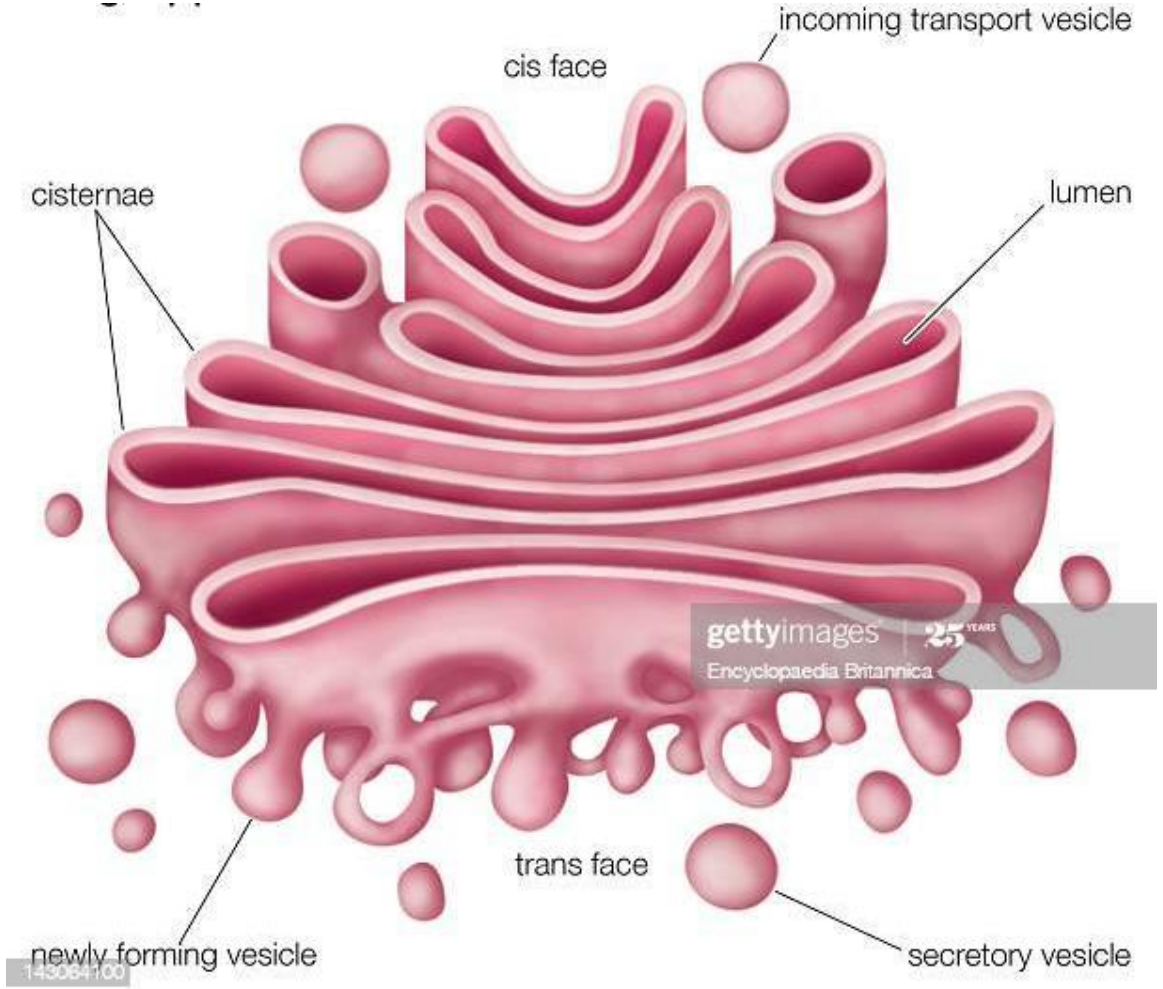


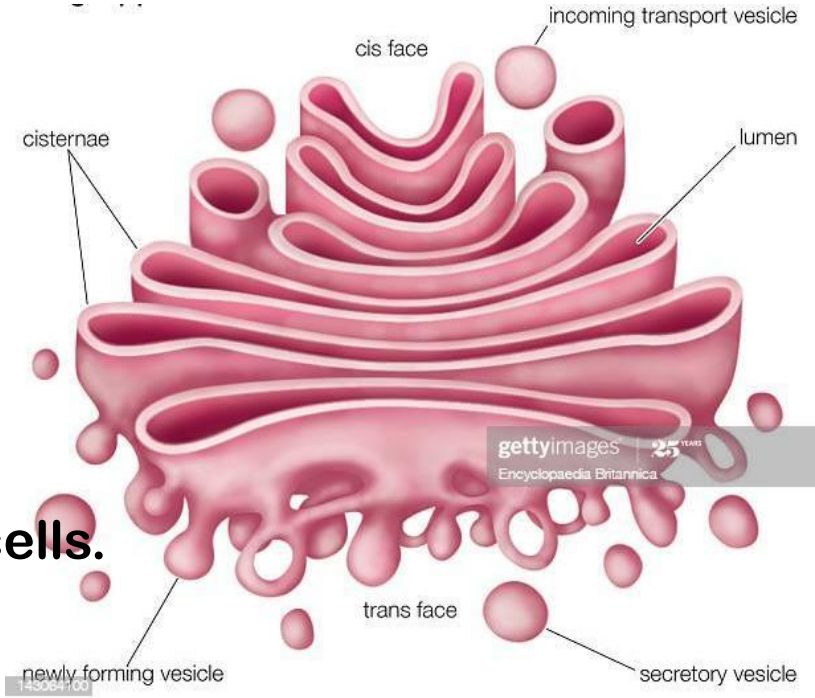
Golgi complex

Structure

Dr. Rupesh B. Yadav
Asst. Prof.
TCSC, Mumbai.

Golgi complex

Structure

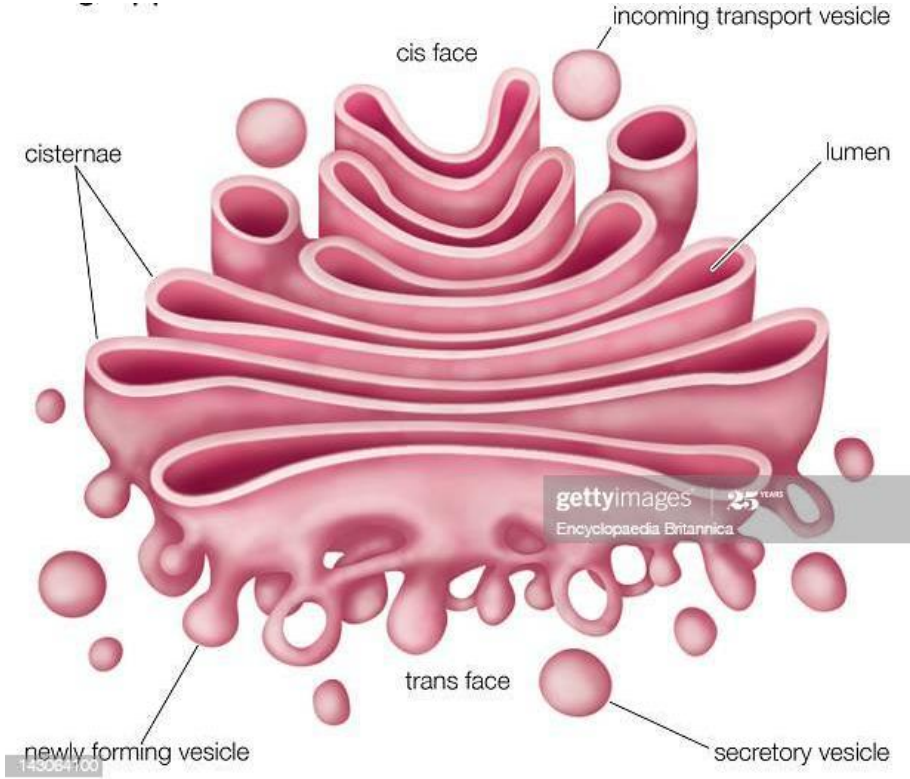


- The shape and size of Golgi complex are not fixed.
- The shape depend upon the physiological state of the cells.
- Usually Golgi complex is made up of four parts— cisternae, tubules, vesicles and vacuoles

