

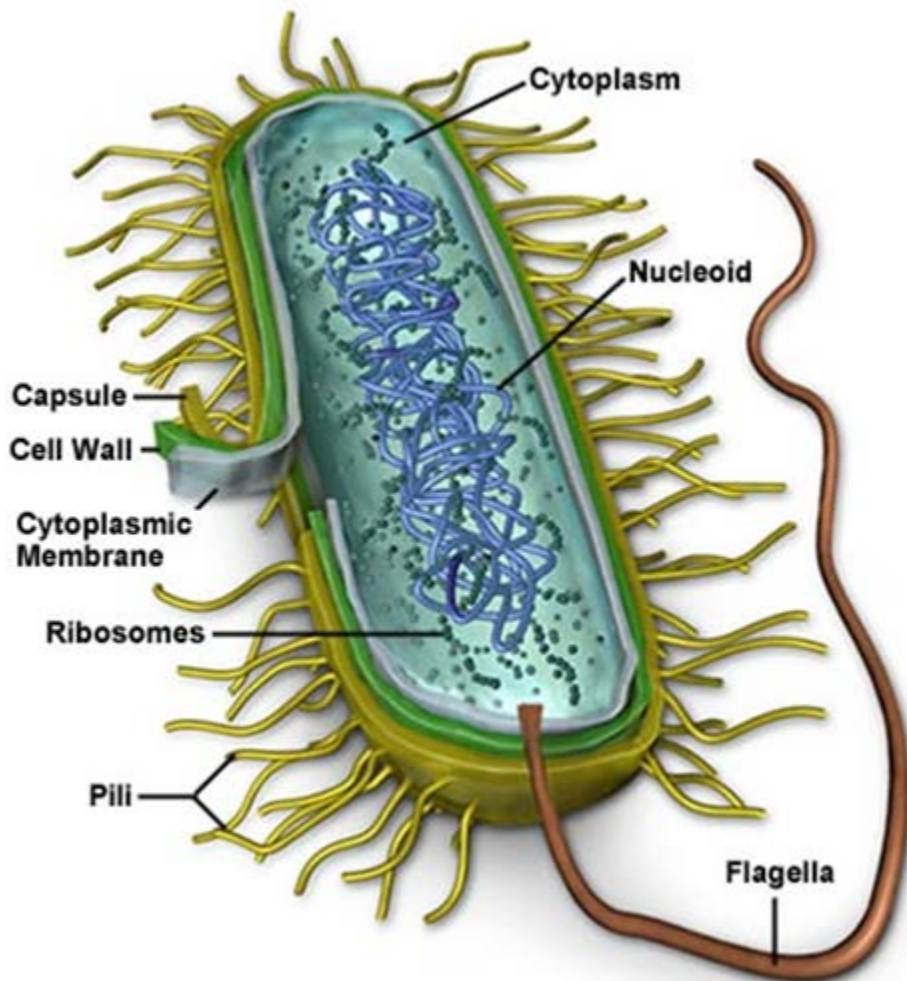
Cell Structure and Function Cheat Sheet

Prokaryotes are the simplest unicellular organism and have no nucleus or membrane bound organelles.

Eukaryotic cells are complex cells that contain a nucleus and many membrane-bound organelles with specialized functions. They include animal and plant cells.

Prokaryotic cell structures and functions:

- **Flagella** are tail-like structures that help bacteria move.
- **Pili** are hair-like structures that help bacteria stick to surfaces.
- A **capsule** is a sticky outer protective covering that allows bacteria to adhere to surfaces.
- The **cell wall** helps to support, protect and maintain the shape of the cell.
- The **cytoplasm** is a jelly-like substance found outside of the nucleus and enclosed by cellular membrane.
- The **cell membrane** selectively regulates what enters and exits the cell.
- The **chromosome/nucleoid** is the DNA of the cell.

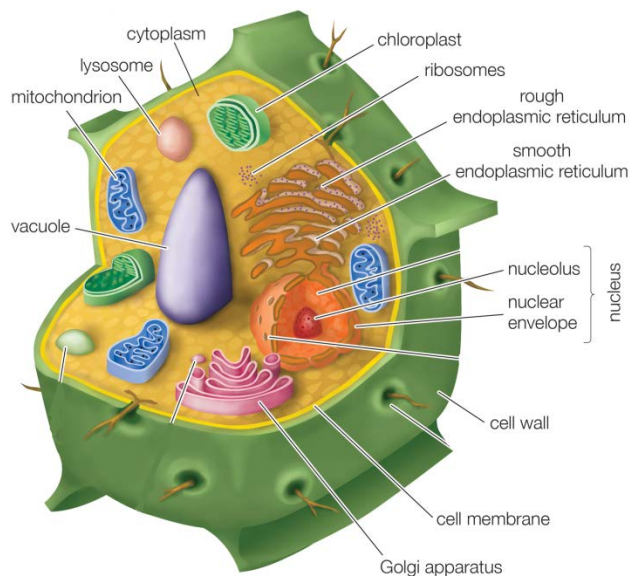


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Eukaryotic cell structures and functions:

- The **cytoplasm** is a jelly-like substance found outside of the nucleus and enclosed by cellular membrane.
- The **nucleus** controls activities of the cell and holds the genetic information (DNA). The nucleus is surrounded by the nuclear membrane (also referred to as the nuclear envelope).
- **Ribosomes** are located in the cytoplasm and on the rough ER and are the site of protein production.
- The **cell membrane** selectively regulates what enters and exits the cell.
- The **cell wall** helps to support, protect and maintain the shape of the cell.
- The **endoplasmic reticulum (ER)** is a system of internal membranes that transport proteins and other substances through the cell.
- The **rough ER** transports proteins that are made by ribosomes attached to it.
- The **smooth ER** makes new lipids and helps to break down toxic substances.
- The **Golgi apparatus** is a series of flattened, membrane-bound sacs that serve as the packaging and distribution center of the cell to modify the proteins that travel from the ER before they are released to serve their function.
- The **mitochondria** release energy from organic compounds to make ATP.
- **Lysosomes** are specialized vesicles that contain digestive enzymes and function to digest and recycle the cell's used components.
- The **cytoskeleton** is a network of protein structures that determines cell shape and provides support for organelles and pathways for cell movement.
- **Chloroplasts** use light energy to make carbohydrates from carbon dioxide and water (photosynthesis) and are only found in plant cells.
- In plant cells the large **central vacuole**, stores water and contains many substances, including ions, nutrients, and wastes.

Plant Cell



Animal Cell

