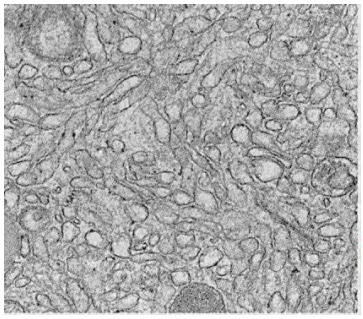
c) Smooth Endoplasmic Reticulum (sER)

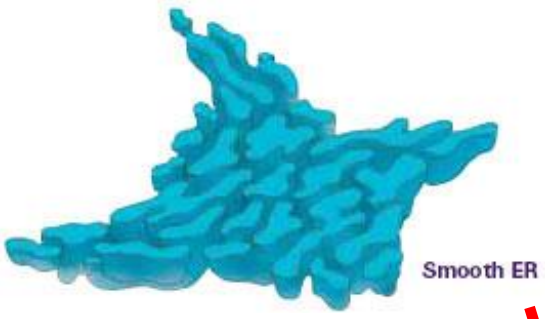
Description

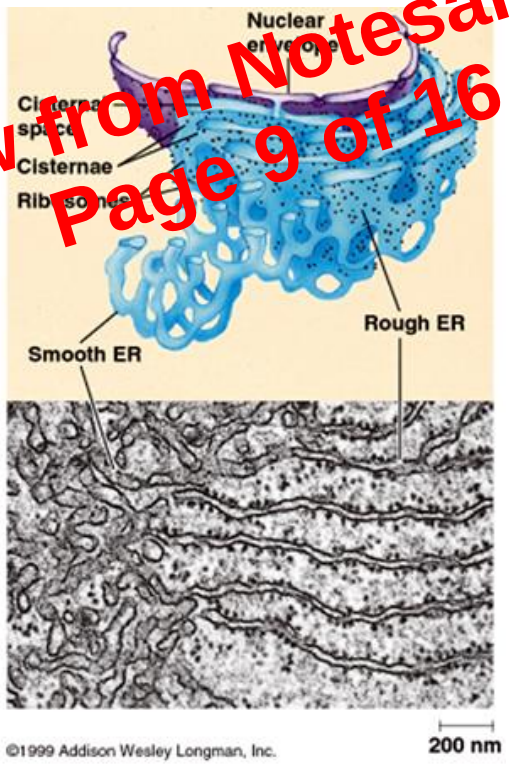
- A network of tubules which lack ribosomes, giving it its smooth appearance

Functions

- Synthesis of lipids
- Metabolism of carbohydrates
- Drug detoxification
- Secretion of Cl^- in the stomach.
- Storage and release of Ca^{2+} especially in the Sarcoplasmic Reticulum of muscles
- Package certain proteins from rough ER in the cisternae for transport.



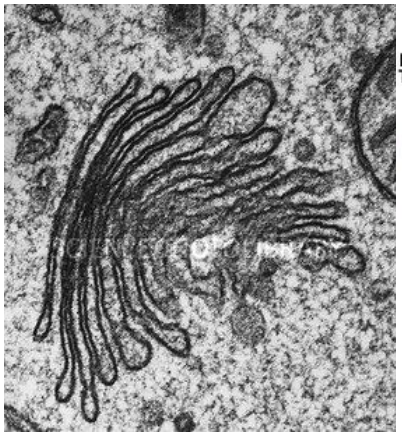




d) Golgi Apparatus (GA)/ Golgi Body

Description

- A stack of flattened, membrane-bound sacs called cisternae
- At the cis face (convex face), new cisternae are constantly formed by the fusion of buds from the Rough ER and Smooth ER.
- At the trans face (concave face), the Golgi Apparatus breaks up to form vesicles called lysosomes.
- Seen as a single large stack in animal cells and in separate stacks in plant cells



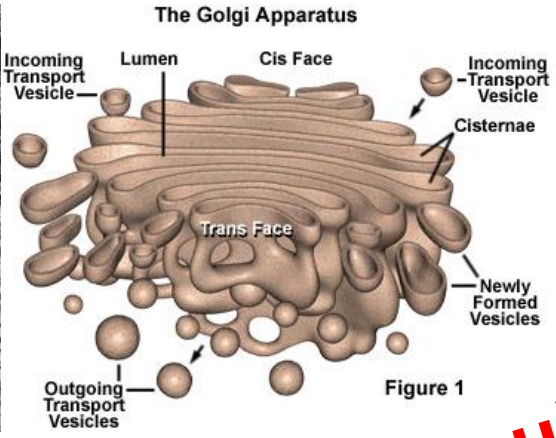


Figure 1

Functions

- Modification and packaging of proteins (main)
  - Cis-face receives transport vesicles from the ER
  - Vesicle fuses with the cis-face membrane and deposits contents into Golgi Cisternae space
  - Golgi vesicles transport materials between parts of GA
  - Secretory vesicles bud off from trans-face to transport substances out of the cell
  - Lysosomes can also bud off to digest incoming substances
  - Golgi vesicles can also bud off to transport substances to other organelles within the cell
  - (Thus cells that are active in any form of secretion have large amount of GA)

- Synthesis of polysaccharides
- Synthesis of glycoproteins and glycolipids
  (Attachment of polysaccharides to proteins and lipids)
- Lipid transport.