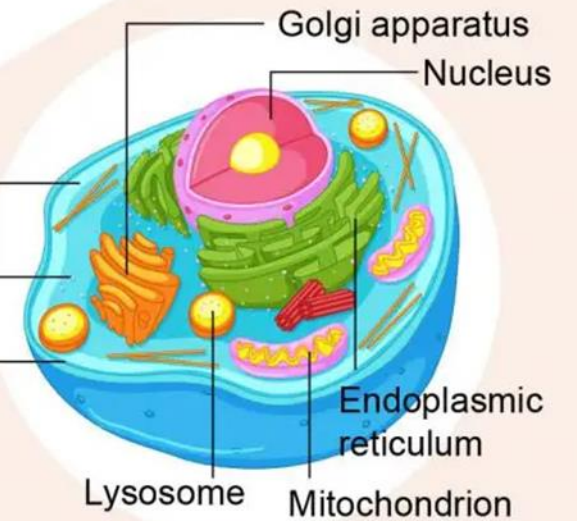
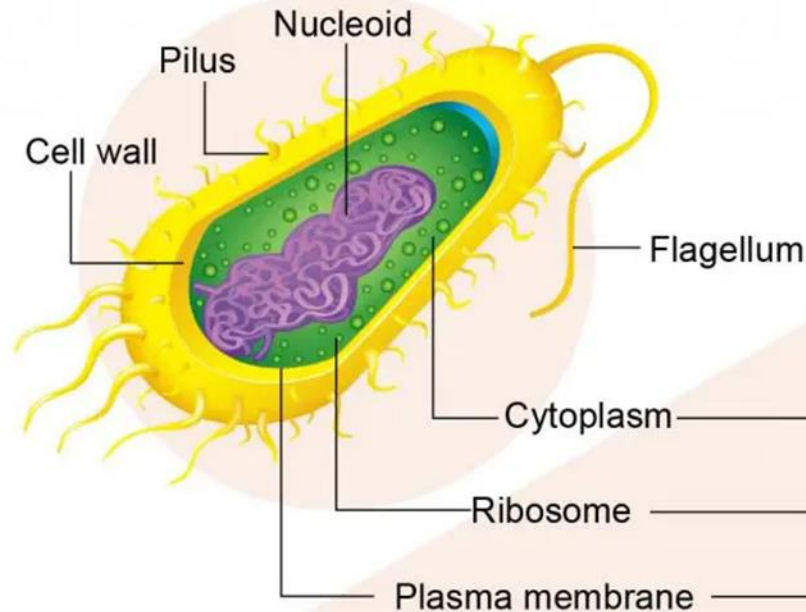


Kingdom: Protista → Unicellular eukaryotes

- All protists are **unicellular** (organism is made of a single cell) **eukaryotes** (DNA is inside the nucleus and other membrane bound cellular organelles are present).
- Some are like animals, some are like plants, some are like fungi, but they are a little different (unicellular). So they are Protists.

