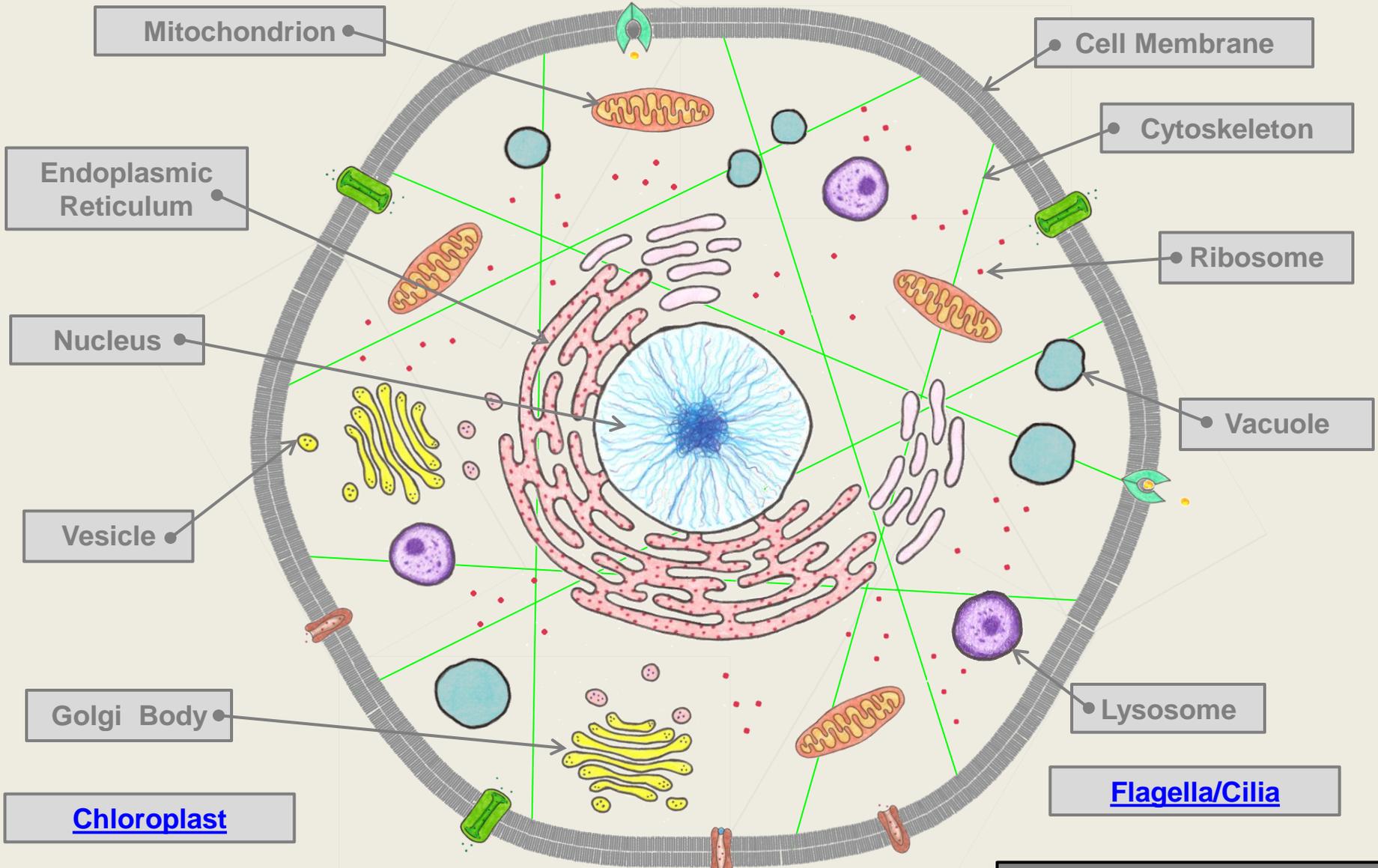
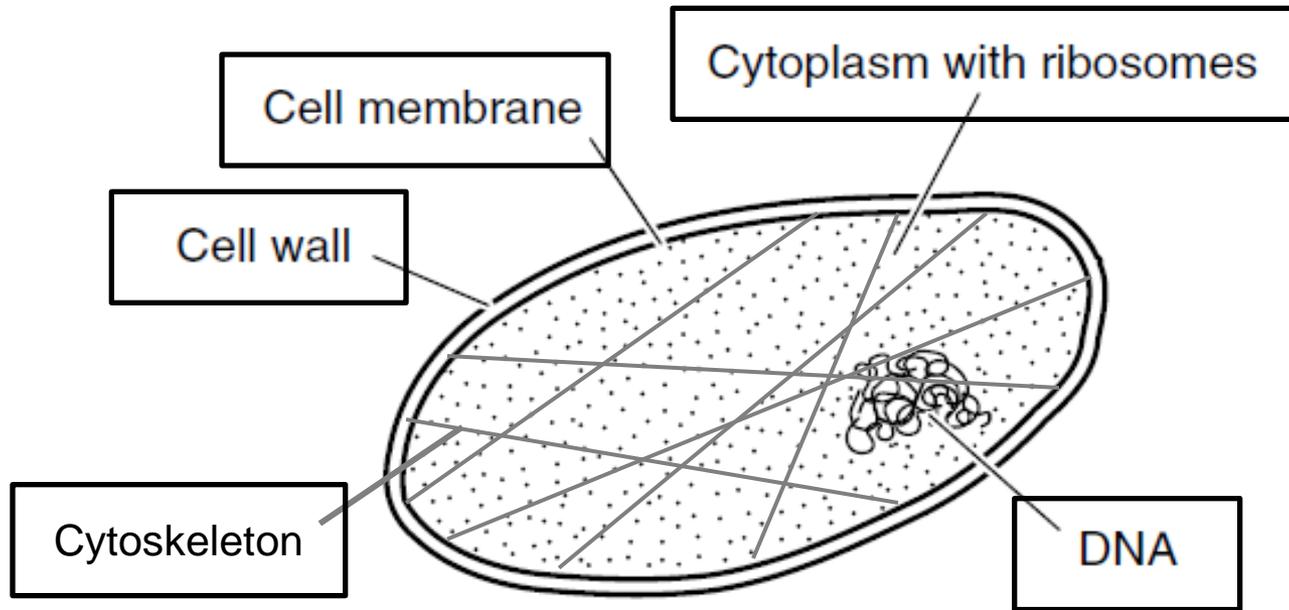


