

### Salivary Glands

These are compound tubule-acinar exocrine glands found in oral cavity that secrete complex fluid known as saliva.

#### CLASSIFICATION OF SALIVARY GLANDS

##### **1. Based on size**

##### **2. Based on type of secretory cells**

##### **Based on size:**

1. Major salivary glands
2. Minor salivary glands

1. Major salivary glands Collection of secretory cells aggregated into large bilaterally paired extra oral glands with extended duct system through which the gland secretions reach the mouth. - Parotid - Submandibular – Sublingual

2. Minor salivary glands ∪ Collection of secretory cells scattered throughout the mucosa & submucosa of the oral cavity with short ducts opening directly onto mucosal surface. - Serous glands of Von Ebner. - Anterior lingual glands. - Lingual, buccal, labial, palatal glands, glossopalatine and retromolar glands

##### **Based on type of secretory cells**

1. Serous : Parotid
2. Mixed (seromucous): Submandibular

3. Mucous: Minor salivary glands

## **Major salivary glands**

### **1.Parotid: Parotid gland: Largest salivary gland**

**\*Pyramidal in shape**

**\*Superficial portion of gland is located subcutaneously, in front of the external ear & deeper portion lies behind ramus of mandible.**

**Associated with facial nerve**

**\* called watery serous saliva rich in amylase, proline-rich proteins**

**Acini serous acini**

**\*Saliva Vol. 25-30%**

**\*Main duct called Stenson's duct**

### **2.Submandibular gland: more mucinous**

**\*Located at Posterior portion of floor of mouth, medial aspect of mandible & wrapping around posterior border of mylohyoid**

**\*Acini : is mixed acini, serous predominate**

**\*Saliva Vol. 60%**

**\*Wharton's duct and opens into the mouth beneath the tongue, lateral to lingual frenum**

### **3.Sublingual: viscous saliva**

**\*Smallest major salivary gland**

**\*Located at anterior part of floor of the mouth, just between mucosa & mylohyoid muscle**

**\*mixed acini, mucous predominate**

**\*Saliva Vol. 5%**

**\*ducts of Rivinus; duct of Bartholin**

**Minor Salivary gland: No. between 600 and 1000.**

**\*Exist as aggregates of secretory tissue present in submucosa throughout most of the oral cavity.**

**\*Not seen in gingiva & anterior part of hard plate**

**\*Rich in mucin, antibacterial proteins and secretory immunoglobulin**

**Von Ebners's Lingual serous gland**

**\*Located in tongue and open into the troughs surrounding circumvallate papillae on the dorsum o tongue and at the foliate papillae on the side of tongue.**

**\*Secrete digestive enzymes & proteins that are thought to play role in taste process**

**Functions of saliva**

**1. Protection**

**2. Buffering (phosphate ions and bicarbonate)**

**3. Digestion**

**4. Antimicrobial, lysozyme hydrolyzes cell walls of some bacteria, lactoferrin binds free iron and deprives bacteria of this essential element, IgA agglutinates microorganisms**

**5. Maintenance of tooth integrity, calcium and phosphate ions, ionic exchange with tooth surface**

**6. Tissue repair**

**7. bleeding time of oral tissues shorter than other tissues**

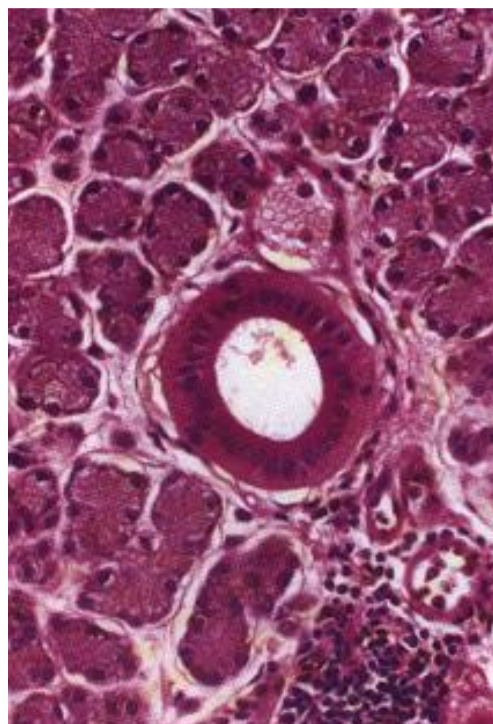
**8. Taste, solubilizing of food substances that can be sensed by receptors**

