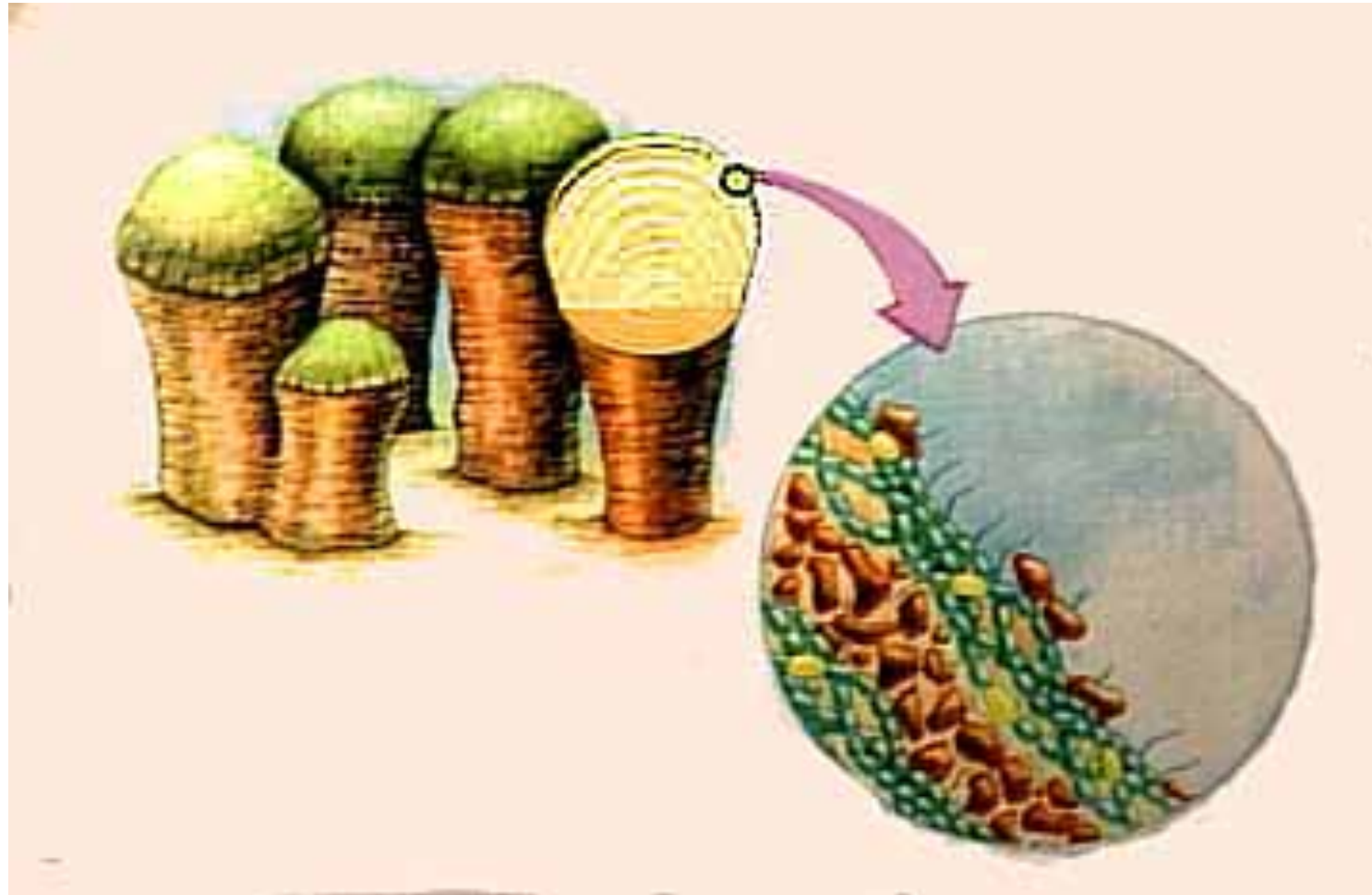


Stromatalites



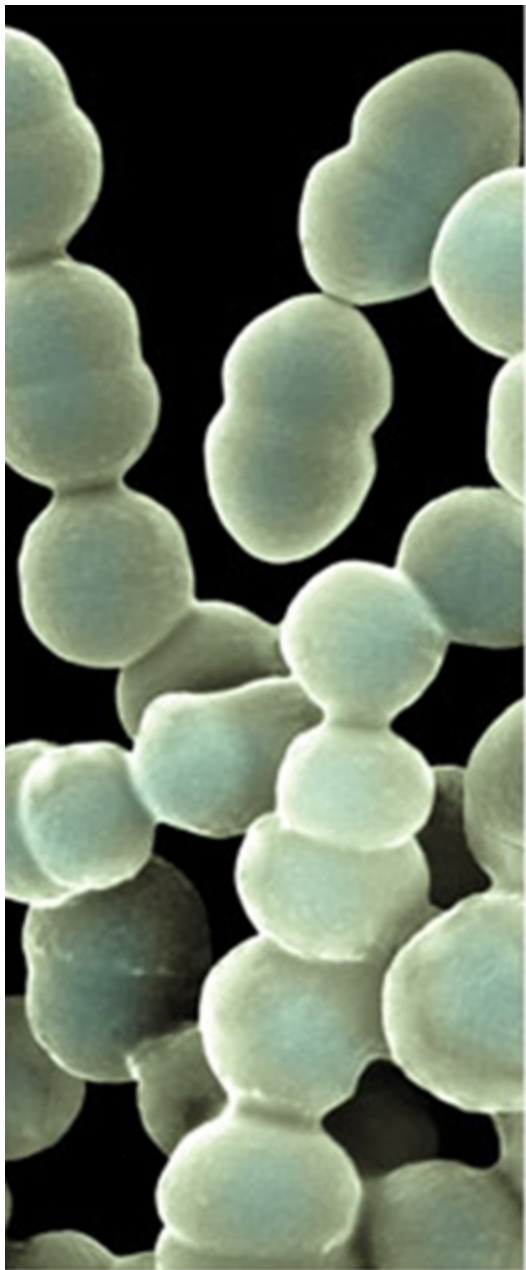


Stromatalites



Archaea





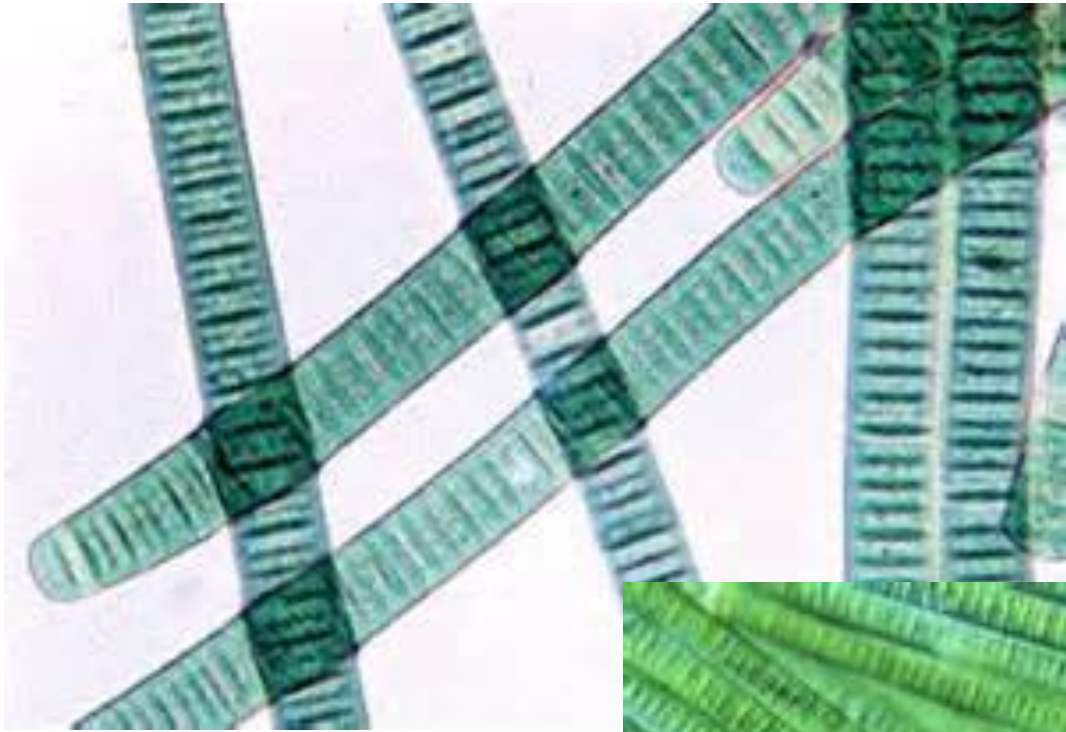
1 μm



