

A unit of life

The major structures within an animal cell at rest

A - Nucleus

The control center of the cell that contains the cell's genetic material, which is composed of DNA molecules. The DNA in the nucleus is packed into structures called chromosomes.

B - Ribosome

Ribosomes are molecular machines that follow genetic instructions to build proteins. They can sometimes be picky about which genetic instructions they follow.

C - Mitochondrion

Known as the cell's powerhouse, mitochondria generate energy through a process called cellular respiration. More than a billion years ago they were free-living bacteria and were engulfed by an ancestor of an animal cell, leading to a mutually beneficial relationship.

D - Endoplasmic reticulum (ER)

A network of membranes involved in the synthesis of proteins and fats. There are two types: smooth and rough. Smooth ER produces fats, like phospholipids used in cells' membranes, and plays a role in detoxifying drugs and toxins. Rough ER provides a platform for ribosomes to construct proteins. It's rough because ribosomes dot its surface.

E - Golgi apparatus

Groups of flattened membrane-enclosed sacs that process, sort and deliver proteins and lipids to their proper destinations within the cell or for secretion outside of the cell.

F - Lysosome

Membrane-bound sacs containing digestive enzymes that break down and recycle cellular waste and foreign materials. Think of them as the cell's garbage disposal or recycling center.

G - Cytoskeleton

A network of protein filaments that provide structure, support and help in cell movement and division. It can quickly reorganize to change cell shape and enable movement.

H - Primary cilium

A single, unbending hairlike structure that extends from the cell's surface. It serves as a cellular antenna for signal reception.

I - Cell membrane

A flexible and dynamic wall that surrounds the cell's contents and controls what comes in and goes out. It's made of two layers of fat molecules (phospholipids) with their heads facing outward and their tails facing inward.

J - Receptor

Proteins located on the cell membrane or within the cell that bind specific signaling molecules, such as hormones or neurotransmitters, triggering a cellular response. They are highly specific and selective.

K - Vacuole

A sac that stores waste materials and aids in cell digestion and recycling.

L - Cytoplasm

The gel-like substance enclosed by the cell membrane that houses the cell's structures. It's mainly composed of water, salts and organic molecules and is where many cellular activities occur.