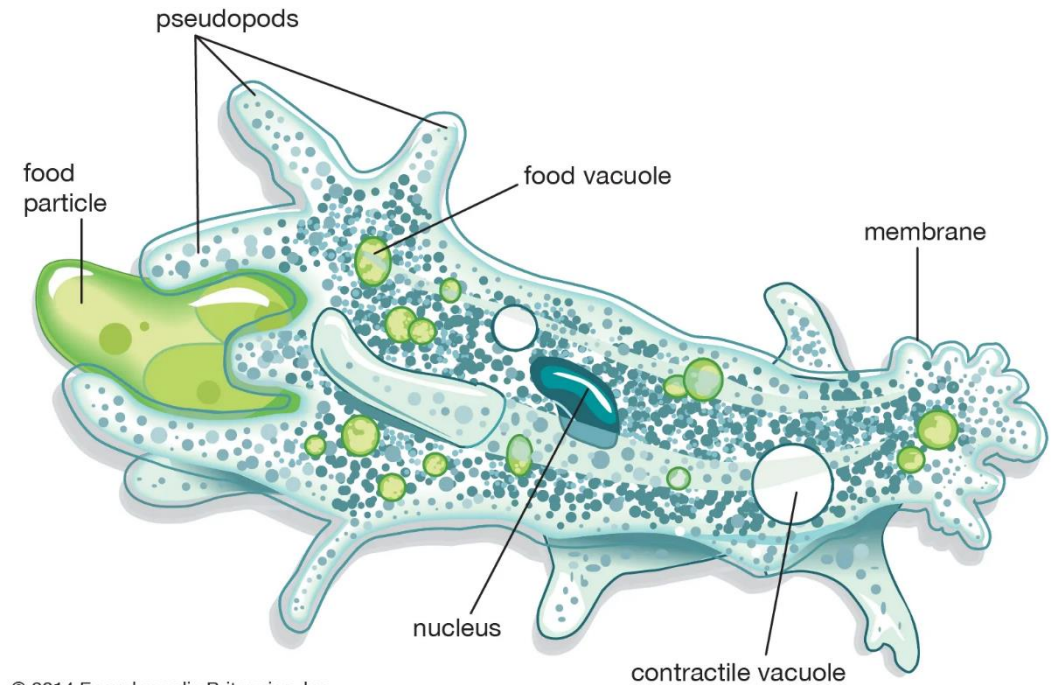
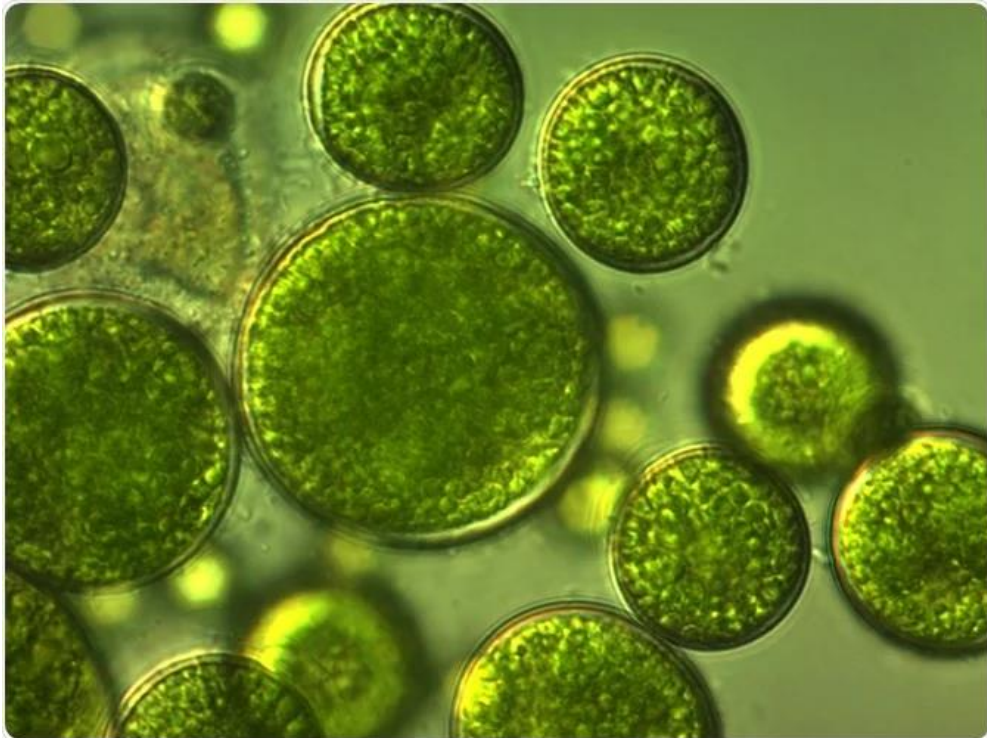
PROKARYOTE CELL



