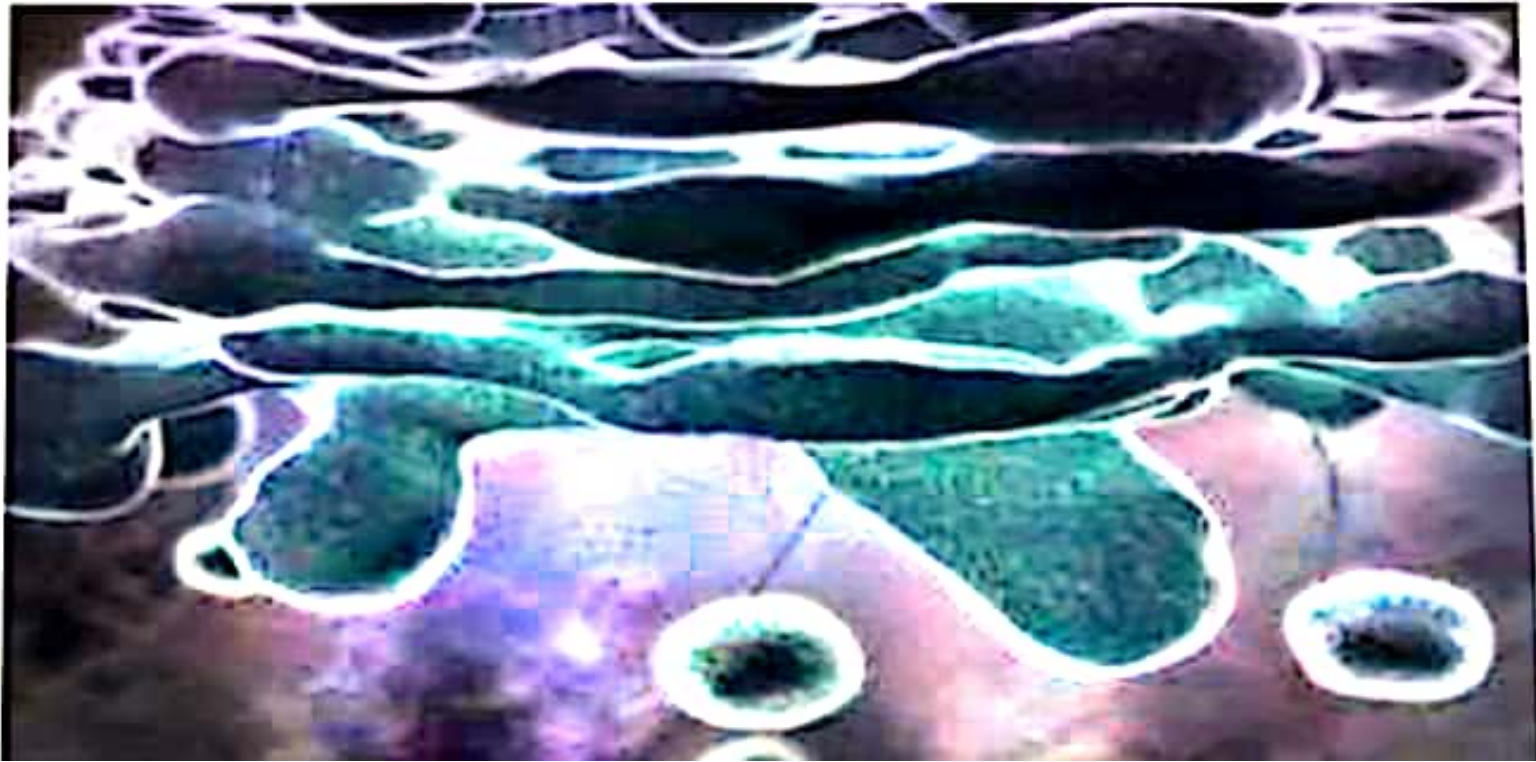
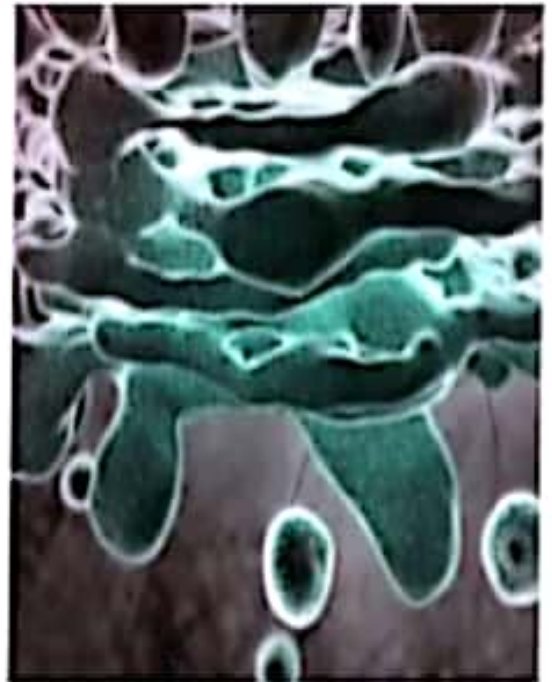


