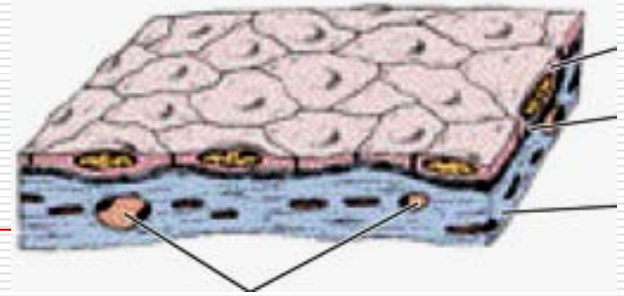

Chapter 3 Epithelial Tissue

Liu Jiamei

epithelium

- Organization :**
 - closely aggregated cells**
 - little intercellular substance**
 - Polarization: polarity**
 - free surface basal surface**
 - Classification:**
 - covering epithelium; glandular epithelium**
 - Functions:**
 - protection, absorption, secretion, excretion**
-

I .Covering Epithelium

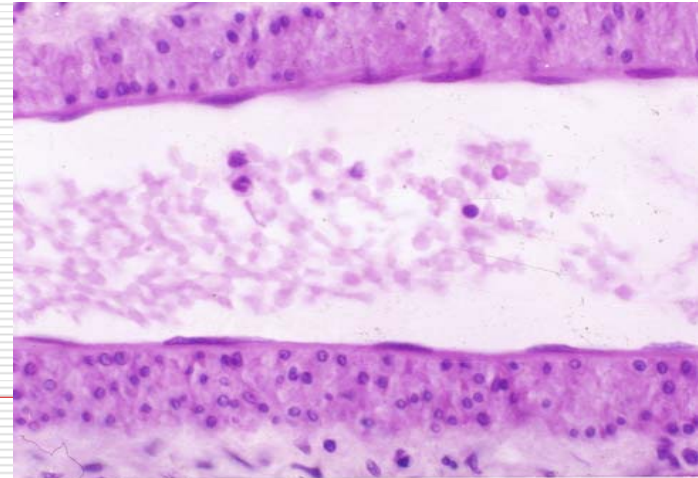
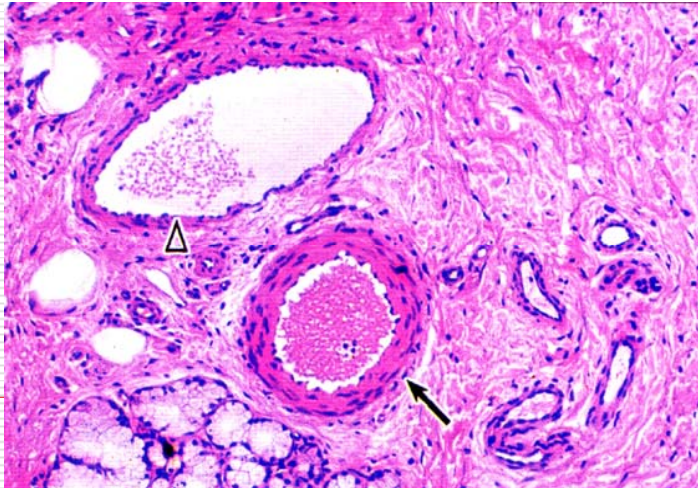


1. The type and structure of covering epi.

1.1 Simple epthelium

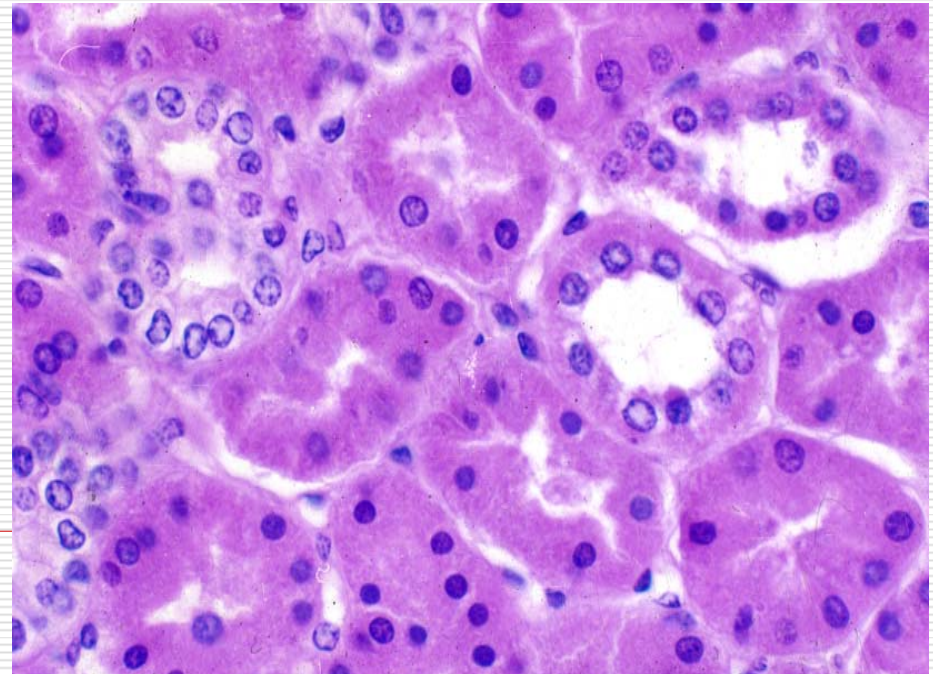
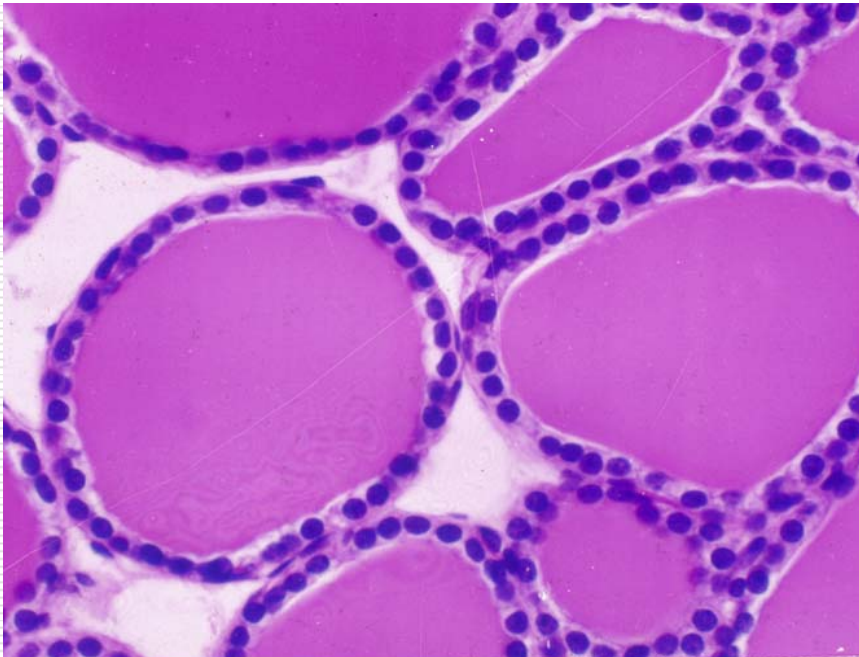
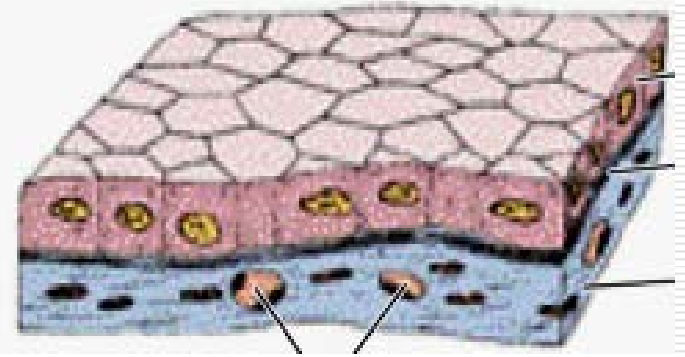
(1) Simple squamous epithelium

Endothelium: Mesothelium:



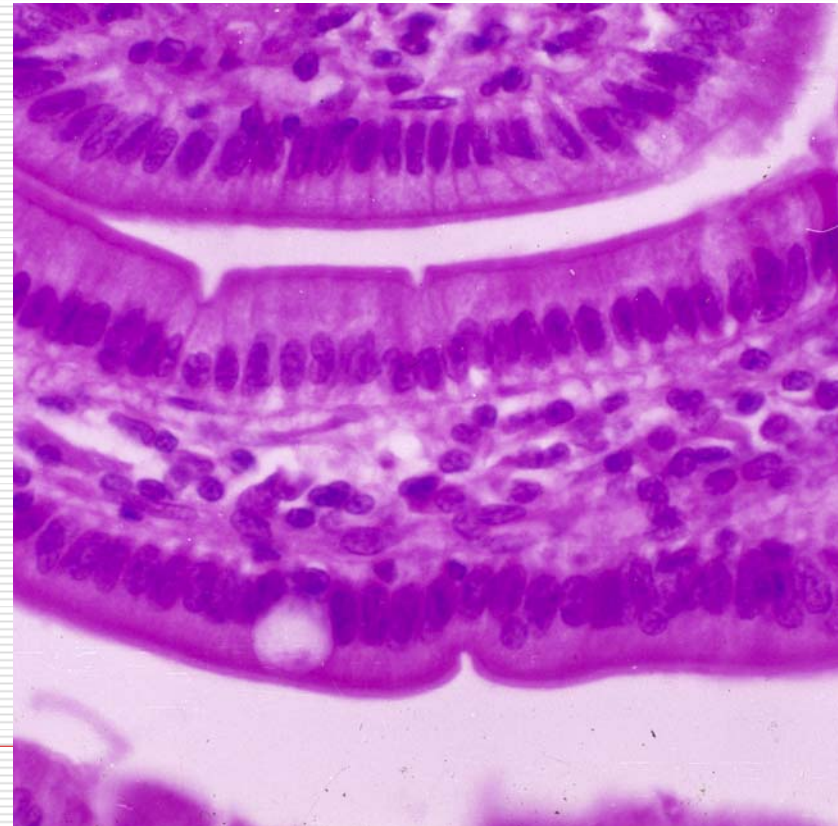
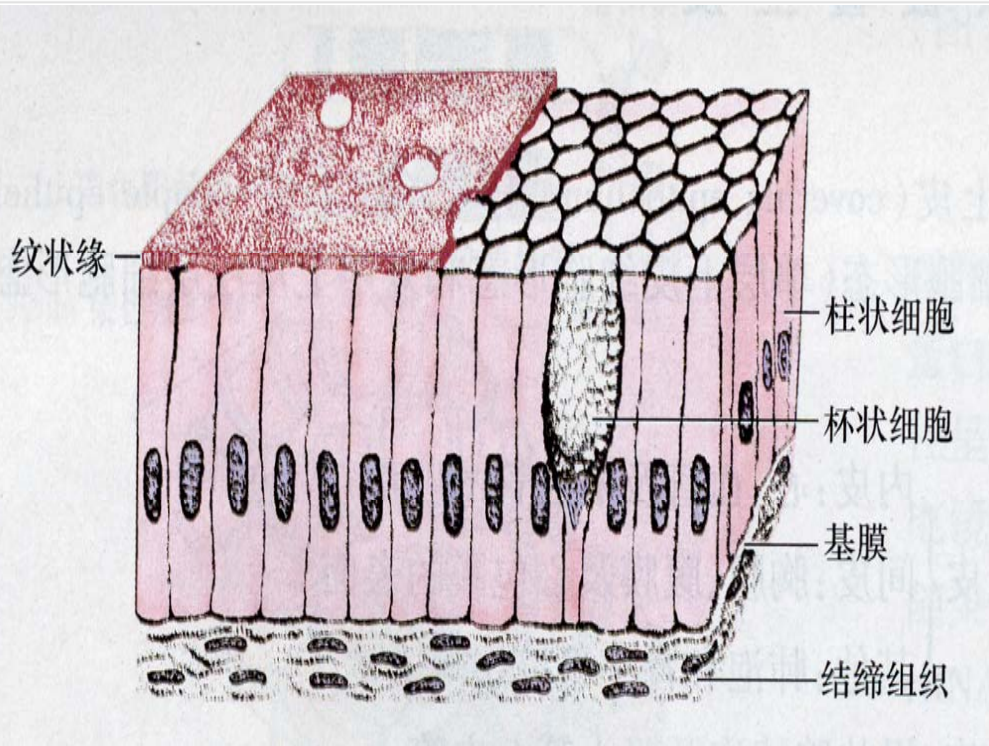
(2) Simple cuboidal epithelium

follicles of thyroid
renal tubule



(3) Simple columnar epithelium:

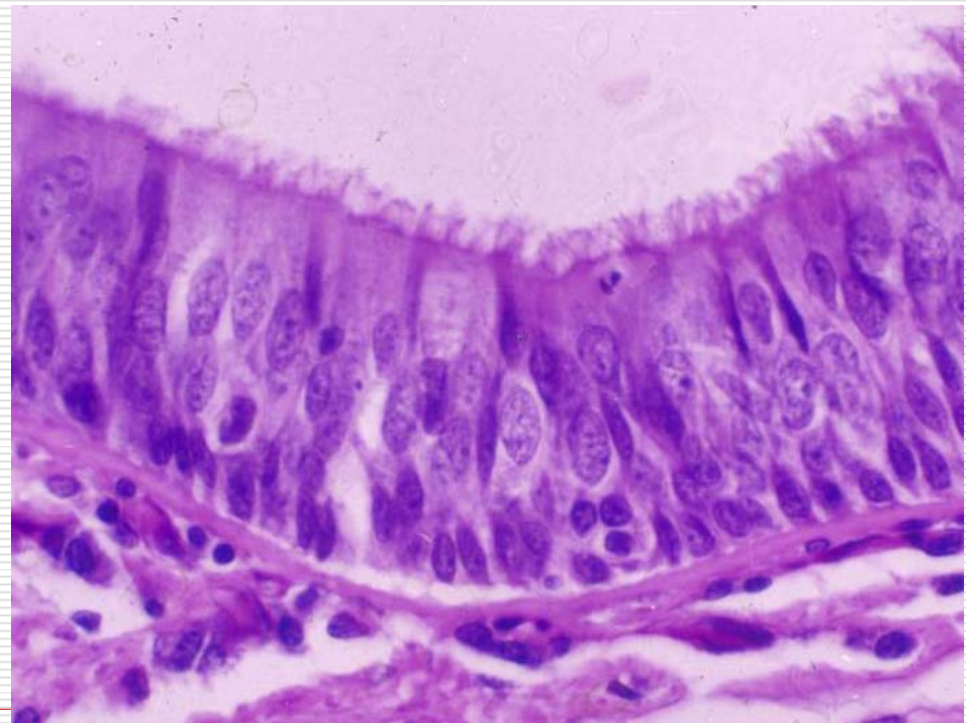
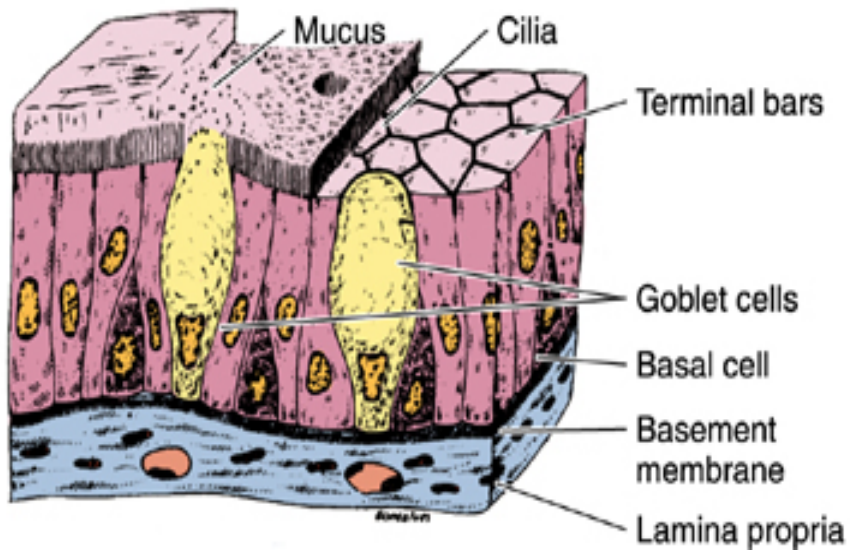
gut and uterus of cavities



(4) pseudostratified:

□ lining of respiratory tract

C Ciliated pseudostratified epithelium

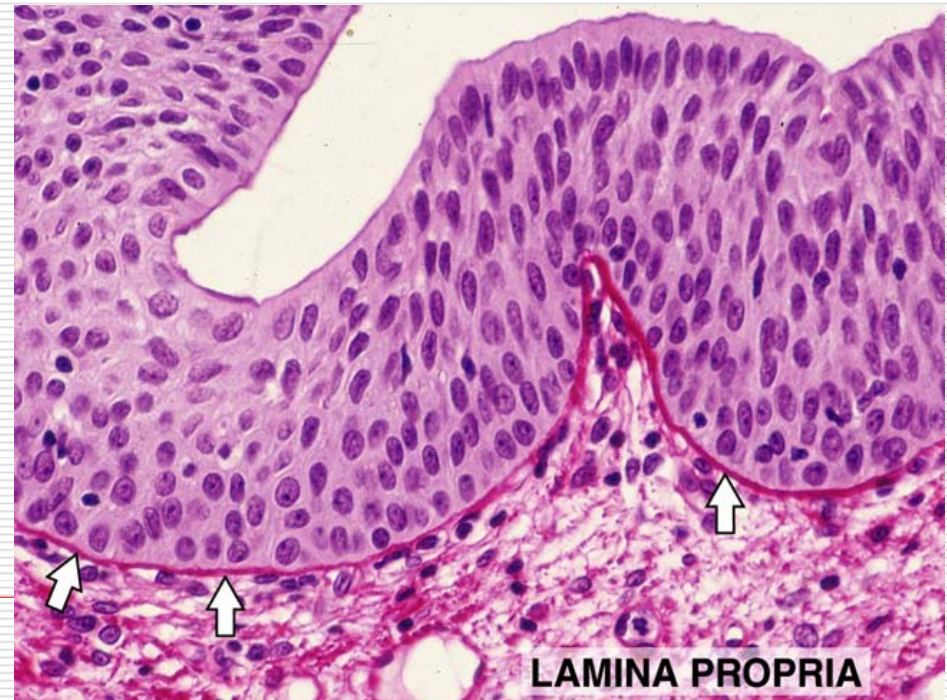
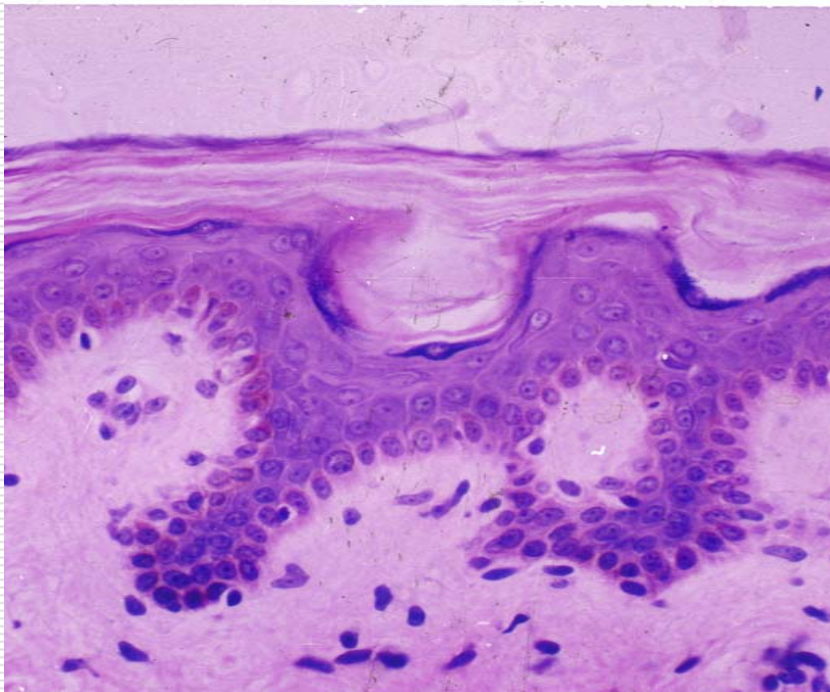


