

Euglena viridis

Domain: Eukarya
Supergroup: Excavata
Subgroup: Euglenozoans



Habitat: Freshwater

Mode of nutrition: Mixotroph (photoautotroph and chemoheterotroph)

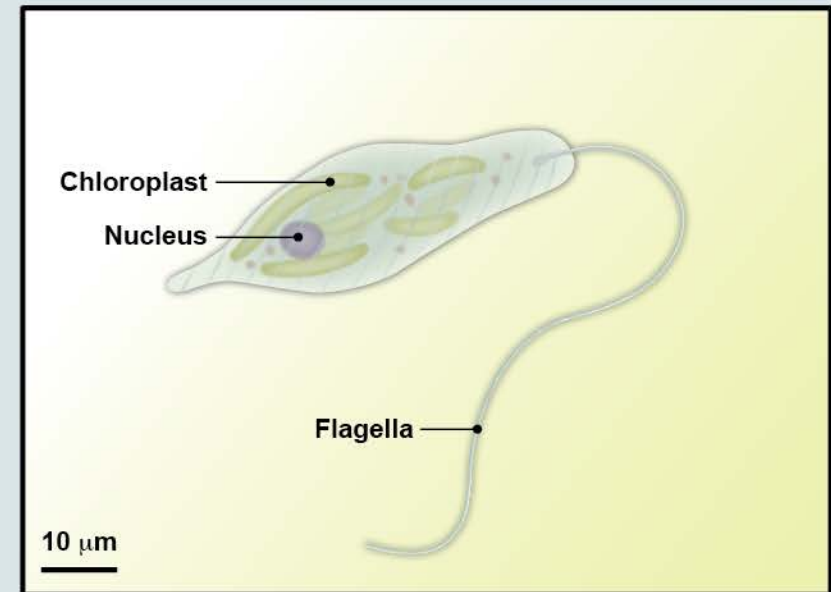
Cell structure: Unicellular

Interesting fact:

- Early taxonomists debated how to classify *Euglena*, as it has characteristics similar to plants (such as chloroplasts) and animals (such as movement and eating).

EUKARYOTE

Euglena (Euglena viridis)



Paramecium aurelia

Domain: Eukarya
Supergroup: SAR
Subgroup: Ciliates



Habitat: Freshwater

Mode of nutrition: Chemoheterotroph

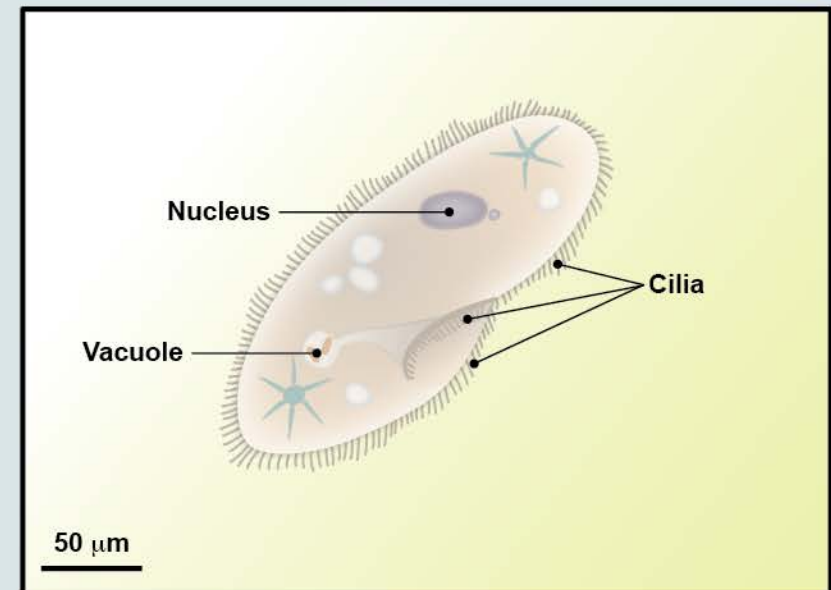
Cell structure: Unicellular

Interesting facts:

- *Paramecium* are covered in hair-like cilia, which are used for movement and feeding.
- *Paramecium* eat bacteria, yeast, and algae through phagocytosis.

EUKARYOTE

Paramecium (Paramecium aurelia)



