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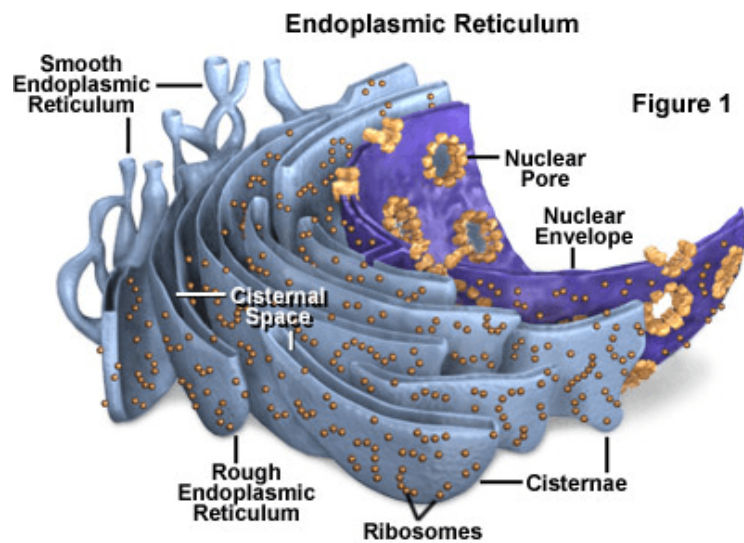
Cell Structure and Function: Endoplasmic Reticulum (ER) , Golgi Body and Ribosomes

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Endoplasmic Reticulum (ER)

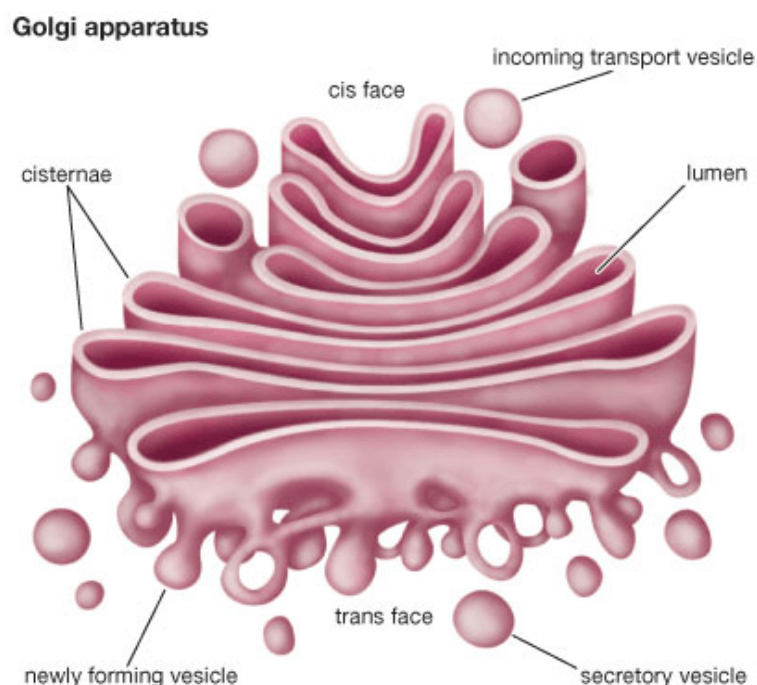
ER is an interconnected system of membrane-lined tubes and sheets that run through the cytoplasm or at some place it is connected with the plasmalemma as well as with the nuclear envelope. ER two types; smooth ER and rough ER. Rough ER has a rough membrane because a number of ribosomes are found attached to its outer surface. Rough endoplasmic reticulum is very well-developed in plasma cells, fibroblasts, goblet cells, etc. Smooth endoplasmic reticulum does not bear ribosomes and is found in liver cells, interstitial cells, adipose cells, muscle cells, etc.

Function: Provides internal framework, compartment and reaction surfaces, transports enzymes and other materials throughout the cell. RER is the site for protein synthesis and SER for steroid synthesis, stores carbohydrates. In the liver cells of vertebrates, SER helps to detoxify many poisons and drugs.



Golgi Body

The Golgi body was first described by Camillo Golgi. Golgi body consists of a system of membrane-bound vesicles which are arranged somewhat parallel to each other in stacks called cisterns. In animal cells present around the nucleus, 3 to 7 in number, in plant cells, many and present scattered throughout the cell called dictyosomes. There are three distinct components visible in the Golgi-complex: flattened sacs or cisternae, clusters of tubules and vesicles and large vesicles or vacuoles.



Function: Synthesis and secretion as enzymes, participates in transformation of membranes to give rise to other membrane structure such as lysosome, acrosome, and dictyosomes, synthesize wall element like pectin, mucilage. It helps in the storage, modification and packaging of secretory products in the vesicles. Golgi apparatus also helps in the manufacture of complex sugars from simple sugars.

Ribosomes

Ribosomes are found in all cells, both prokaryotes and eukaryotes, except in mature sperms and RBCs. In prokaryotes cells, they are found floating freely in the cytoplasm. In eukaryotic cells, they occur freely in the cytoplasm as well as attached to the outer surface of the rough endoplasmic reticulum. Spherical about $150 - 250 \text{ \AA}$ in diameter and is made up of large molecules of RNA and proteins (ribonucleoproteins) .

Functions: Ribosomes help in protein synthesis inside the cell. Hence, they are called protein factories of the cell. At the time of protein synthesis, ribosomes are attached to RNA and form a

structure called polyribosome which is the site of protein synthesis.