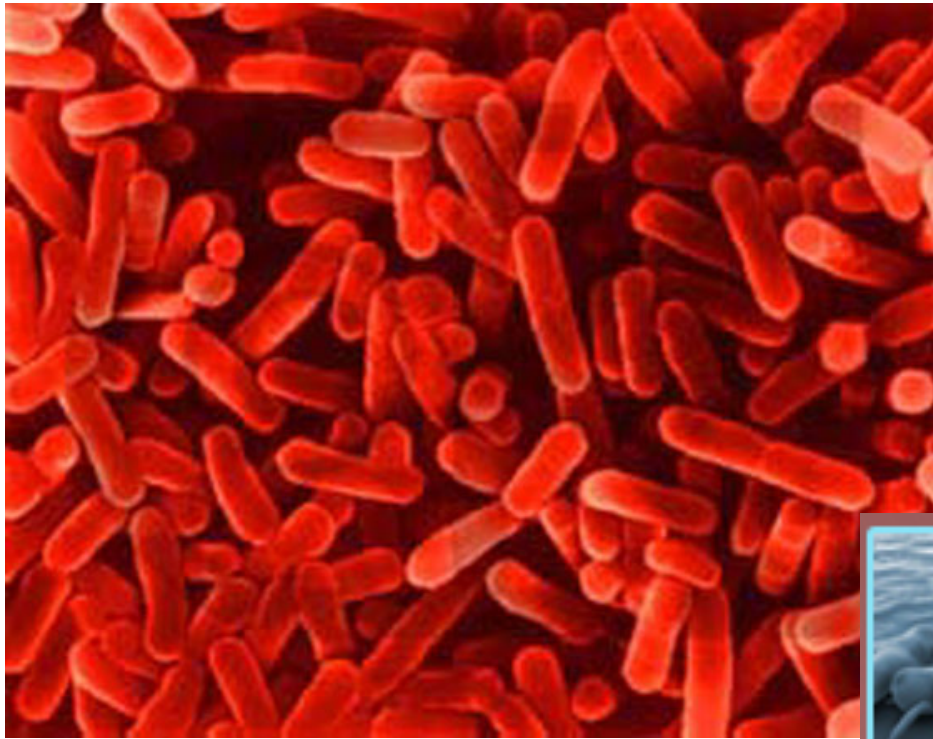
2 μm



5 μm



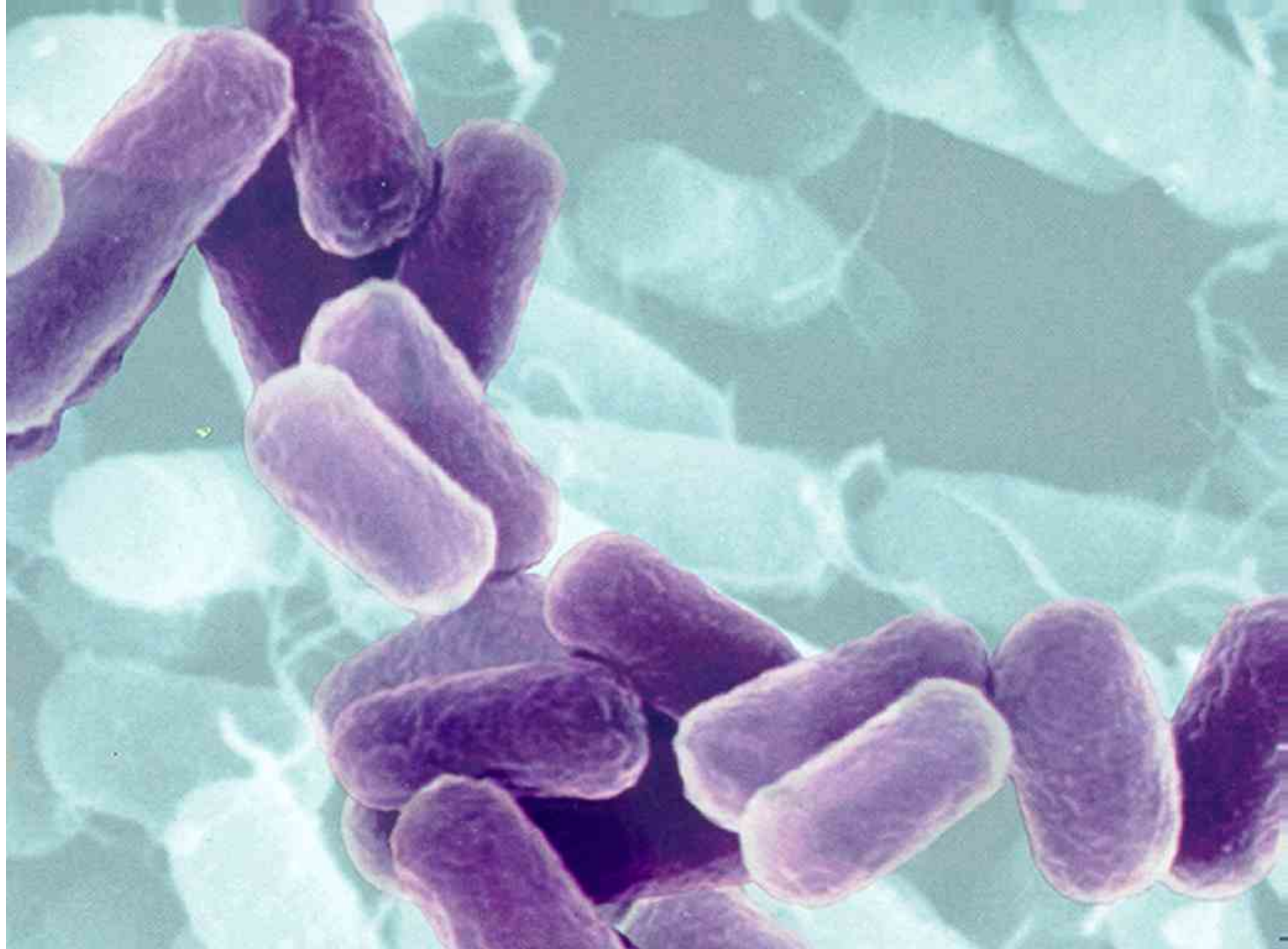




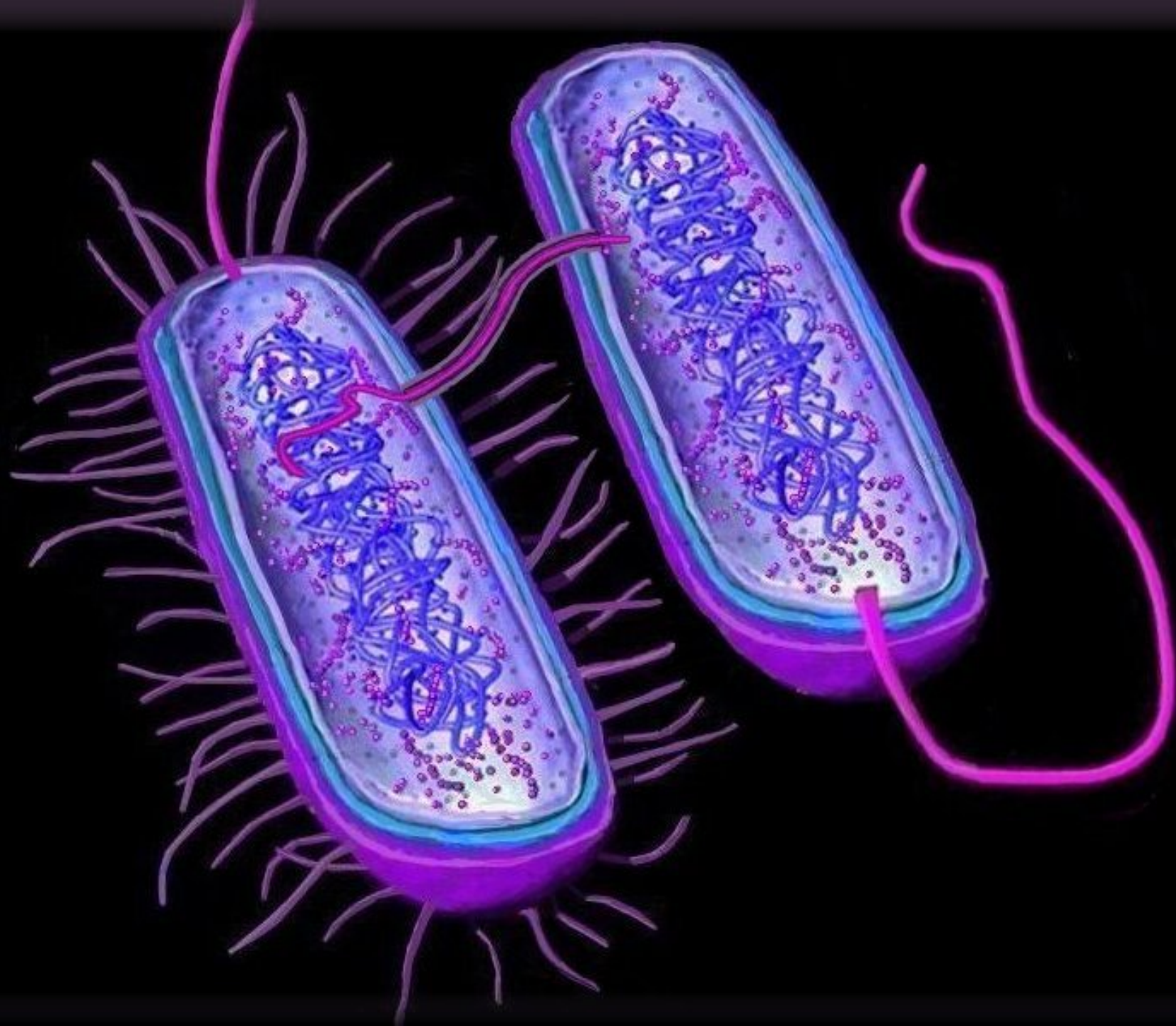
Rod-shaped
bacteria (Bacilli)
- Salmonella