Hydra vulgaris

Domain: Eukarya
Supergroup: Unikonta
Subgroup: Animals



Habitat: Freshwater

Mode of nutrition: Chemoheterotroph

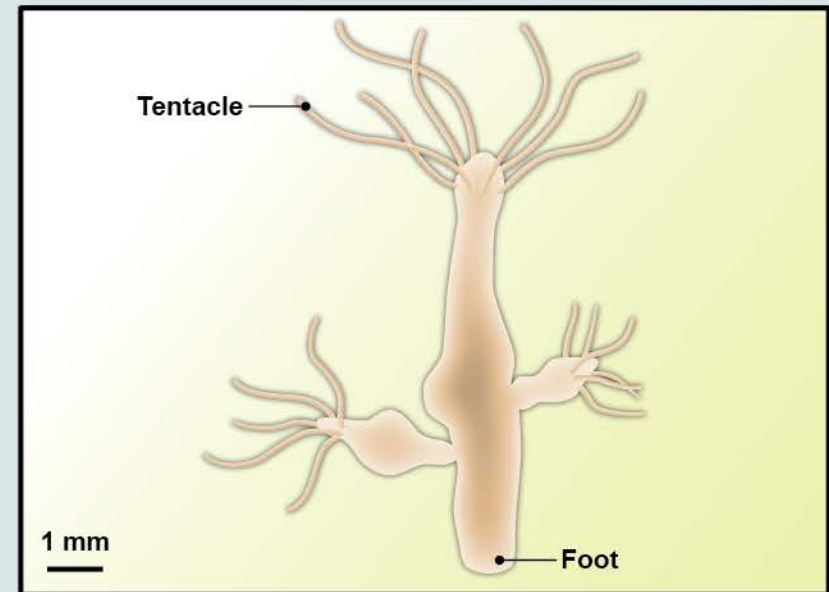
Cell structure: Multicellular

Interesting facts:

- Hydra are usually fixed in one place by a basal disc “foot” and extend their tentacles to catch passing prey.
- Hydra can release their “foot” and somersault end-over-end to move to another location.

EUKARYOTE

Hydra (*Hydra vulgaris*)



Volvox aureus

Domain: Eukarya
Supergroup: Archaeplastida
Subgroup: Chlorophyta



Habitat: Freshwater

Mode of nutrition: Photoautotroph

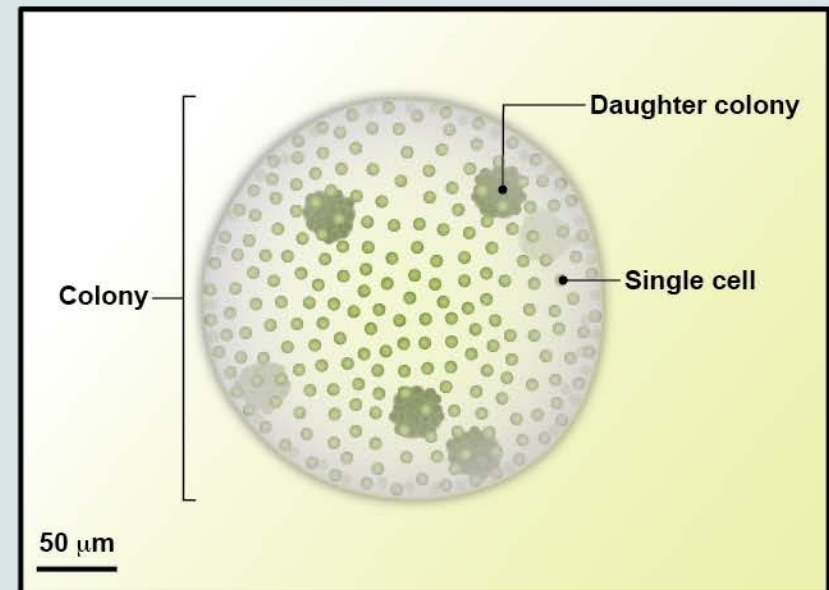
Cell structure: Colony of unicellular individuals

Interesting facts:

- The colony is made up of 50,000 individual cells that beat their flagella in synchronization to move together.
- The small, dark green circles are daughter colonies created by asexual reproduction.

EUKARYOTE

Volvox (*Volvox aureus*)



Filinia longiseta

Domain: Eukarya
Supergroup: Unikonta
Subgroup: Animals



Habitat: Freshwater

Mode of nutrition: Chemoheterotroph

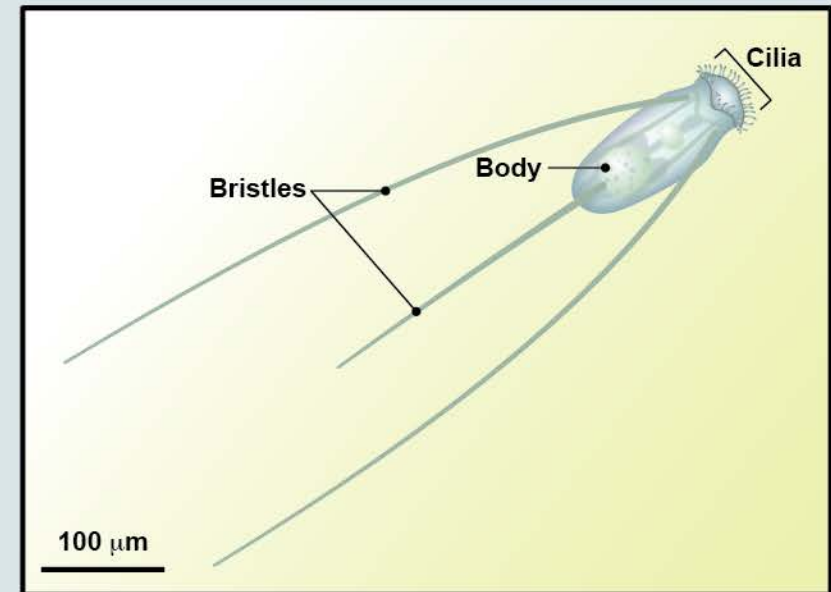
Cell structure: Multicellular

Interesting facts:

- Its diet consists of detritus, bacteria, and microscopic green algae.
- Like other rotifers, it feeds itself with a whirling crown of cilia that draws food into its mouth.

