

Exercise walk-through

2.1

Cell Structure and Function

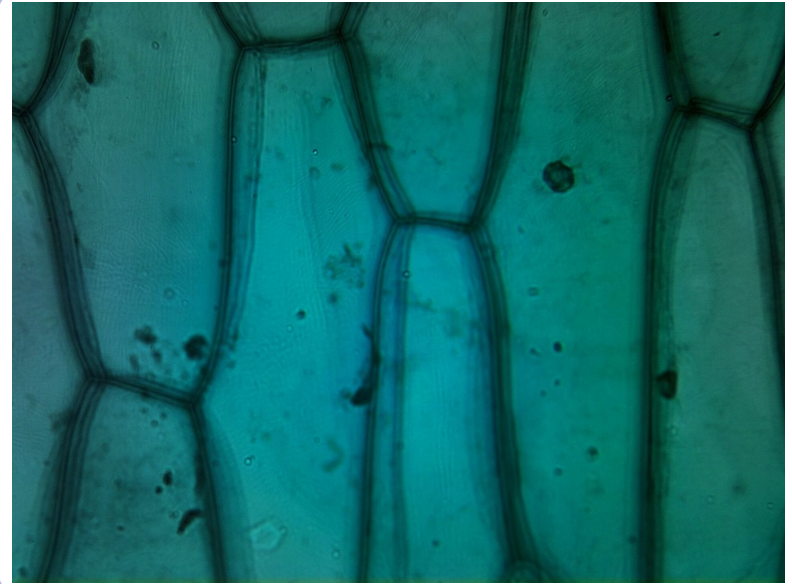
AP Biology

Organelles and the endomembrane system

A **eukaryotic** cell divides work among **organelles** :

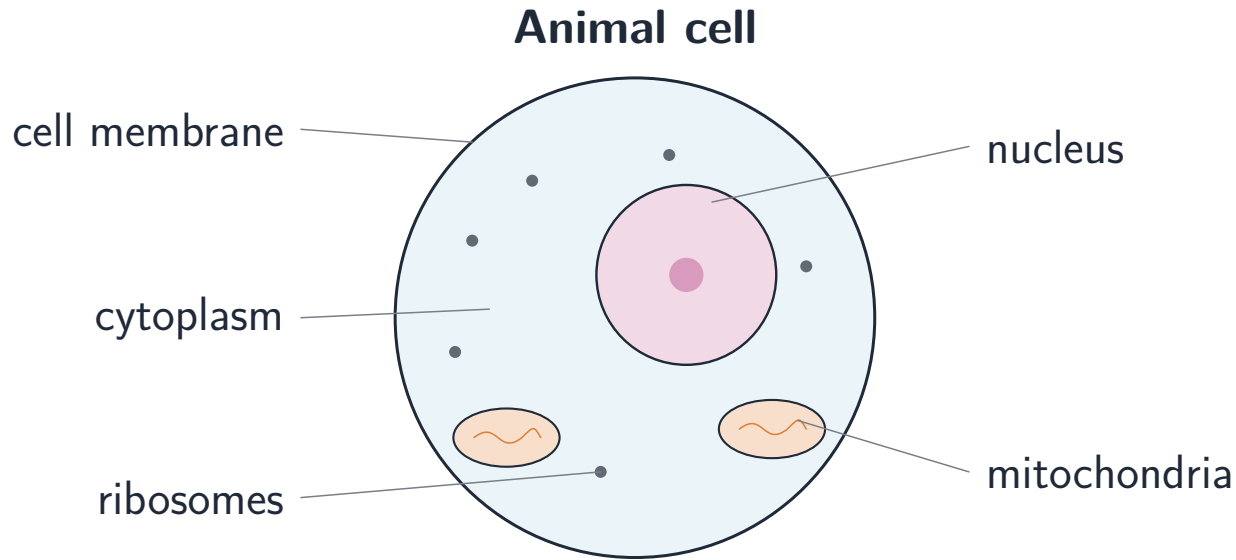
- **nucleus** – stores DNA
- **mitochondria** – make ATP
- **ribosomes** – build proteins
- **ER** + **Golgi** –
pack and ship

The endomembrane team traces a protein: nucleus → rough ER → Golgi → vesicle → membrane.



