

Cell Structure

The following terms should be part of your vocabulary and you should not need a dictionary to use them properly. You should understand how each of these structures contributes to the form and function of a cell.

Letters in **red** indicate typically found only in animal cells and letters in **green** indicates typically found only in plants.

- nucleus
 - nuclear membrane
 - nucleolus
- **cell wall (only in plants)**

- plasma membrane / cell surface
 - endocytotic vesicles
 - cell junctions
 - **tight (occluding) junctions**
 - **gap (communicating) junctions**
 - microvilli**
 - cilia (inc. primary cilium some plants have cilia and flagella)**
- cytosol
- inclusions
 - pigment granules
 - lipid
 - glycogen
- membranous organelles (organelles surrounded by or made of membranes)
 - mitochondria
 - plastids (only in plants)...lipoplasts, proteinoplasts, amyloplasts and chloroplasts**
 - rough endoplasmic reticulum
 - smooth endoplasmic reticulum
 - Golgi apparatus (sometimes called dictyosomes in plants)

vesicles

- transport vesicles
- secretory vesicles
- lysosomes, phagosomes
- peroxisomes (microbodies)
- non-membranous organelles
 - ribosomes
 - cytoskeleton
 - microfilaments
 - intermediate filaments
 - actin filaments
 - microtubules
 - mitotic spindle
 - centriole (absent in flowering plants) / basal body

Organelle	Main function	Structure	Organisms	Notes
chloroplast (plastid)	photosynthesis, traps energy from sunlight	double-membrane compartment	plants, protists (rare kleptoplastic organisms)	has some genes; theorized to be engulfed by the ancestral eukaryotic cell (endosymbiosis)
endoplasmic reticulum	translation and folding of new proteins (rough endoplasmic reticulum), expression of lipids (smooth endoplasmic reticulum)	single-membrane compartment	all eukaryotes	rough endoplasmic reticulum is covered with ribosomes, has folds that are flat sacs; smooth endoplasmic reticulum has folds that are tubular
Golgi apparatus	sorting, packaging, processing and modification of proteins	single-membrane compartment	all eukaryotes	cis-face (convex) nearest to rough endoplasmic reticulum; trans-face (concave) farthest from rough endoplasmic reticulum
mitochondria	energy production from the oxidation of glucose substances and the release of adenosine triphosphate	double-membrane compartment	most eukaryotes	has some DNA; theorized to be engulfed by an ancestral eukaryotic cell (endosymbiosis)
vacuole	storage, transportation, helps maintain homeostasis	single-membrane compartment	eukaryotes	
nucleus	DNA maintenance, controls all activities of the cell, RNA transcription	double-membrane compartment	all eukaryotes	contains most of genome... some genes on mitochondria and chloroplasts