

The Cell

a quick overview

Mitochondria are often called the powerhouses of the cell since these are the **organelles** where the energy storage molecule **ATP** is produced through the **electron transport chain**.

The cell is one of the most important concepts in biology since every living organism is made of cells. Bacteria are single celled while you are made up of trillions of cells. As different as we are from bacteria, our cells share some important similarities. All cells have a **cell membrane** that separates them from the outside environment and all cells have **ribosomes** where proteins are made.

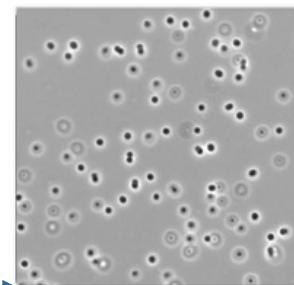
The **nucleus** is where **chromosomes** (made of **DNA**) are stored. It's surrounded by the **nuclear membrane** which has small openings called **nuclear pores**.

The **nucleolus** located inside the nucleus is where ribosomes are made.

Centrioles are structures that are important during cell division when chromosomes are pulled to opposite poles. They are the structures to which **spindle fibers** attach.

The basic diagram of the cell shown above represents most **eukaryotic** cells (humans, plants, fungi). One main distinction is that plants have a **cell wall** outside the cell membrane that animal cells lack. Bacteria (**prokaryotes**) also have cell walls.

Bacteria are made of cells that are more simple in some ways. Bacteria do not have any membrane bound organelles like mitochondria or the nucleus. Instead of a nucleus, bacteria have a region where the chromosome (DNA) is located called the **nucleoid**.



This is a drawing that represents a bacterial cell. They are actually very small and look like little circles or rods as you can see in this photo taken through a microscope at 1,000x magnification.

The fact that all living organisms share the same basic building block (the cell) is somewhat convenient for people studying biology. Discoveries made about the function of the cells of a fruit fly or a mouse will often also apply to humans. Because of this, scientists can study fruit flies and gain insights into how our own cells function.

