malaria)
 - g. Ciliates (*Paramecium* and *Stentor* are examples; micro- and macronuclei)
 - h. *Amoeba* (move by pseudopodia)
 - i. Diatoms (unicellular with two-part, glass-like wall made of silica)
 - j. Golden algae
 - k. Brown algae (kelp)
 - l. Oomycetes (water molds and their relatives; includes causative agent of potato blight)
 - m. Red algae (multicellular; some found at great depths; sushi wraps)
 - n. Green algae (*Chlamydomonas*, *Ulva*, *Volvox*; this group is the closest relative of land plants)
 - o. Slime molds

Testing Your Knowledge: Self-Quiz Answers

Now you should be ready to test your knowledge. Place your answers here:

1. _____ 2. _____ 3. _____