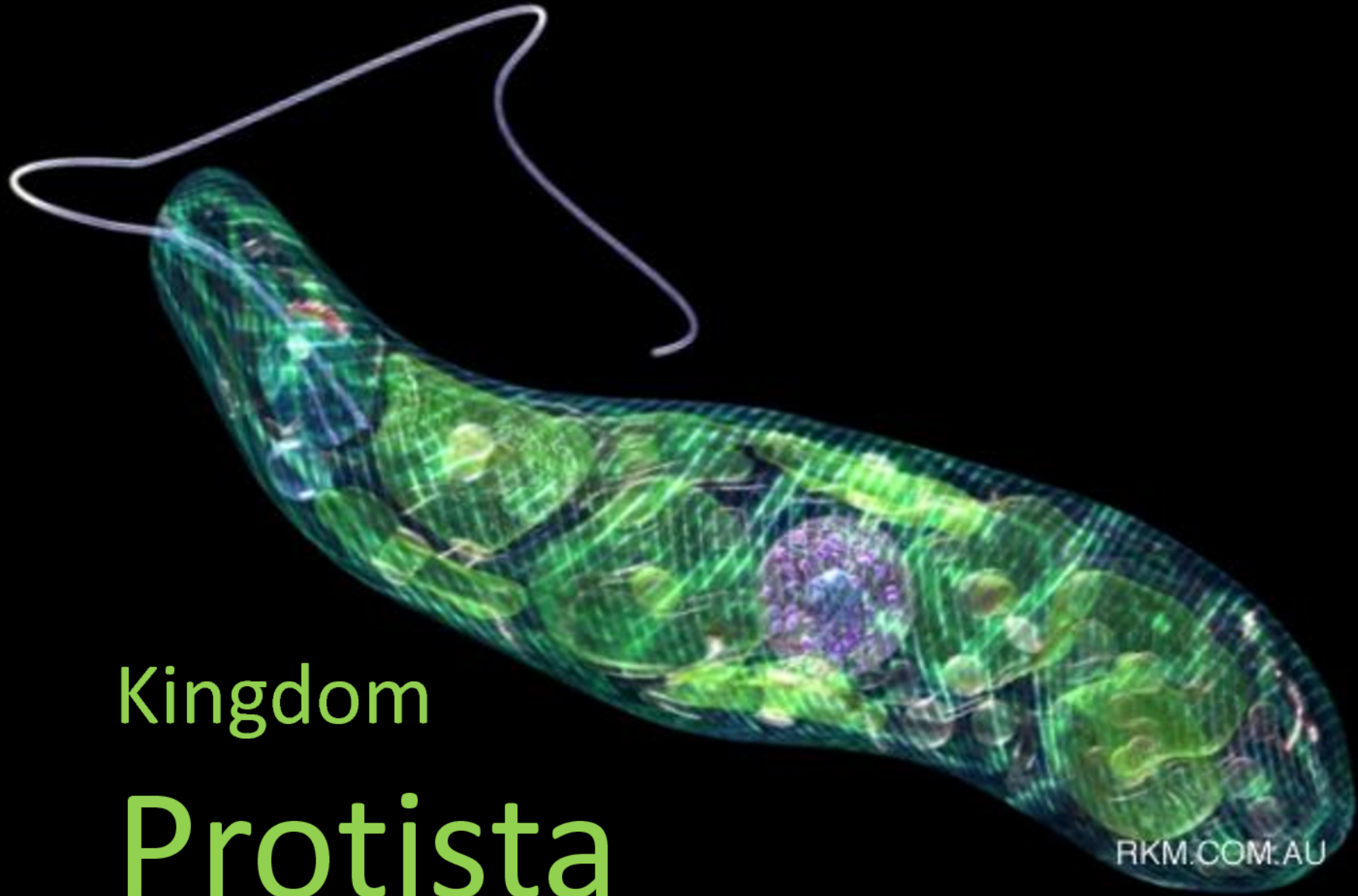
Sphere-shaped
bacteria (Cocci)
- Streptococcus