Structure

Cisternae

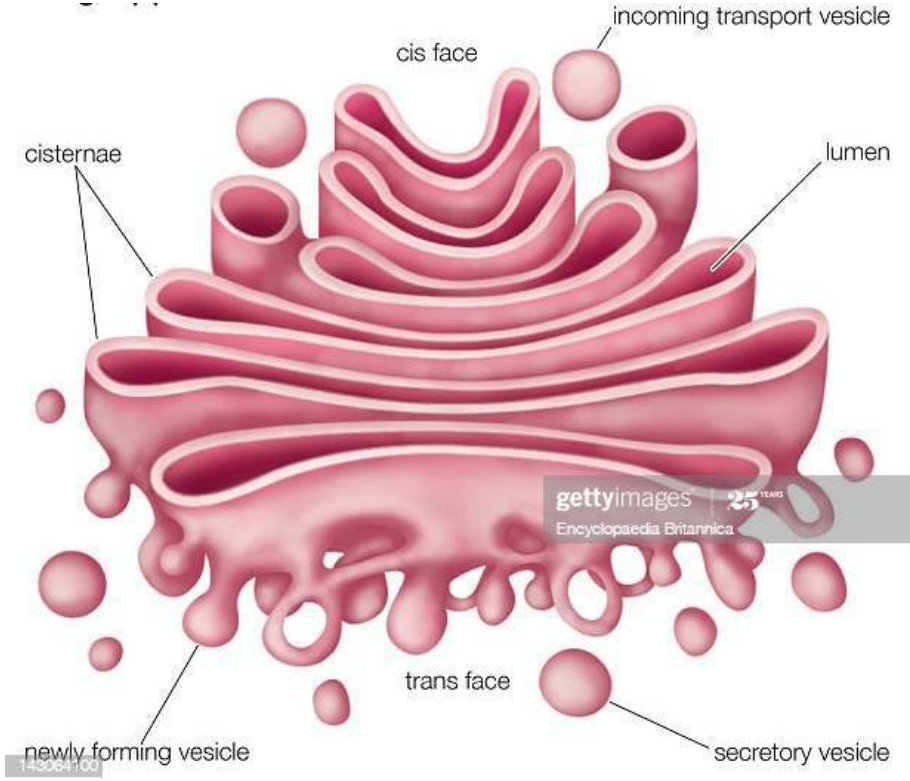
- The cisternae or lamellae are the most constant element of Golgi complex.
- They consist of flattened, parallel sacs situated one upon the other to stacks.
- The no. of cisternae in a stack varies from species to species & sometimes from one developmental stage to another.



Golgi complex

Cisternae

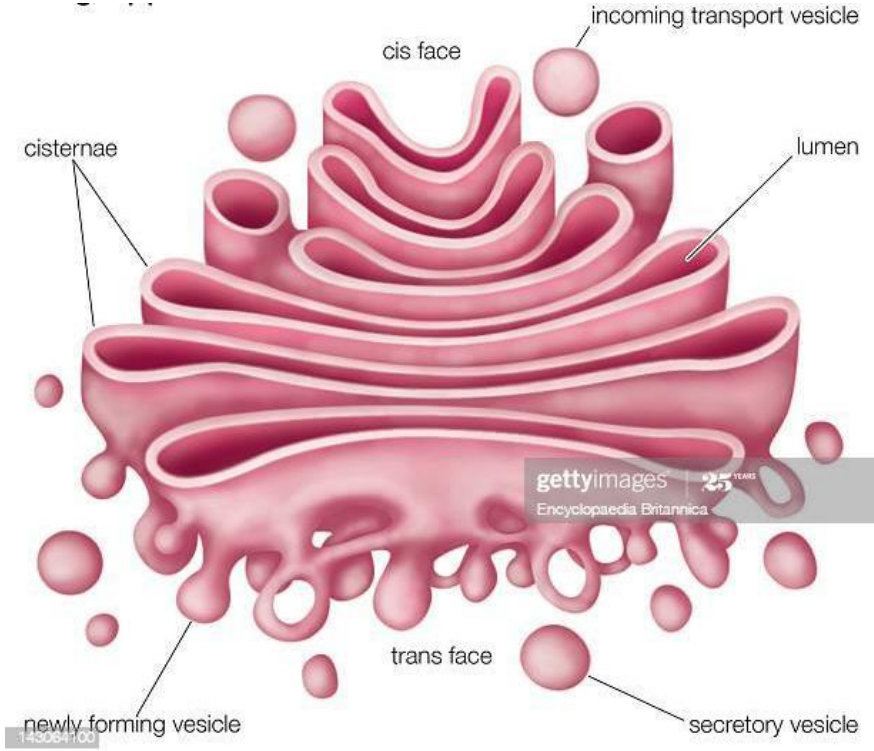
- The no. of cisternae in a stack is about 4 – 8 in most animal & plant cells.
- In *Euglena*, the number may go up to 20.
- The membrane of cisternae is roughly 70 A° in thickness which encloses a cavity about 150 A° wide.



