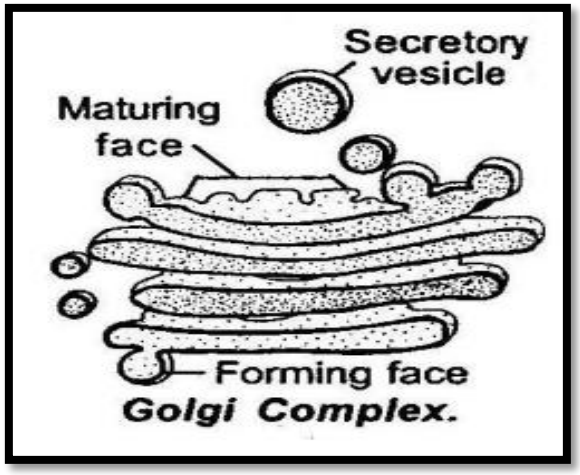
The Fundamental Unit of Life
Cell organelles (Golgi apparatus and Lysosomes)

❖ Golgi Apparatus:

It is also called the Golgi bodies or Golgi complex. It is composed of membrane bound fluid filled vesicles, vacuoles and stack of many flattened enclosed sacs (cisternae). But in plant cell they are distributed through out the cytoplasm and are called dicytosomes. In animals they are larger and one or two in number while in plants they are smaller and more in number. The membranes of Golgi apparatus often have connections with the membranes of Endoplasmic Reticulum through E.R. Vesicles.



Functions:

(i) It helps in the formation of cell plate during cell division.

(ii) It is involved with the synthesis and modification of proteins, lipids and carbohydrates.

(iii) It is involved in the synthesis of lysosomes and peroxisomes.

(iv) It also forms complex sugar from simple sugars.

(v) The material synthesised near the ER is packaged and dispatched to various targets inside and outside the cell through the Golgi apparatus.

(vi) It also helps in the storage, modification and packaging of products in vesicles.

Introduction:

(i) Golgi bodies are absent in prokaryotic cells. Golgi complex is found in all eukaryotic cells except RBCs.

Historical Account:

(i) **Camillo Golgi** (1898), a zoologist, observed Golgi bodies in the form of a network in nerve cells of barn owl.

Ultrastructure:

(i) It is also called **Golgi complex** or **Golgi apparatus** or **Dictyosome** (in plants cell).

(ii) It is made up of cisternae.

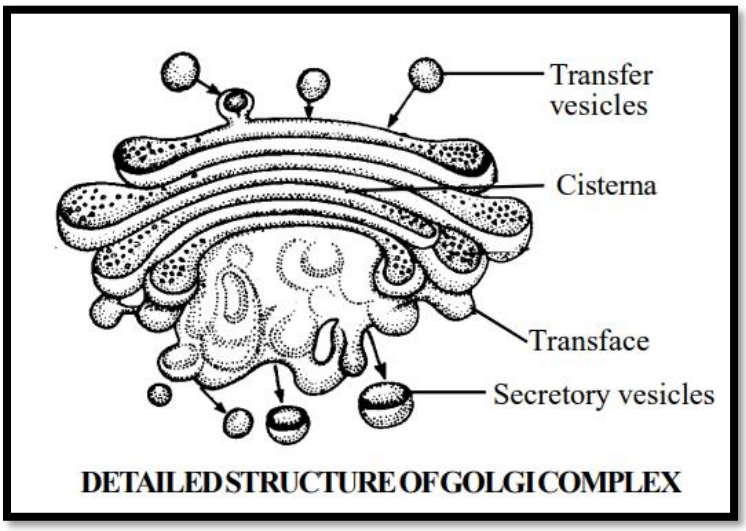
(iii) Golgi bodies are interconnected with the tubules.

q Functions of Golgi Apparatus:

(i) The main function of Golgi apparatus is secretory.

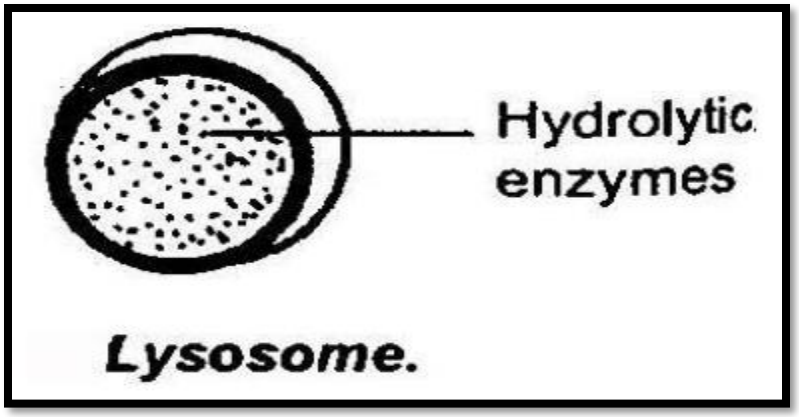
(ii) It produces vacuoles or secretory vesicles which contain cellular secretions like enzymes, proteins, cellulose etc.

(iii) Golgi apparatus is also involved in the synthesis of cell wall, plasma membrane and lysosomes.



DETAILED STRUCTURE OF GOLGI COMPLEX

❖ **Lysosomes:** They are small sized enzyme containing vesicles which are bounded by a single membrane. These bodies contain hydrolytic enzymes (digestive enzymes). These are also known as "suicidal bags" or "digestive bags".



Functions:

(i) They help in intercellular and intra cellular digestion of food particles

(ii) They cause digestion of worn-out cell organelles.

(iii) They destroy foreign substances.

(iv) They help in the digestion of bones by digesting cartilage.

Introduction:

(i) Lysosomes are generally found in the cytoplasm of animal cells. Lysosomes exhibit polymorphism.

Historical Account:

(i)The term **lysosome** was introduced by **de Duve** in 1955.

Ultrastructure:

(i) It is also called **demolition squads, scavengers, cellular house keepers and suicide bags.**

(ii) Lysosome are simple tiny spherical sac like structures evenly distributed in the cytoplasm.

(iii) Lysosome is small vesicle surrounded by a **single membrane** and contains powerful enzymes.

q Functions of Lysosomes:

(i) Lysosomes serve as interacellular digestive system, hence called **digestive bags**.

(ii)Lysosomes also remove the worn out and poorly working cellular organelles by digesting them to make way for their new replacement.