EUKARYOTE

Filinia (Filinia longiseta)



Cyclidium glaucoma

Domain: Eukarya
Supergroup: SAR
Subgroup: Ciliates



Habitat: Marine

Mode of nutrition: Chemoheterotroph

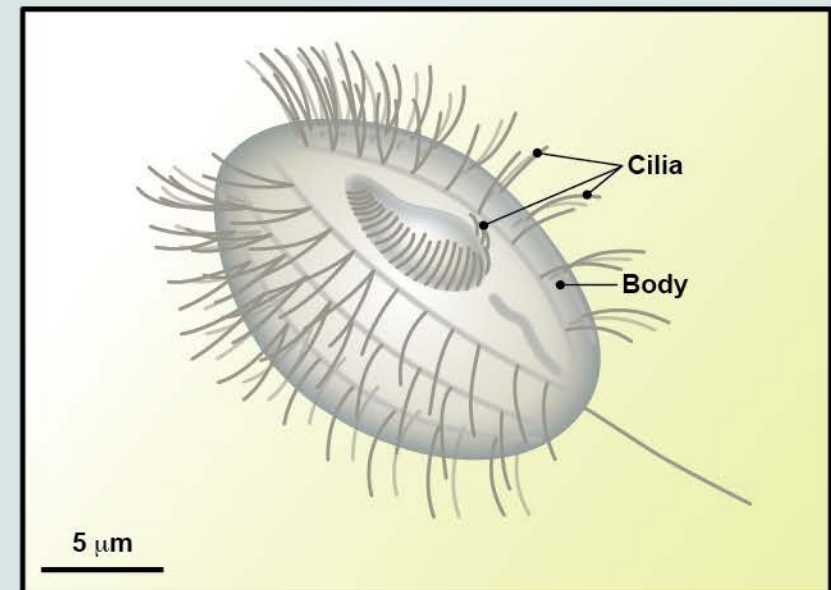
Cell structure: Unicellular

Interesting facts:

- Rows of cilia cover the surface of the body.
- As a major consumer of the bacteria found in plankton, the organism is an important component of the microbial food web.

EUKARYOTE

Cyclidium (Cyclidium glaucoma)



Vorticella campanula

Domain: Eukarya
Supergroup: SAR
Subgroup: Ciliates



Habitat: Freshwater

Mode of nutrition: Chemoheterotroph

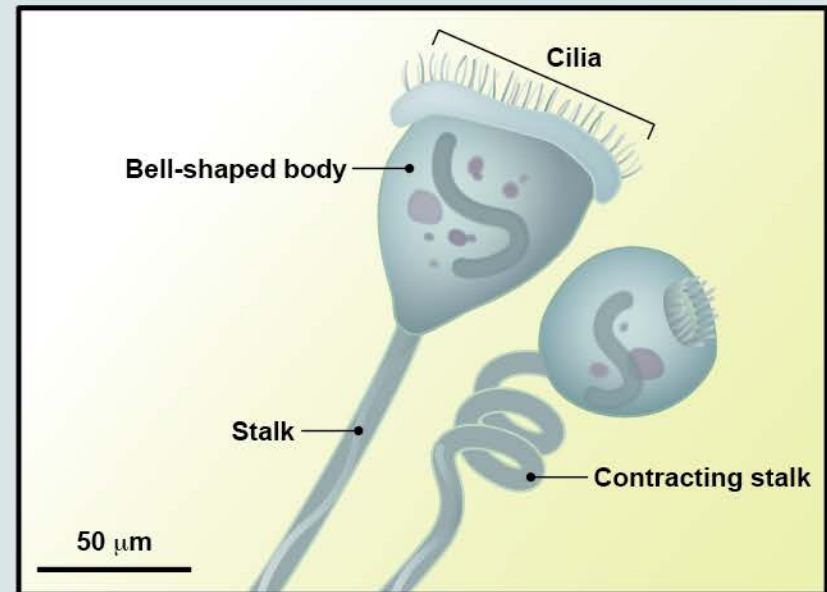
Cell structure: Unicellular

Interesting facts:

- Vorticella was the first protozoan described by van Leeuwenhoek.
- Cilia are concentrated around an oral opening.
- Bacteria are the main food source.

EUKARYOTE

Vorticella (*Vorticella campanula*)