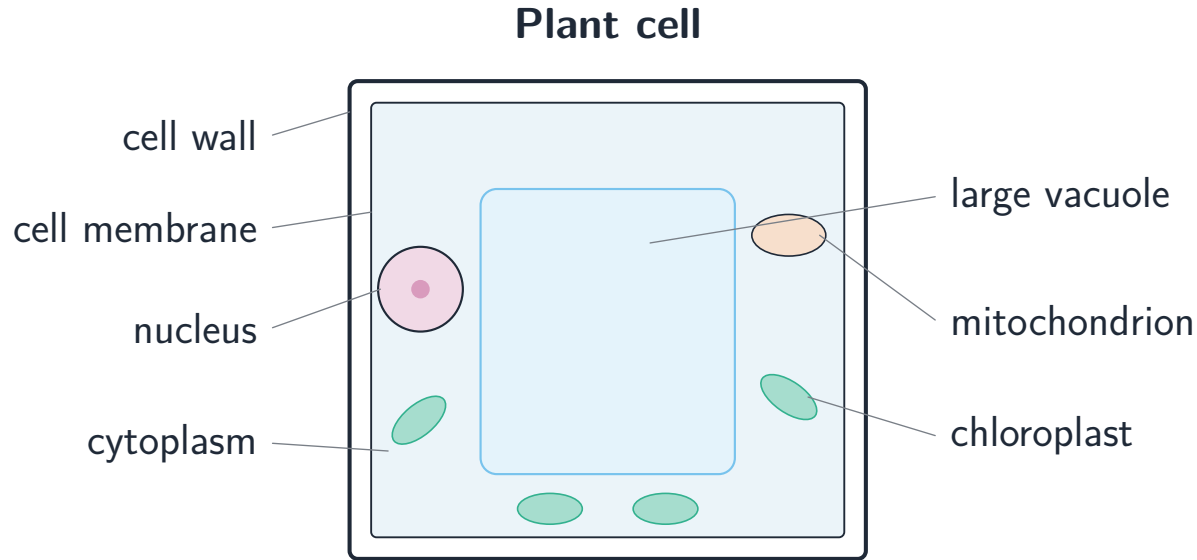
Organelles divide labour inside the cell

A generalised animal cell and its organelles – one



A generalised animal cell and its organelles

A generalised animal cell and its organelles – two



A plant cell also has a cell wall, a large vacuole, and chloroplasts

Exercises 2.1-2.3

2.1 Which organelle makes ATP by respiration?

[1]

2.2 State the function of the Golgi apparatus.

[1]

2.3 Which organelle builds proteins?

[1]

Exercises 2.1-2.3

2.1 Which organelle makes ATP by respiration? [1]

2.1

- Mitochondria
-

2.2 State the function of the Golgi apparatus. [1]

2.2

- It modifies, sorts, and ships proteins
-

2.3 Which organelle builds proteins? [1]

2.3

- Ribosomes

Exercise 3.1

3.1 Proteins destined for export are first made on the

[1]

☐

A smooth ER

B rough ER

C Golgi

D nucleus

Exercise 3.1

3.1 Proteins destined for export are first made on the

[1]

☐

A smooth ER

B rough ER

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D nucleus

3.1 B

- the rough ER

Exercise 3.2 (a)

3.2 A protein is secreted from a cell.

(a) List, in order, the organelles it passes through from synthesis to export. [3]

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(a) List, in order, the organelles it passes through from synthesis to export. [3]

(a)

- Ribosome/rough ER
- vesicle
- Golgi
- vesicle
- cell membrane

Exercise 3.2 (b)

3.2 A protein is secreted from a cell.

(b) State the role of the Golgi in this pathway.

[1]

Exercise 3.2 (b)

3.2 A protein is secreted from a cell.

(b) State the role of the Golgi in this pathway.

[1]

(b)

- It modifies, sorts, and packages the protein for export

Exercise 3.3

3.3 Explain why a muscle cell contains many mitochondria.

[2]

Exercise 3.3

3.3 Explain why a muscle cell contains many mitochondria.

[2]

3.3

- Muscle cells need a lot of ATP for contraction, and mitochondria carry out respiration to make ATP, so many are present