The Eukaryotic Cell

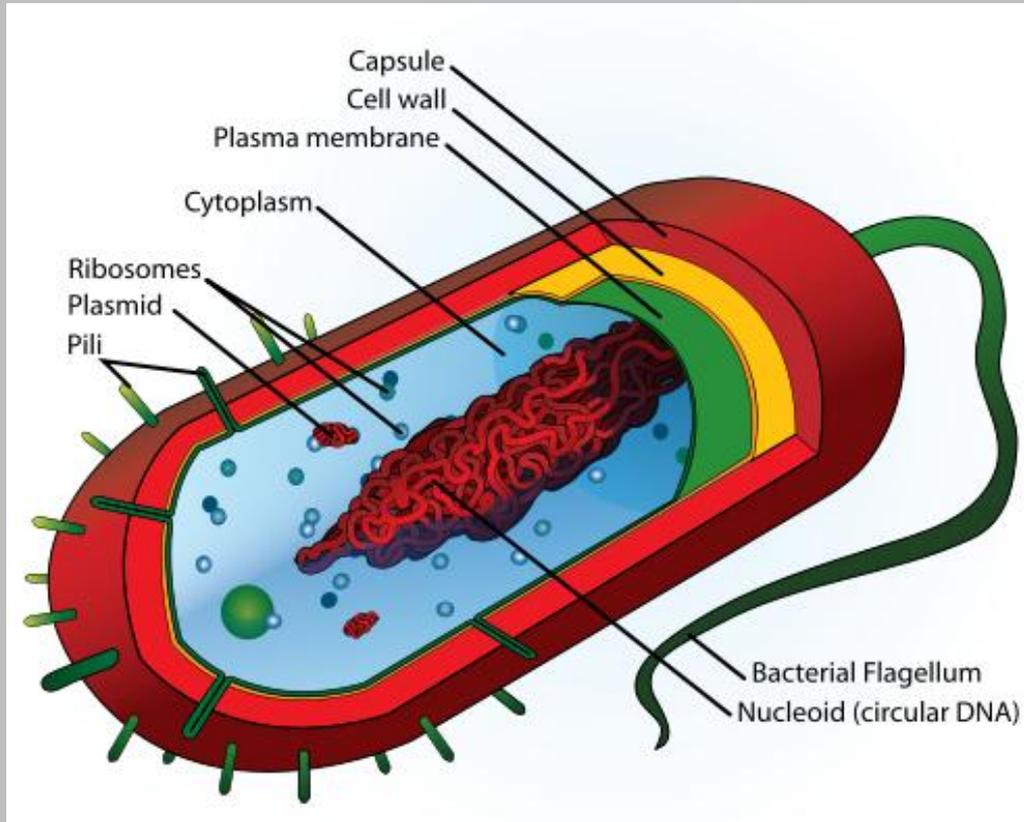


The Prokaryotic Cell



Prokaryotes do not have a nucleus or any other membrane-bound organelles!

The Prokaryotic Cell

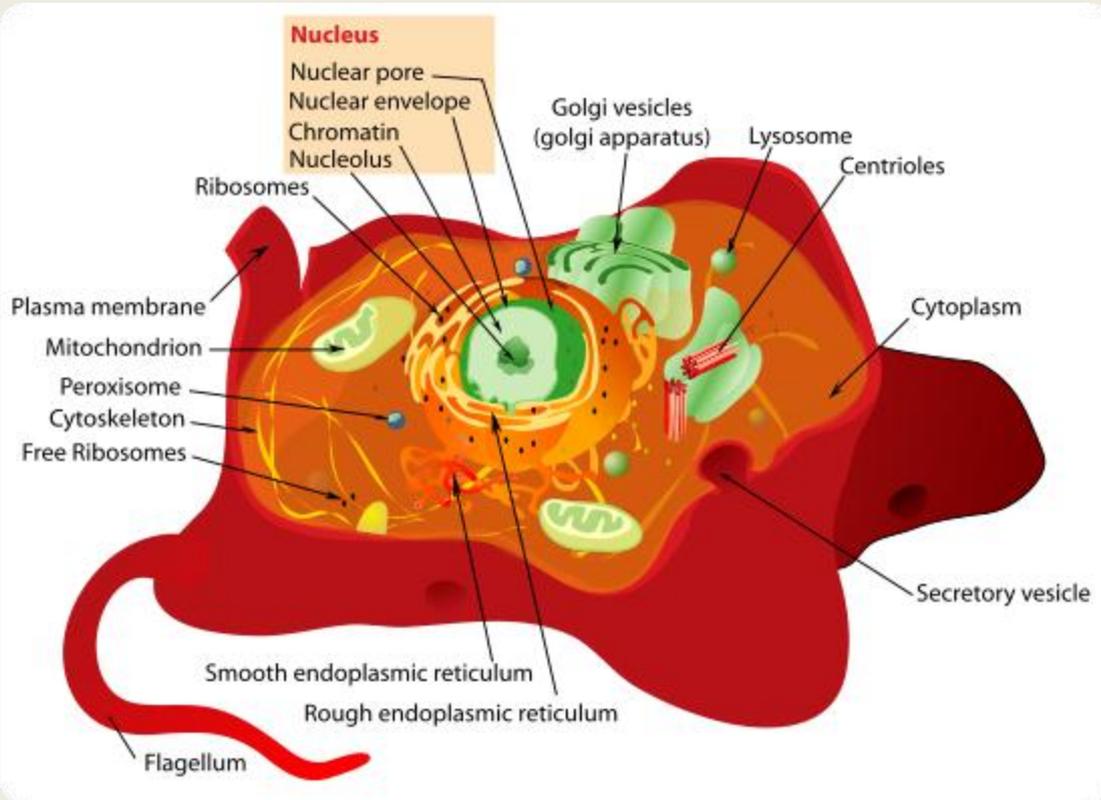


Prokaryotic cells are cells that do **NOT** contain any membrane-bound organelles.

They do still contain some organelles, such as ribosomes and cell walls. Because they do not contain individual compartments, they are much *smaller* than eukaryotes.

Return to
Prokaryotic Cell

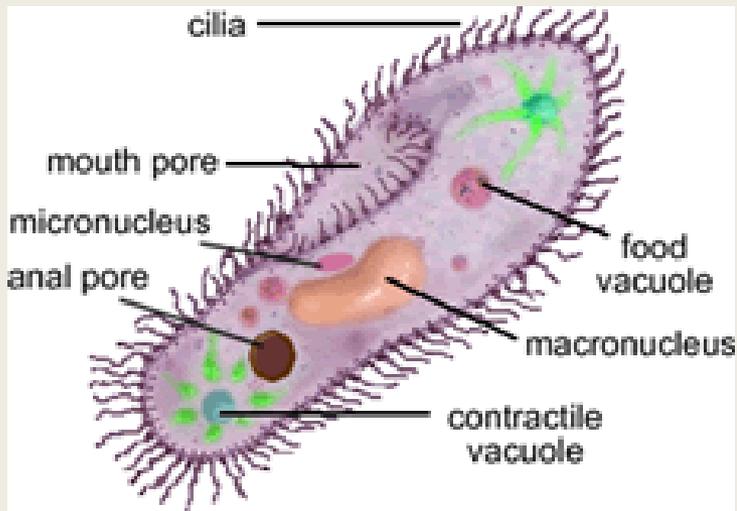
The Eukaryotic Cell



Eukaryotic cells are complex cells that contain many specialized parts known as *organelles*. These organelles often have their own membrane, and they help the cell perform the complex tasks needed for survival.

