

Protist Characteristics

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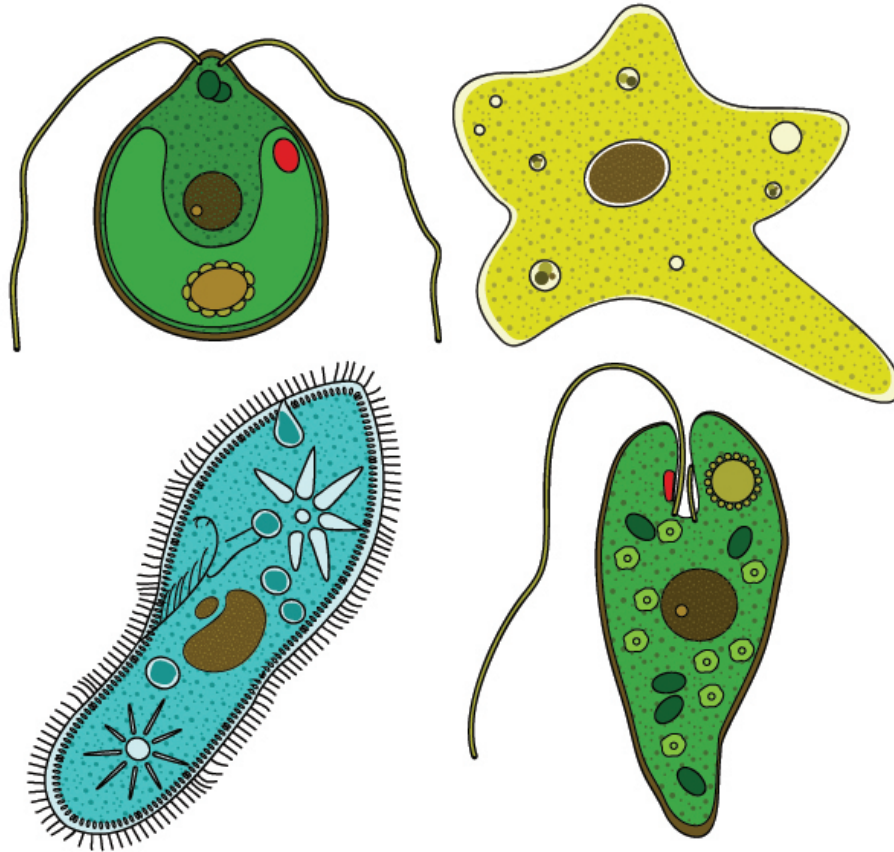


CONCEPT

1

Protist Characteristics

- Describe the main features of the protists.



Animal? Bacteria? Plant? Fungi? What do these figures represent?

None of the above! These organisms may be single-celled like bacteria, and they may look like a fungus. They also may hunt for food like an animal or photosynthesize like a plant. And, yet, they do not fit into any of these groups. These organisms are protists!

What are Protists?

Protists are **eukaryotes**, which means their cells have a nucleus and other membrane-bound organelles. Most protists are single-celled. Other than these features, they have very little in common. You can think about protists as all eukaryotic organisms that are neither animals, nor plants, nor fungi.

Although Ernst Haeckel set up the Kingdom *Protista* in 1866, this kingdom was not accepted by the scientific world until the 1960s. These unique organisms can be so different from each other that sometimes Protista is called the “junk drawer” kingdom. Just like a junk drawer, which contains items that don’t fit into any other category, this kingdom contains the eukaryotes that cannot be put into any other kingdom. Therefore, protists can seem very different from one another.

Unicellular or Multicellular?

Most protists are so small that they can be seen only with a microscope. Protists are mostly unicellular (one-celled) eukaryotes. A few protists are multicellular (many-celled) and surprisingly large. For example, kelp is a multicellular protist that can grow to be over 100-meters long (**Figure 1.1**). Multicellular protists, however, do not show cellular specialization or differentiation into tissues. That means their cells all look the same and, for the most part, function the same. On the other hand, your cells often are much different from each other and have special jobs.



FIGURE 1.1

Kelp is an example of a multicellular protist.

Characteristics of Protists

A few characteristics are common between protists.

1. They are eukaryotic, which means they have a nucleus.
2. Most have mitochondria.
3. They can be parasites.
4. They all prefer aquatic or moist environments.

Classification of Protists

For classification, the protists are divided into three groups:

1. Animal-like protists, which are heterotrophs and have the ability to move.
2. Plant-like protists, which are autotrophs that photosynthesize.
3. Fungi-like protists, which are heterotrophs, and they have cells with cell walls and reproduce by forming spores.

But remember, protists are not animals, nor plants, nor fungi (**Figure 1.2**).

Vocabulary

- **eukaryote:** Organism with cells (or cell) that have a nucleus and membrane-bound organelles.
- **protist:** Eukaryote that is not a plant, animal, or fungus.



FIGURE 1.2

Protists come in many different shapes.

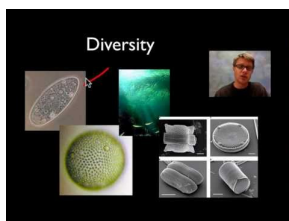
Summary

- Protists are a diverse kingdom, including all eukaryotic organisms that are neither animals, nor plants, nor fungi.
- For classification, the protists are divided into three groups: animal-like protists, plant-like protists, and fungi-like protists.

Practice

Use the resource below to answer the questions that follow.

- **Protists** at <http://www.youtube.com/watch?v=8deF3Rw4ti4> (5:07)



MEDIA

Click image to the left for more content.

1. What defines the Kingdom Protista?
2. Are relationships between protist clearly defined? Why or why not?
3. What are phototrophs? How do they obtain their food?
4. What are organotrophs? How do they obtain their food?
5. Do all protists reproduce in the same manner?

Review

1. What do protists tend to have in common?
2. How are protists generally classified?

References

1. Amit Patel. . CC BY 2.0
2. (Clockwise from top left) Giuseppe Vago; Ute Frevert, colored by Margaret Shear; Yuiuji Tsukii; Ernst Haeckel; Dr. Myron G. Schultz/CDC. Protists come in many different shapes. (Clockwise from top left) CC BY 2.0; CC BY 2.5; Public Domain; Public Domain; Public Domain