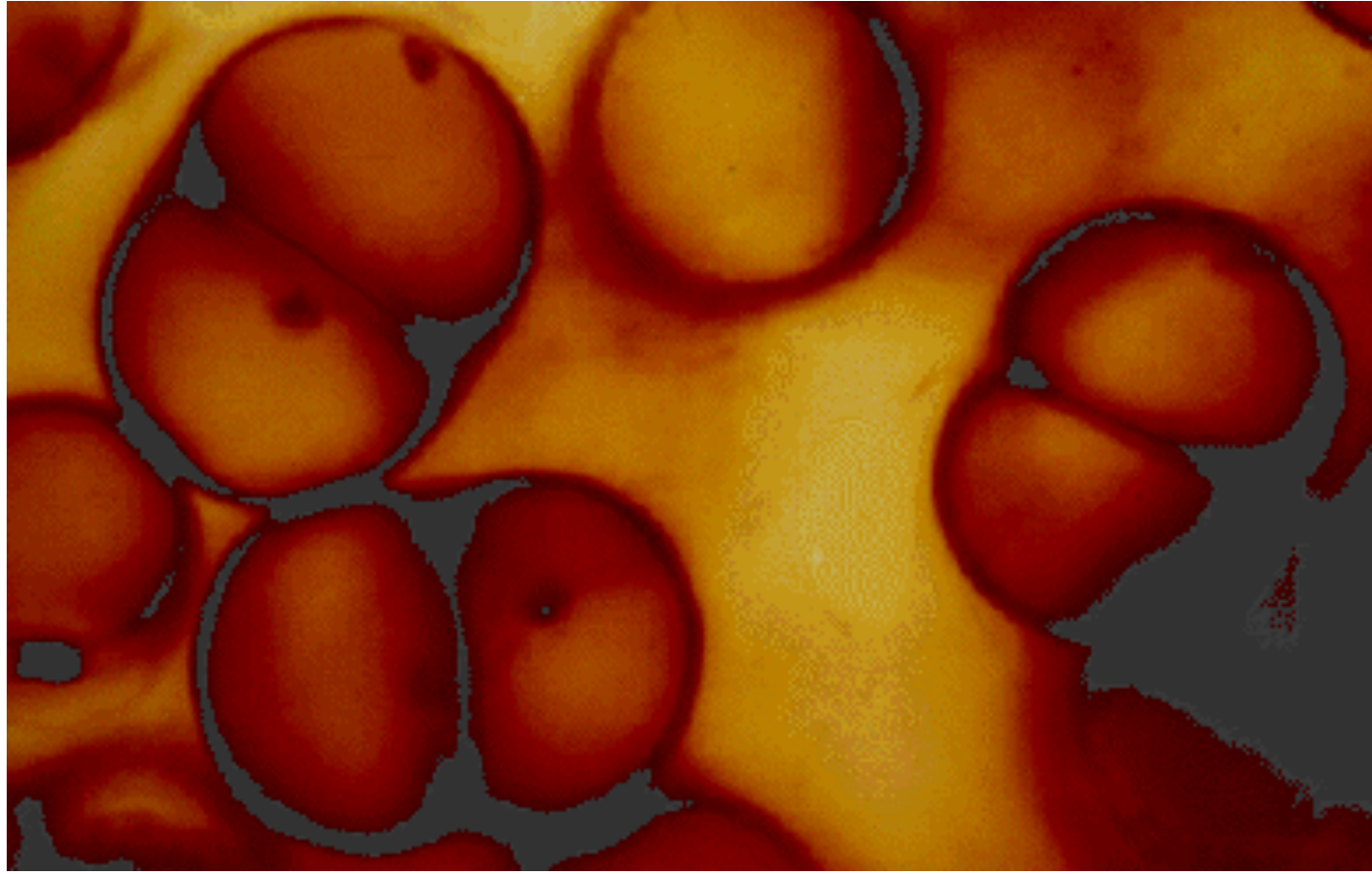


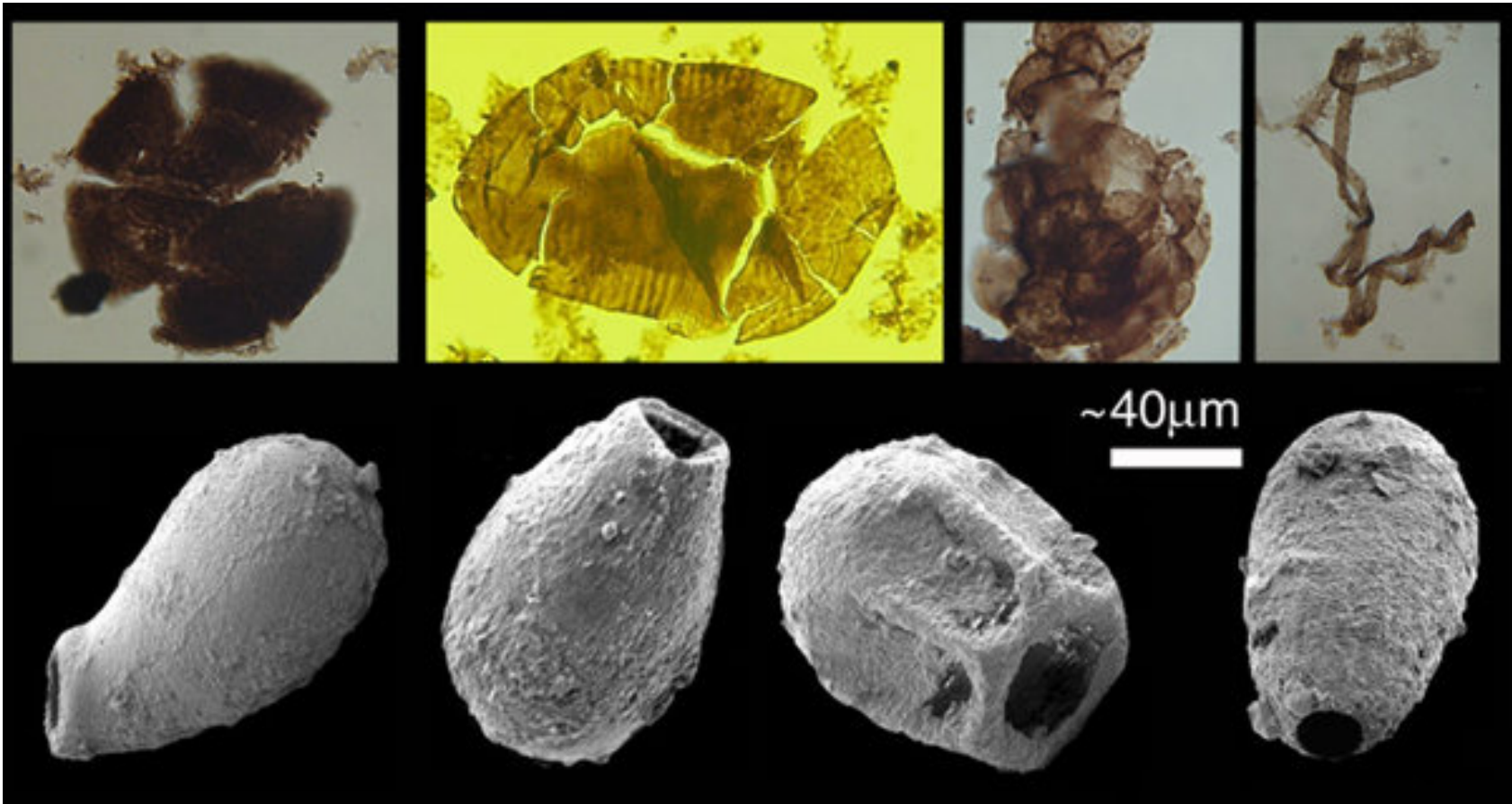
Kingdom
Protista

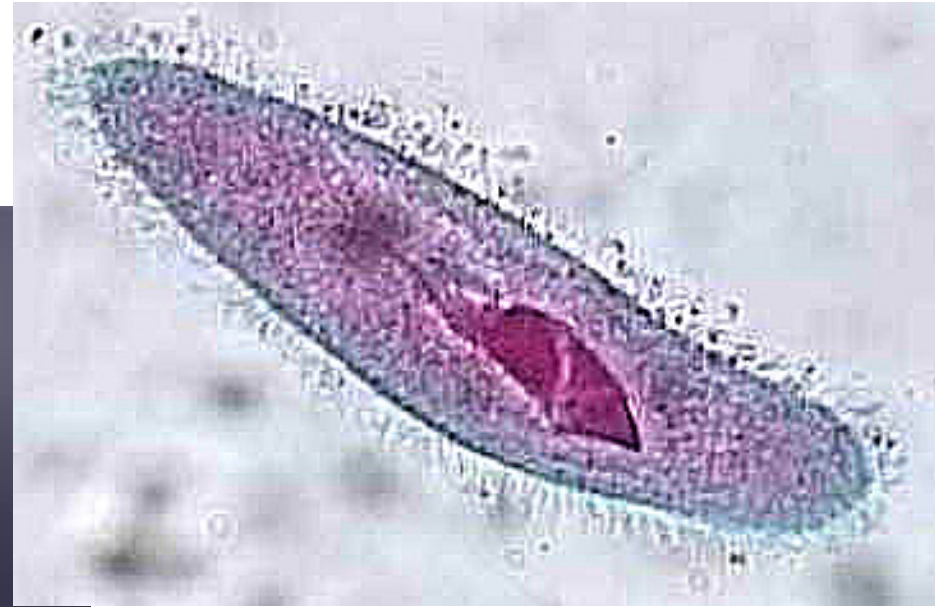
FKM.COM.AU

Oldest Eukaryotic Fossils ~ 2.1 bya



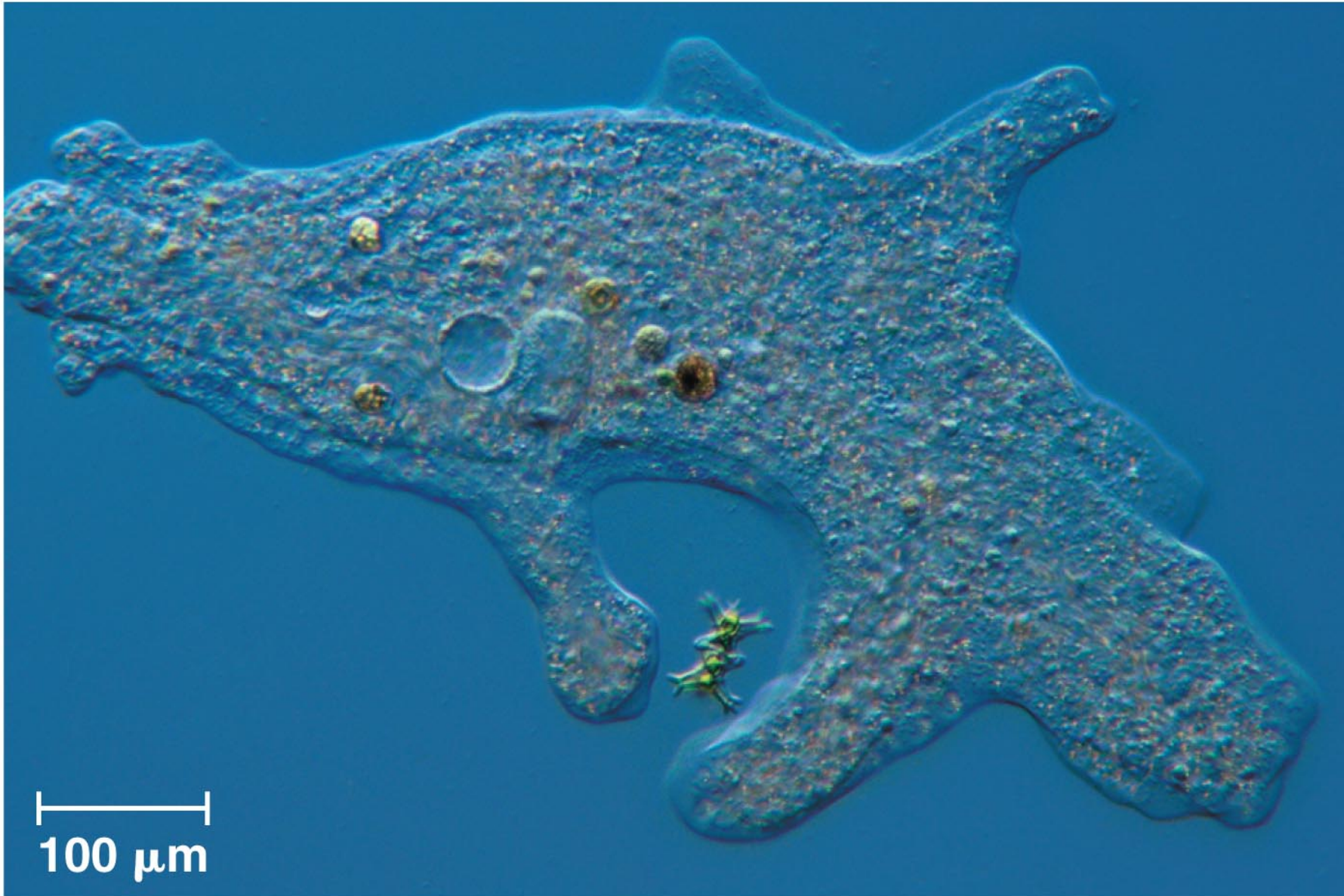




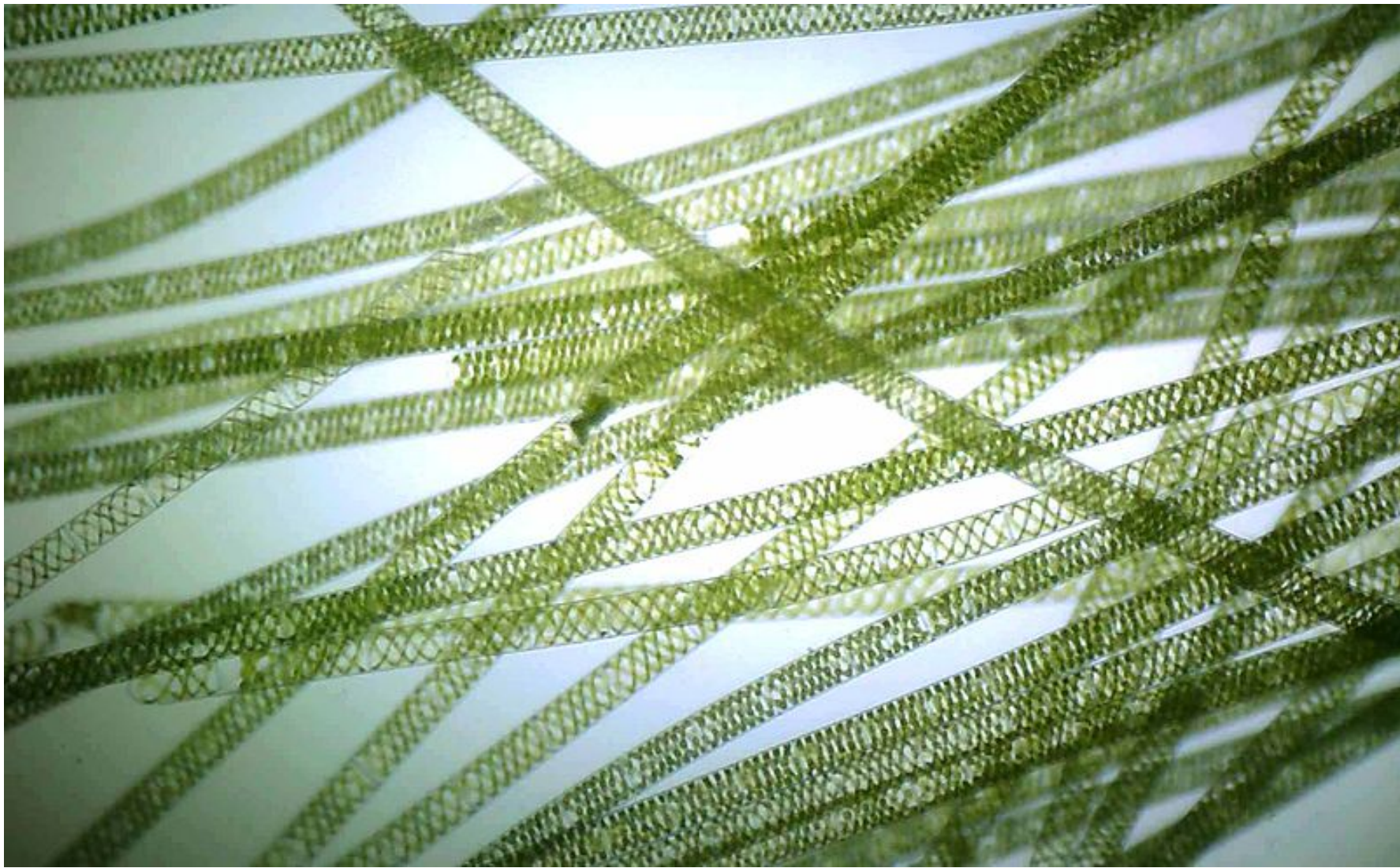


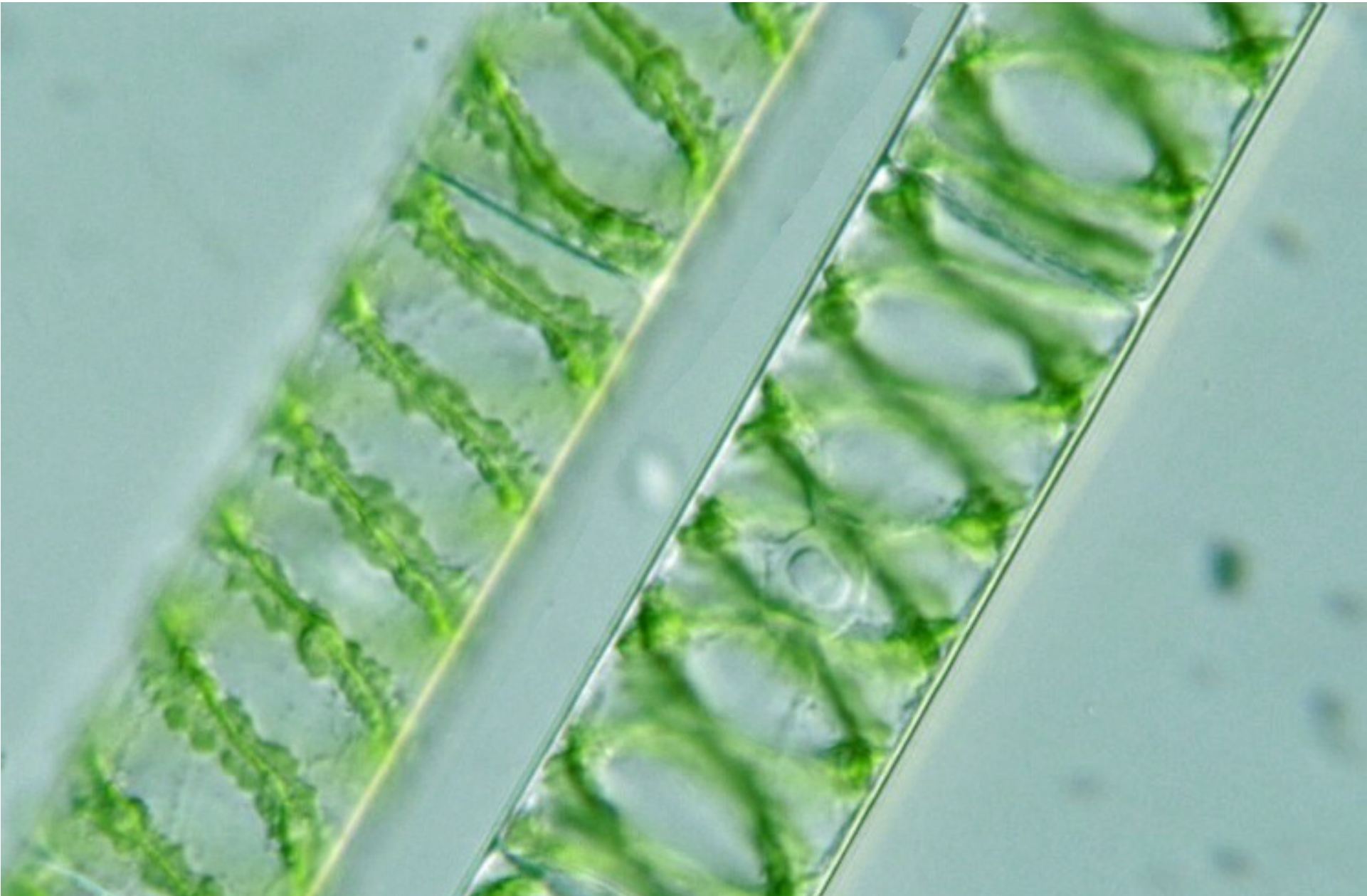


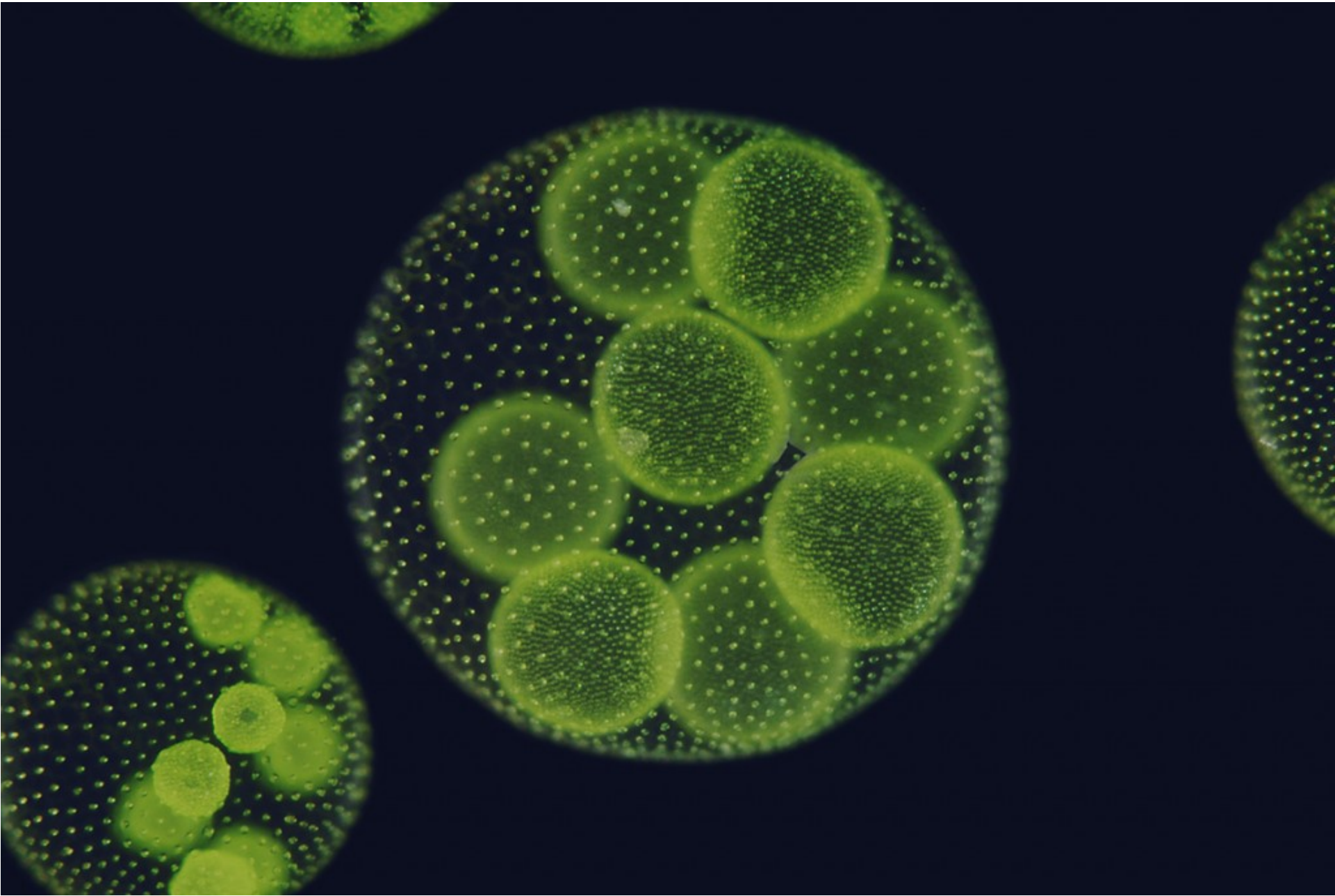