Flagella/Cilia

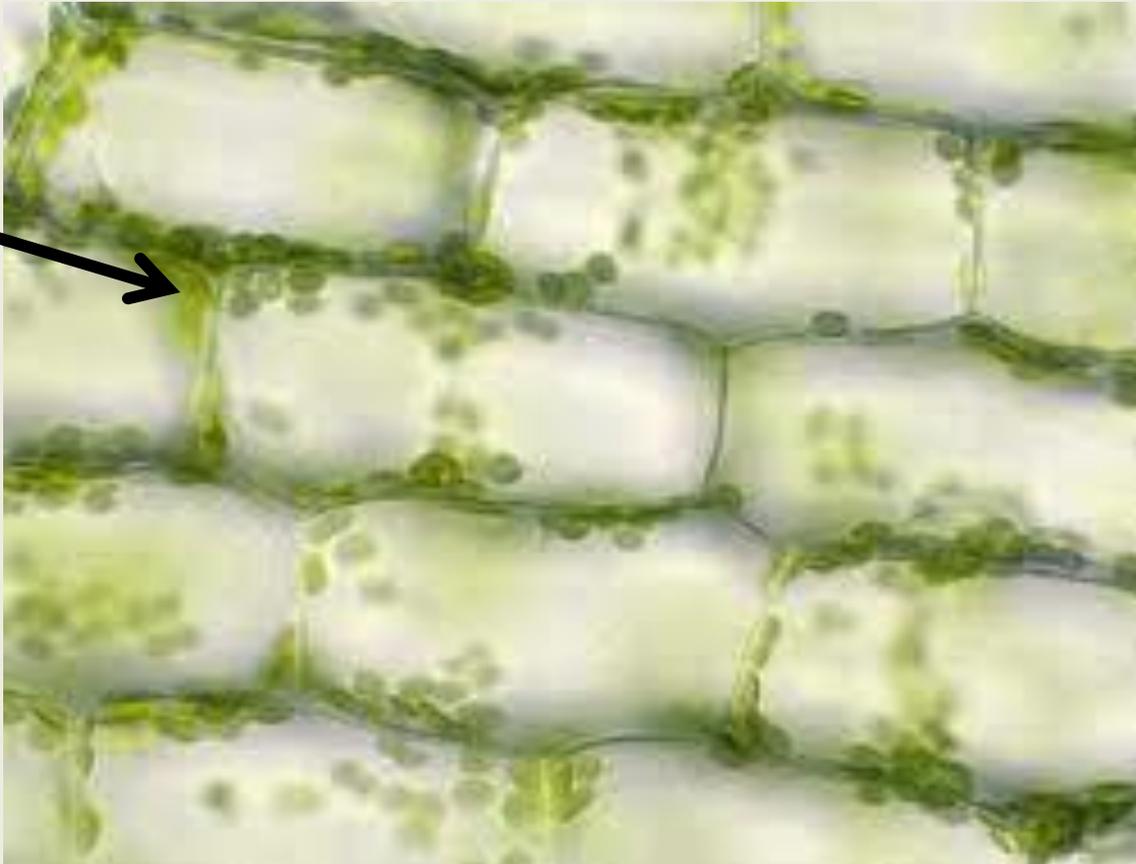
Some cells have the ability to move. The purpose of the flagella and cilia is to make the cell motile, to help the cell move.



Chloroplast

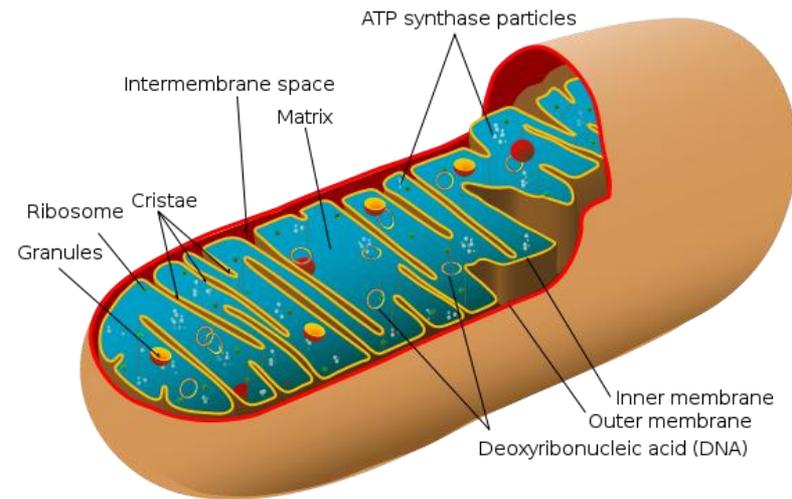
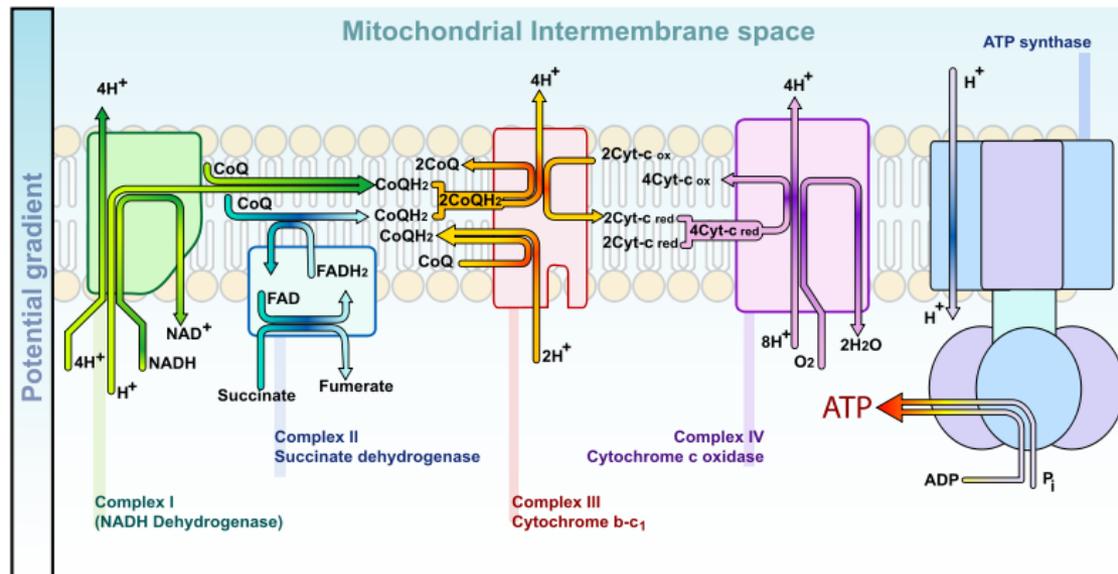
Energy conversion in plant cells takes place in the chloroplast. This is where the process of photosynthesis takes place.