Euglypha brachiata

Domain: Eukarya
Supergroup: SAR
Subgroup: Cercozoans



Habitats: Submerged sphagnum (peat moss), sediments

Mode of nutrition: Chemoheterotroph

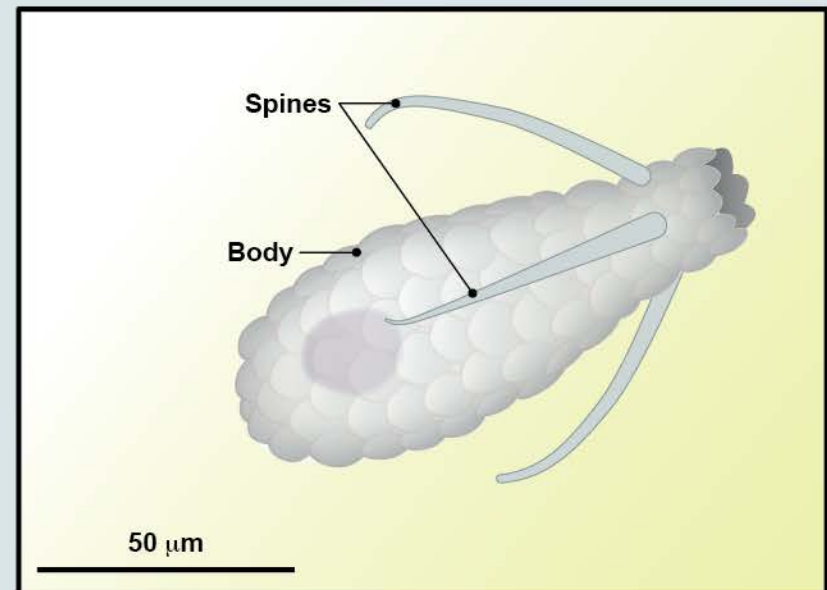
Cell structure: Unicellular

Interesting facts:

- The body of Euglypha is covered in rows of circular scales with serrated edges.
- *Euglypha brachiata* has 2 to 7 long, curved spines that arise near the neck.

EUKARYOTE

Euglypha (*Euglypha brachiata*)



Philodina roseola

Domain: Eukarya
Supergroup: Unikonta
Subgroup: Animals



Habitats: Freshwater, moist soil

Mode of nutrition: Chemoheterotroph

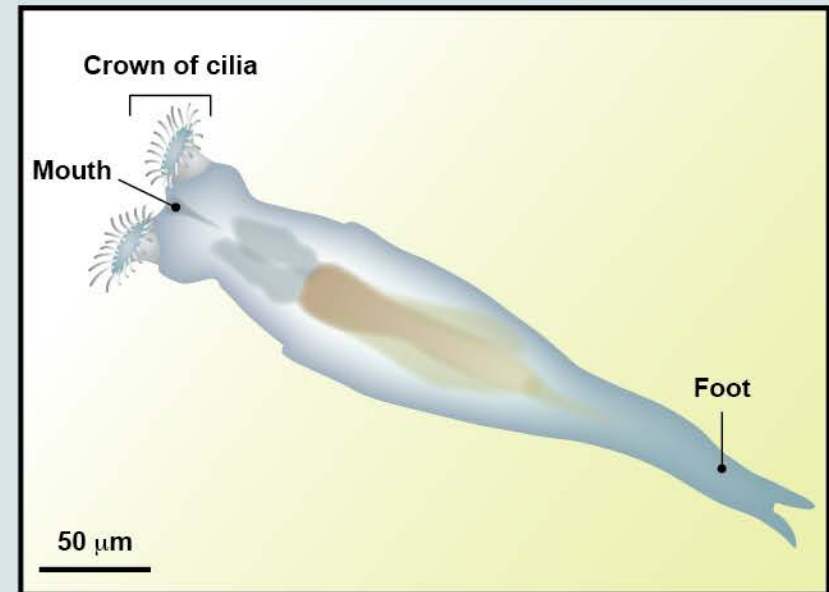
Cell structure: Multicellular

Interesting facts:

- Rotifers are microscopic animals with a complete digestive tract. Their diet mostly consists of dead or decomposing organic materials, unicellular algae, and other phytoplankton.
- The word "rotifer" comes from the Latin word meaning "wheel-bearer," referring to the crowns of cilia around the mouth that can move so rapidly they appear to whirl like a wheel.

EUKARYOTE

Rotifer (*Philodina roseola*)



Amoeba proteus

Domain: Eukarya
Supergroup: Unikonta
Phylum: Tubulinea



Habitat: Freshwater

Mode of nutrition: Chemoheterotroph

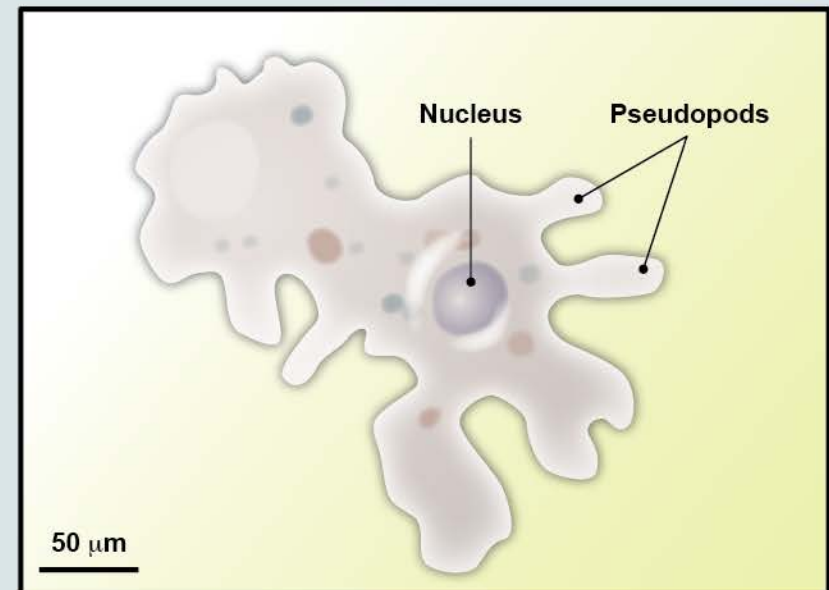
Cell structure: Unicellular

Interesting facts:

- Amoeba is a common pond dweller.
- It uses cytoplasmic extensions called pseudopods ("false feet") to move and to engulf food.