1.2 Stratified epithelium

(1) Stratified squamous epithelium

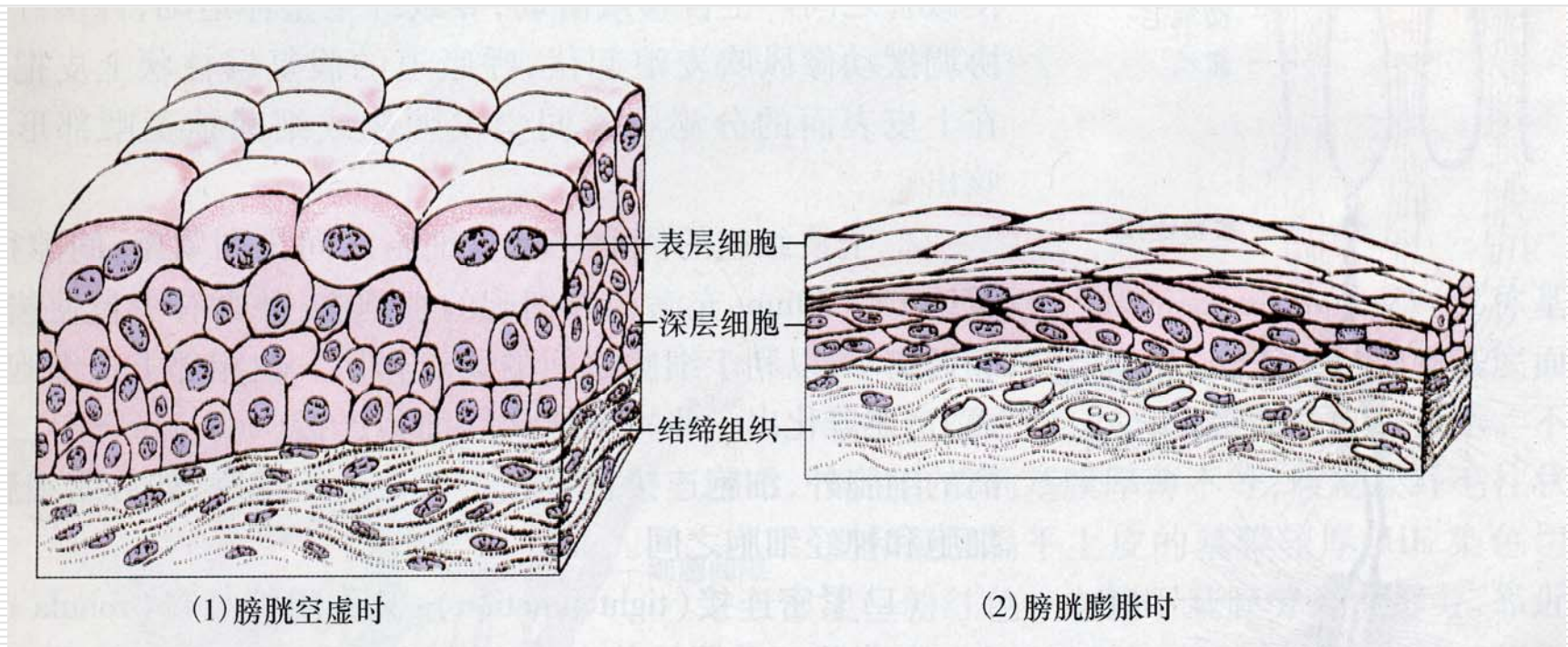
keratinized epidermis

Nonkeratinized : oral cavity, esophagus, vagina



(2) Stratified columnna epithelium: conjunctiva

**(3) Transitional epithelium: renal calyces, ureters
bladder**

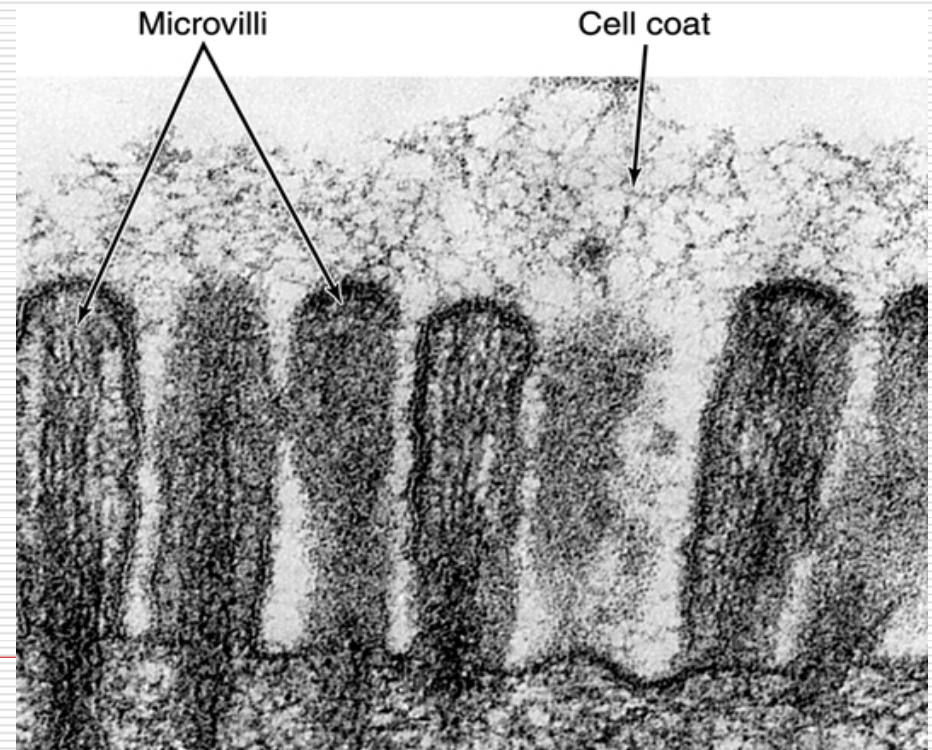
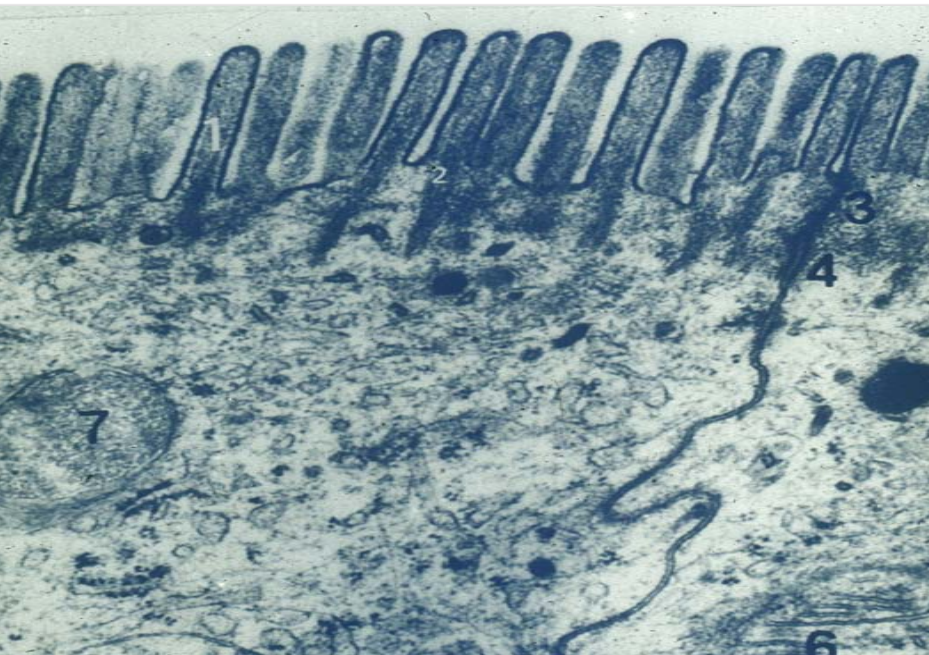


2. Specializations of the cell surface

1. Apical surface

(1) cell coat: glycocalyx

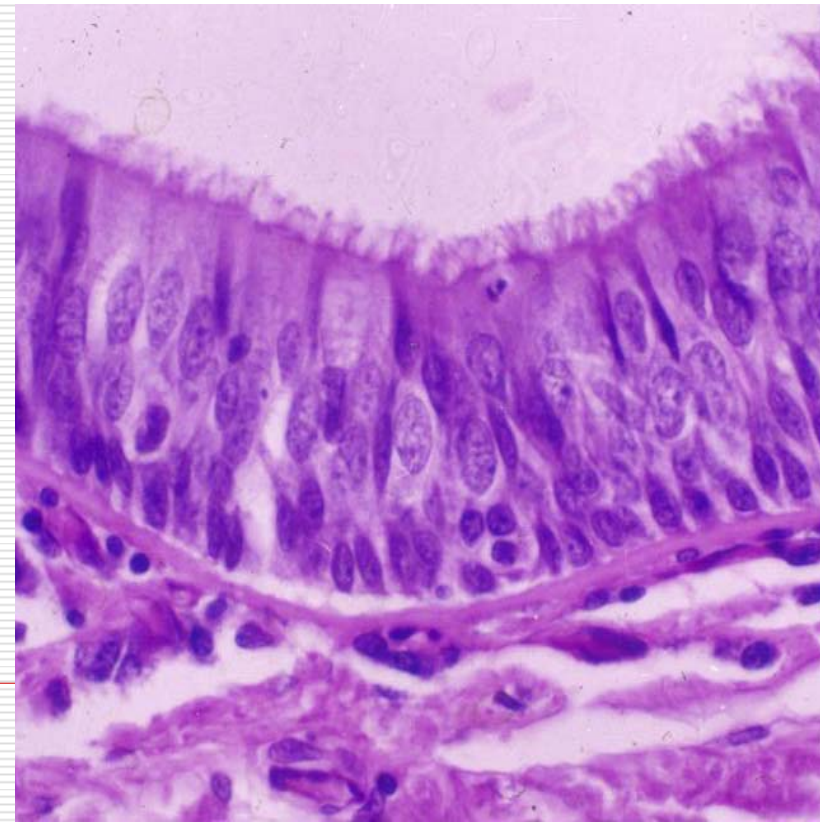
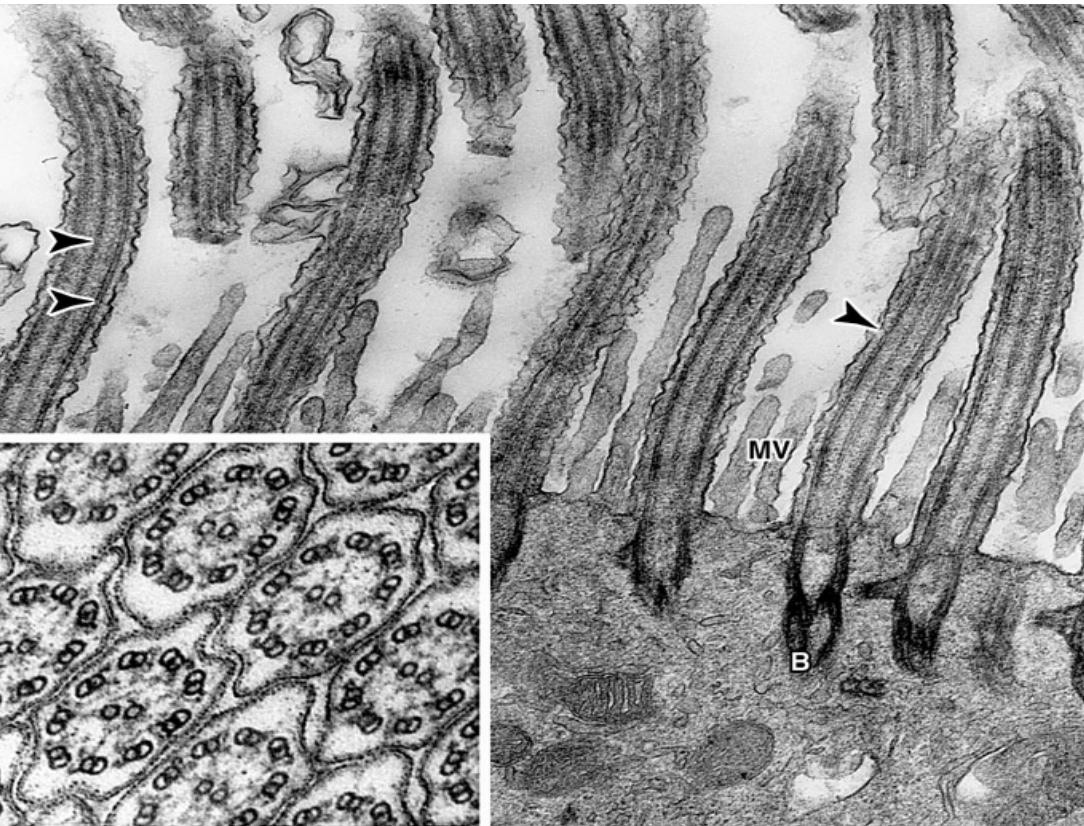
(2) microvillus