Chloroplasts



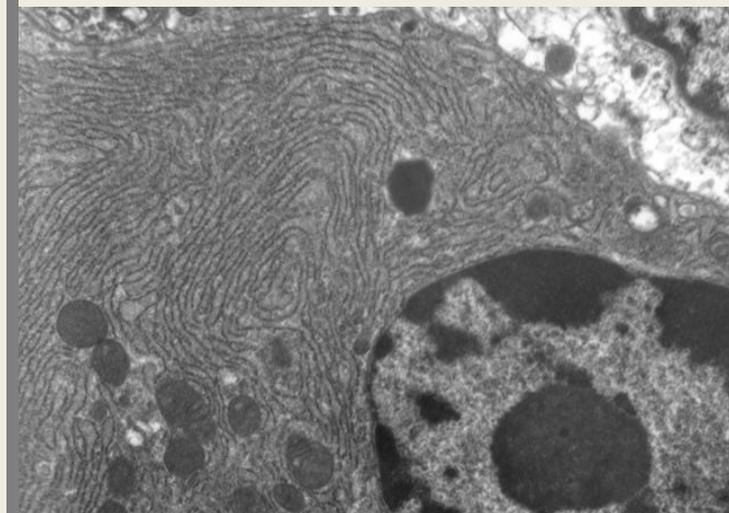
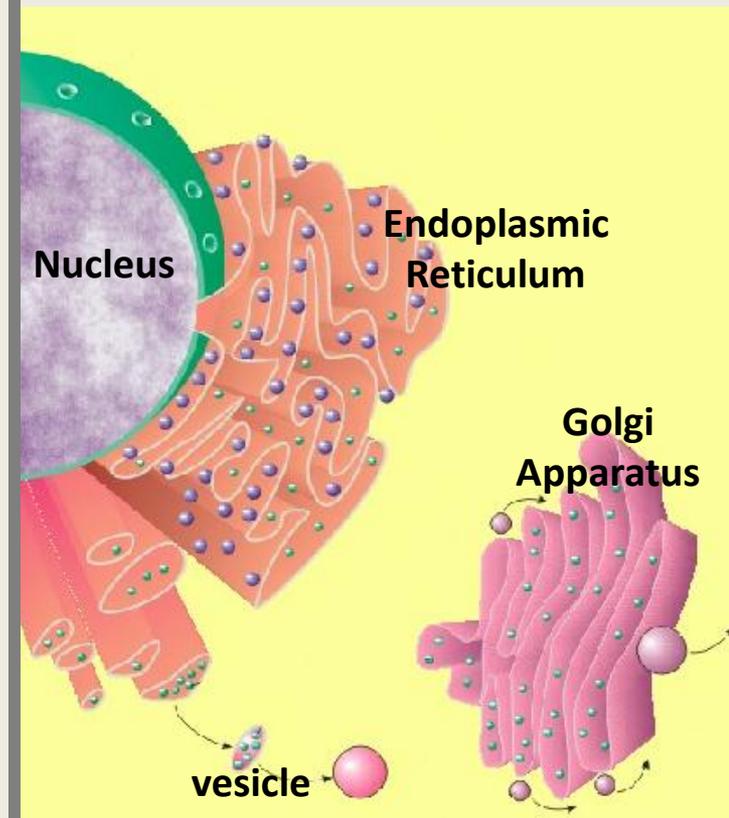
Mitochondrion

The cell's mitochondria perform the energy conversions necessary to transfer the bulk of the energy taken from food molecules into the energy molecule called ATP. This is why the mitochondria are known as the powerhouse of the cell.



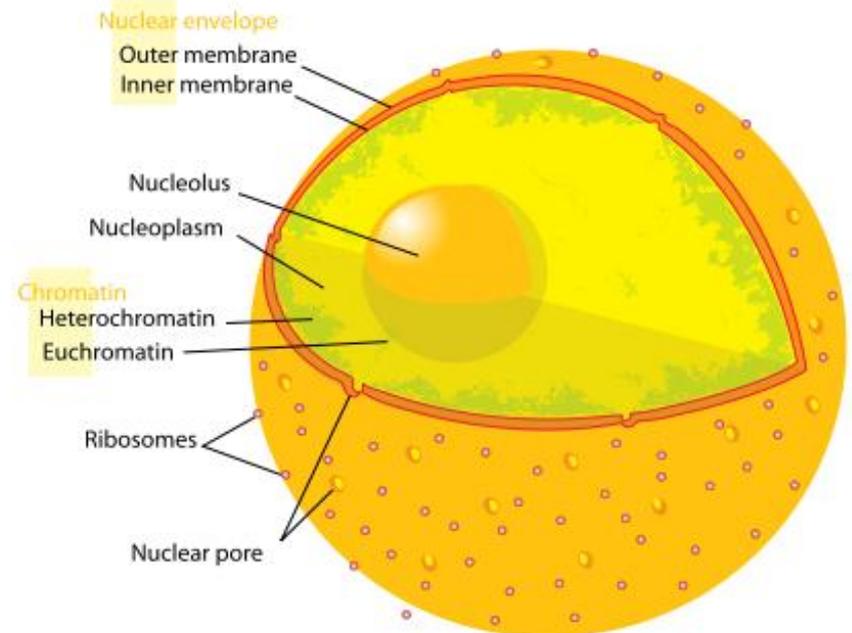
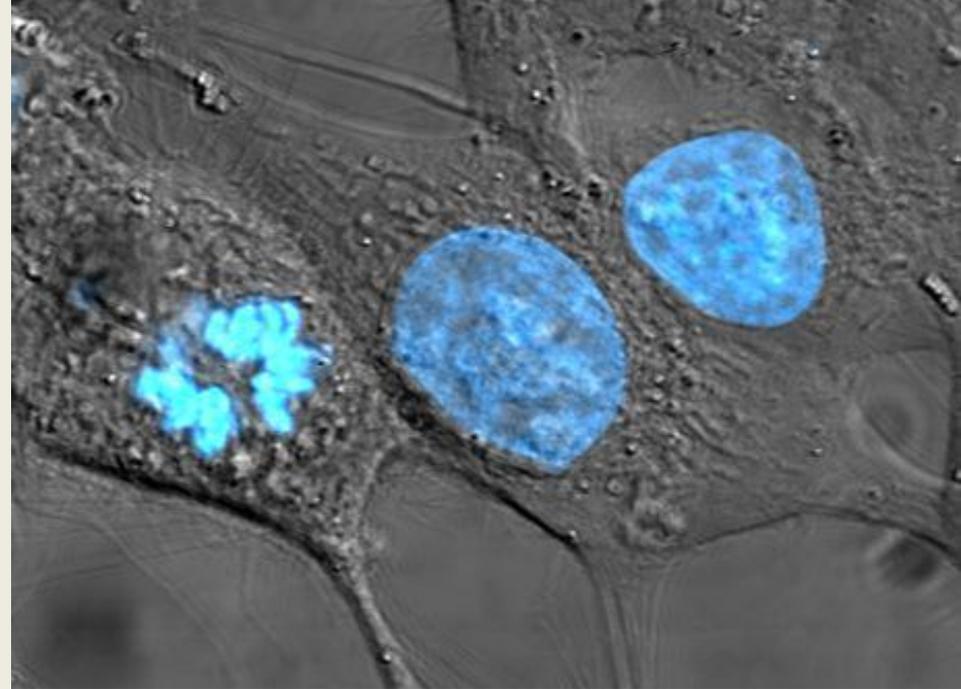
Endoplasmic Reticulum

The endoplasmic reticulum (ER) is the location where many important molecules are created and metabolized. The rough ER is where proteins are translated. It is the ribosomes that give the rough ER its bumpy appearance. The smooth ER is where lipids and steroids are synthesized. The endoplasmic reticulum also distributes these new molecules throughout the cell.



