SCIENCE FOUNDATIONS

Cell organelles and their functions

Difficulty level: Intermediate

Science Foundations

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Overview of the concept

This is how you explain the jobs inside a cell, like a tiny factory where one part holds the instructions, one part makes energy, and one part builds proteins. The nucleus holds the instructions, the mitochondria make the energy, and the ribosomes build the proteins, and each part does its own job so the cell can run. A factory works the same way, with different departments doing different work that adds up to one finished product. Knowing who does what inside a cell is how you understand what a cell is really doing.

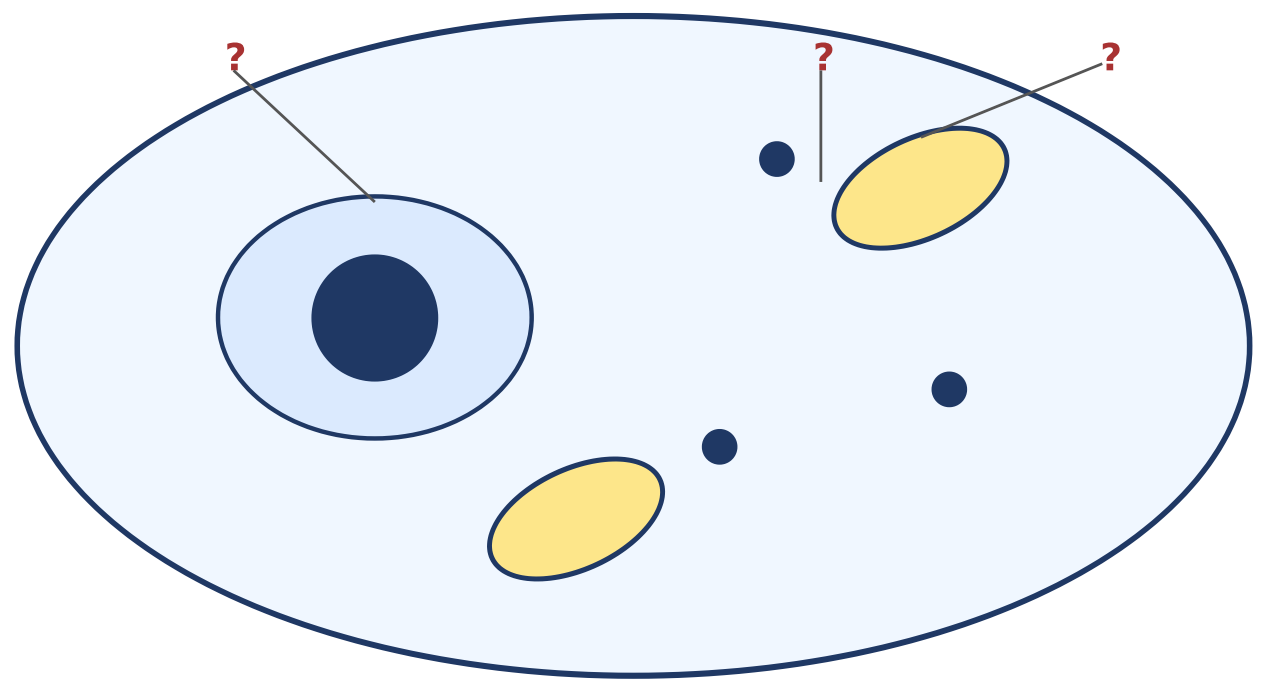


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Worked examples

EXAMPLE 1

Q Which organelle releases energy from food?