(3) cilium

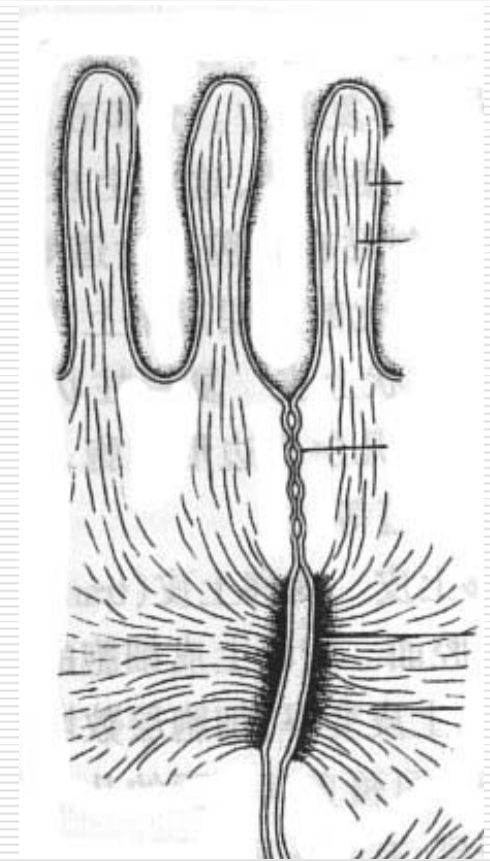
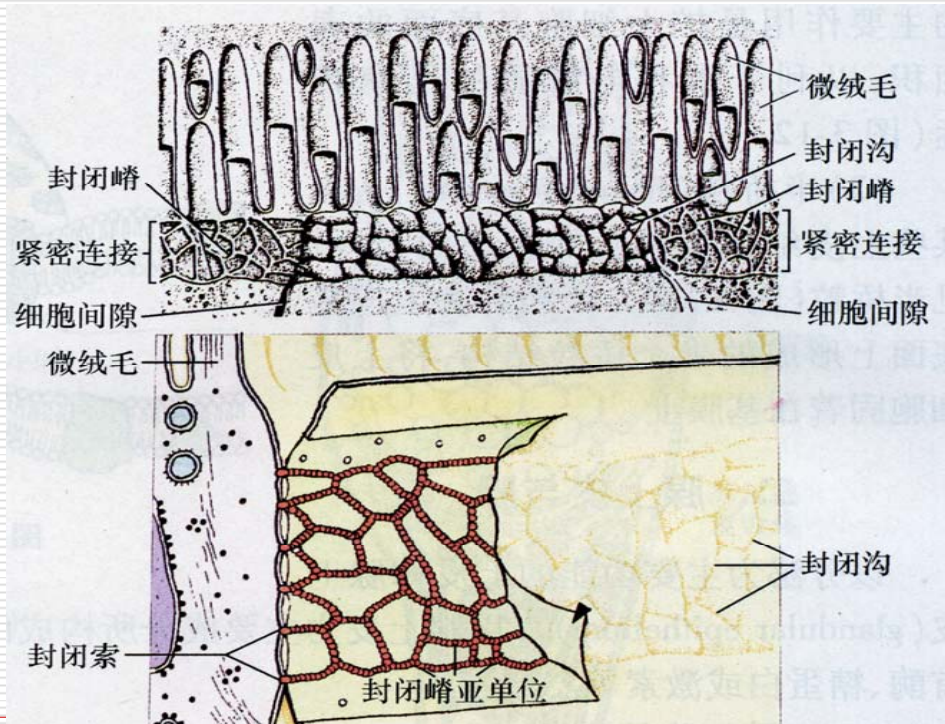
a central pair of microtubules;

9 pairs of peripheral doublet microtubules



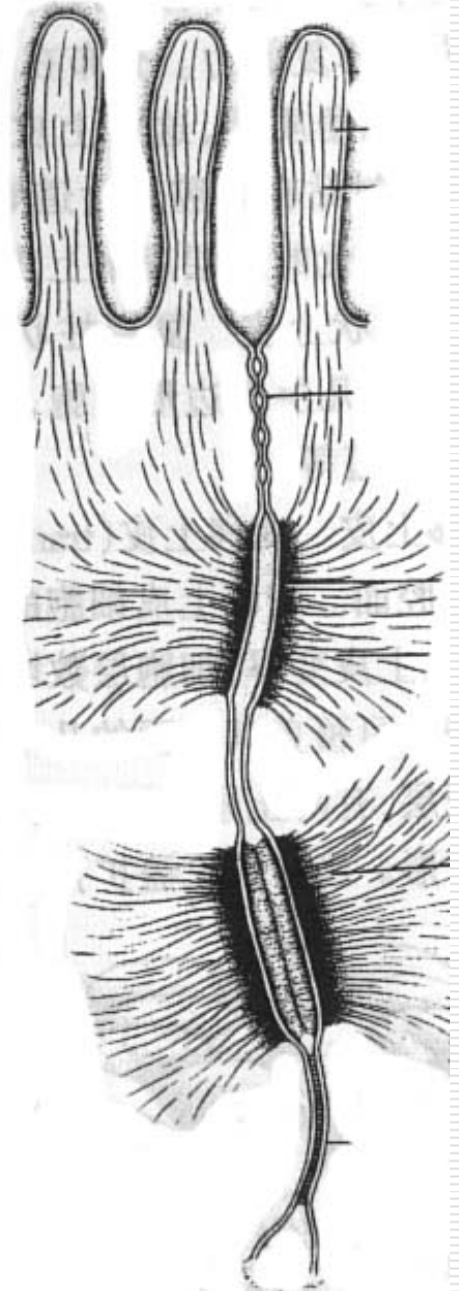
2.2 Specializations of the lateral surface

(1) tight junction:

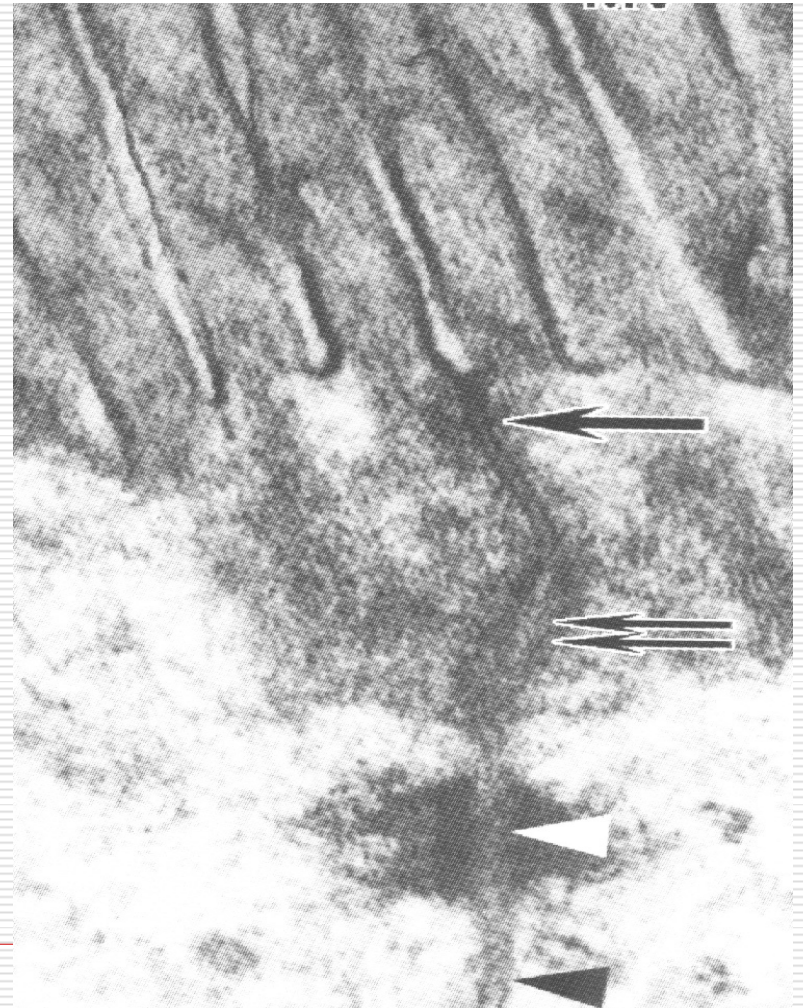
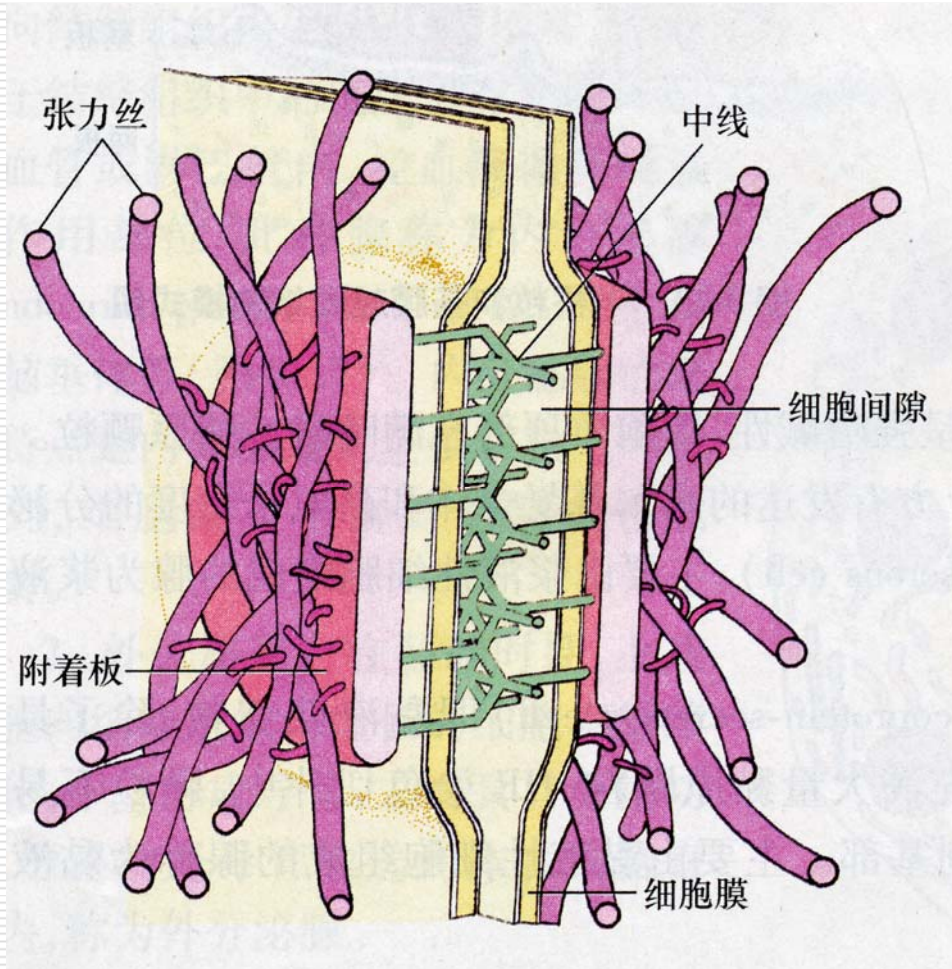


(2) intermediate junction:

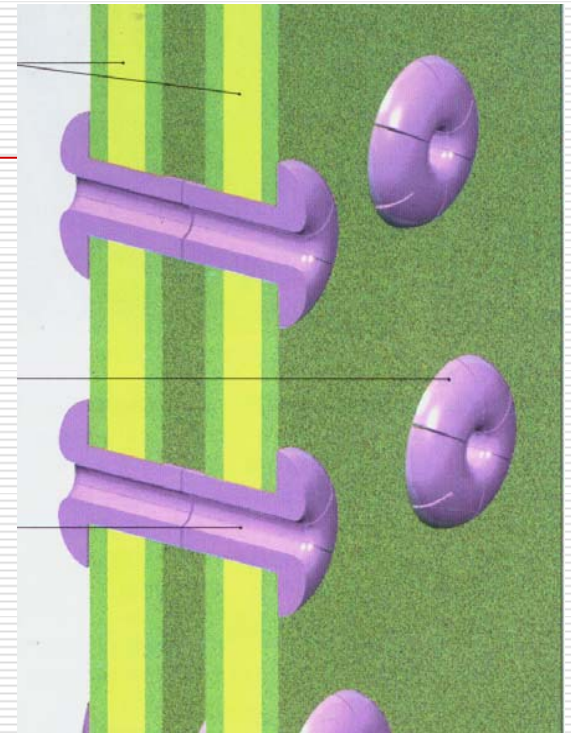
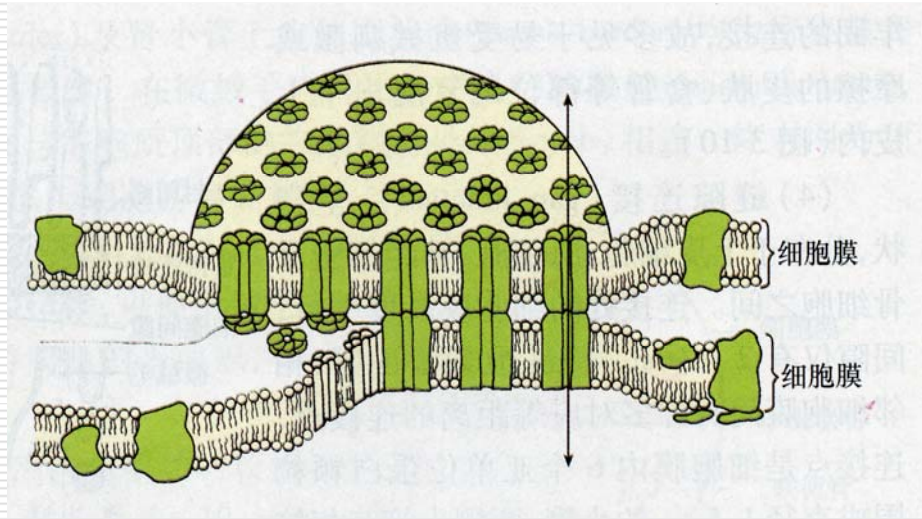
- amorphous electron-dense material within the gap between 2 adjacent epithelial cells**
 - An electron-dense plaque presents on the cytoplasmic face of the cell membrane. The intermediate filaments of the terminal web insert into the dense plaques.**
-
- Function: machinery junction**



(3) desmosome



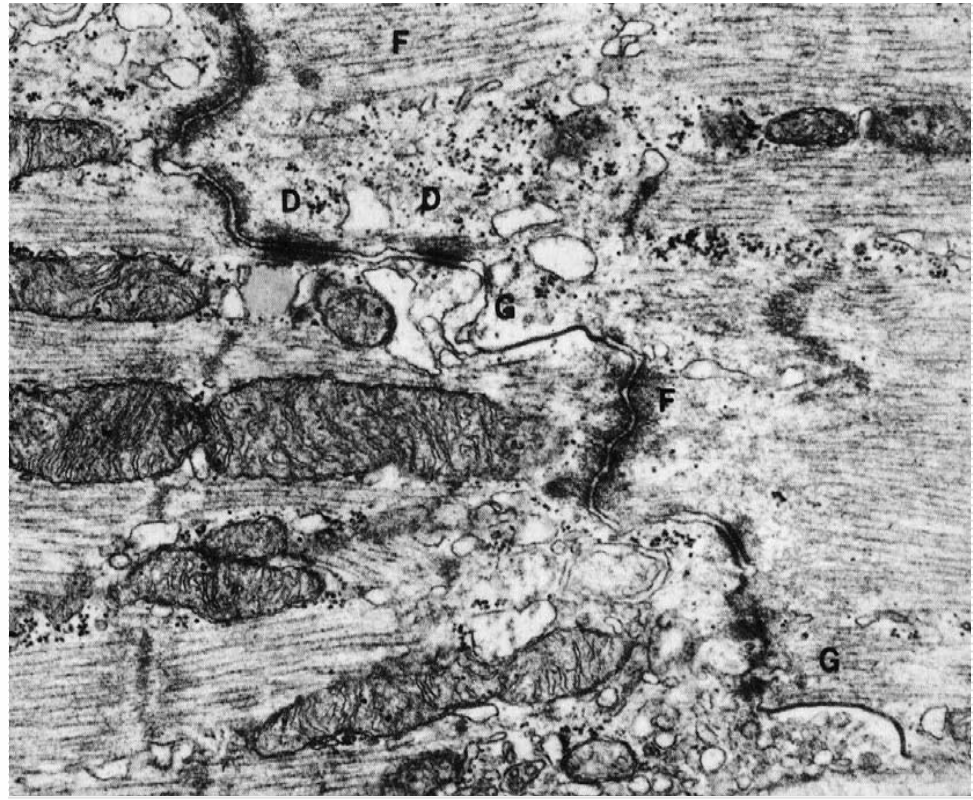
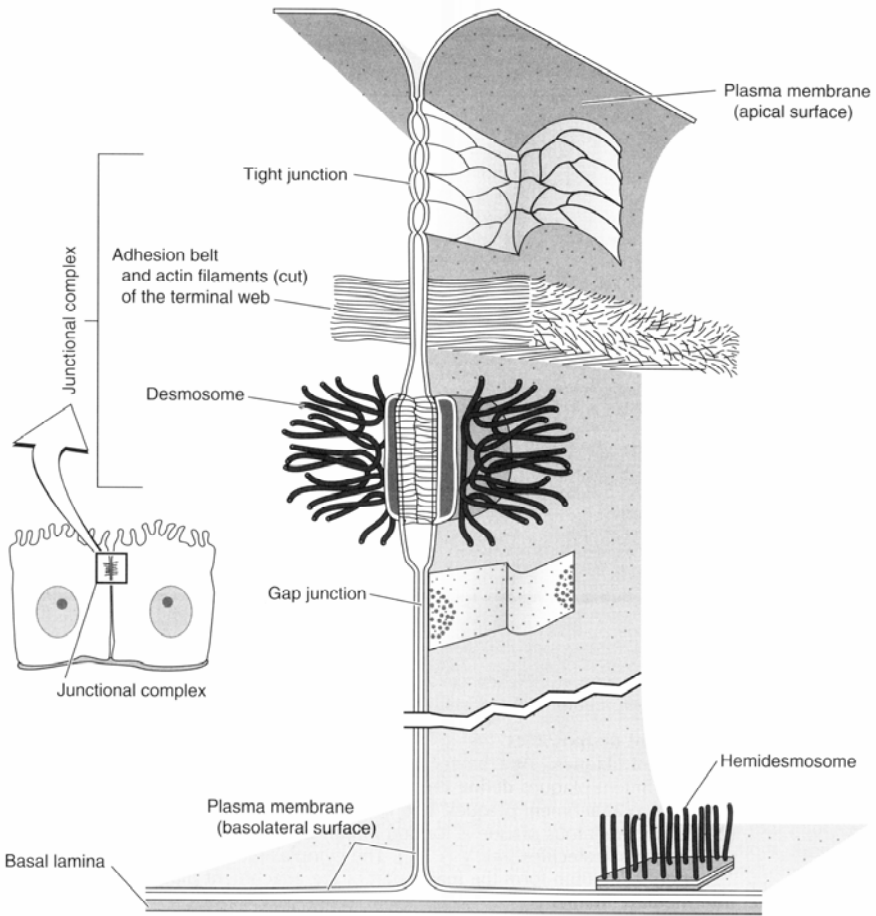
(4) gap junction