EUKARYOTE CELL

3 categories of protists

1. Animal like protists
2. Plant like protists
3. Fungi like protists

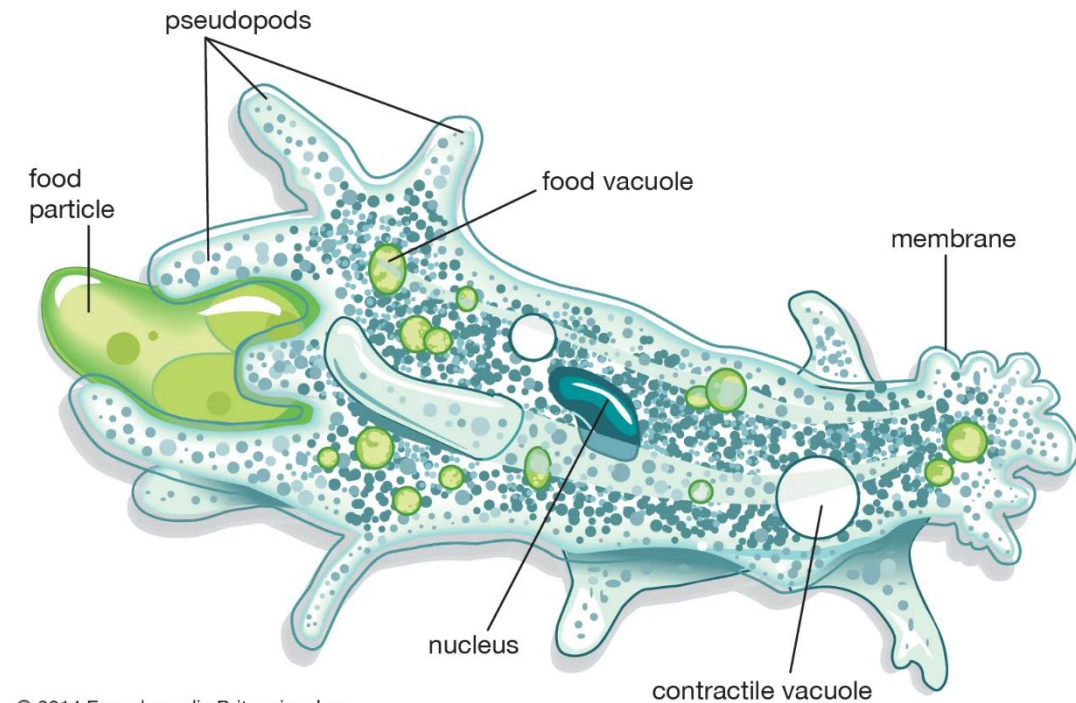


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Animal like protists → **Phylum: Protozoa** → protozoans

- They are microscopic unicellular eukaryotes of an animal cell.
- All animal-like protists are **heterotrophs**.
- They have the simplest protoplasmic grade of body organization.
- Their body naked or bounded by pellicle.
- Solitary or colonial and are free living or parasitic.
- Move with the help of pseudopodia or flagella or cilia.
- Nutrition may be holozoic, saprozoic or parasitic.
- Digestion occurs intracellularly in the food vacuole.
- Respires and excretes through general body surface.
- Some have contractile vacuole for osmoregulation.
- Reproduces sexually or asexually.

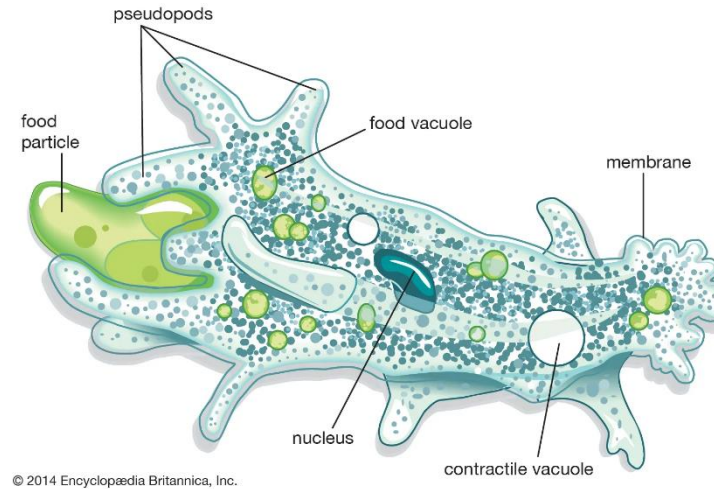


Animal like protists → **Phylum: Protozoa** → protozoans

- All animal-like protists are **heterotrophs**
- Most are able to move from place to place to get their food.

