

What are Cell Organelles?

Worksheet

Cell organelles are membrane-bound (or non-membrane) structures within a eukaryotic cell that each perform a distinct function needed to keep the cell alive and working.

Questions

1. Which organelle is known as the 'powerhouse of the cell'?
 - A) Nucleus
 - B) Mitochondria
 - C) Ribosome
 - D) Golgi apparatus
2. Where does protein synthesis (translation) occur?
 - A) Nucleus
 - B) Ribosome
 - C) Cell membrane
 - D) Vacuole
3. Which organelle packages and ships proteins?
 - A) Golgi apparatus
 - B) Lysosome
 - C) Mitochondria
 - D) Nucleolus
4. Which organelle is found in plant cells but not animal cells?
 - A) Mitochondria
 - B) Ribosome
 - C) Chloroplast
 - D) Nucleus
5. A cell needs to produce and secrete an enzyme. List the organelles involved, in the correct order.
6. A muscle cell needs a lot of ATP for contraction. Which organelle is present in high numbers, and why?
7. A plant cell and an animal cell are compared under a microscope. Name two organelles found in the plant cell but not the animal cell.
8. Define: What is the function of mitochondria?
9. Define: What does the nucleus do?
10. Define: Role of ribosomes?

Answer Key

1. B) Mitochondria - Mitochondria produce ATP via cellular respiration.
2. B) Ribosome - Ribosomes translate mRNA into proteins.
3. A) Golgi apparatus - The Golgi apparatus modifies, packages, and sorts proteins for transport.
4. C) Chloroplast - Chloroplasts perform photosynthesis and are unique to plant (and some protist) cells.
5. 1. Nucleus - DNA transcribed to mRNA 2. Ribosome (on rough ER) - mRNA translated to protein 3. Rough ER - protein folded/modified 4. Golgi apparatus - protein packaged and tagged 5. Vesicle - transports enzyme out of the cell (secretion)
6. Mitochondria - the 'powerhouse of the cell' They perform cellular respiration to convert glucose + oxygen into ATP Muscle cells have many mitochondria to meet high energy demand
7. Chloroplast - performs photosynthesis (not needed in animal cells) Cell wall - rigid structure for support (animal cells only have a membrane) A large central vacuole is also plant-specific for storage/turgor pressure
8. They produce ATP (energy) through cellular respiration - the 'powerhouse of the cell'.
9. Stores DNA and controls the cell's activities, including gene expression.
10. They synthesize proteins by translating mRNA.

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