

ANIMAL CELL STRUCTURE & FUNCTIONS

Organelle	Primary Function
Nucleus	The "control center" of the cell. Contains genetic material (DNA) and coordinates cell activities like growth and reproduction.
Mitochondria	The "powerhouse" of the cell. Site of cellular respiration where ATP (energy) is produced.
Ribosomes	Small structures responsible for protein synthesis by translating genetic code into amino acid chains.
Endoplasmic Reticulum	A network of membranes. Rough ER (with ribosomes) modifies proteins; Smooth ER synthesizes lipids and detoxifies chemicals.
Golgi Apparatus	The "post office" of the cell. Modifies, sorts, and packages proteins and lipids for transport to specific destinations.
Lysosomes	Contain digestive enzymes to break down waste materials, cellular debris, and foreign invaders like bacteria.
Cell Membrane	A semi-permeable lipid bilayer that regulates the passage of substances in and out of the cell, providing protection and structure.
Cytoplasm	A jelly-like substance that fills the cell and surrounds the organelles, providing a medium for chemical reactions.

Organelle	Primary Function
Centrioles	Cylindrical structures that help organize microtubule assembly during cell division (mitosis and meiosis).
Vacuoles	Smaller in animal cells than plant cells; used for temporary storage of nutrients, water, or waste products.