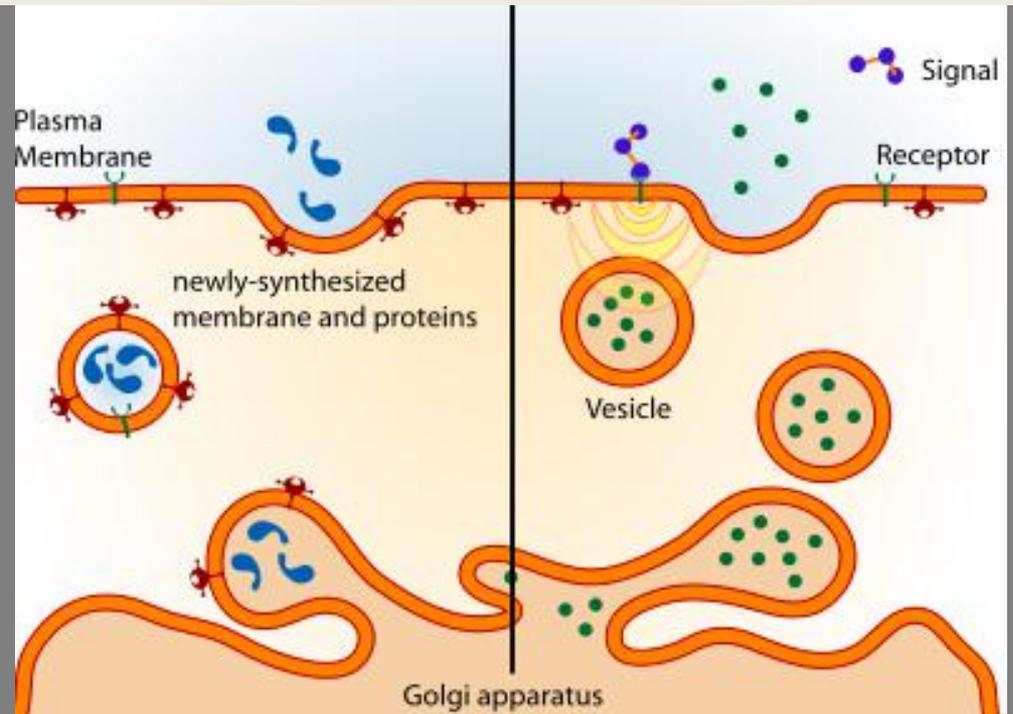
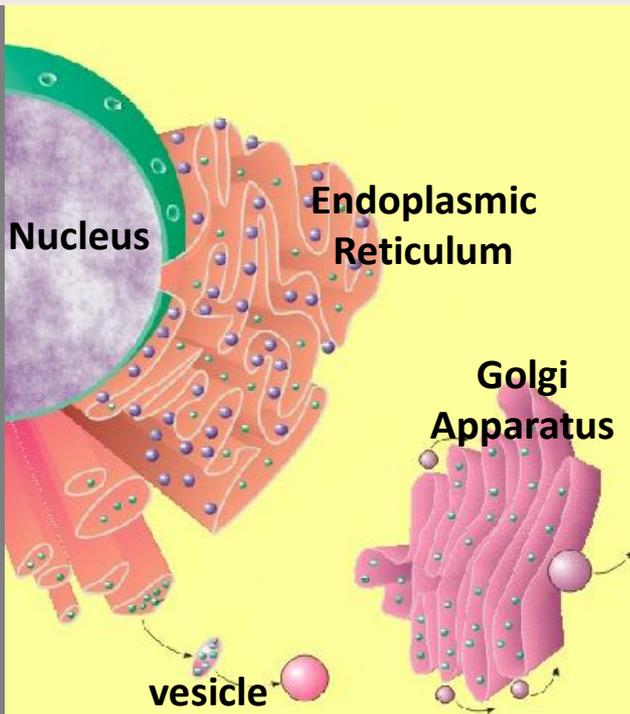
Nucleus

The nucleus contains the **genetic material** of the cell in the form of **DNA**. This DNA is packaged into large structures known as **chromosomes**. The DNA contains the instructions or blueprint for the cell, which is why the nucleus is often referred to as the **control center** of the eukaryotic cell.



Vesicle

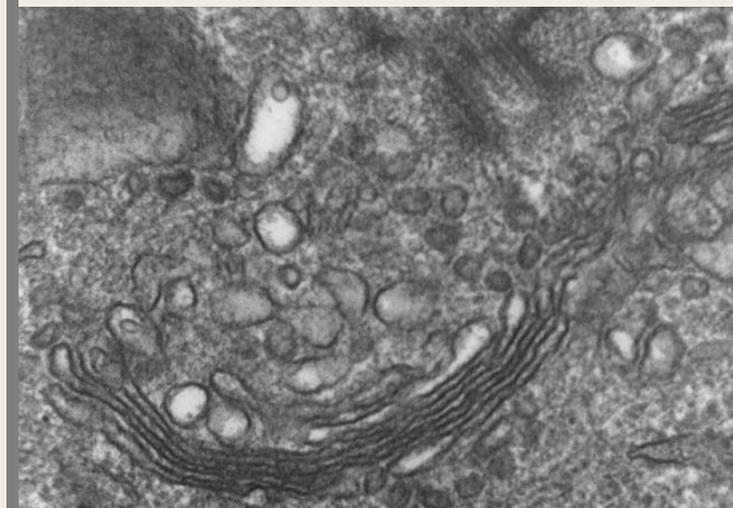
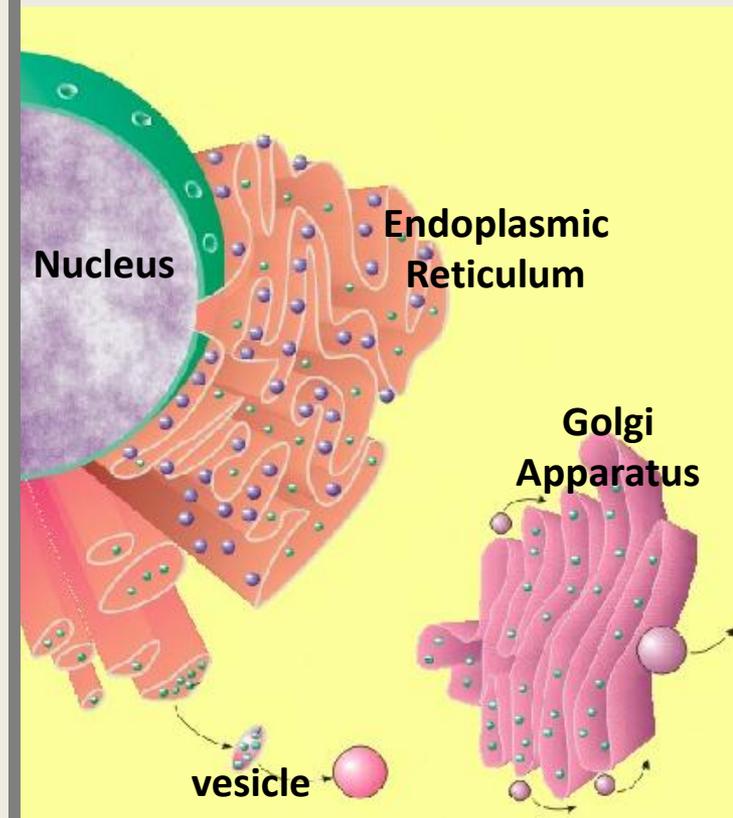
Vesicles are small membrane bound sacs that are used to transport molecules into, out of and through the eukaryotic cell.



