

ial role lies in concentrating sec. products & providing packing memb. This process completes in following steps:→

- ① Sec. mat. (ex. protein) synthesized in ER, is transported ~~in~~ to the Golgi zone.
- ② Small vesicles surrounding the Golgi zone accumulate the sec. mat.
- ③ From small ves., sec. mat. are gradually transported to the large condensing vacuoles, wherein they are progressively concentrated by the elimination of water content.
- ④ Conc. sec. mat. are then packed into small Golgi memb. → "Prozymogen Granules".
- ⑤ These granules migrate to apical portion of cell & their memb. become fused & inner face of PM.
- ⑥ After that, sec. products are delivered to exterior by exocytosis.
- ⑦ It is a energy dependent process requiring Ca^{+2} & ATP.

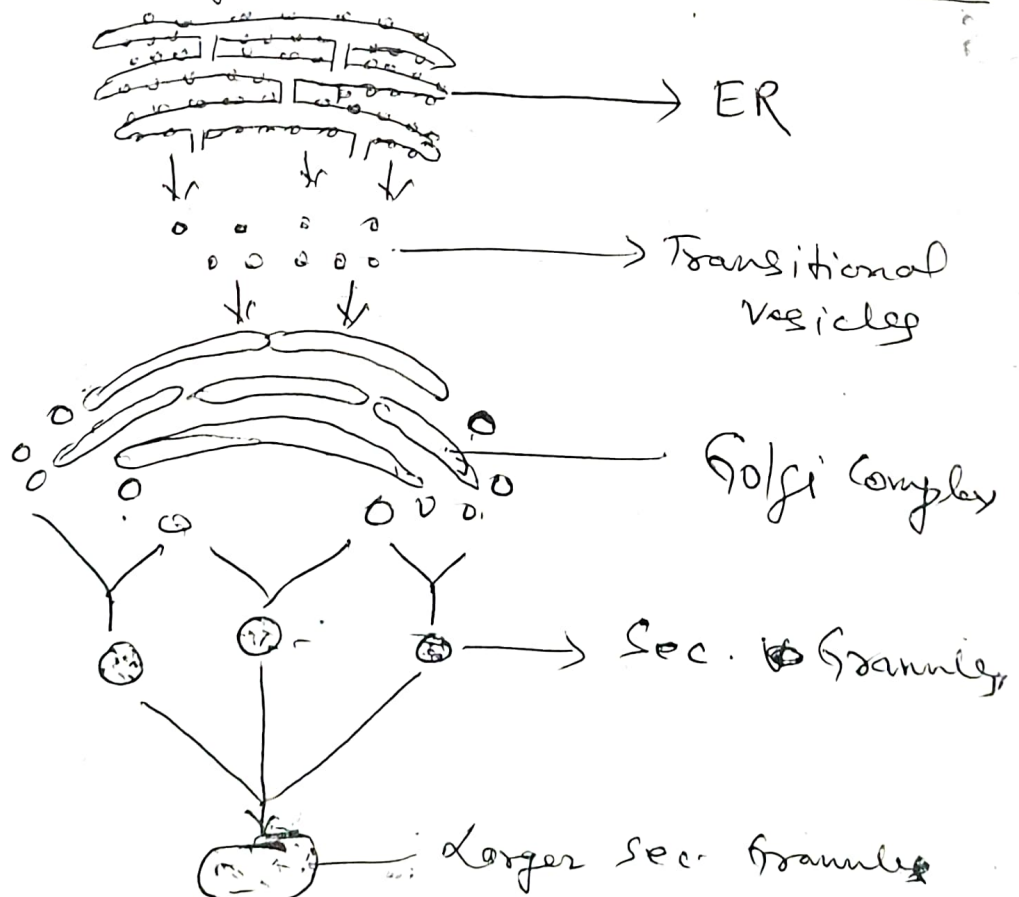


Fig: Showing Secretory Function of G.C

② GLYCOSYLATION OF LIPIDS & PROTEINS:

G.C. can modify lipids & proteins when come to it for condensation. For ex. - Some of the proteins such as immunoglobulin & insulin are terminally glycosylated in the Golgi region.

X [When certain hormones reach the surface of target cells, they are received by some receptor moles + wt on the plasma memb. such moles are proteins or glycoproteins & are called receptors. Insulin receptors + wt on the cell memb. are glycoproteins containing galactose & sialic acid as ts. grs. ~~these ts grs~~ ^{which ts grs} are added in the Golgi region before the receptors move to the cell surface. This is an ex. where we can see that the Golgi region provides both the insoluble moiety of hormones & receptors thereof on the cell surface.]

③ STORAGE & ABSORPTION OF LIPIDS:

KIRKMAN & SEVERINGHAUS regarded the G.C. as the condensation memb. which concentrate the products produced elsewhere into droplets or granules by losing water. These products could be lipids, yolk, bile compds., enzymes etc.

