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Class 11<sup>th</sup>

Sub. Biology

Date:- 05.01.21

## Eukaryotic Cell

A cell which has a well organised nucleus with a nuclear envelope and several membrane bound organelles is called eukaryotic cell.

Internal organisation of eukaryotic cells is more advanced and elaborate, than the prokaryotic cells. All eukaryotic cells are not identical. Except monerans, eukaryotic organisation is seen in all the protists, plants, fungi and animals. Eukaryotic cell is larger than the prokaryotic cell (i.e., around 10-100  $\mu\text{m}$  in size).

### Generalised Structure

An extensive compartmentalisation of cytoplasm is seen through the presence of membrane bound organelles. Eukaryotic cells also possess a variety of locomotory and cytoskeletal structures.

All eukaryotic cell are not-identical, instead they differ from each other on the basis of structure and function. Cell wall is a special membrane, being present in plants, fungi and some protists. Plants cells also contains a large vacuole and plastids, which are absent in animal cells, while animal cells possess centrioles, which are absent in plant cells.

### Differences between Plant and Animal Cell

Characters	Animal Cells	Plant Cells
<b>Cell wall</b>	Absent	Present (formed of cellulose)
<b>Shape</b>	Round (irregular shape)	Rectangular (fixed shape)
<b>Centrioles</b>	Present in all animal cells.	Only present in lower plant forms.
<b>Vacuole</b>	One or more small vacuoles (much smaller than plant cells).	One, large central vacuole taking up 90% of cell volume.
<b>Cytoplasm</b>	Present	Present
<b>Ribosomes</b>	Present	Present
<b>Plastids</b>	Absent	Present
<b>Plasma membrane</b>	Only cell membrane	Cell wall and a cell membrane.
<b>Golgi apparatus</b>	Present	Present
<b>Mitochondria</b>	Present	Present
<b>Endoplasmic reticulum</b> (smooth and rough)	Present	Present
<b>Chloroplast</b>	Animal cells don't have chloroplasts because they don't have the ability to prepare their food.	Plant cells have chloroplasts because they make their own food (autotrophs).
<b>Flagella</b>	May be found in some cells	May be found in some cells.
<b>Microtubules</b>	Present	Present
<b>Microfilaments</b>	Present	present
<b>Cilia</b>	Present	It is very rare
<b>Lysosomes</b>	Lysosomes occur in cytoplasm.	Lysosomes usually not evident.
<b>Nucleus</b>	Present	Present
<b>Cytokinesis</b>	Result in the formation of a furrow in the centre of a cell.	Occurs due to the formation of a cell plate.