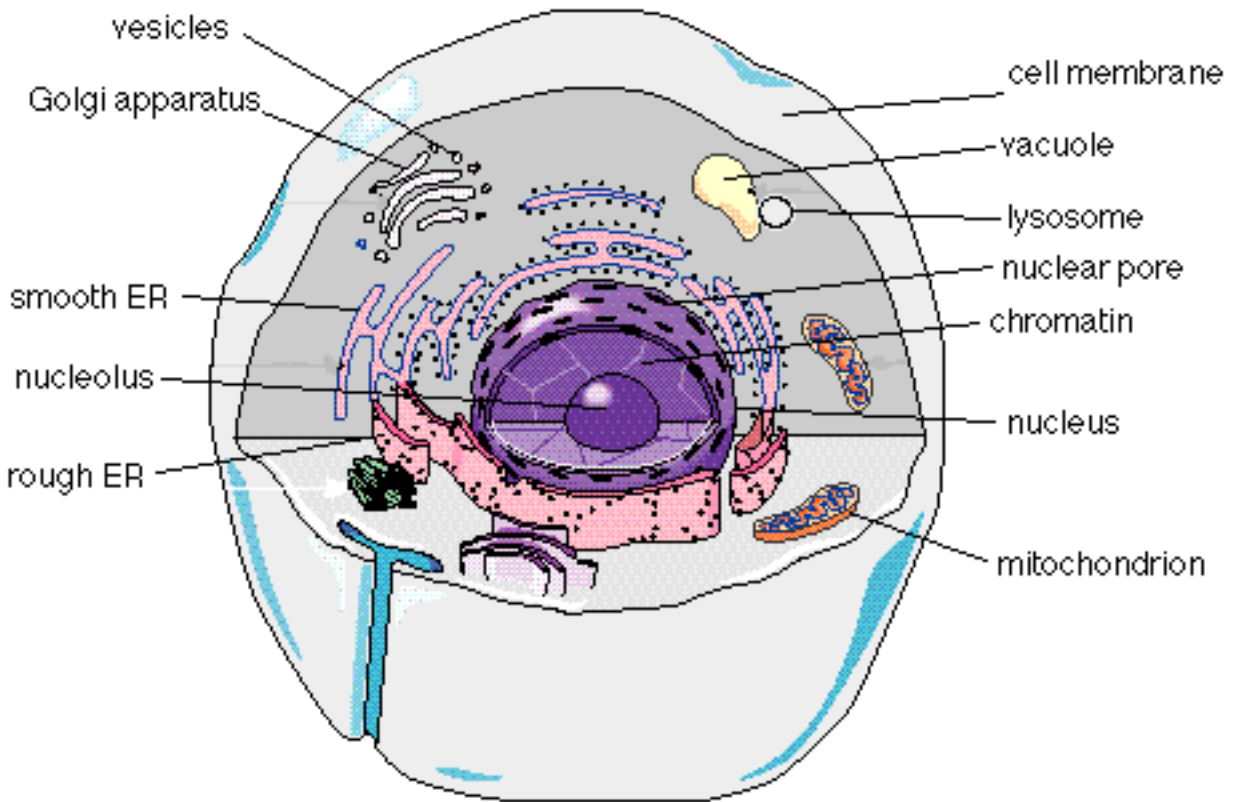


Cell Review Notes

Animal Cell



Organelles:

Specialized structures within cells such as the nucleus, mitochondrion, ER etc.

These are usually made of plasma membranes, exception - ribosomes do not have a membrane.

Nucleus:

Largest organelle in the cell, enclosed by a double layer membrane.

Control center of cell-controls metabolic functioning of cell & determines cell's characteristics
Contains chromatin - DNA and proteins - during cell division, chromatin condenses to form individual chromosomes.

The two most important chemicals in the nucleus are DNA and RNA.

Nucleolus:

Dark circular body in the nucleus - specialized area of chromatin which produces rRNA (ribosomal RNA) which is a component of ribosomes. Therefore, nucleolus helps produce ribosomes.

Nuclear Pores:

Openings in nuclear envelope (membrane) to allow large molecules to pass from nucleoplasm to the cytoplasm.

Ribosomes:

Made up of ribosomal RNA (rRNA) and protein, are not enclosed in a membrane.

Site of protein synthesis.

Found attached to rough endoplasmic reticulum or free floating in cytoplasm.

attached ribosomes - produce proteins for export (exocytosis) out of cell

free ribosomes - produce proteins to be used inside cell

Endoplasmic Reticulum:

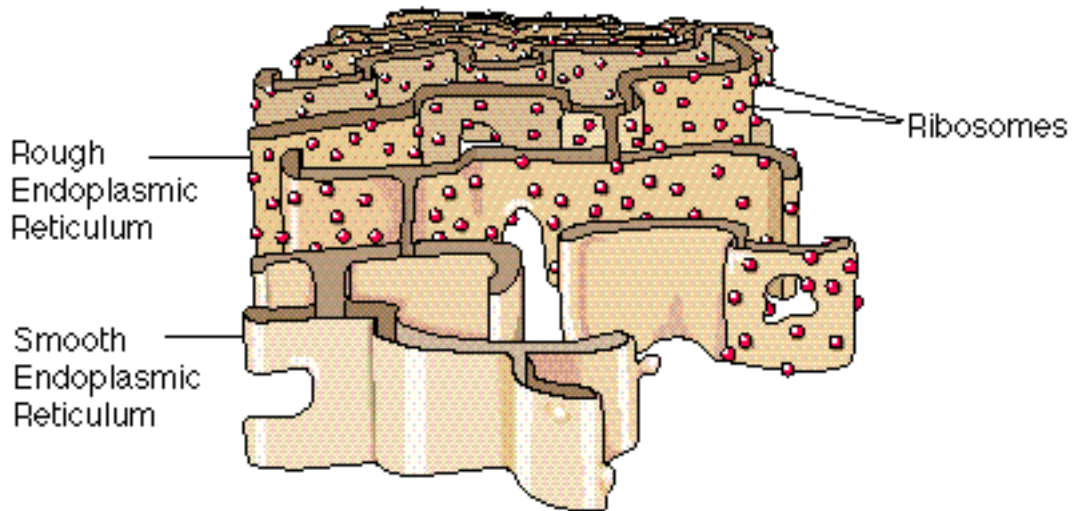
Forms a membranous system of tubular canals that begins at the nuclear envelope and branches throughout cytoplasm

Rough ER - have ribosomes attached to surface

acts as transport of polypeptides (made at ribosomes) through cell.