④ FORMATION OF ACROSOME:

BURGOS & FAWCETT (1955) discovered that it forms the "Acrosome" during "Spermeogenesis".

In spermatids of invertebrates & vertebrates, the cisternae are arranged in a cup shaped pattern & as many as fifteen lamellar units stalked parallelly.

From the periphery of lamellae, small vesicles are pinched off. More & more vesicles are appeared & in some of these vesicles, small granules also appear as "Proacrosomal granules" which lie on the nuc. memb. where it forms the acrosome of the adult indiv.

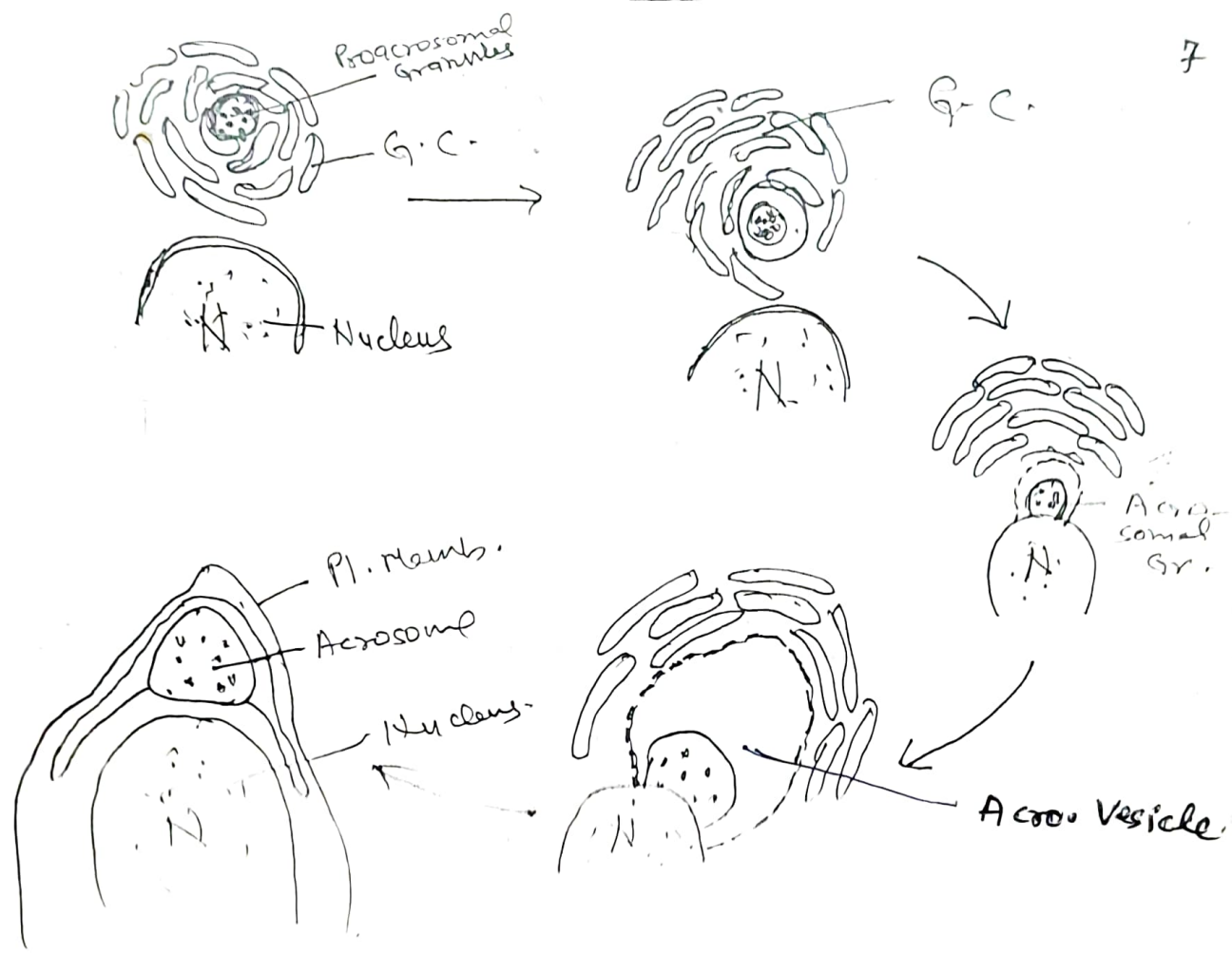


Fig : Showing ~~Def~~ G.C. In Acrosome-Formation during "Spermeogenesis".

