

The Cell - Structure and Organelles

Chapter 5: The Fundamental Unit of Life · Topic 1

Key Concept

Mitochondria are often called the 'powerhouse of the cell' because they convert nutrients into usable energy (ATP) through cellular respiration, and cells with higher energy needs (like muscle cells) contain more mitochondria. The endoplasmic reticulum helps transport materials within the cell and assists in protein/lipid synthesis, while ribosomes, found on the endoplasmic reticulum or free in the cytoplasm, are the sites where proteins are actually manufactured based on genetic instructions from the nucleus.

Quick Revision Notes

- The cell is the basic unit of life, first observed by Robert Hooke.
- Nucleus: control centre with genetic material. Mitochondria: site of respiration, produces energy.
- Cell membrane controls what enters/exits; cytoplasm is where many reactions occur.
- Mitochondria are called the 'powerhouse of the cell'; muscle cells have many due to high energy needs.

Practice Questions

- 1 Name two organelles found in a plant cell but not in an animal cell.
- 2 Explain why muscle cells contain more mitochondria than other cells.
- 3 Describe the function of the cell membrane.