

# 1 | Organelles in Eukaryotic Cells

## 1.1 | An Introduction.

Many organelles exist in a cell — often more in Eukaryotic cells — that help execute the cell's functions. They serve a variety of purposes, and help form the basics of cellular systems. Categorizing them based on whether or not they have membranes KBhBIO101OrganellesBasedOnMembranes

## 1.2 | Chloroplast and Mitochondria

- **Chloroplast** — found in plants + does photosynthesis
- **Mitochondria** — found in animals + store ATP and extract energy from ATP

## 1.3 | Rough Endoplasmic Reticulum (ER) and Smooth ER

- **Rough ER** — covered by ribosomes and folds KBhBIO101Proteins proteins
- **Smooth ER** — not covered by ribosomes and makes KBhBIO101Lipids lipids

## 1.4 | Ribosomes and Golgi apparatus

- **Ribosomes** => synthesizes proteins
- **Golgi apparatus** => packs, modifying, and moving proteins

## 1.5 | Cell Wall and Plasma Membrane

- **Cell Wall** — found in plants => surround the cell: hard
- **Plasma membrane** — found in animals => surround the cell: soft KBhBIO101Lipids lipids

## 1.6 | Cytosol, Cytoplasm and Cytoskeleton

- **Cytosol** => liquid found inside cells; the "cytoplasm" floats within it
- **Cytoplasm** => all the stuff within the cell

## 1.7 | Nucleus and Nucleolus

- **Nucleus** => centre of the cell, stores DNA
- **Nucleolus** => largest part of the nucleus that makes ribosomes

## 1.8 | Lysosomes and Food Vacuoles

- **Lysosomes** => vesicles that contains enzymes that breaks down biomolecules
- **Food Vacuoles** => vesicles that stores food and other resources

## 1.9 | Cytoskeleton and Microtubules

- **Cytoskeleton** => complex network of proteins + fibres that organize the rest of the cell
- **Microtubules** => Polymers of tubulin protein that provides the main structure of eukaryotic cells

## 1.10 | Flagella and Cilia

- **Flagella** => a bacteria's tail — allow them to move and also act as a sensory organ. longer than a cilia, and moves in sinusoidal pattern.
- **Cilium** => a cell's "hair" — provides sensory and communications functions. Motile cilia could move about to "grab" things, and non-motile cilia can't move. more abundant than the flagella, and moves in circular pattern if they do move, and moves in circular pattern if they do move