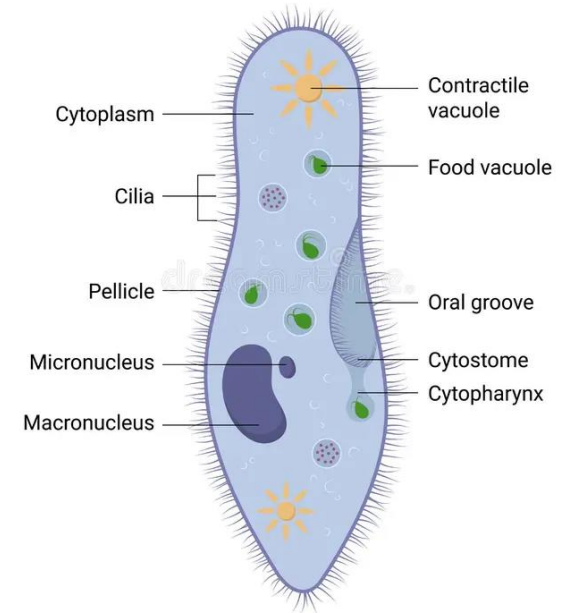
4 categories of protozoans based on their locomotor organ

1. Protozoans with **pseudopodia**
2. Protozoans with **cilia**
3. Protozoans with **flagella**
4. Protozoans **without a locomotor organ**

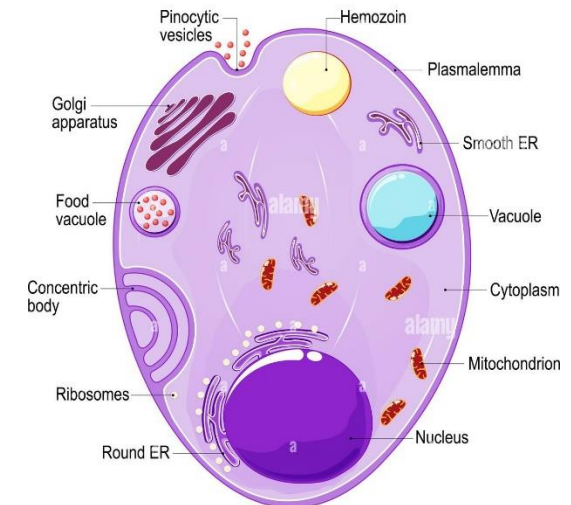
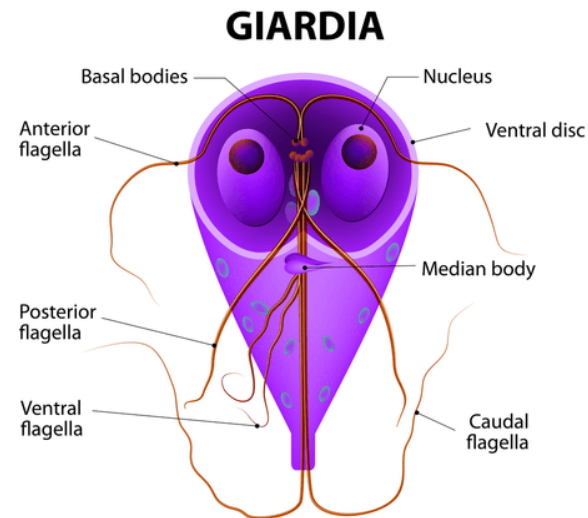


