

4.2 Parts of the Eukaryotic Cell

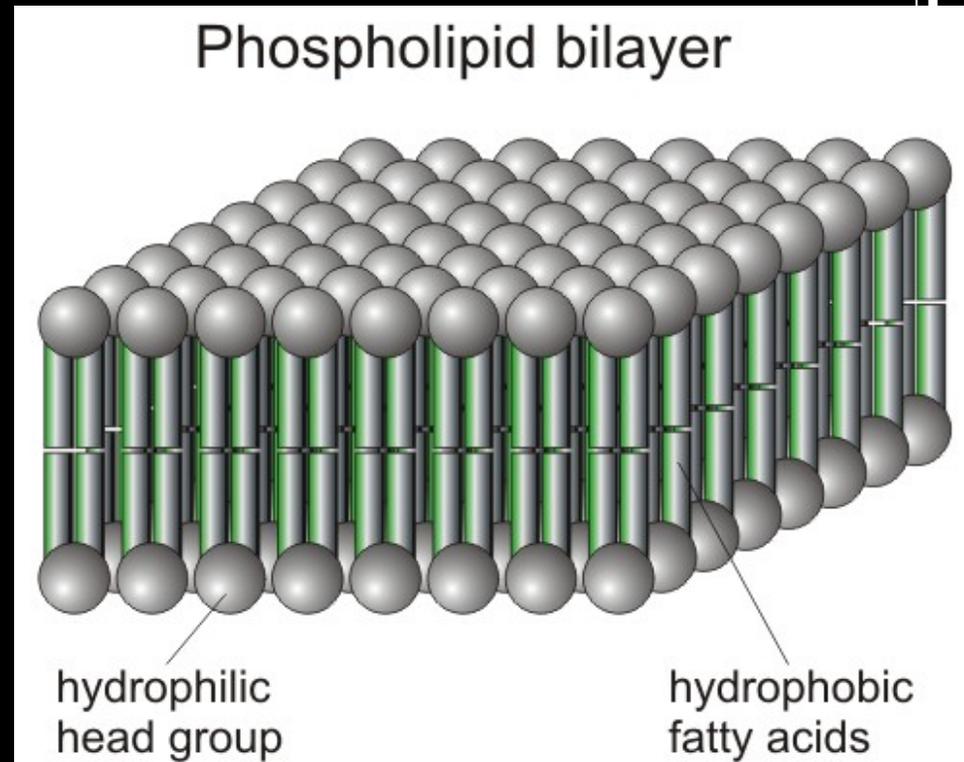
All Eukaryotic cells have three main parts, cell membrane, Nucleus, Organelles.

Cell Membrane

- Cells need to allow materials to leave and enter to survive.
- The cell membrane allows some things to pass and not others, it is said to be selectively permeable.
- Cell membranes are specialized for specific jobs.

Membrane lipids

- The main type of lipid in the membrane is the phospholipid.
- The aqueous environment keeps the membrane held together.



Membrane Proteins

- Some protein are attached to just the inner and outer surfaces, are called Peripheral proteins.
- Some proteins called integral proteins are embedded in and are exposed on both sides
- These Protein are important is the transport of substances in and out of the cell.

Fluid Mosaic Membrane Model

- The fluid mosaic model describes the free floating nature of many membrane components.
- The peripheral and integral proteins have the ability to move around the membrane.

Organelles

- The region of the cell between the cell membrane and the nucleus is called the cytoplasm
 - The cytoplasm is composed of the fluid called cytosol and all the organelles.
 - Cytosol is water based fluid with minerals and other substances dissolved in it.

Mitochondria

- Mitochondria are the energy producers which turn ADP to ATP
- The mitochondria has two membranes, a smooth outer the inner is a folded membrane called cristae.
- The fold are to increase the surface area.
- Are thought to have once been free living Prokaryotes, they have their own DNA.

Ribosomes

- Often the most numerous organelle
- Does not have a membrane surrounding it.
- Made of a combination of Protein and RNA
- Ribosomes are the factories that produce the proteins.
- Can be floating in the cytosol or attached to the E.R.

Endoplasmic Reticulum (ER)

- Are a system of membranes and channels that act as a highway system inside the cell
- Rough ER has ribosomes attached the proteins that are produced on the RER are usually shipped out of the cell.
- Smooth ER has no ribosomes produces steroids.

Golgi Apparatus

- Is the shipping department of the cell, it packages, processes and secretes substances to be exported.
- Often work with the ER
- Usually found near the cell membrane

Lysosomes

- Small Spherical organelles that contain enzymes to digest proteins, carbs, Lipids, DNA.
- Lysosomes are used by the cell to recycle old organelles, or to Kill bacteria and viruses.

Cytoskeleton

- Long strands of protein that give some cells their shape.
- Two main part of the cytoskeleton is the microfilaments and microtubules.
- Spindle fibers are used during cell division to separate duplicated chromosomes.

Cilia and Flagella

- Both are hair-like organelles that extend from the cell membrane, often used to move.
- Cilia are short and usually rows of many hundreds.
- Flagella are long and whip-like usually only 1 or 2

Nucleus

- Stores the heredity info for the cell
- Directs the creation of proteins
- Surrounded by a double membrane called Nuclear envelop.
- Nuclear pores allow RNA and ribosomes out for protein synthesis.

Plant Cells

- Cell walls located to the outside of the cell membrane
- Vacuoles are large open storage spaces that are usually take up most of the cell.
- Plastids are the organelles that are surrounded by two membranes
 - Chloroplasts are the plastids that contain chlorophyll to absorb sunlight.