Golgi Body

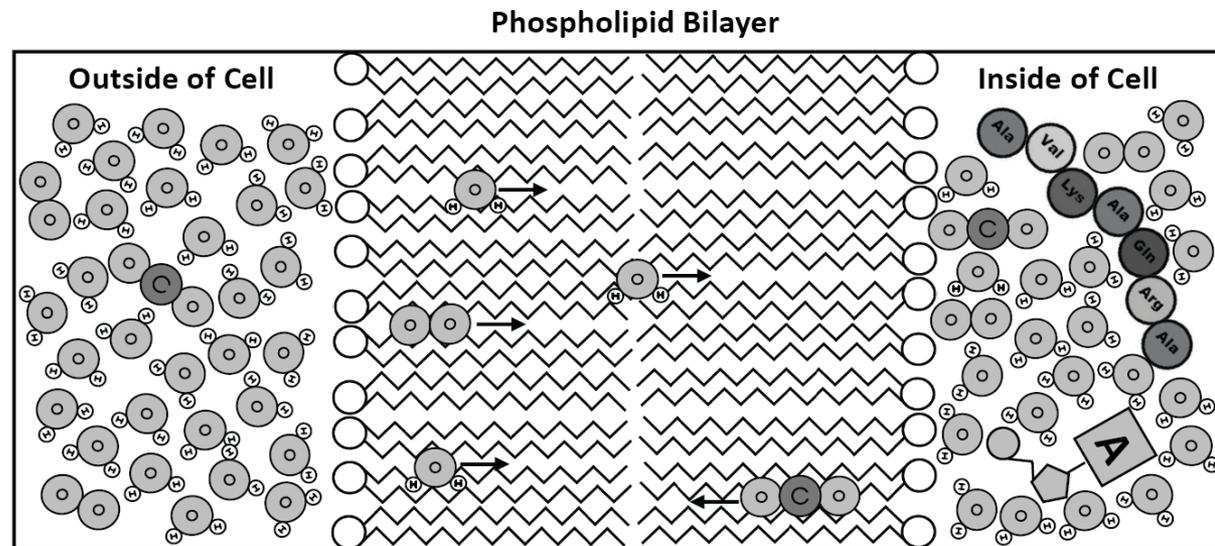
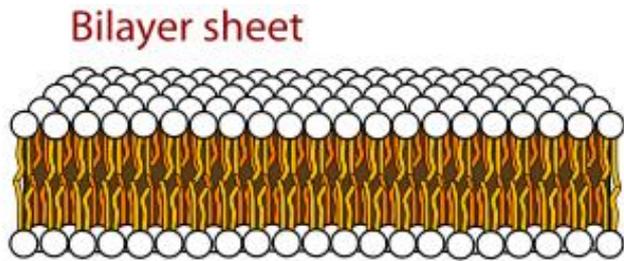
also known as the Golgi Apparatus

The primary function of the Golgi apparatus is to modify and package large molecules, primarily proteins and lipids. This is especially important for proteins that will eventually leave the cell. Sugars and lipid molecules are added to the proteins in the Golgi so that they can perform specific functions.



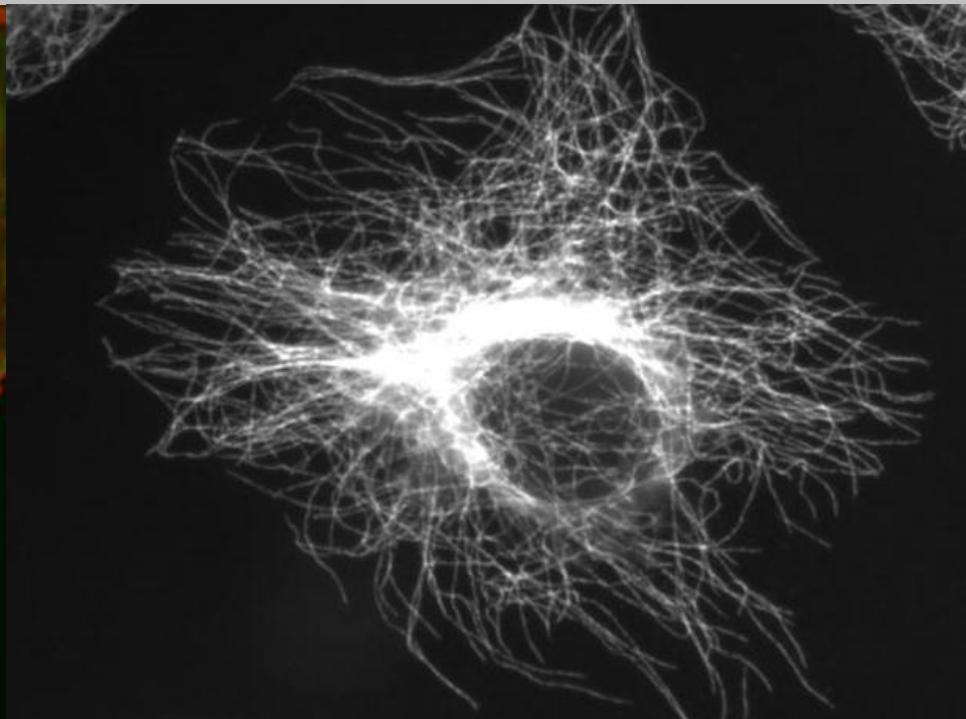
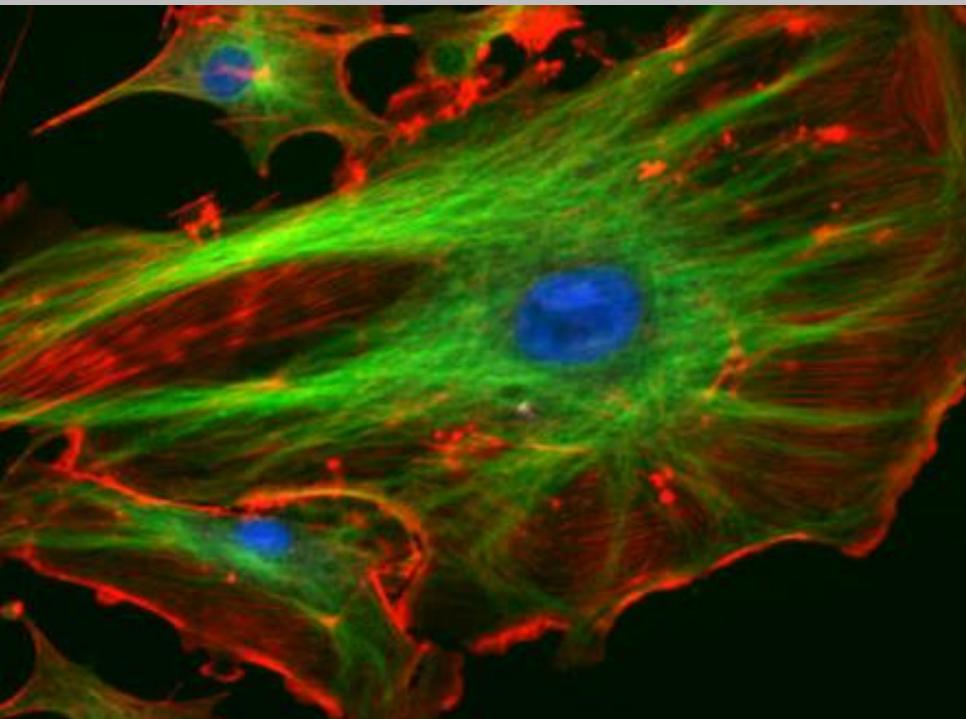
Cell Membrane

The cell membrane provides a barrier for the cell. The main job of the cell membrane is to maintain the steady balance of nutrients and energy in the cell we call homeostasis. It does this by regulating which molecules enter and leave the cell. The cell membrane also helps the cell communicate with other cells.