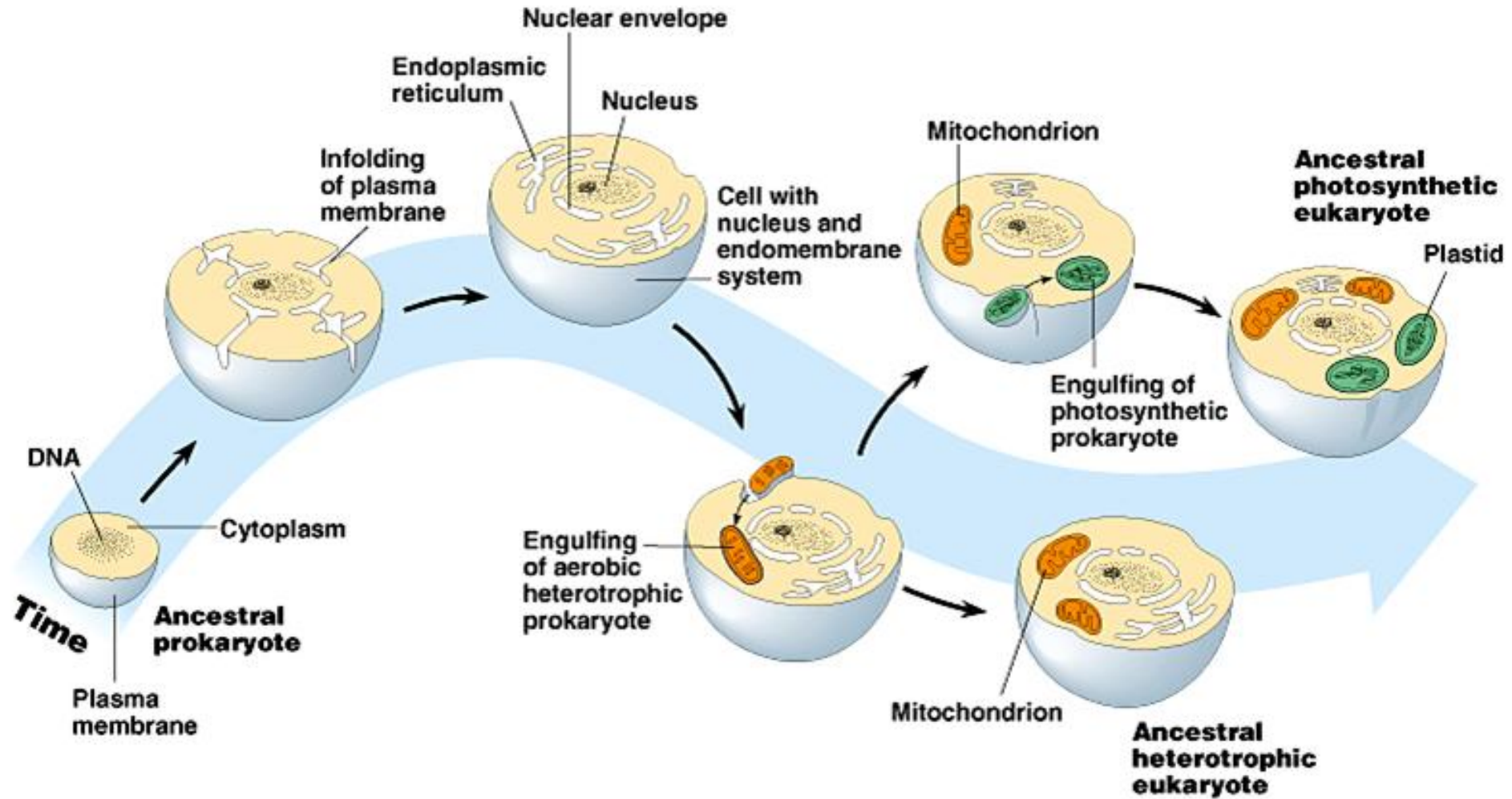




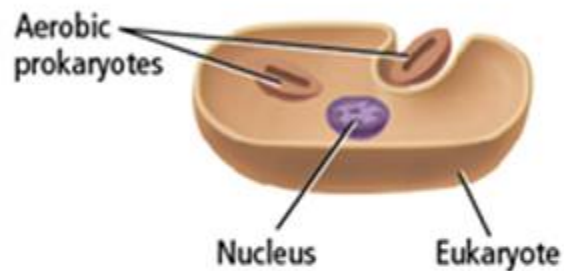


How did Eukaryotic Cells Arise?

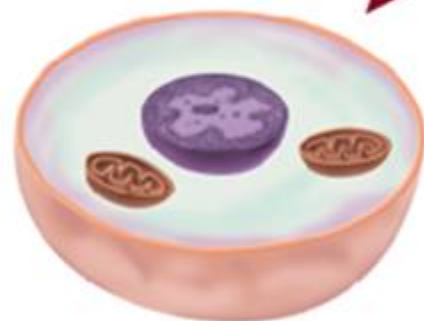
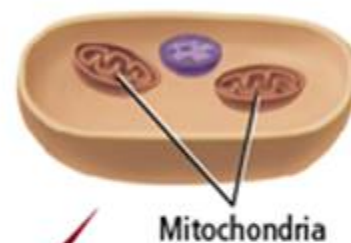
Endosymbiosis



An early eukaryote was parasitized by or ingested some aerobic prokaryotes. The cells were protected and produced energy for the eukaryote.

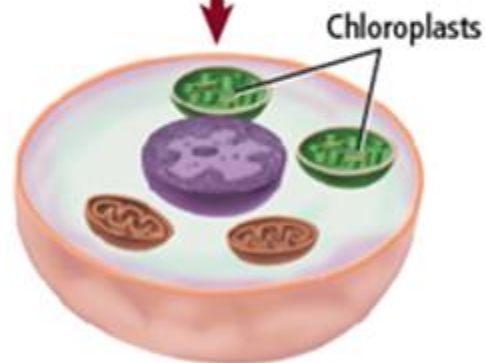