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Paramecium

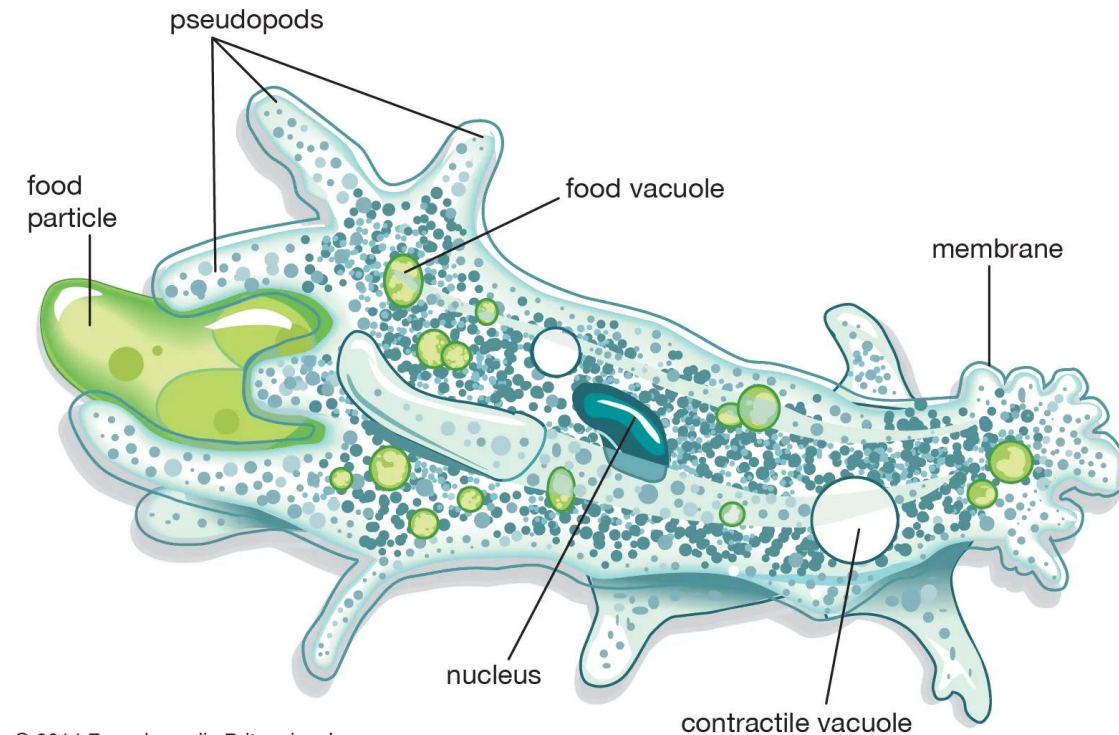


Plasmodium



Class: Rhizopoda/Sarcodina → Protozoans with pseudopodia → sarcodines

- Sarcodines have **pseudopods** as a locomotor organ = means "false foot". Part of the cytoplasm bulges towards one location, and the rest of the organism follows.
- They have irregular body shape and are free living or parasitic.
- Commonly reproduces asexually through binary fission.
- Sarcodines include: *Amoebas*, *Entamoeba*
- *Amoebas* also have **contractile vacuoles** = a structure that collects extra water then squirts it out from the cell.

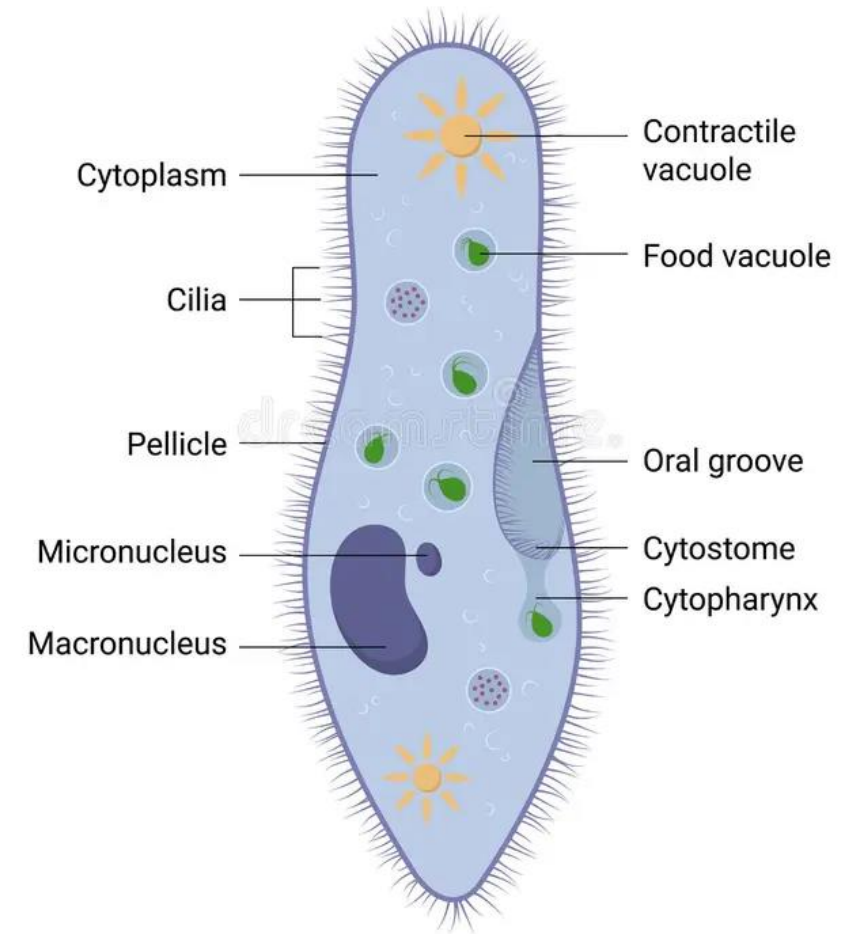


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Class: Ciliata/Ciliophora → Protozoans with cilia → Ciliates