Function:

allow selective diffusion of molecules between adjacent cells and facilitate communication between cells directly

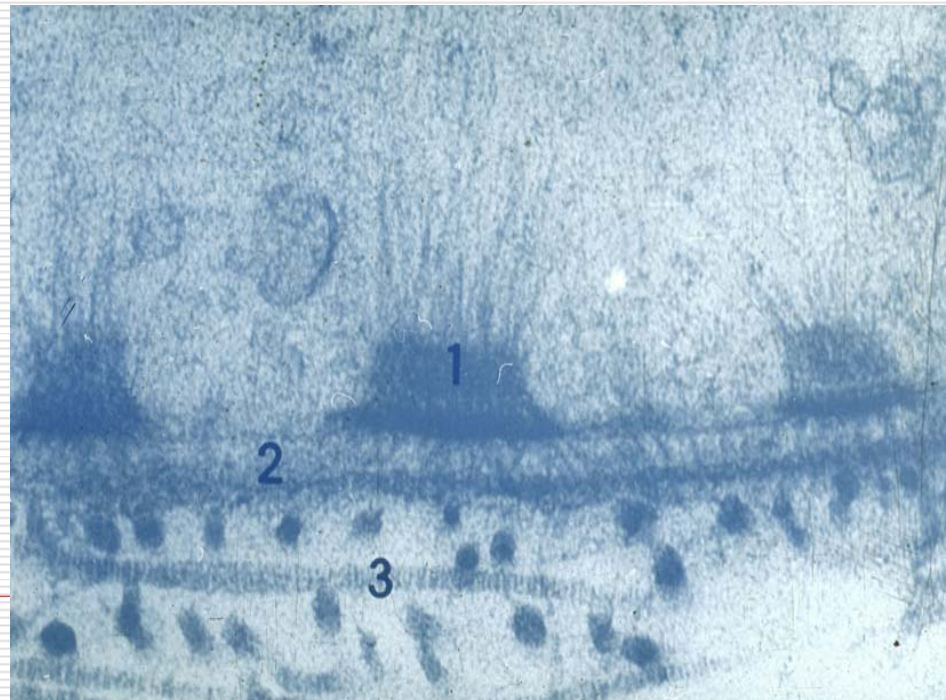
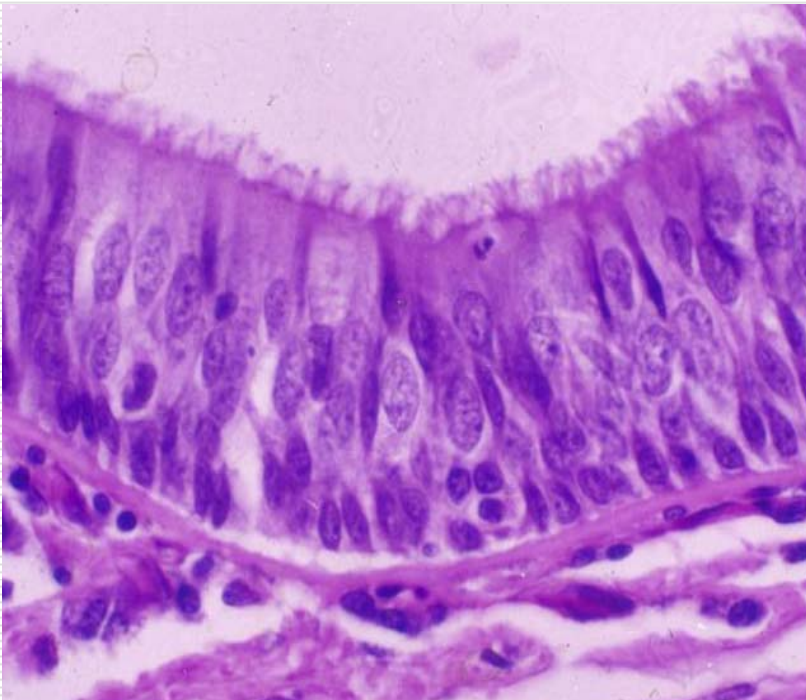
junctional complex



2.3 Specializations of the basal surface

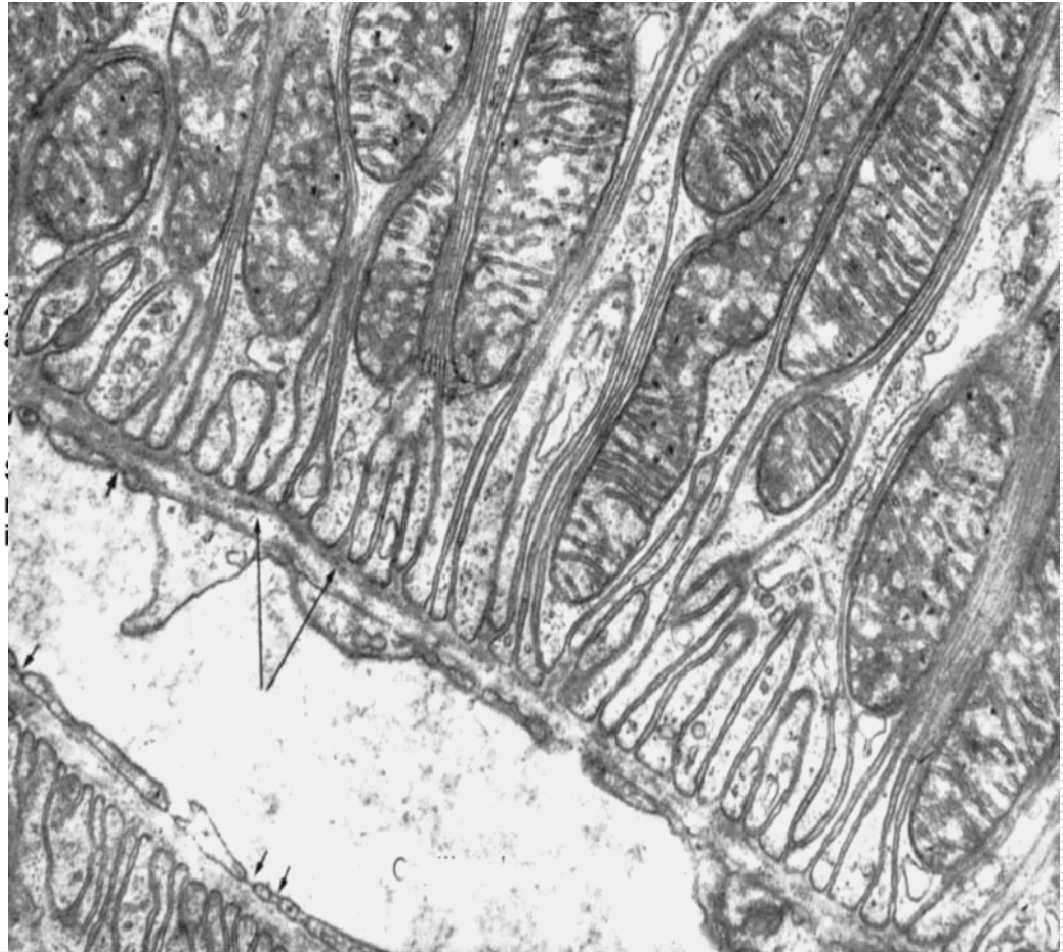
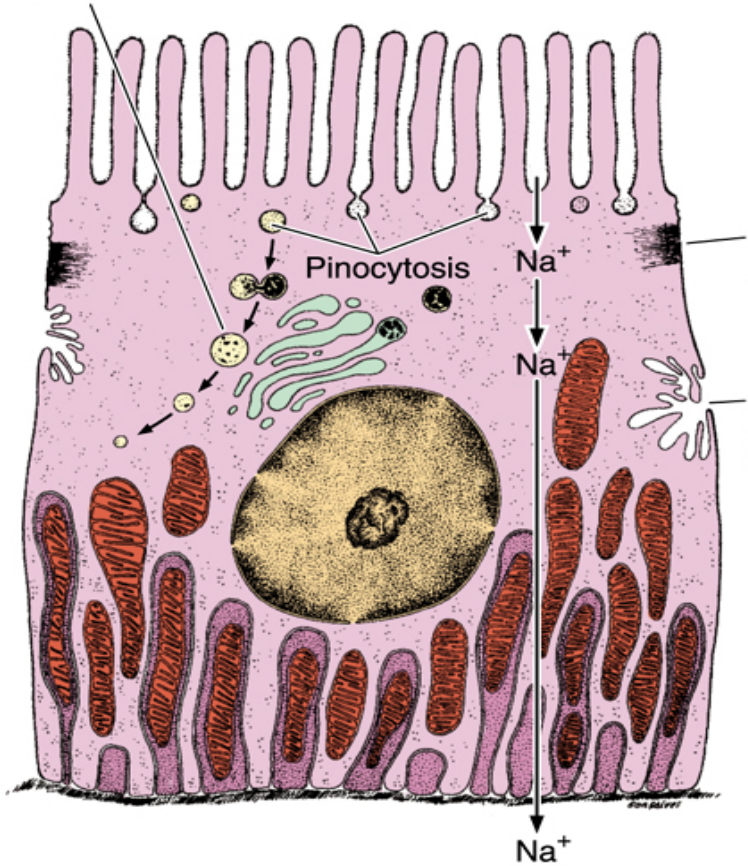
(1) basement membrane

