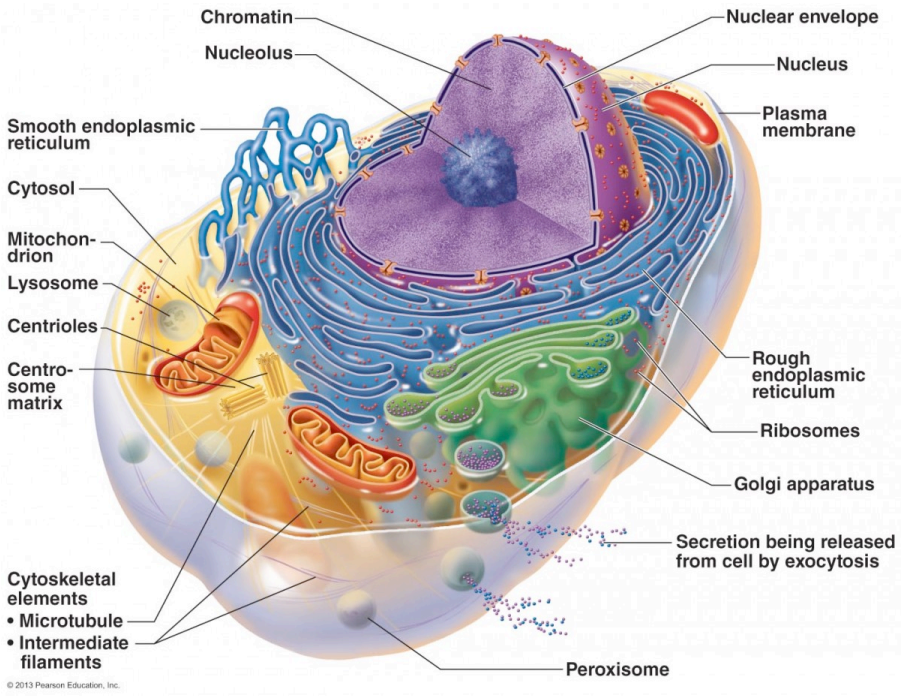
EUKARYOTIC CELL STRUCTURES

Created by: Caitlin King



Centrioles: Works on the organization of the cell by spacing where the nucleus is compared to the other organelles

Centrosome Matrix: Helps to form the microtubules

Chromatin: Helps to package DNA, especially during mitosis, and helps control which genes are expressed

Cytosol: The liquid that all of the organelles float in inside of the cell

Cytoskeleton: The most common function is to act, as the name suggests, a skeleton for the cell to provide support and shape.

- **Intermediate filaments**: Help make up the cytoskeleton, usually thicker than microfilaments
- **Microtubules**: Helps form the cytoskeleton for support of the cell, as well as movement of the cell

Golgi apparatus: The Amazon shipping center of proteins, this acts to package proteins from the ER into transport vesicles to be carried to other parts of the cell.

Lysosomes: The Rumba of the cell, it acts to engulf any toxic or unwanted molecules so that the cell is not harmed. Can also work in groups to take down bigger molecules that it alone cannot.

Mitochondrion: The power house, creates all of the energy needed for the cell by breaking down glucose into water, oxygen, and ATP (the unit that represents energy)

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Nucleus: Where all of the DNA is housed to give out instructions.

Nucleolus: Between the nucleus and the nuclear envelope, it acts as the factory for creating ribosomes that the rest of the cell can use.

Nuclear Envelope: a double layered membrane that protects the nucleolus and the nucleus.

Peroxisomes: Breaks down fatty acids into hydrogen peroxide, but don't worry, that breaks down into water and oxygen.

Plasma membrane: The shell of the cell, protects all of the organelles and controls what molecules enter and exit

Ribosomes: Where proteins are synthesized in the cell, creating different forms of amino acids together to create the proteins

Rough Endoplasmic Reticulum: Helps ribosomes bind so proteins can be made and folded properly

Smooth Endoplasmic Reticulum: Breaks down carbohydrates, creates lipids that are needed for the cell, and regulates calcium in the muscles

***Secretion of Exocytosis**: toxins and other degraded products of the cell and released along the cell membrane outside of the cell to be disposed of. Note that this is a function of the cell and not an actual structure.

Review Time!

Match the names to the function descriptions

1. Mitochondria	A. Breaks down Carbohydrates
2. Nucleus	B. Creates energy for the cell
3. Rough endoplasmic reticulum	C. Protects all other organelles
4. Ribosomes	D. Helps bind ribosomes
5. Plasma Membrane	E. Provides support
6. Cytoskeleton	F. Holds all DNA
7. Lysosomes	G. Engulfs toxic waste
8. Smooth endoplasmic reticulum	H. Transports proteins
9. Golgi Apparatus	I. Synthesizes proteins

Answers: 1B, 2F, 3D, 4I, 5C, 6E, 7G, 8A, 9H

Reference:

The following resources were referenced during the creation of this handout: *TES Syllabus and Revision Notes* and *Molecular Biology of the Cell, 4th Edition*.

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