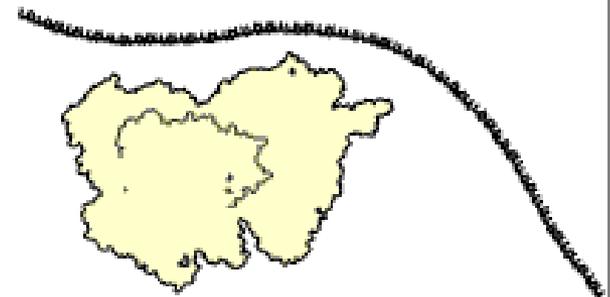
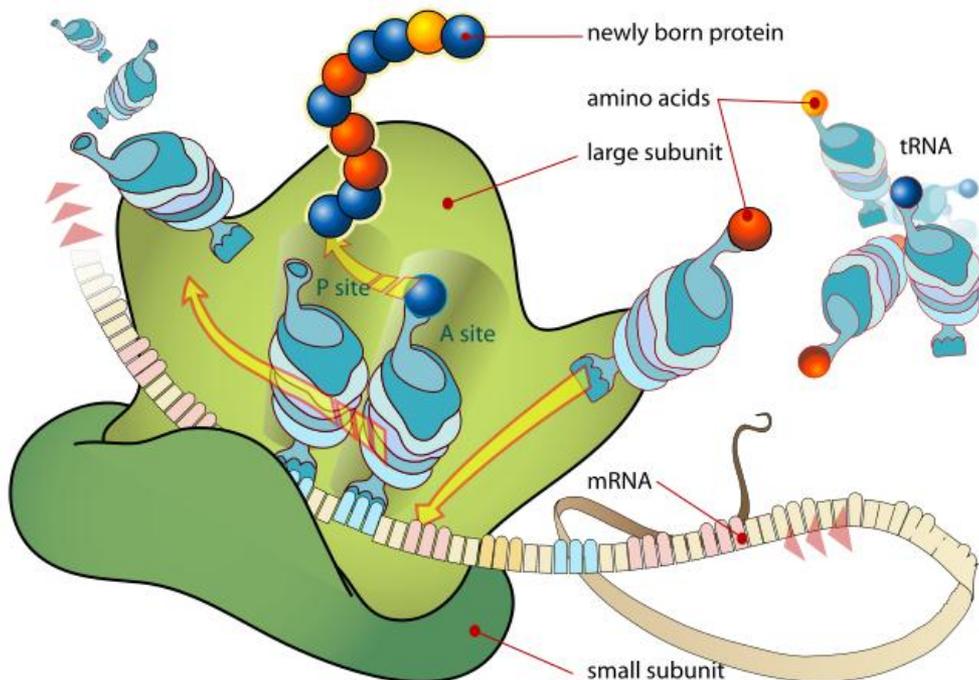
Cytoskeleton

Cyto- means cell, and the cytoskeleton is made up of the long, strong proteins that helps the cell keep its shape and structure. It also helps the cell divide into two cells as it reproduces.



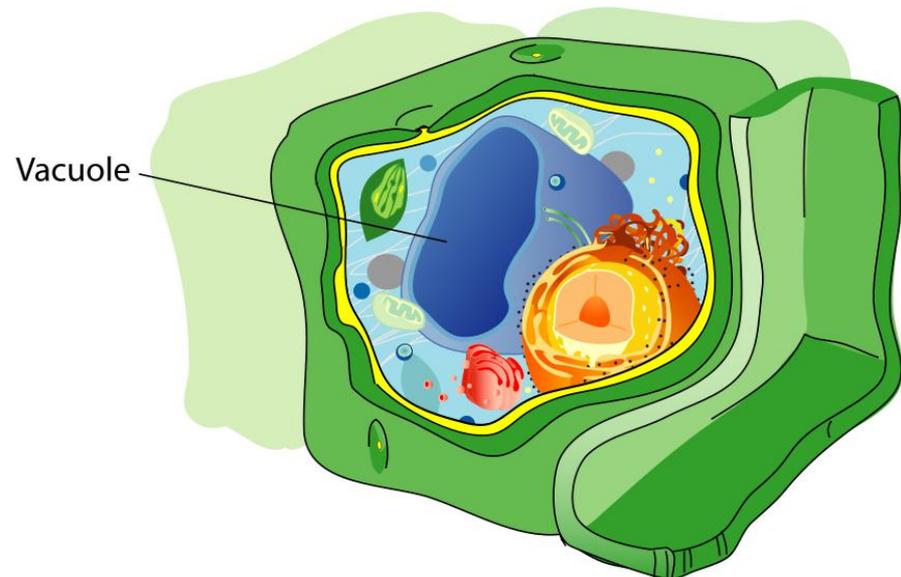
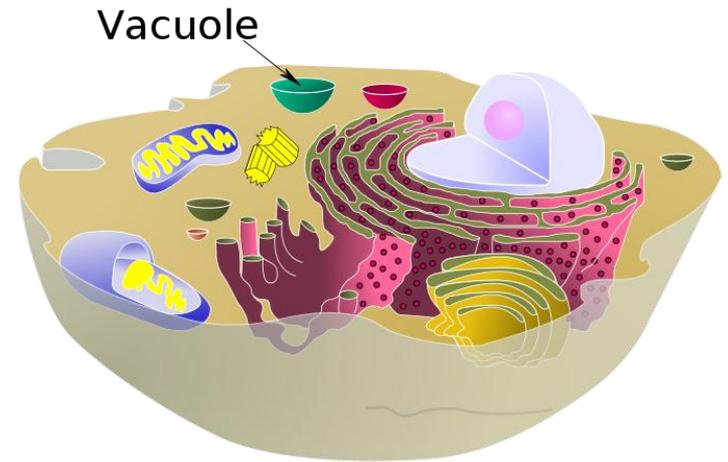
Ribosome

Ribosomes are made mostly of rRNA, and they are found in the cytoplasm of the cell. They are the molecular machines that organize the translation of proteins. Ribosomes are found in high numbers in the rough endoplasmic reticulum where much of the cell's translation of proteins occurs.



Vacuole

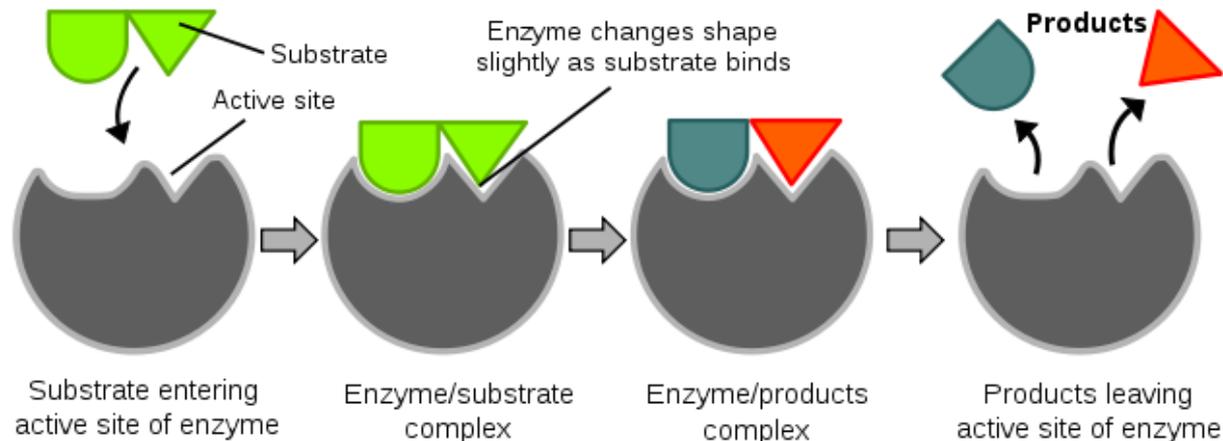
Vacuoles are membrane bound organelles which contain water and other molecules. Vacuoles can serve many purposes including storing nutrients and isolating wastes. The central vacuole in plant cells helps the plant maintain turgor pressure which keeps the cell rigid and stiff.