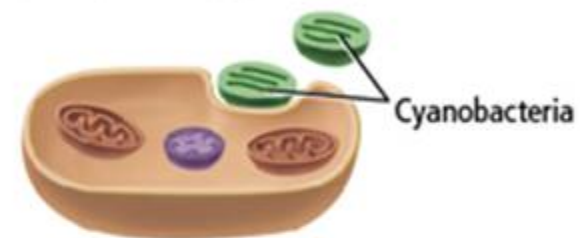


Over millions of years, the aerobic prokaryotes became mitochondria, no longer able to live on their own.



The aerobic prokaryotes became mitochondria in all eukaryotic cells.

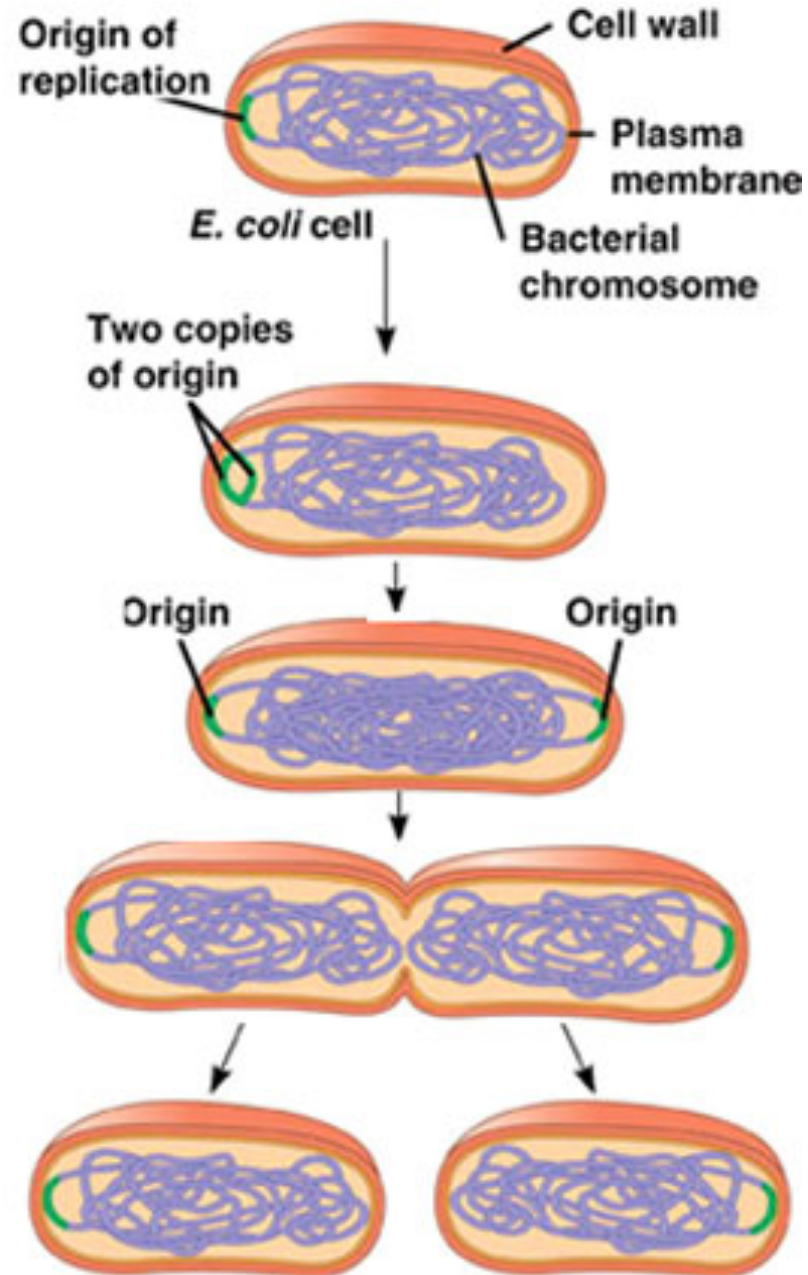
Some eukaryotes also formed symbiotic relationships with cyanobacteria, which contain photosynthetic pigments.