Smooth ER - does not have ribosomes attached - acts as transport (like rough ER)

also, contains enzymes to detoxify drugs and alcohol (liver cells) and synthesize lipids like steroid hormones (cells of ovary and testes)

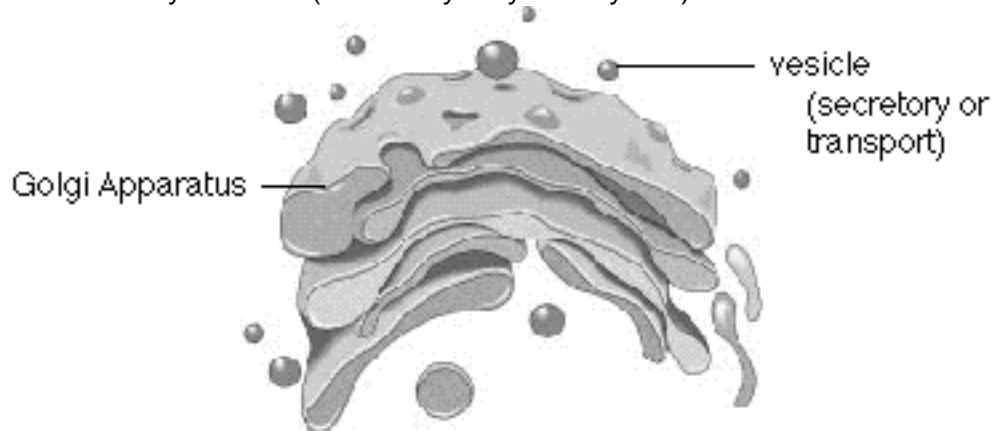


Golgi Apparatus:

Concentrically folded membrane, not continuous with nuclear membrane. Receives transport vesicles from ER.

Functions as:

- *repackaging center - modification of polypeptides, package into secretory vesicles and secreted out of cell membrane (exocytosis)
- *production of lysosomes (contain hydrolytic enzymes)

**Vacuoles:**

Membrane bound, often fluid filled cavities which act as storage sites in cell.

Vesicles:

Small vacuoles that can be made at ER, Golgi apparatus or from the folding of the cell membrane as in endocytosis.

1. transport vesicles - made at ER and transport polypeptides to Golgi apparatus.
2. secretory vesicles - made at Golgi apparatus and transport to cell membrane for secretion out of cell by exocytosis.

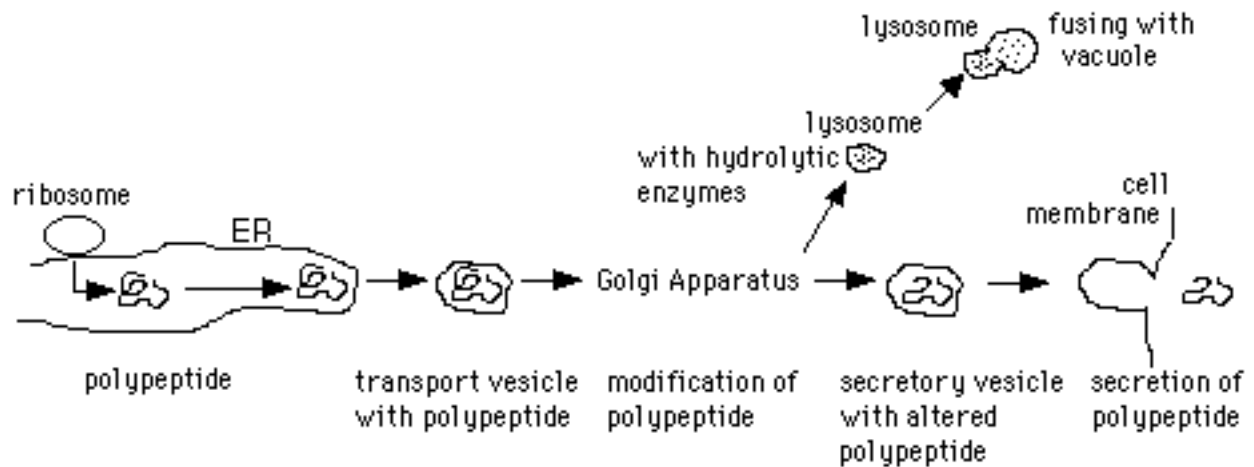
Lysosomes:

Special type of vesicle made at Golgi apparatus. Contains hydrolytic enzymes for digestion within cell.

Functions:

1. Attach to vacuoles and release hydrolytic enzymes to digest contents of vacuole.
2. "Suicide bags" - release enzymes to destroy cell (cell suicide).

Summary of relationships between organelles:



Mitochondria: (singular: mitochondrion)

Sometimes referred to as the powerhouse of the cell. Folded inner membrane increases surface area for chemical reactions to take place. Organelle where aerobic cellular respiration occurs. Most of the ATP - energy currency of cells - is produced here



Cellular Respiration