EUKARYOTE

Amoeba (*Amoeba proteus*)



Fragilaria crotonensis

Domain: Eukarya
Supergroup: SAR
Subgroup: Diatoms



Habitat: Freshwater

Mode of nutrition: Photoautotroph (Photosynthesis)

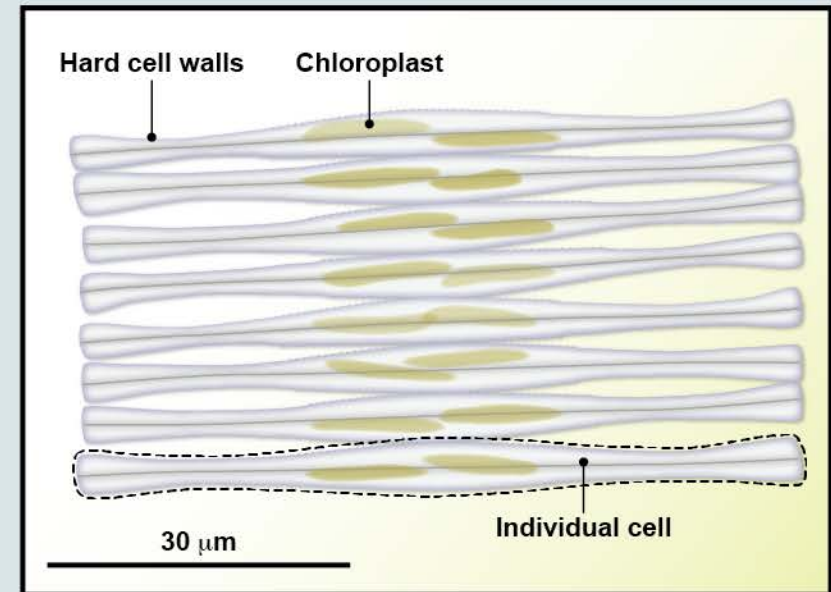
Cell structure: Unicellular

Interesting facts:

- The cell walls of diatoms are made of silica (a material like glass) and have two overlapping halves.
- *Fragilaria crotonensis* cells are swollen and attached at the center, making ribbon-like colonies.

EUKARYOTE

Diatom/*Fragilaria crotonensis*



Asterionella formosa

Domain: Eukarya
Supergroup: SAR
Subgroup: Diatoms



Habitat: Freshwater

Mode of nutrition: Photoautotroph (Photosynthesis)

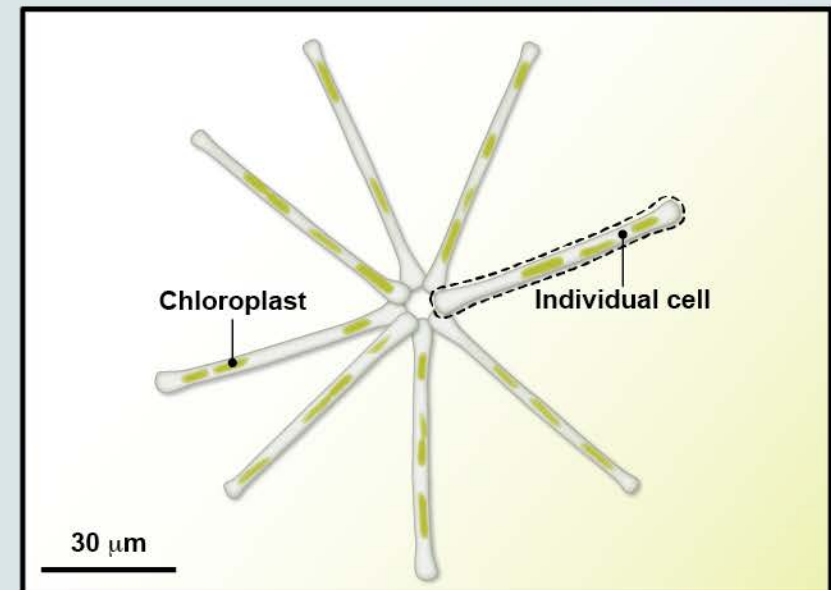
Cell structure: Unicellular

Interesting facts:

- The name *Asterionella formosa* means "little star."
- It is one of the most common diatoms in spring lake blooms; the large colony size keeps them from being grazed during blooms.
- Each colony is flat, consisting of 6 to 8 cells glued together at one end.