GOLGI APPARATUS



What is Golgi Apparatus ?

- Also known as **Golgi complex, Golgi body or Golgi.**
- Membrane bound organelles, which are sac-like.
- Found in cytoplasm of most eukaryotic cells and absent in **prokaryotes, Mammalian RBCs and sperm cells of bryophytes.**
- Ranges from one to several within a cell.
- In plant cells several small Golgi complex – dictyosomes.
- **It is responsible for transporting, modifying and packaging proteins and lipids into vesicles.**



Structure of Golgi Apparatus :-

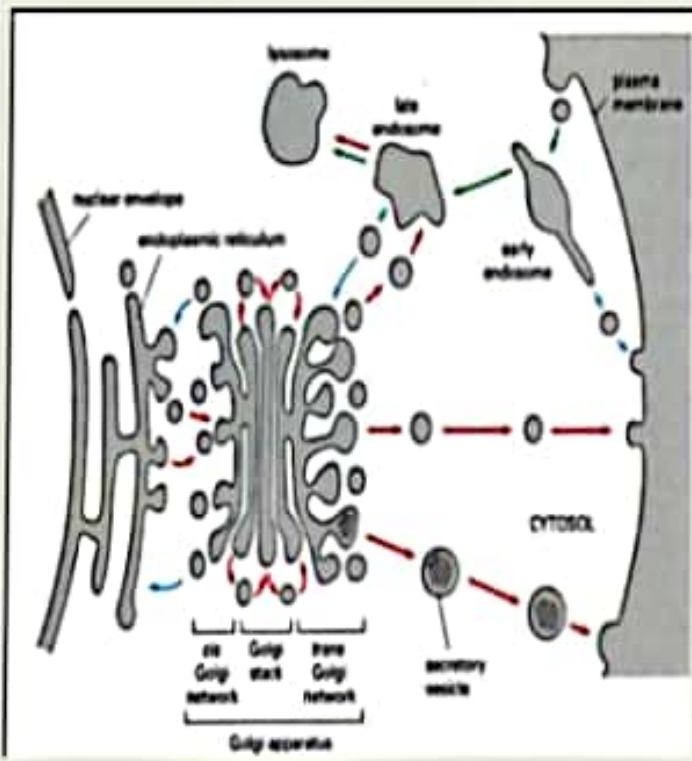
- Is made up of several stack of parallel, flattened sac or cisternae.
- Many peripheral tubules and vesicles.



CISTERNAE

- Golgi apparatus is made up of approx 4- 8 cisternae .
- Usually equally spaced in stark separated from each other by thin layer of intercisternal cytoplasm .
- Golgi complex has a distinct polarity ,the two poles are cis and transface responsible for receiving and shipping departments.
- Forming (cis)face-convex side of stack,Maturing(trans)face-concave side of stack.
- Secretory material $\xrightarrow{\text{from}}$ smooth endoplasmic reticulum $\xrightarrow{\text{via}}$ transport vesicles $\xrightarrow{\text{reaches}}$ golgi complex.

cis face
 ("receiving" side of Golgi apparatus)



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Tubules & vesicles :-

Tubules: - small, round tubules formed from the periphery of the cisternae .