(5) ACTIVATION OF MITOCHONDRIA:

G.C. activates the mitochondria to produce ATP to be utilized in the resp. cycle, nervous transmission

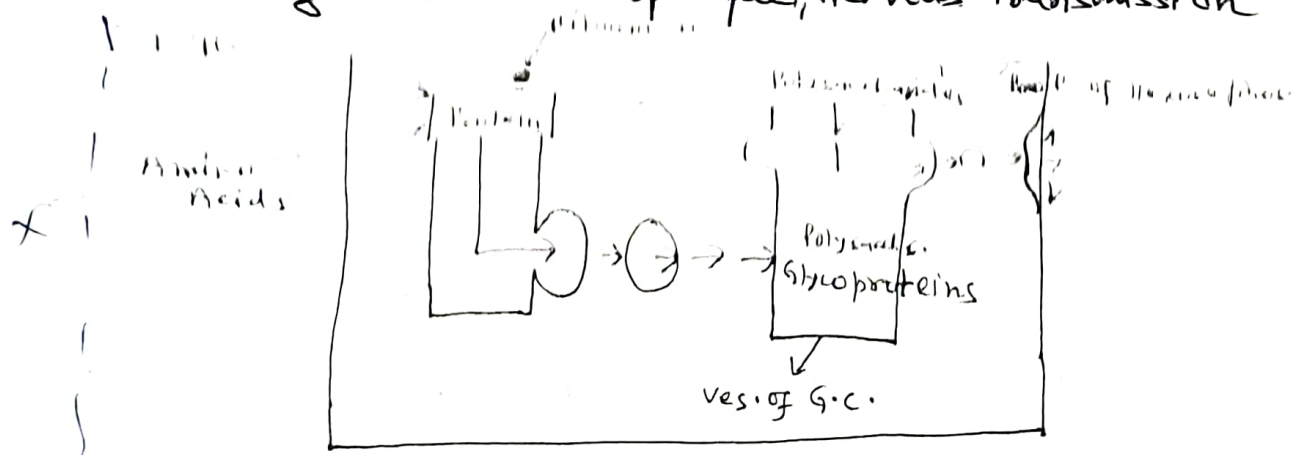


Fig: Summary of role of G.C. in the cell.

• synthesis of proteins & nucleic acids.

⑥ LYSOSOME - FORMATION:

It has been found that certain enzymes are formed by G.C. & are enclosed in ^{their} membranous vesicles. These vesicles are pinched off from the Golgi cisternae into cytoplasm. Such vesicles & enzymes are known as "~~lysomes~~ lysosomes".

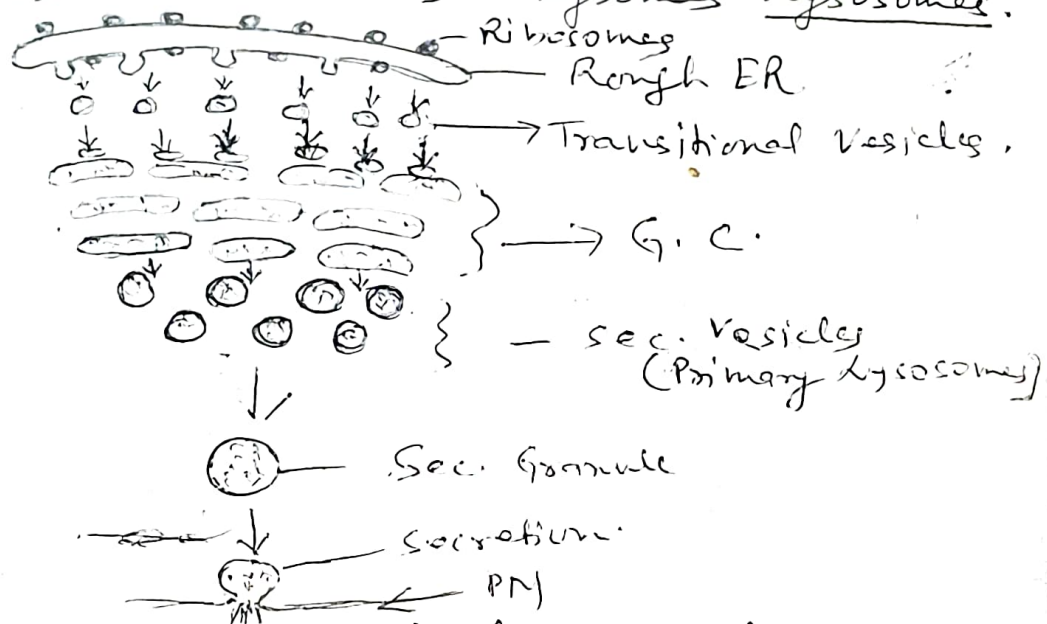


Fig : Role of G.C. in lysosome formation.

CONCLUSION

Thus, the study of G.C. reveals that it is an organelle which has its own individuality in the cell. It synthesises polysacchs. which can be exported directly or coupled & proteins coming from the cavities of E.R.