Golgi complex

Cisternae

- According to most authors, there are two well-defined faces of the cisternae i.e., Cis face it is also called as immature face is concave which receive the proteins & lipid from ER.
- convex (Maturing face or trance face) budded off the vesicles
- The latter, it is generally referred to as the mature or forming or distal face
- The cisternae lie in parallel array are separated from each other by a space of about 200 to 300 A .



Golgi complex

Tubules

- From the peripheral area of cisternae arise a complex, anastomosing flat network of tubules of 300 to 500 A° diameter.

Golgi complex

Vesicles

- The ER buds off the vesicle, which is then become arranged on the forming face on the ER & may be converted into a Golgi lamella by loss of ribosome.
- On other hand, maturing or secreting face, buds off the secretory vesicles.
- The chemical composition show that, Golgi complex membrane is intermediate between those of ER & Plasma membrane.
- The membranes at the forming face of the Golgi complex are similar to ER membrane.

Golgi complex

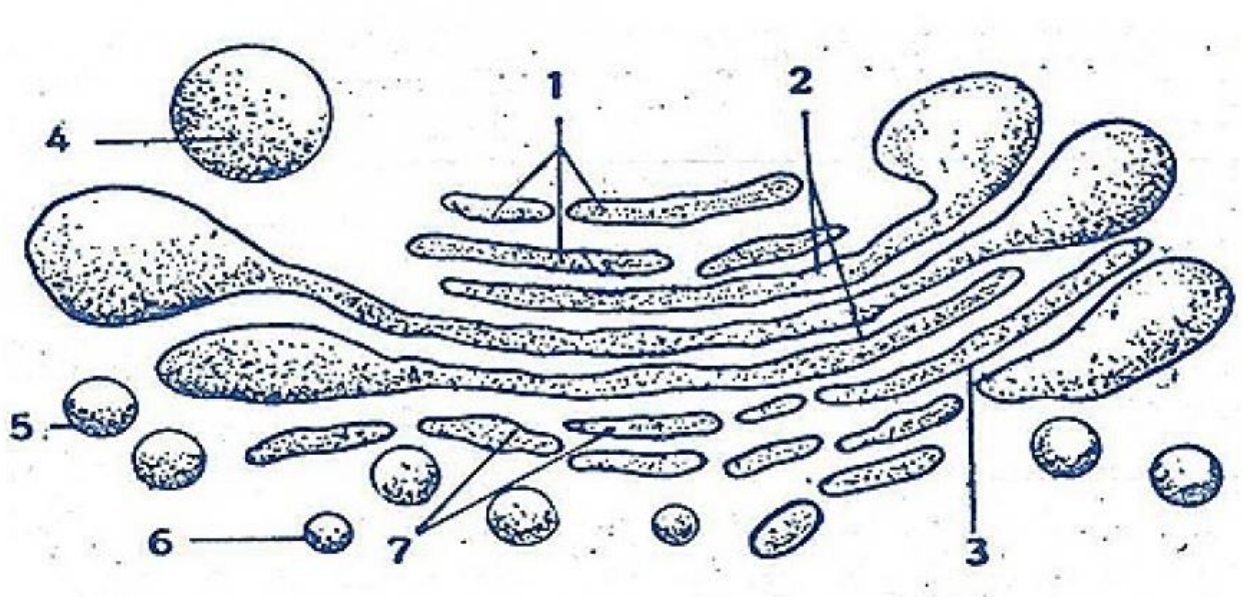
Vesicles

- The membranes of the Golgi complex are in dynamic equilibrium.
- They are continuously receiving lamellae through budding off of vesicles from the SER & losing membranes through formation of secretory vesicles.
- The small vesicles are 400 to 800 A in diameter.
- They are intimately associated with cisternae & may show continuity with them.
- The small vesicles arise from the cisternae by budding off