basal lamina reticular lamina

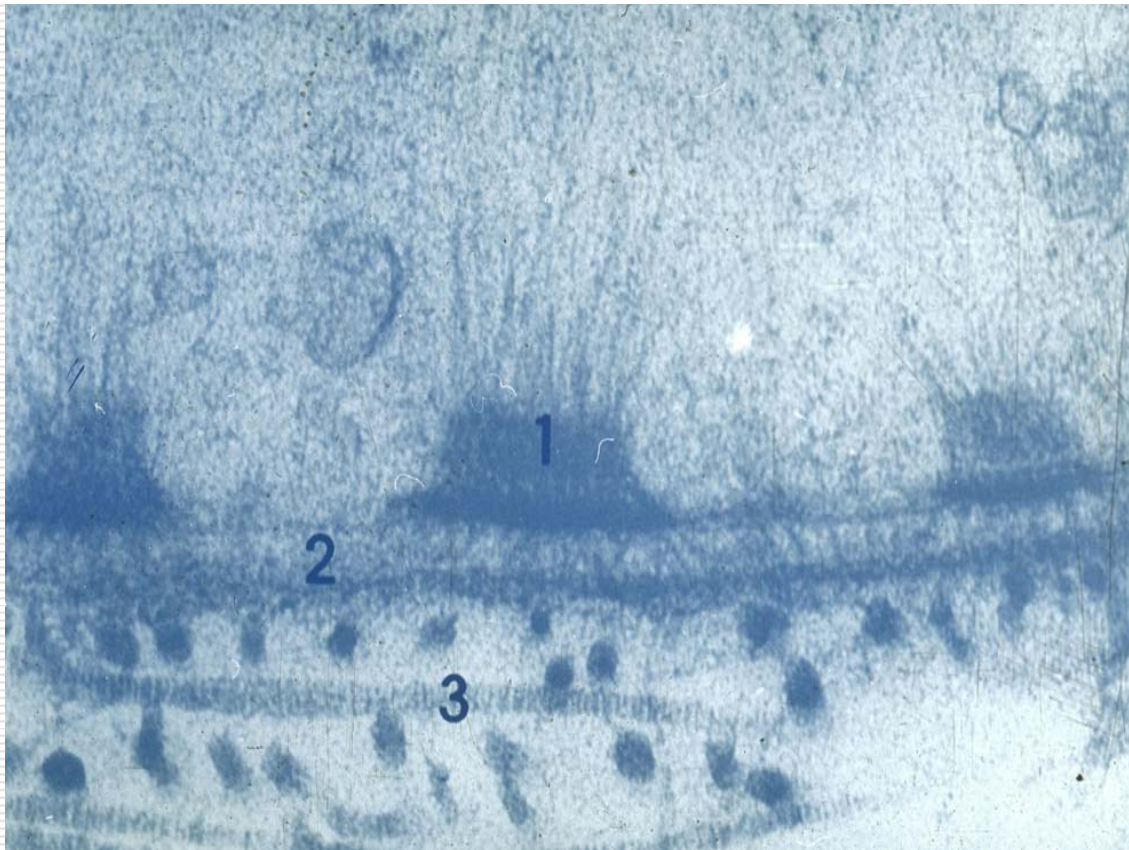


(2) plasma membrane infolding

Protein digestion
by lysosome

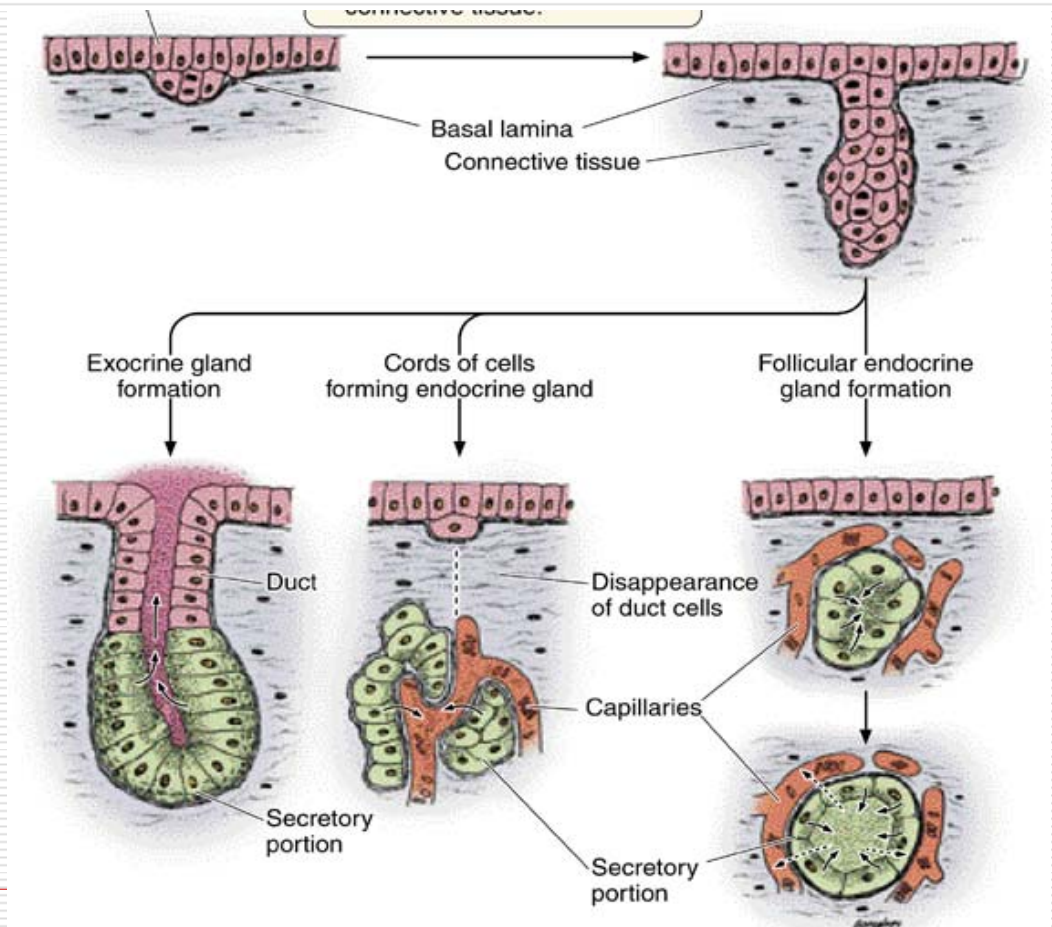


(3) hemidesmosome



II .glandular epithelium and gland

endocrine gland
exocrine gland

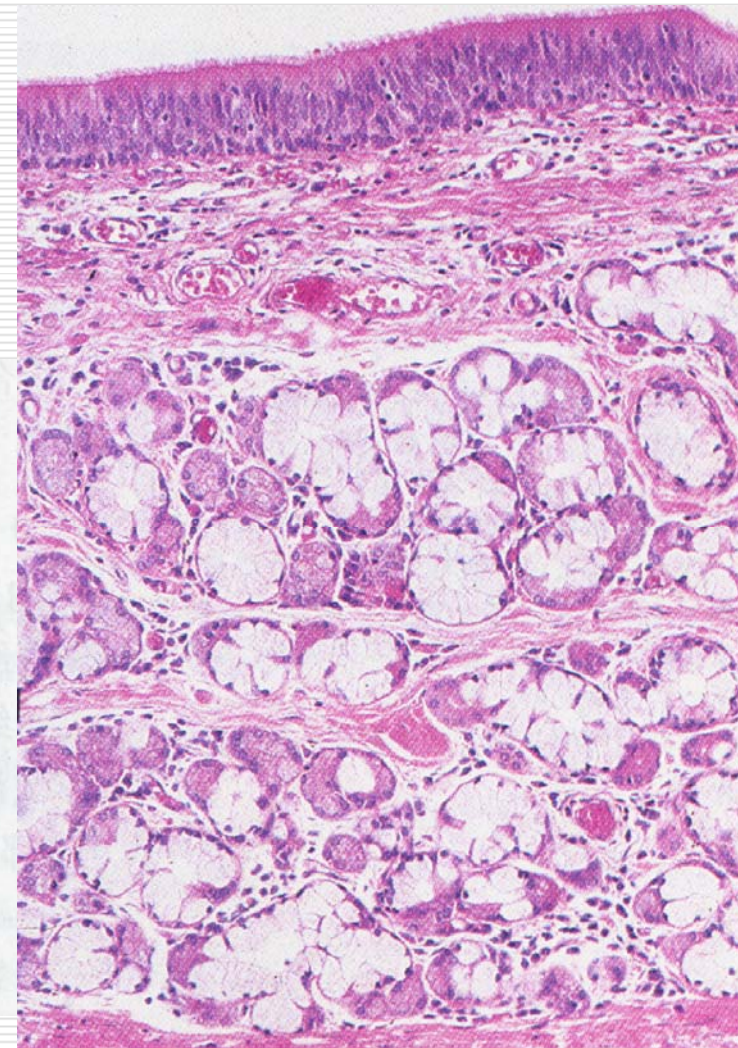
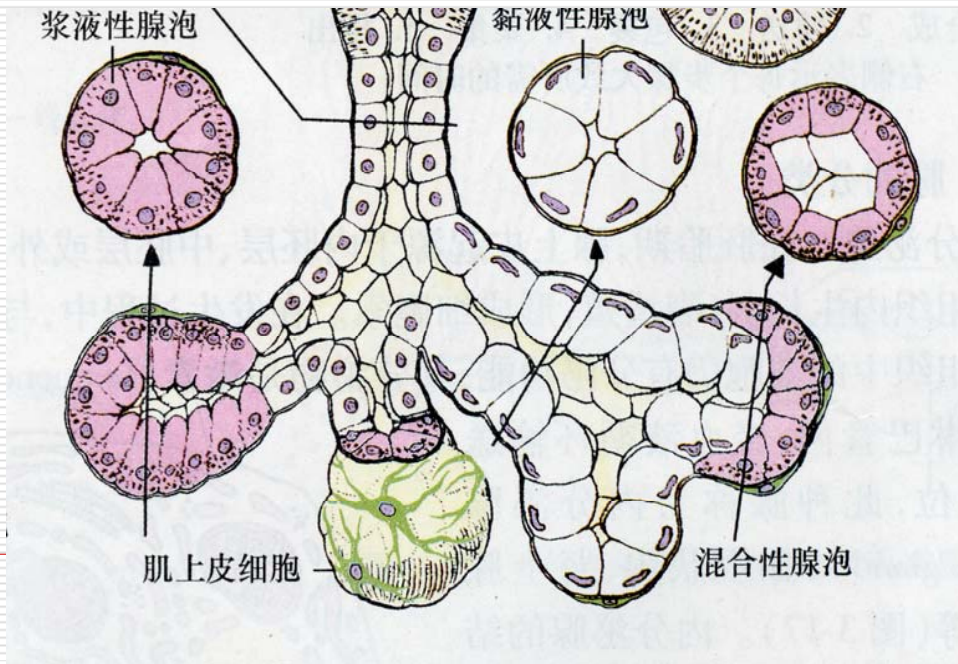