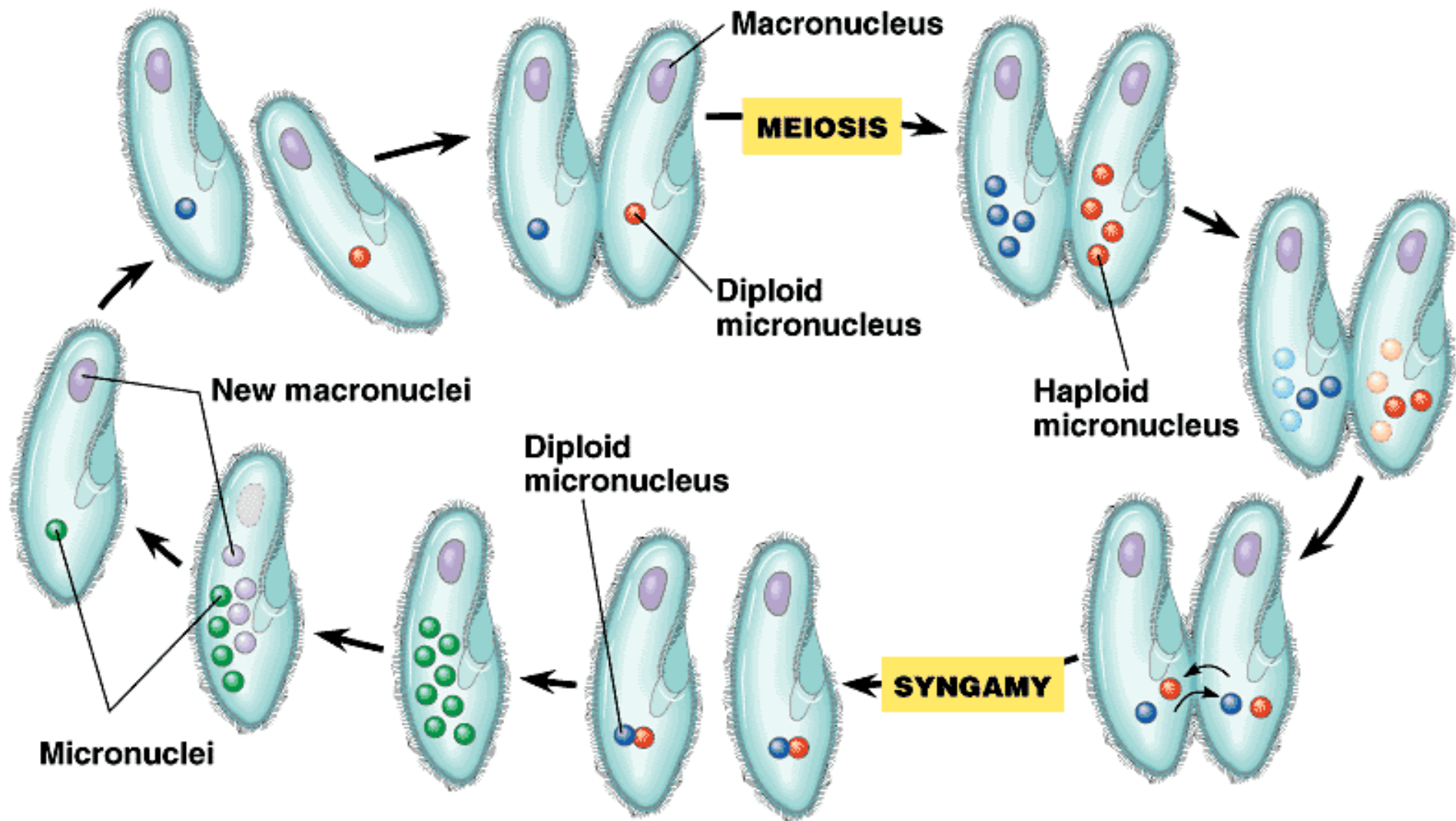


The cyanobacteria became chloroplasts in protist or plant cells.

Binary Fission

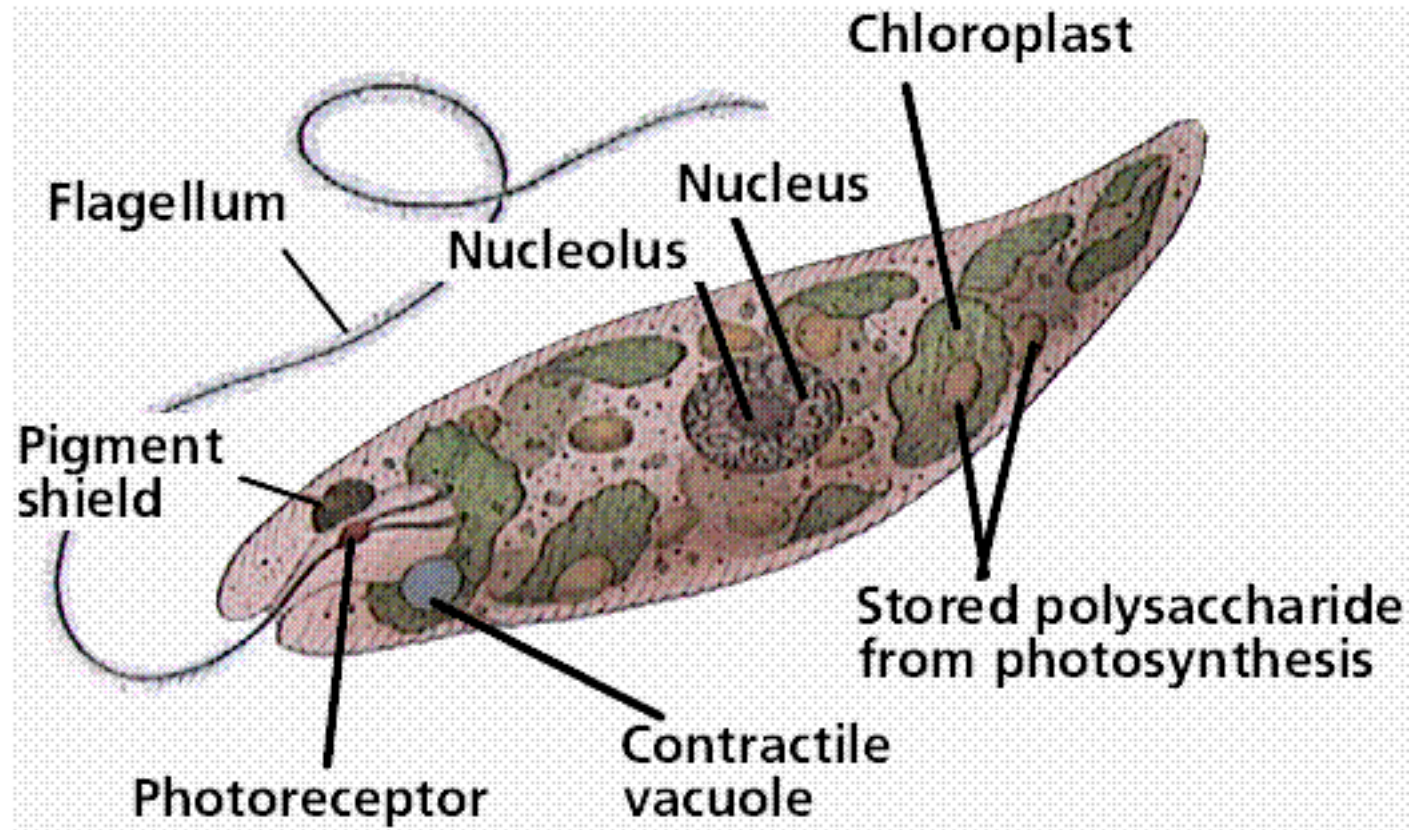
- 1** Chromosome replication begins. Soon thereafter, one copy of the origin moves rapidly toward the other end of the cell.
- 2** Replication continues. One copy of the origin is now at each end of the cell.
- 3** Replication finishes. The plasma membrane grows inward, and new cell wall is deposited.
- 4** Two daughter cells result.