- And few get enlarged at the end to form vesicles.

Vesicles:-lie near the end and concave surface of the golgi complex

- Types of vesicles:-smooth vesicles and coated vesicles


Golgi matrix:-all golgi elements filled with a fluid.

FUNCTIONS

- ❖ SECRETION
- ❖ SYNTHESIS
- ❖ SULFATION
- ❖ APOPTOSIS
- ❖ PHOSPHORYLATION



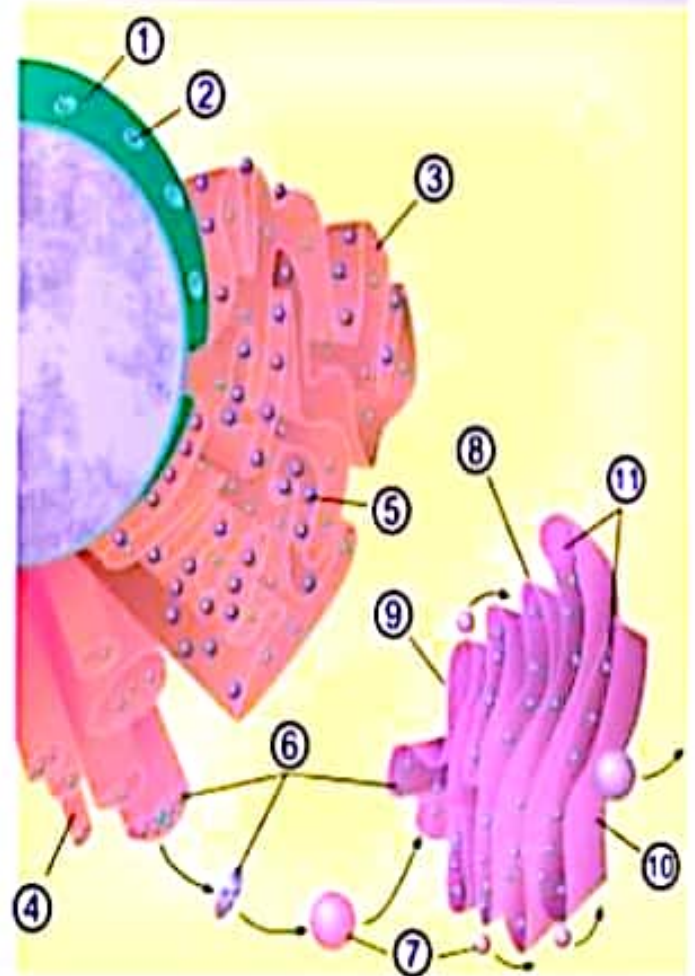
SECRETION

- Golgi complex plays an important role in secretion.
-  Production of proteoglycans

Path of secretion

Diagram of secretory process from endoplasmic reticulum (orange) to Golgi apparatus (pink).




1. Nuclear membrane
2. Nuclear pore
3. Rough endoplasmic reticulum (RER)
4. Smooth endoplasmic reticulum (SER)
5. Ribosome attached to RER
6. Macromolecules
7. Transport vesicles
8. Golgi apparatus
9. Cis face of Golgi apparatus
10. Trans face of Golgi apparatus
11. Cisternae of the Golgi Apparatus



SYNTHESIS

- ➡ It is also major site of carbohydrate synthesis .
- ➡ Includes synthesis of glycoasaminoglycans (GAGs)
- ➡ Golgi attaches to polysaccharides and protein to form proteoglycans

APOPTOSIS

-  Golgi has a putative role in apoptosis
-  A newly characterized protein (Golgi anti-apoptotic protein) almost exclusively resides the Golgi and protects cells from apoptosis
-  As yet it is an undefined mechanism

