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**Endomembrane System**

The endomembrane system consists of nuclear envelope, Endoplasmic Reticulum (ER), Golgi complex, lysosomes and vacuoles suspended in the cytoplasm.

These are considered together as an endomembrane system because their functions are coordinated with each other, inspite of this that each membranous organelles is distinct in terms of its structure and functioning.

**Endoplasmic Reticulum (ER)**

The endoplasmic reticulum is a complicated system of membranous channels and flattened vesicles. It is physically continuous with the outer membrane of the nuclear envelope. It is revealed from the electron microscopic studies of eukaryotic cells that there is a presence of a network or reticulum of tiny tubular structures that are being scattered in the cytoplasm.

ER is known to be absent in prokaryotes but is present in all eukaryotic cells except germinal cells and mature human RBCs.

Endoplasmic reticulum divides the intracellular space into two main compartments

(i) Luminal (inside ER) compartment

(ii) Extra-luminal (cytoplasm) compartment,

**Types of Endoplasmic Reticulum**

Endoplasmic reticulum are mainly of two types, depending upon the nature of its membranes

(i) Smooth Endoplasmic Reticulum (SER) These are smooth because they do not bear ribosomes in the form of granules on their surfaces. It is present in cells where they acts as a major site for the synthesis of lipid and also helps in synthesis of steroidal hormone in animal cells.

(ii) Rough Endoplasmic Reticulum (RER) They are found extensive and continuous with the outer membrane of nucleus. These have rough membrane because they bear ribosomes being attached to their surfaces.

They are actively being seen in the cells which have their involvement in the synthesis and secretion of proteins.