Lysosome

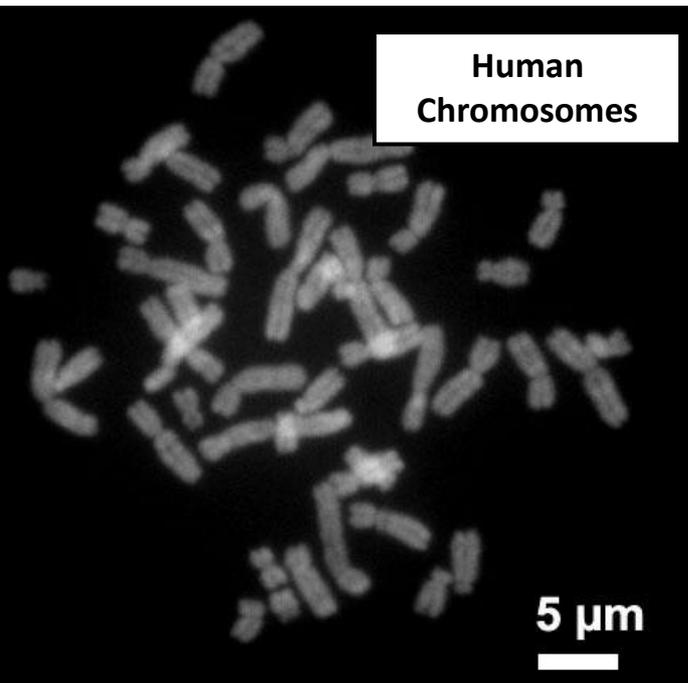
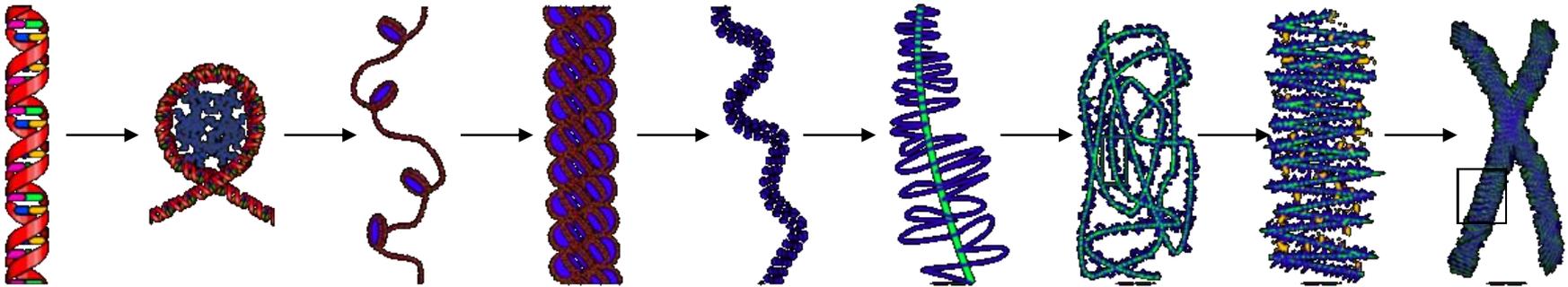
Lysosomes are spherical organelles which contain digestive enzymes. These enzymes digest large molecules and break them apart into their pieces.

Lysosomes are responsible for digesting food molecules, recycling worn out organelles and breaking apart harmful bacteria and viruses that are engulfed by the cell.



Chromosomes

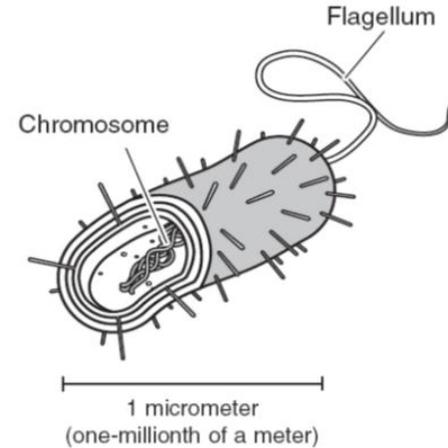
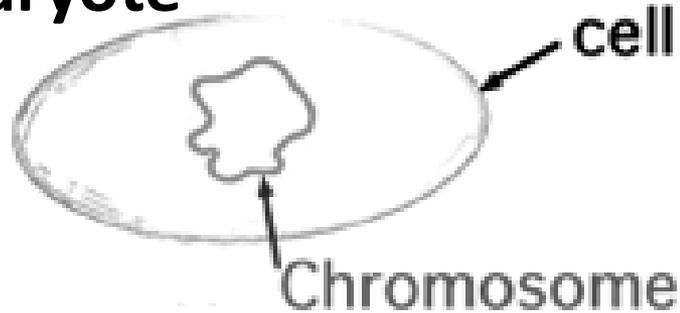
[Click here to return to Nucleus slide.](#)



DNA is wound and wound into very compact structures called chromosomes. Each chromosome contains a large amount of DNA. DNA is the molecule that contains the blueprint for the cell.

Chromosome

Prokaryote

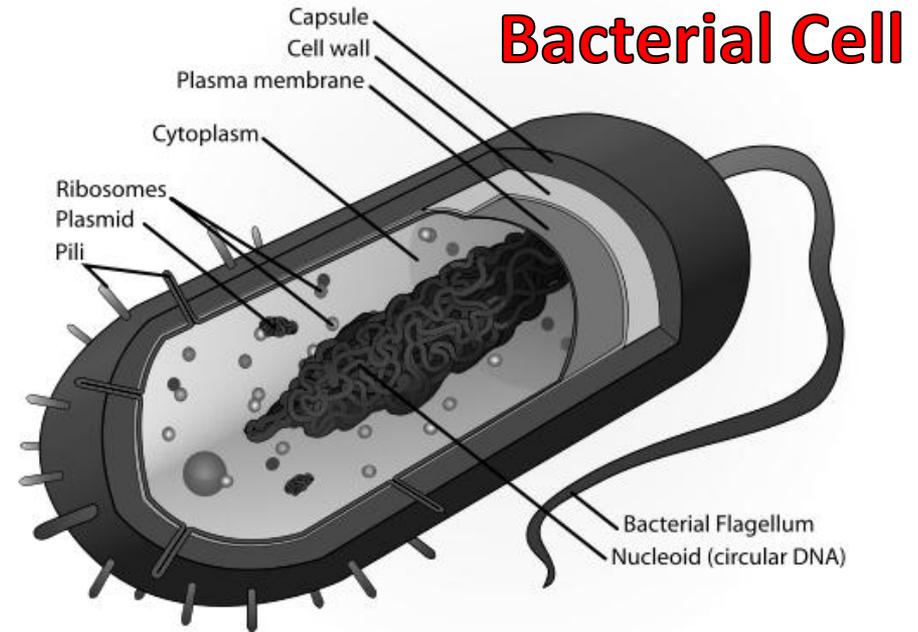


In prokaryotes, there is only one, circular chromosome. One main difference between prokaryotes and eukaryotes is that prokaryotes do **NOT** have a nucleus to store DNA inside of.

Cell Wall

Some prokaryotic cells have a cell wall. This cell wall is usually made of peptidoglycan and it provides the cell with additional protection and structural support.

Return to
Prokaryotic Cell



Prokaryote