Golgi complex

Vacuoles

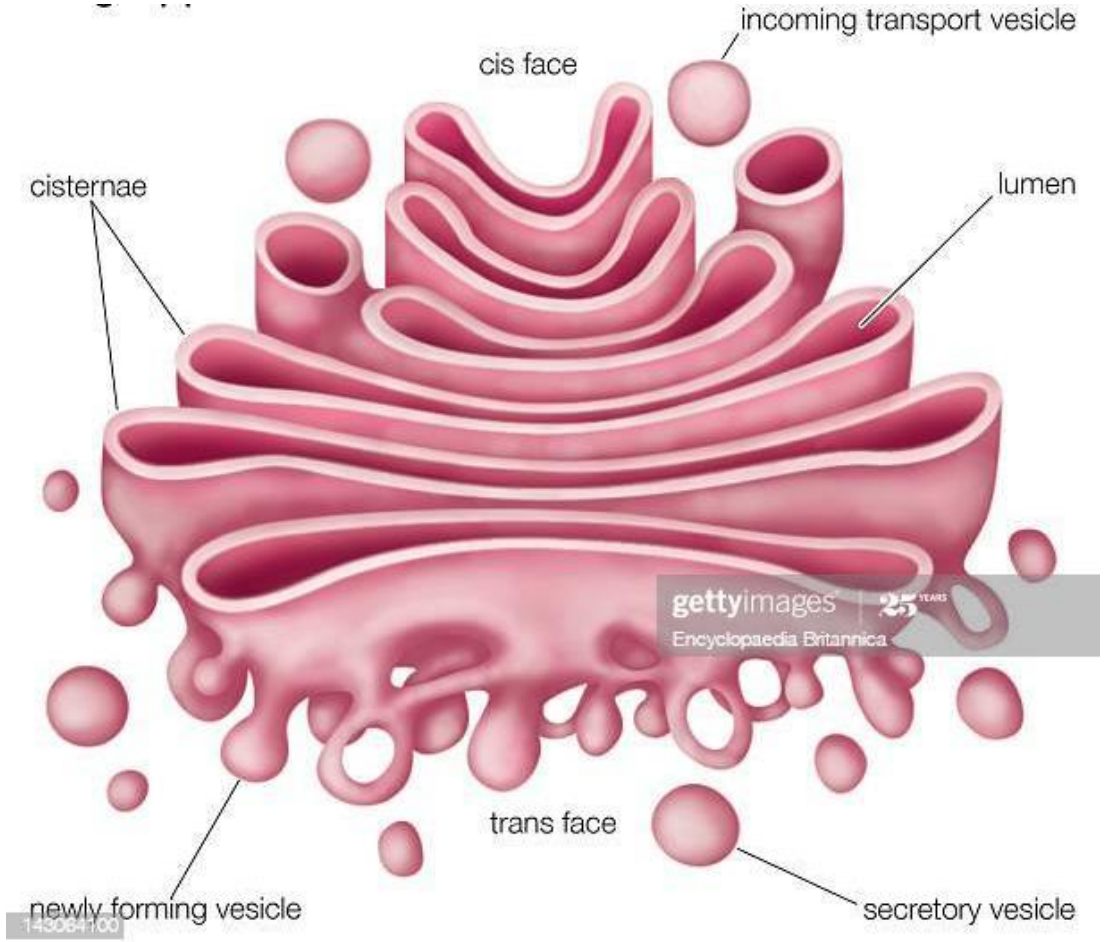
- The large vacuoles are clear and generally lie at the edge of the Golgi complex.
- They represent modified & expanded cisternae in which two membranes have become widely separated & vacuoles space enlarge.



Golgi complex

Chemical Composition

- Phospholipids
- Proteins and Enzymes- ADPase, ATPase, NADPH cytochrome-C-reductase, glycosy1 transferases, galactosy1 transferase, thiamine pyrophosphate etc.
- Carbohydrates- glucosamine, galactose, glucose, mannose and fructose.
- Vitamin C: The fraction of vitamin C stored in the Golgi complex has been shown by Tomitte. According to him Golgi complex stores vitamin C and liberates it slowly into the cytoplasm in sufficient amount to prevent-oxidation of the cell products.



Thank You