Type of exocrine gland

Serous glands

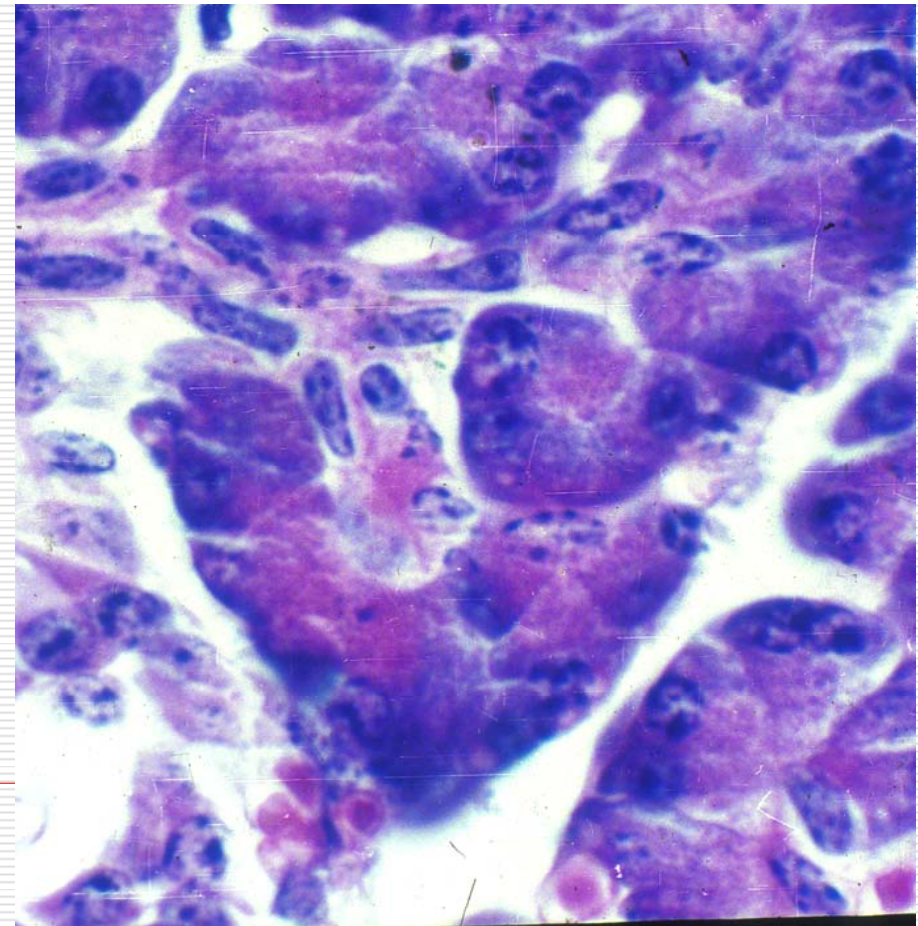
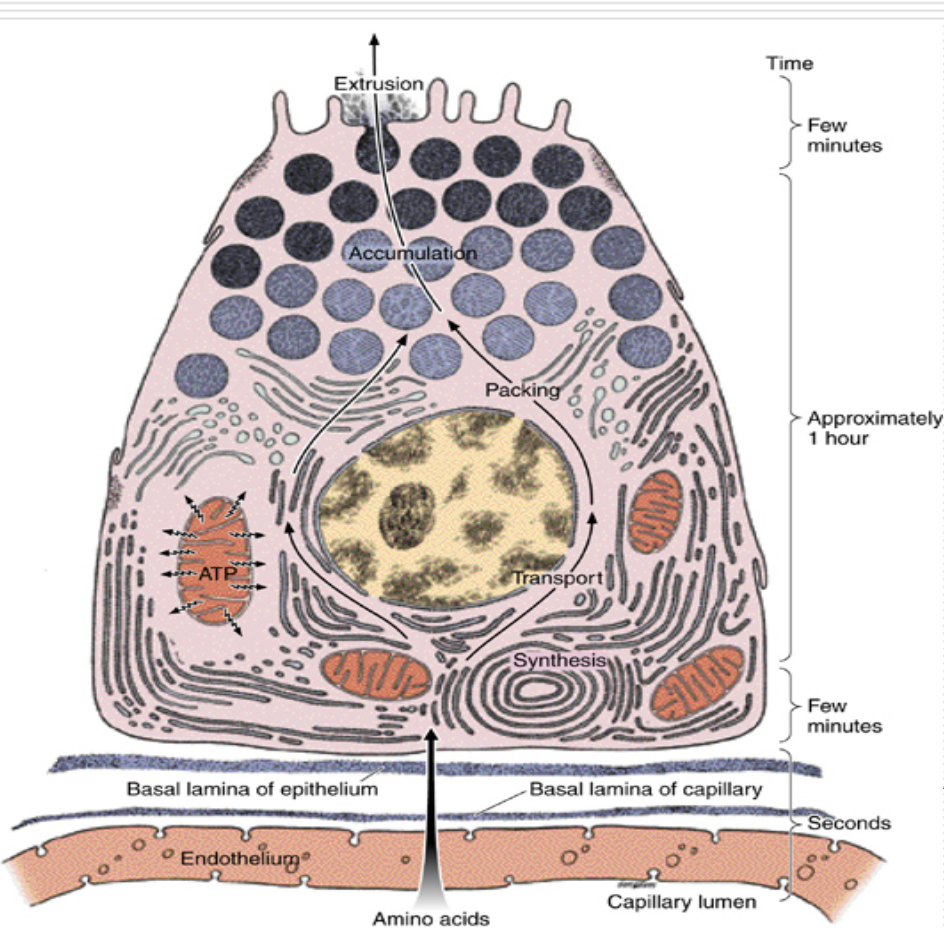
Mucous glands

Mixed glands

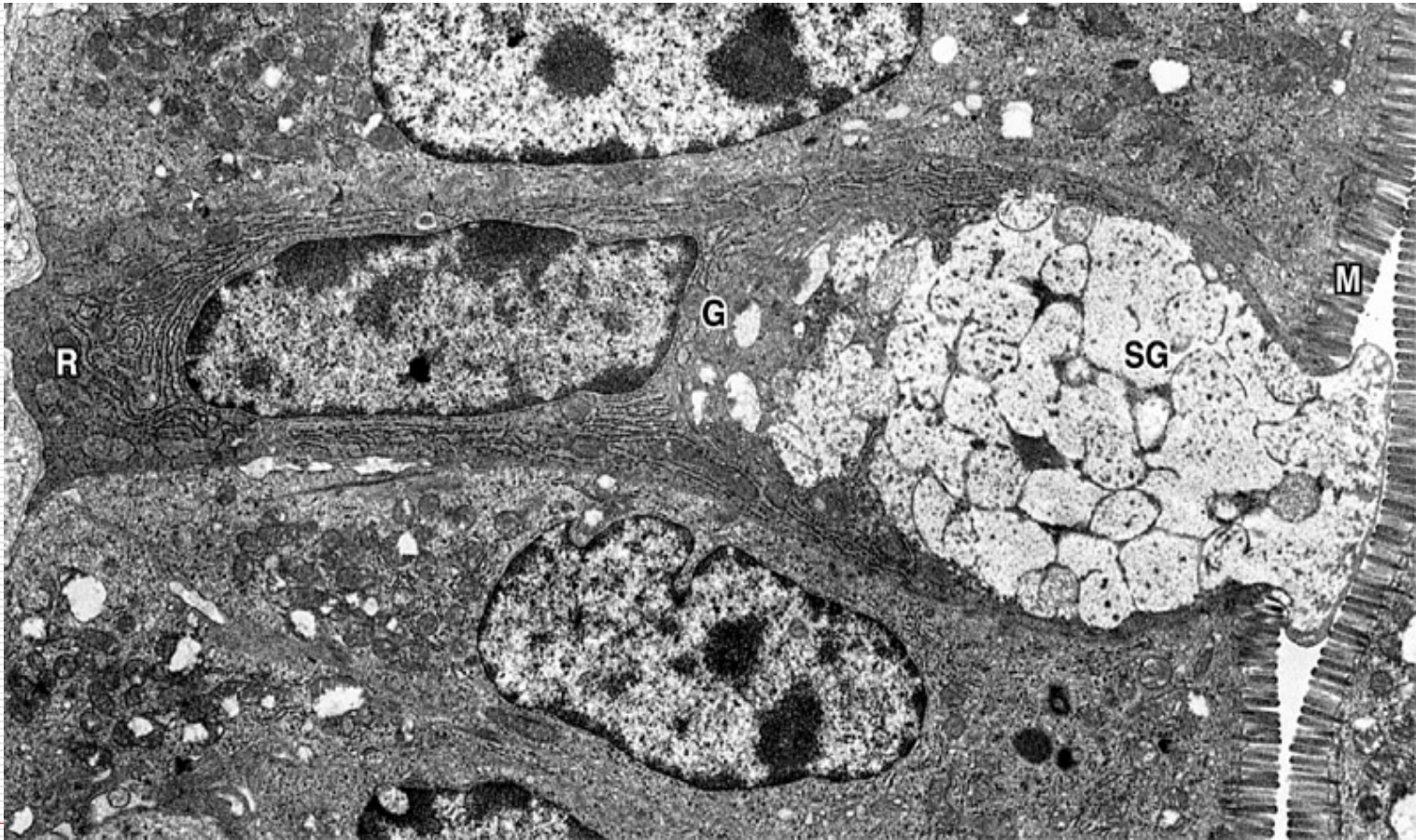


The type of glandular cell

1. protein-secreting cell



2. glycoprotein-secreting cell



3. Steroid-secreting cell