SOLUTION

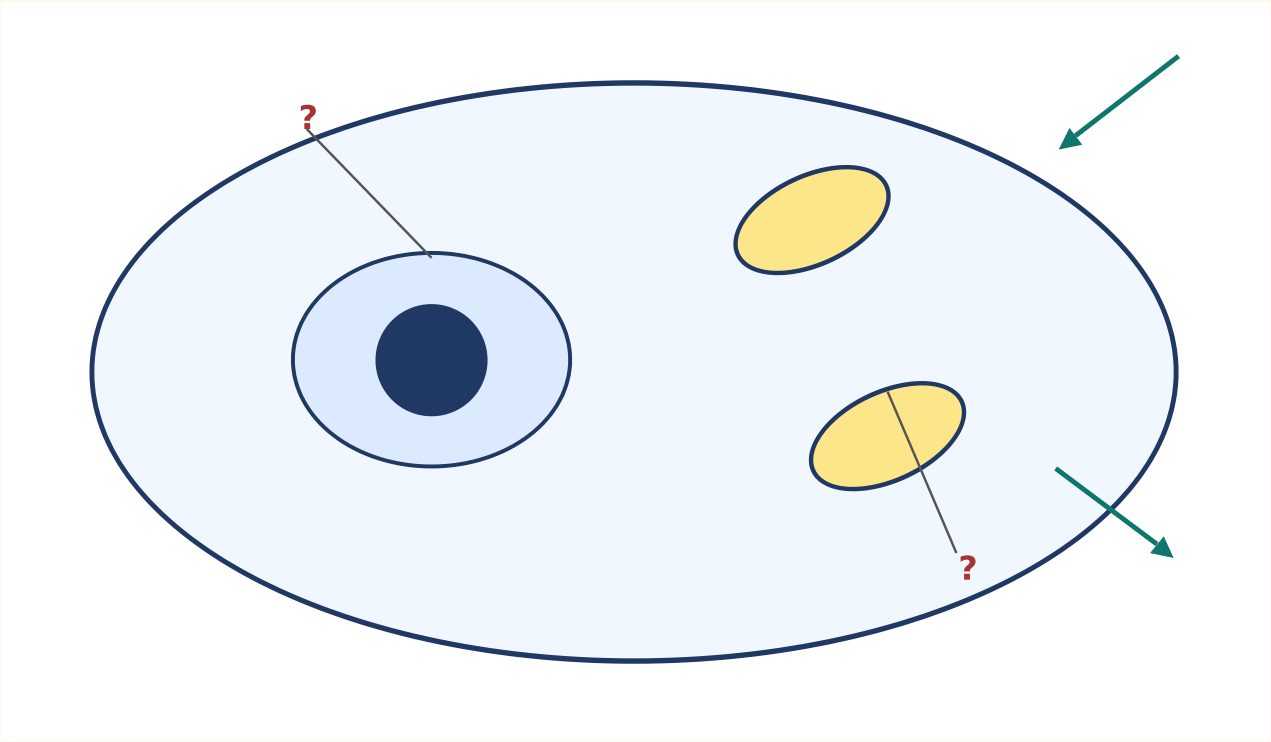
List the jobs: the nucleus controls the cell, the ribosomes make proteins, and the mitochondria release energy from food.

The job asked is releasing energy from food, so the answer is the mitochondria.

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EXAMPLE 2

Q Which organelle controls what enters and leaves the cell?



SOLUTION

The cell membrane sits around the outside of the cell, and its job is to control what passes in and out.

The answer is the cell membrane.

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Practice questions

1 What does the nucleus do?

- **A** Controls the cell, holds DNA
- **B** Makes proteins
- **C** Releases energy from food
- **D** Packages proteins

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2 A muscle cell uses a lot of energy. Which organelle would it have many of?

- **A** Mitochondria
- **B** Nucleus
- **C** Ribosome
- **D** Vacuole

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3

Which organelle makes proteins?

A Ribosome

B Mitochondria

C Chloroplast

D Lysosome

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4

Which organelle is found in plant cells but not in animal cells?

A Chloroplast

B Mitochondria

C Nucleus

D Golgi body

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5

Which organelle packages proteins and ships them out of the cell?

A Golgi body

B Ribosome

C Lysosome

D Vacuole

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6

Which organelle digests waste inside the cell?

A Lysosome

B Golgi body

C Ribosome

D Chloroplast

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7 Put the protein pathway in order: ribosome, Golgi body, nucleus.

- A Nucleus, ribosome, Golgi body
- B Ribosome, nucleus, Golgi body
- C Nucleus, Golgi body, ribosome
- D Golgi body, ribosome, nucleus

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8 What does the vacuole do?

- A Stores substances
- B Makes proteins
- C Controls the cell
- D Digests waste

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9

What is the jelly-like substance that fills the cell?

A Cytoplasm

B Nucleus

C Cell membrane

D Vacuole

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10

A leaf cell traps a lot of sunlight. Which organelle would it have many of?

A Chloroplast

B Mitochondria

C Ribosome

D Nucleus

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ANSWER KEY

1. Controls the cell, holds DNA

2. Mitochondria

3. Ribosome

4. Chloroplast

5. Golgi body

6. Lysosome

7. Nucleus, ribosome, Golgi body

8. Stores substances

9. Cytoplasm

10. Chloroplast

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