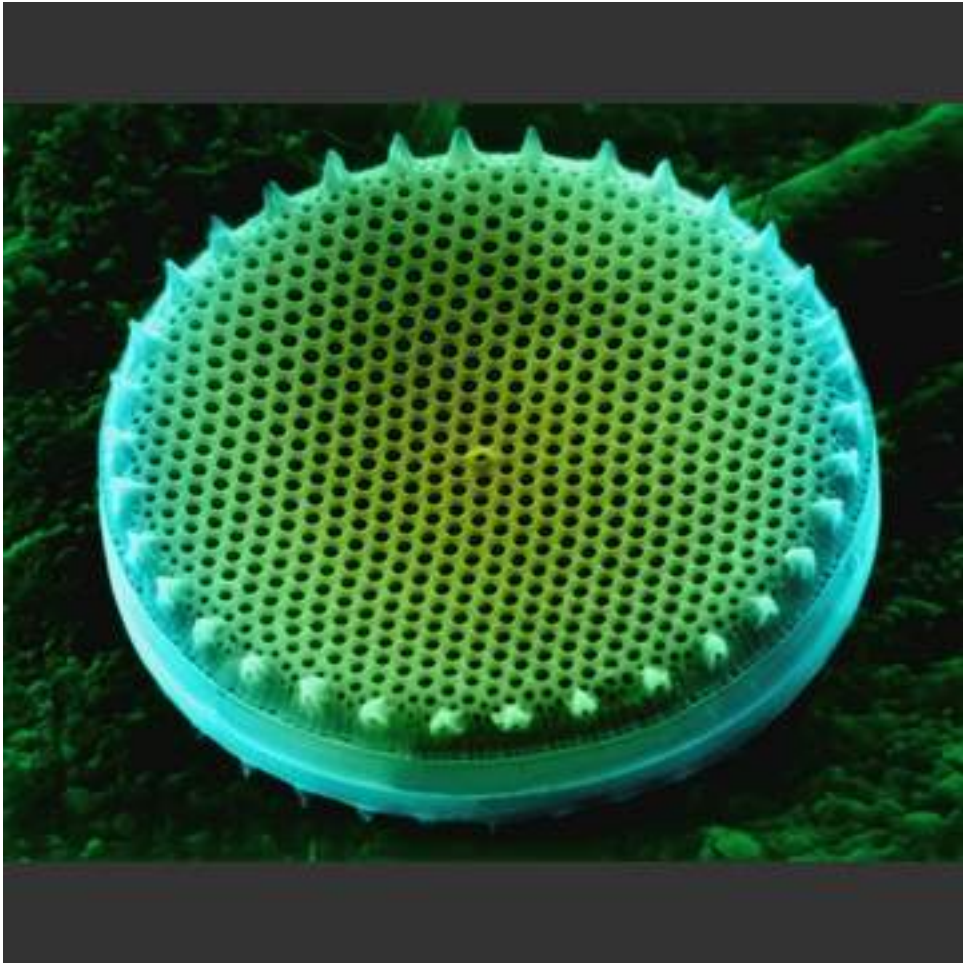


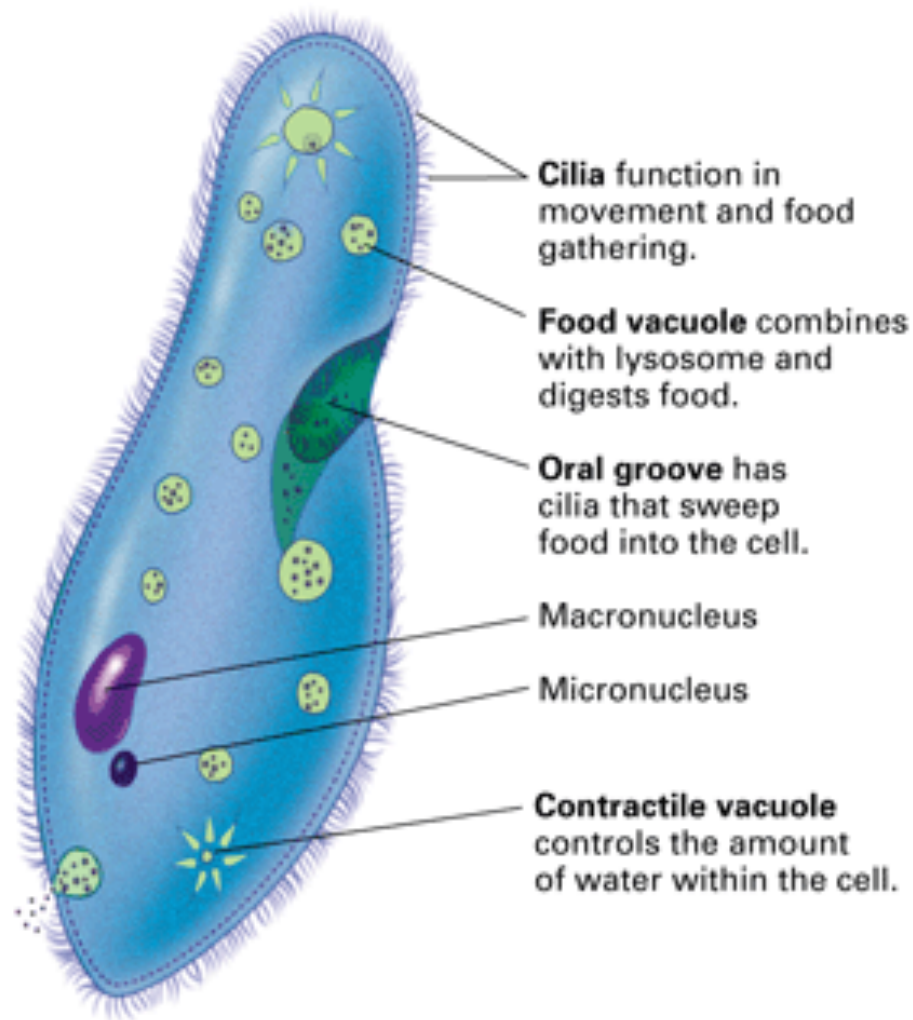




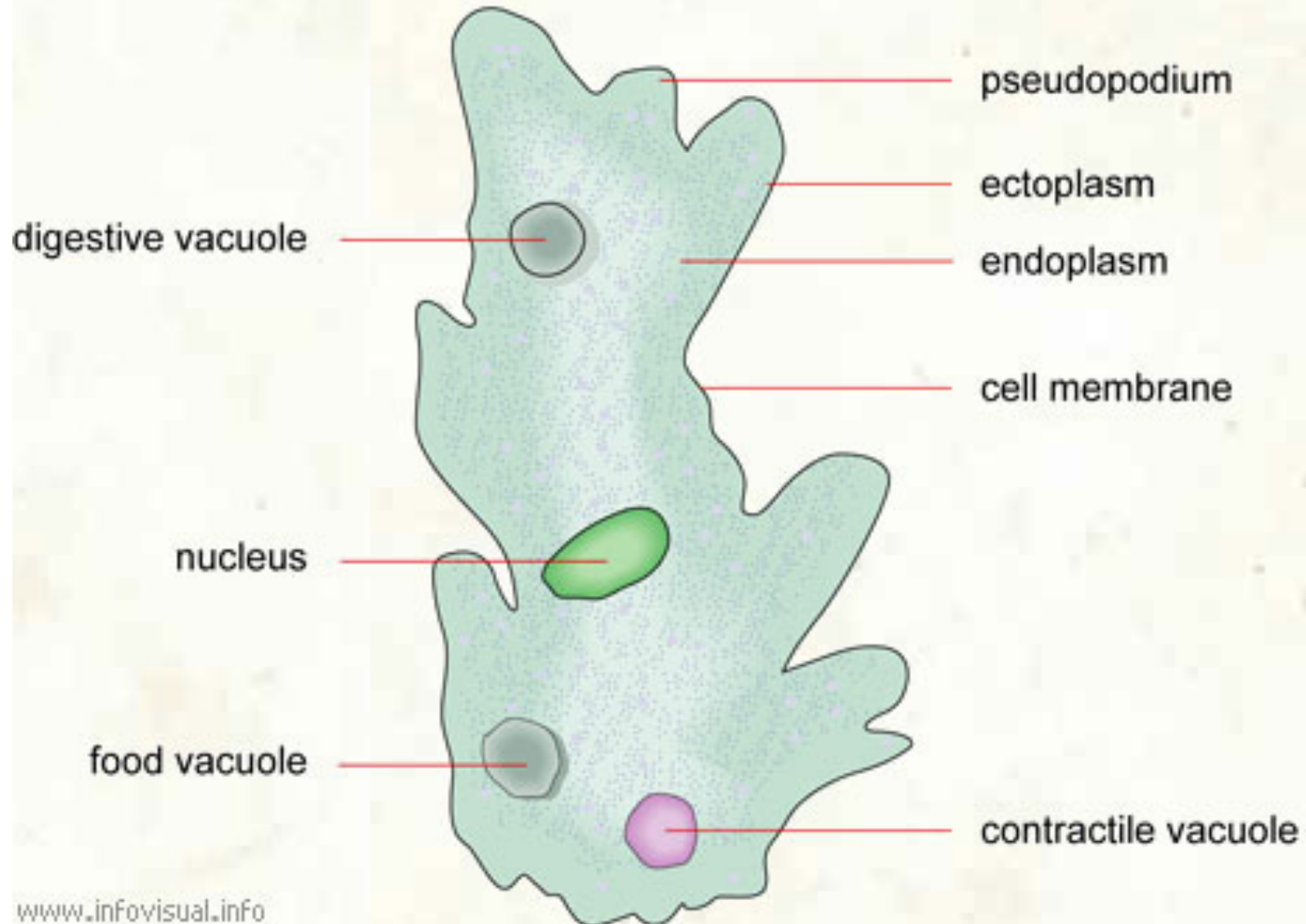
Protist: Euglena




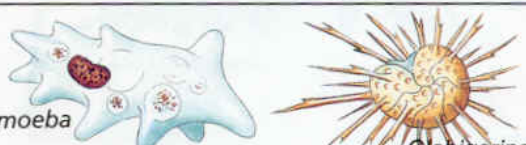










STRUCTURE OF AN AMOEBA



Protist Kingdom Kingdom Protista		
Phylum	Some characteristics	Examples
Euglenophyta (euglenoids)	one-celled make or take in food most have one flagellum	<i>Euglena</i>  <i>Phacus</i>
Chrysophyta (golden algae)	most are one-celled make own food yellow-brown color	 <i>Synedra</i> <i>Diatoma</i>
Pyrrophyta (dinoflagellates)	one-celled take in food have two flagella	<i>Gonyaulax</i>  <i>Peridinium</i>
Sarcodina (sarcodines)	one-celled take in food have pseudopods	<i>Amoeba</i>  <i>Globigerina</i>
Ciliophora (ciliates)	one-celled take in food have cilia	<i>Paramecium</i>  <i>Didinium</i> <i>Vorticella</i>
Mastigophora (flagellates)	one-celled take in food have two or more flagella	<i>Trypanosoma</i>  <i>Trichomonas</i>
Sporozoa (sporozoans)	one-celled take in food no means of movement	<i>Plasmodium</i>  <i>Gregarina</i>
Myxomycetes (slime molds)	many- or one-celled absorb food change form during life cycle	<i>Dictyostelium</i>  <i>Physarum</i>