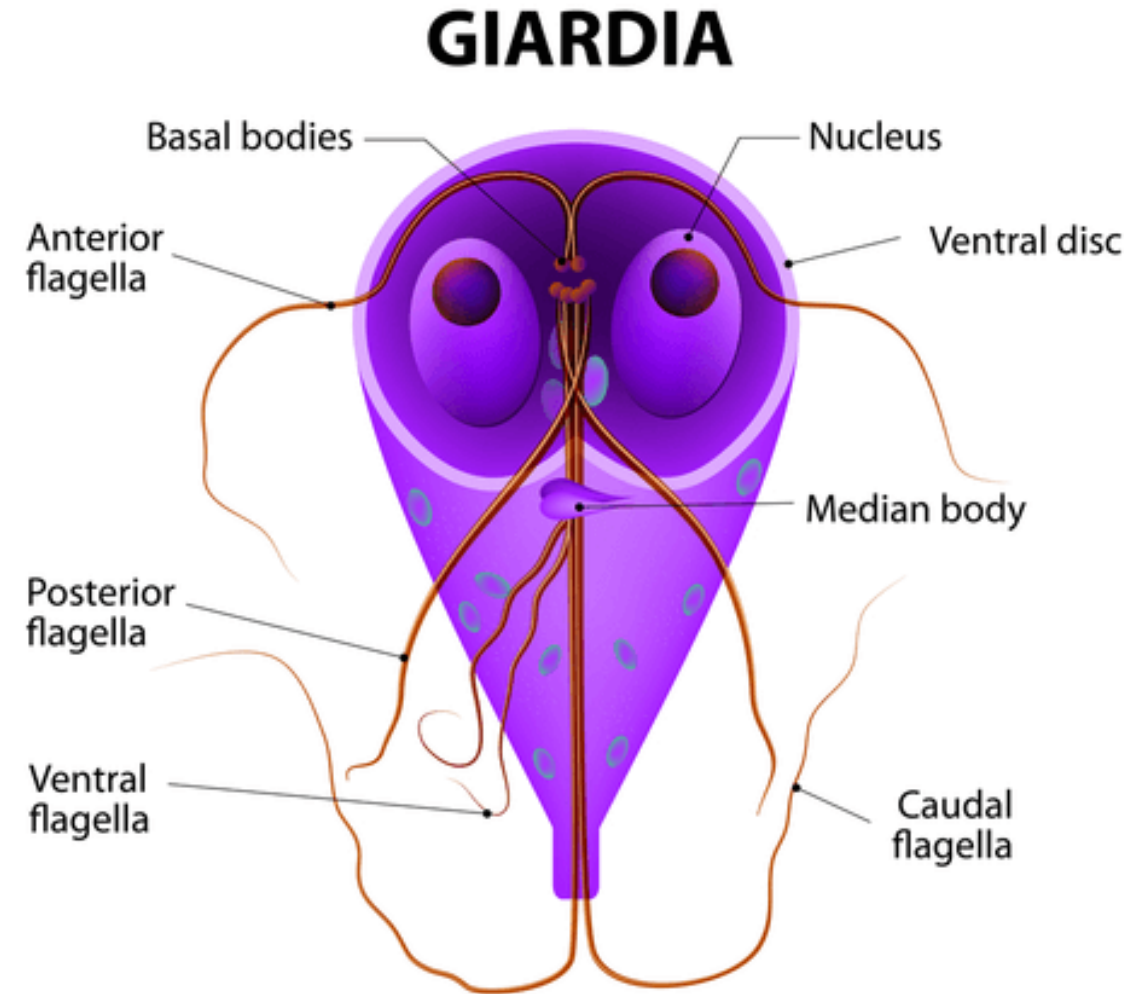
- Ciliates have **cilia** = hair-like projections from cells that move with a wavelike motion.
- Have definite pellicle, so the body shape is fixed.
- Presence of contractile vacuole.
- Dimorphic nuclei (Macro and Micro).
- Ciliates include: *Paramecium*, *Vorticella*
- *Paramecium* have dimorphic nuclei, 2 contractile vacuoles, and can reproduce both asexually (transverse binary fission) and sexually (conjugation).