EUKARYOTE

Diatom/*Asterionella formosa*



Meridion circulare

Domain: Eukarya
Supergroup: SAR
Subgroup: Diatoms



Habitat: Freshwater

Mode of nutrition: Photoautotroph (Photosynthesis)

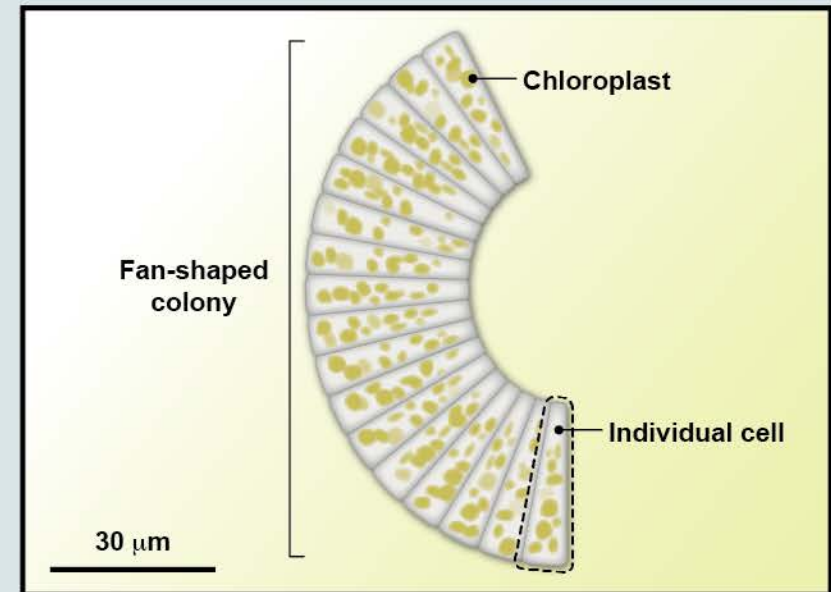
Cell structure: Unicellular

Interesting facts:

- Diatoms come in a great variety of forms.
- The cell walls are made of silica (a material like glass) and have two overlapping halves.
- Cells of *Meridion circulare* often grow in fan-shaped colonies.

EUKARYOTE

Diatom (*Meridion circulare*)



Vibrio harveyi

Domain: Bacteria
Supergroup: Proteobacteria
Subgroup: Gamma Proteobacteria



Habitats: Tropical marine water, endosymbiotic (parasite of marine animals)

Mode of nutrition: Chemoheterotroph

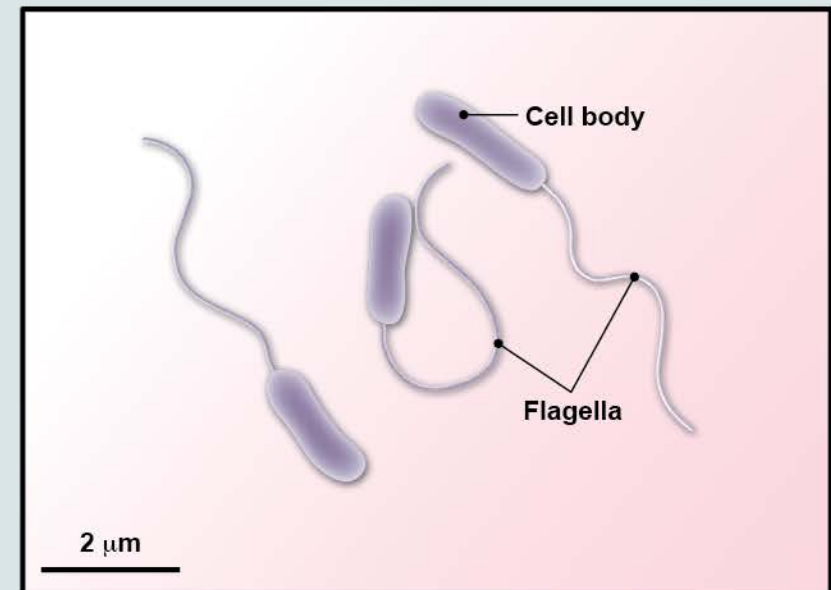
Cell structure: Unicellular, curved rod-shaped, single flagellum

Interesting facts:

- *Vibrio harveyi* communicate by quorum sensing. Quorum sensing is a mechanism by which groups of bacteria coordinate the expression of certain genes (for example, bioluminescence genes) in response to the presence of specific signals.
- Bioluminescence by massive groups of bacteria can cause large areas of the sea to glow at night—what sailors call “milky sea.”

PROKARYOTE

Vibrio (*Vibrio harveyi*)



Stentor roeseli

Domain: Eukarya
Supergroup: SAR
Subgroup: Ciliates



Habitat: Freshwater

Mode of nutrition: Chemoheterotroph

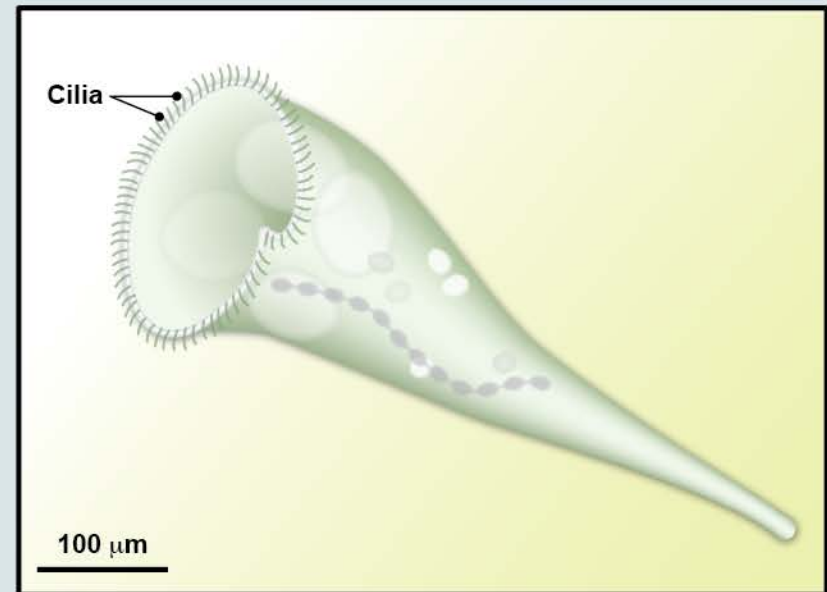
Cell structure: Unicellular

Interesting facts:

- The name Stentor comes from its trumpet horn shape. In Greek mythology, Stentor was a very loud herald in the Trojan War.
- Cilia around the flared bell of the horn sweep in food, such as bacteria.

EUKARYOTE

Stentor (*Stentor roeseli*)



Giardia intestinalis

Domain: Eukarya
Supergroup: Excavata
Subgroup: Diplomonads



Habitats: Humans and other animals (parasite)

Mode of nutrition: Chemoheterotroph

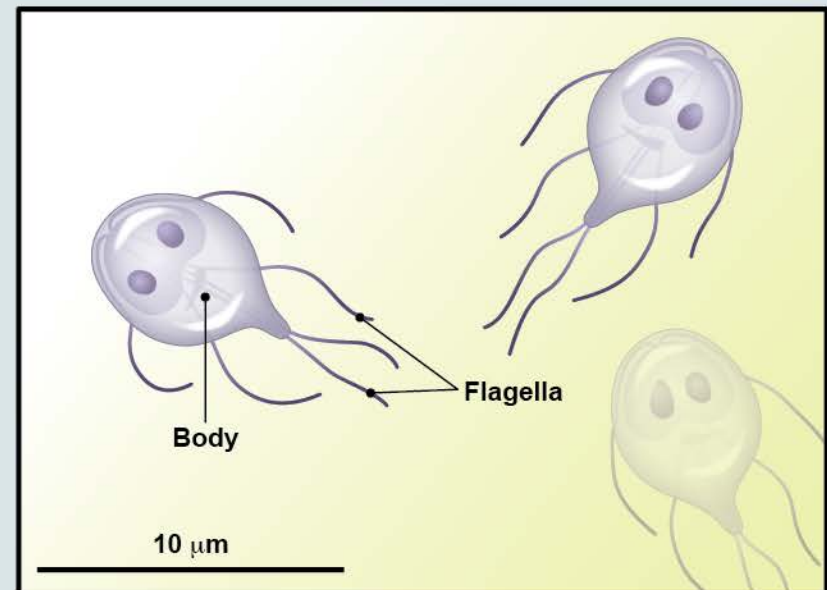
Cell structure: Multicellular

Interesting facts:

- Giardia causes the diarrheal illness known as giardiasis in humans.
- It is found in cyst form on surfaces or in soil, food, or water that has been contaminated with feces from infected humans or animals.
- Giardia is protected by an outer shell that allows it to survive outside the body for long periods of time and makes it tolerant to chlorine disinfection.

EUKARYOTE

Giardia (*Giardia intestinalis*)



Saccharomyces cerevisiae

Domain: Eukarya
Supergroup: Unikonta
Subgroup: Fungi



Habitats: Skins of grapes and other fruits; soil; gastrointestinal tracts of insects and warm-blooded animals; aquatic environments

Mode of nutrition: Chemoheterotroph

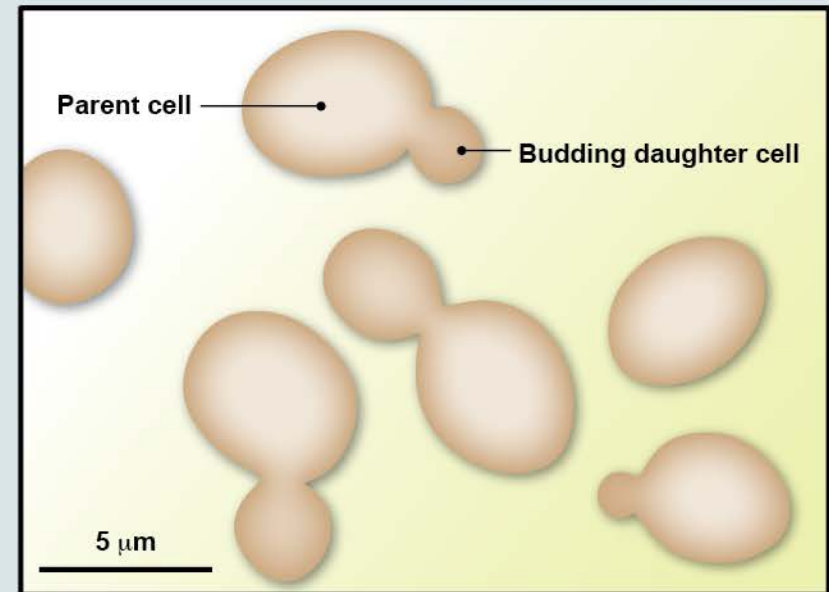
Cell structure: Unicellular

Interesting facts:

- *Saccharomyces cerevisiae* reproduces by budding (see image).
- Under anaerobic conditions, different species of yeast can use fermentation to produce ATP.

