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REVISION

The Fundamental Unit of Life Cell

3. Ribosomes:

These are extremely small, dense and spherical bodies which occur freely in the matrix (cytosol) or remain attached to the endoplasmic reticulum.

These are made up of ribonucleic acid (RNA) and proteins.

Function:

They play a major role in the synthesis of proteins.

4. Mitochondria:

They are small rod-shaped organelles.

It is a double membrane structure with outer membrane being smooth and porous whereas inner membrane being thrown into a number of folds called cristae.

They contain their own DNA and ribosomes.

They are absent in bacteria and red blood cells of mammals.

Functions:

- They are the sites of cellular respiration, hence provide energy for the vital activities of living cells.
- They store energy releases during reactions, in the form of ATP (Energy currency of the cell). Therefore, they are also called 'power house' of the cell.

5. Centrosome and Centrioles:

Centrosome is found only in eukaryotic animal cells. It is not bounded by any membrane but consists of centrioles.

Centrioles are hollow cylindrical structures arranged at right angle to each other and made up of microtubules.

Function:

Centrioles help in cell division and also help in the formation of cilia and flagella.

6. Plastids:

Plastids are present in most of the plant cells and absent in animal cells.

They are usually spherical or discoidal in shaped and double membrane bound organelles.

They also have their own DNA and ribosomes.

Plastids are of three types:

(a) Chloroplasts: These are the green coloured plastids containing chlorophyll. Chloroplasts aid in the manufacture food by the process of photosynthesis.

(b) Chromoplasts: These are the colourful plastids (except green colour).

(c) Leucoplasts: These are the colourless plastids.

Function:

- Chloroplasts trap solar ebergy and utilise it to manufacture food for the plant.
- Chromoplasts impart various colours to flowers to attract insects for pollination.
- Lecuoplasts help in the storage of food in the form of starch, proteins and fats.

7. Lysosomes:

Lysosomes are small, spherical, sac like structures which contain several digestive enzymes enclosed in a membrane.

They are found in eukaryotic cells mostly in animals.

Functions:

- Lysosomes help in digestion of foreign substances and worn-out cell organelles.
- They provide protection against bacteria and virus.
- They help to keep the cell clean.
- During the disturbance in cellular metabolism, for example when the cell gets damaged, lysosomes may burst and the enzymes digest their own cell. Therefore, lysosomes are also known as **suicide bags** of a cell

8. Vacuoles:

Vacuoles are liquid/solid filled and membrane bound organelles.

In plant cells, vacuoles are large and permanent. In animal cells, vacuoles are small In size and temporary.

In mature plant cell, It occupies 90% space of cell volume.

Due to its size, other organelles, including nucleus shift towards plasma membrane.

Function:

- They help to maintain the osmotic pressure in a cell.
- They provide turgidity and rigidity to the plant cell.

9. Peroxiomes:

They are small and spherical organelles containing powerful oxidative enzymes.

They are bounded by a single membrane.

They are found in kidney and liver cells.

Function:

- They are specialized to carry out some oxidative reactions, such as detoxification or removal of toxic substances form cell.

Difference Between Animal Cell and Plant Cell:

S. No.	Animal cell	Plant cell
1.	Animal cells are generally small in size.	Plant cells are larger than animal cells.
2.	Cell wall is absent.	Plasma membrane of plant cell is surrounded by a rigid cell wall of cellulose.
3	Plastids are absent except in case of protozoan Euglena.	Plastids are present.
4.	Here vacuoles are many, small and temporary.	They have a permanent and large central sap vacuole.
5.	They have centrosome and centrioles.	They lack centrosome and centrioles.