Paramecium



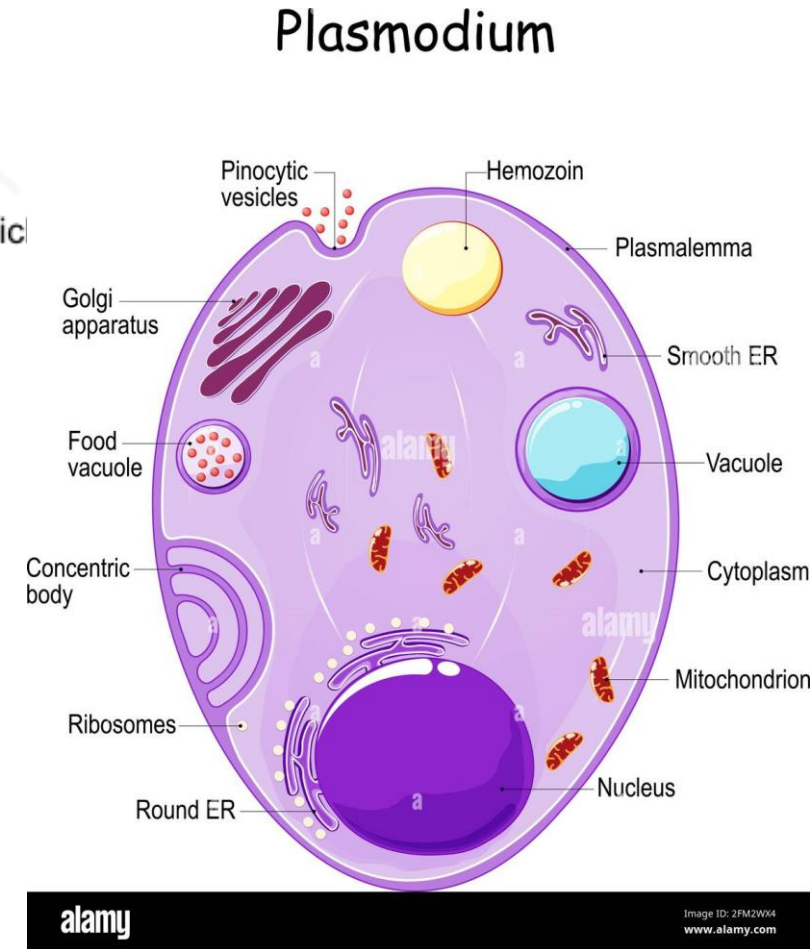
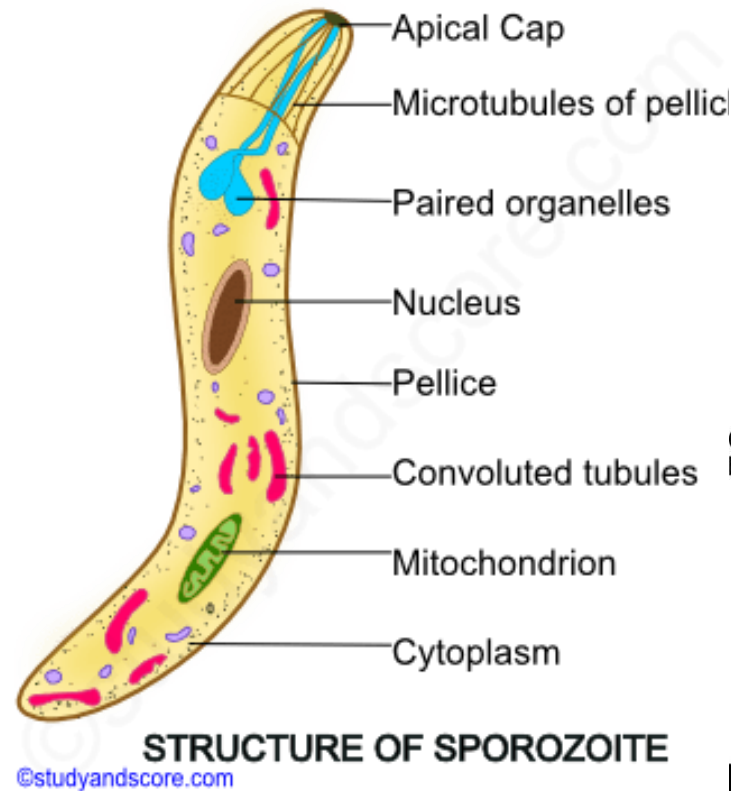
Class: Flagellata/Zoomastigophora → Protozoans with flagella → Flagellates