EUKARYOTE

Brewer's or Baker's Yeast (*Saccharomyces cerevisiae*)



Escherichia coli

Domain: Bacteria
Supergroup: Proteobacteria
Subgroup: Gamma Proteobacteria



Habitats: Freshwater and intestines of humans and other animals

Mode of nutrition: Chemoheterotroph

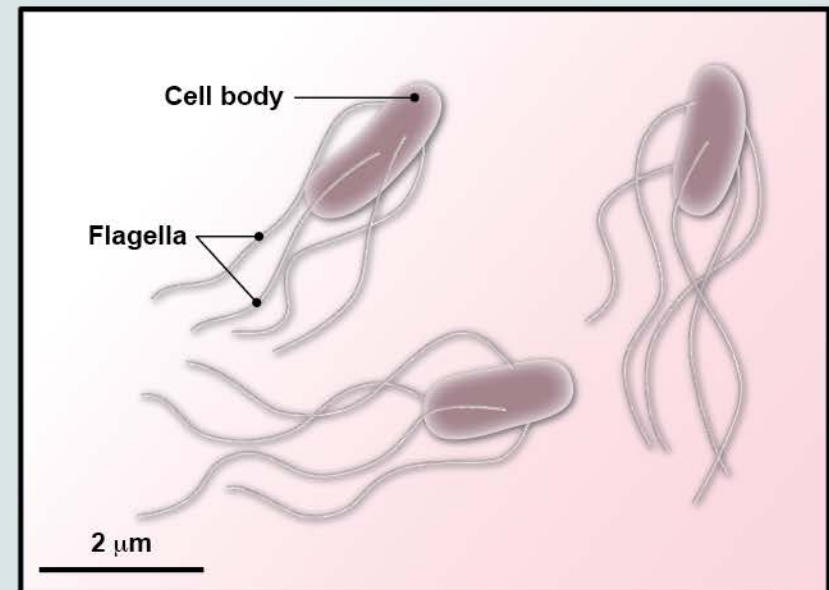
Cell structure: Unicellular

Interesting facts:

- Most strains are harmless. Some strains even aid in digestion or protect animals from other microbes. Few strains are harmful.
- *E. coli* strain O157:H7 is a food-borne pathogen that causes abdominal cramps, bloody diarrhea, and vomiting.

PROKARYOTE

E. coli (*Escherichia coli*)



Homo sapiens

Domain: Eukarya
Supergroup: Unikonta
Subgroup: Animals

Erythrocyte



Habitat: Red blood cells are found in blood.

Mode of nutrition: Humans are chemoheterotrophs.

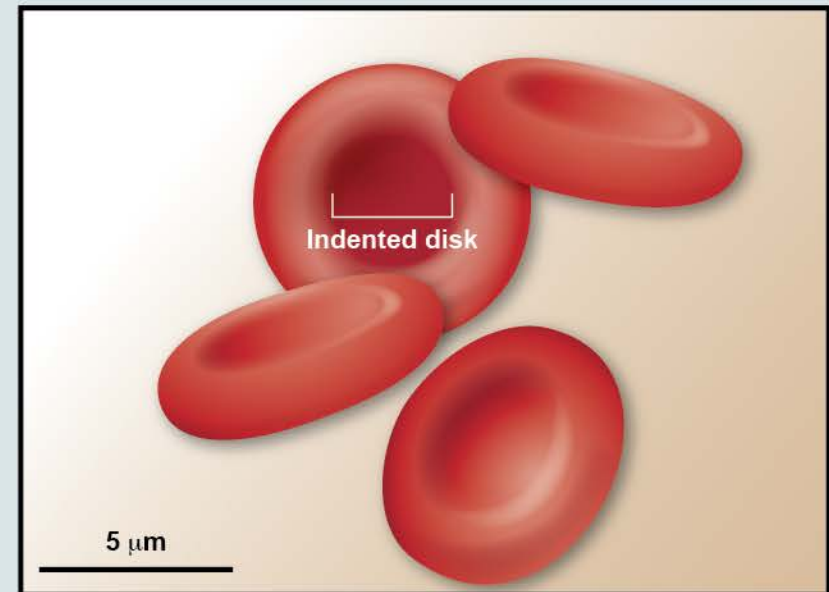
Cell structure: Red blood cells are specialized cells, part of a multicellular organism.

Interesting facts:

- The human body produces about 20 million red blood cells per second.
- The concave shape allows red blood cells to bend and flow smoothly through the body's capillaries.
- In mammals, red blood cells lack a nucleus, DNA, and organelles.

CELL

Human Red Blood Cell (Erythrocyte)



Homo sapiens

Domain: Eukarya
Supergroup: Unikonta
Subgroup: Animals

Spermatozoan



Habitat: Human sperms are found in human semen.

Mode of nutrition: Humans are chemoheterotrophs.

Cell structure: Sperms are specialized cells, part of a multicellular organism.

Interesting facts:

- The acrosome (oval-shaped structure) contains strong chemicals that drill through the egg's outer surface so that the sperm can release its genetic cargo.
- Sperm get energy from the sugar fructose, supplied by the seminal vesicles.

CELL

Sperm Cell (Spermatozoan)

