Edexcel (A) Biology A-level

3.1 to 3.5 - Cell Organelles

Flashcards

Give an example of cells sharing common features.

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All eukaryotic cells have a nucleus and membrane-bound organelles.

How are multicellular organisms organised?

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- Multiple cells = tissue
- Multiple tissues = organs
- Multiple organs = organ system

Describe the structure and function of the nucleus.

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- Structure = surrounded by a double membrane, with pores that allow molecules to enter and leave.
- Function = stores DNA, coordinates cell activities.

Describe the structure and function of the nucleolus.

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- Structure = found within the nucleus, made of proteins and RNA.
- Function = produces ribosomes.

Describe the structure and function of the rough endoplasmic reticulum.

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- Structure = a series of flattened sacs, with large numbers of ribosomes on the surface.
- Function = protein synthesis and folding.

Describe the structure and function of the smooth endoplasmic reticulum.

Describe the structure and function of the smooth endoplasmic reticulum.

- Structure = a series of membrane-bound sacs, without ribosomes on the surface.
- Function = produces and processes lipids.

Describe the structure and function of the Golgi apparatus.

Describe the structure and function of the Golgi apparatus.

- Structure = flat, curved, fluid-filled sacs surrounded by vesicles.
- Function = processes and packages proteins and lipids, produces lysosomes.

Describe the structure and function of the mitochondria.

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- Structure = bound by a double outer membrane, inner membrane folded to increase surface area.
- Function = site of respiration and therefore ATP production.

Describe the structure and function of centrioles.

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- Structure = hollow cylinders containing microtubules.
- Function = involved in cell division.

Describe the structure and function of ribosomes.

Describe the structure and function of ribosomes.

- Structure = composed of two subunits, maybe either be membrane-bound or free in the cytoplasm.
- Function = site of protein synthesis.

Describe the structure and function of lysosomes.

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- Structure = vesicles filled with digestive enzymes, bound by a membrane.
- Function = breakdown any of the cell's waste, destroy disease-causing organisms that enter the cell.

Outline the role of the RER and Golgi apparatus in transporting proteins.

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1. Proteins produced on the ribosomes of RER, and are then folded and processed.
2. Transported in vesicles to the Golgi body.
3. Modified and repackaged to be transported around the cell, or to leave the cell by exocytosis in the case of extracellular enzymes.

Describe the structure and function of a prokaryotic cell wall.

Describe the structure and function of the cell wall.

- Structure = forms a rigid outer covering over the cell, made of peptidoglycan.
- Function = provides strength, support, protection against damage.

Describe the structure and function of the capsule.

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- Structure = thick, slimy layer of polysaccharide that covers the cell wall.
- Function = prevents cell from drying out, helps adhesion to surfaces.

Describe the structure and function of a plasmid.

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- Structure = circular molecules of DNA.
- Function = DNA replication, transferring DNA between bacteria, gene expression.

Describe the structure and function of the flagellum.

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- Structure = a long, thin projection attached to the cell wall.
- Function = movement; propels the cell forwards using a corkscrew motion.

Describe the structure and function of the pili.

Describe the structure and function of the pili.

- Structure = hair-like extensions on the surface of bacterial cells.
- Function = help cells adhere to various surfaces, primarily each other.

Describe the structure and function of mesosomes.

Describe the structure and function of mesosomes.

- Structure = infolds of the plasma membrane, associated with enzymes.
- Function = site of respiration.