- Flagellates have flagella as their locomotor organ.
- Body covered by thin pellicle
- Fresh water forms have a contractile vacuole.
- Free living or parasitic.
- Reproduces asexually by binary fission.
- Example: *Trypanosoma*, *Giardia*



Class: Sporozoa → Protozoans without locomotor organ → Sporozoans

- Don't have locomotor organ.
- Most of them live inside other organisms and shows **parasitism** as they feed on the cells of their host and cause harm.
- Contractile vacuole is absent.
- Reproduce sexually (syngamy) or asexually through multiple fission.
- Example: *Plasmodium*, *Monocystis*

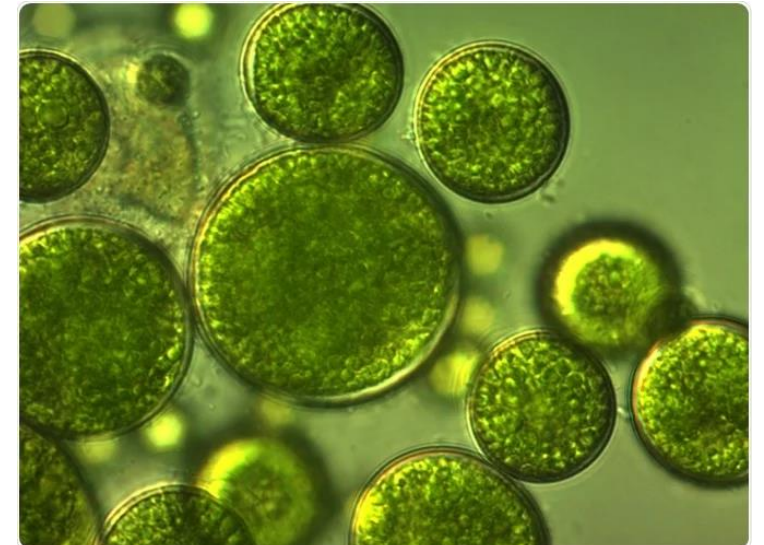
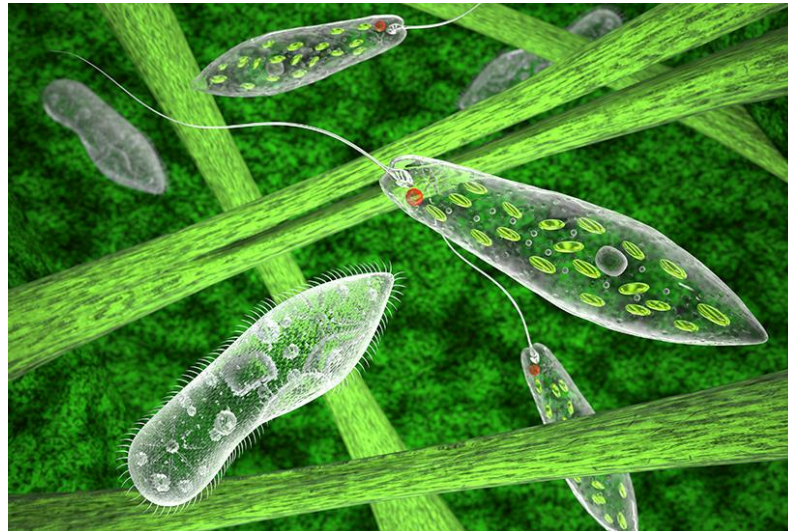


Plant-like protists → Protophyta

- All are **autotrophs** and have plastids and **cell walls made from cellulose**.
- **Unicellular eukaryotic of plant cell body.**

The different groups of protophyta:

1. Diatoms
2. Dinoflagellates
3. Euglenoids
4. Red Algae
5. Green Algae
6. Brown Algae



Fungus-like protists

- All are **heterotrophs** and have **cell walls made from chitin**.
- All use **spores** to reproduce.
- All can move at some point in their lives

The 3 kinds of fungus-like protists:

1. Slime molds
2. Water molds
3. Downy molds