**Histologically, Salivary glands contain acini and duct system**

**A. Salivary acini cells include**

**1. Serous cell ( characteristic feature)**

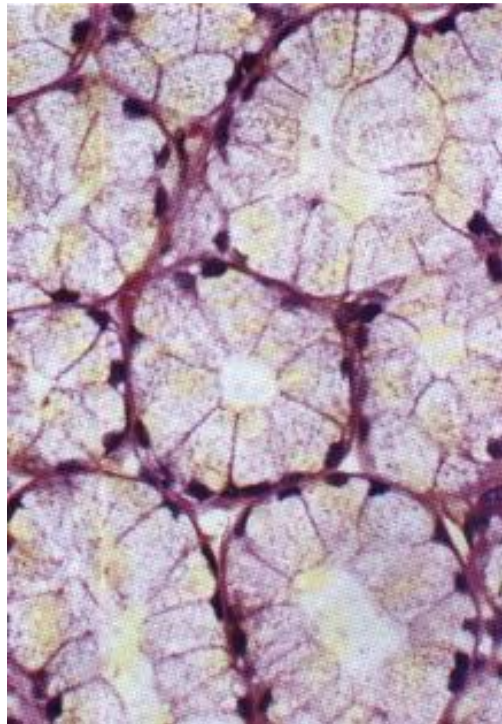
- **Dark stain**
- **High -protein, low carbohydrate**
- **rER, lysosome, mitochondria, secretory granule, zymogen granules (amylase)**
- **Watery consistency**
- **Help in Digestion**



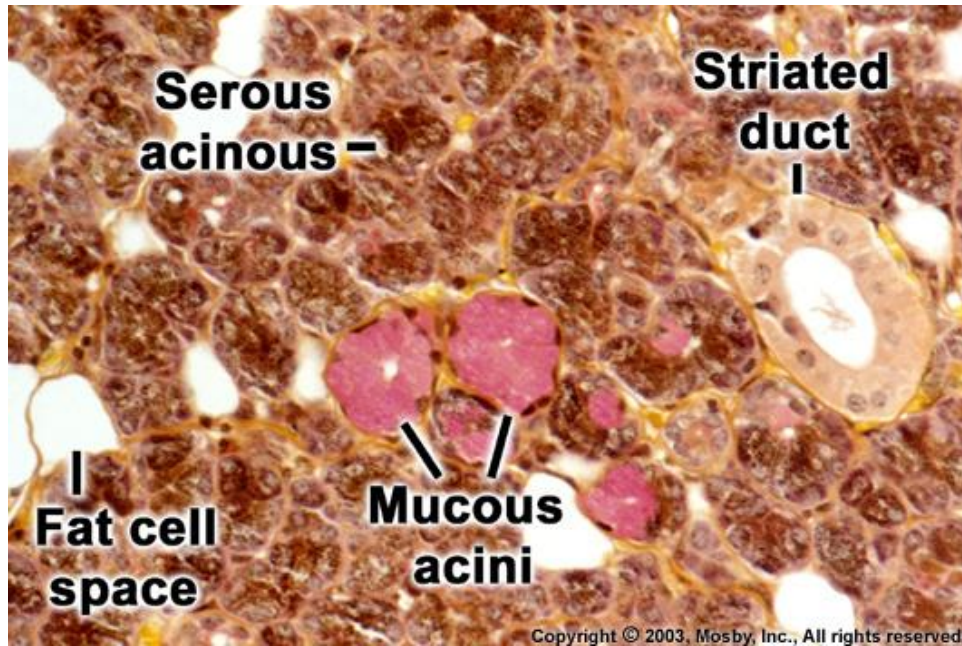
**serous acini (pure serous in parotid gland)**

## **2.Mucous cells**

- **Mucous cell ( characteristic feature)**
- **pale**
- **Low-protein, high carbohydrate**
- **Mucin: glycoprotein, sialic acid**
- **Viscous**
- **Help in Lubrication**



**mucous acini**



mixed acini in submandibular gland

### 3. Myoepithelial cells (basket cell)

- Surrounding the acinic cell and intercalated duct
- Have Long process (Four to eight processes)
- like smooth m. in ultrastructure
- Support secretory cells
- Contract and widen the diameter of the intercalated ducts

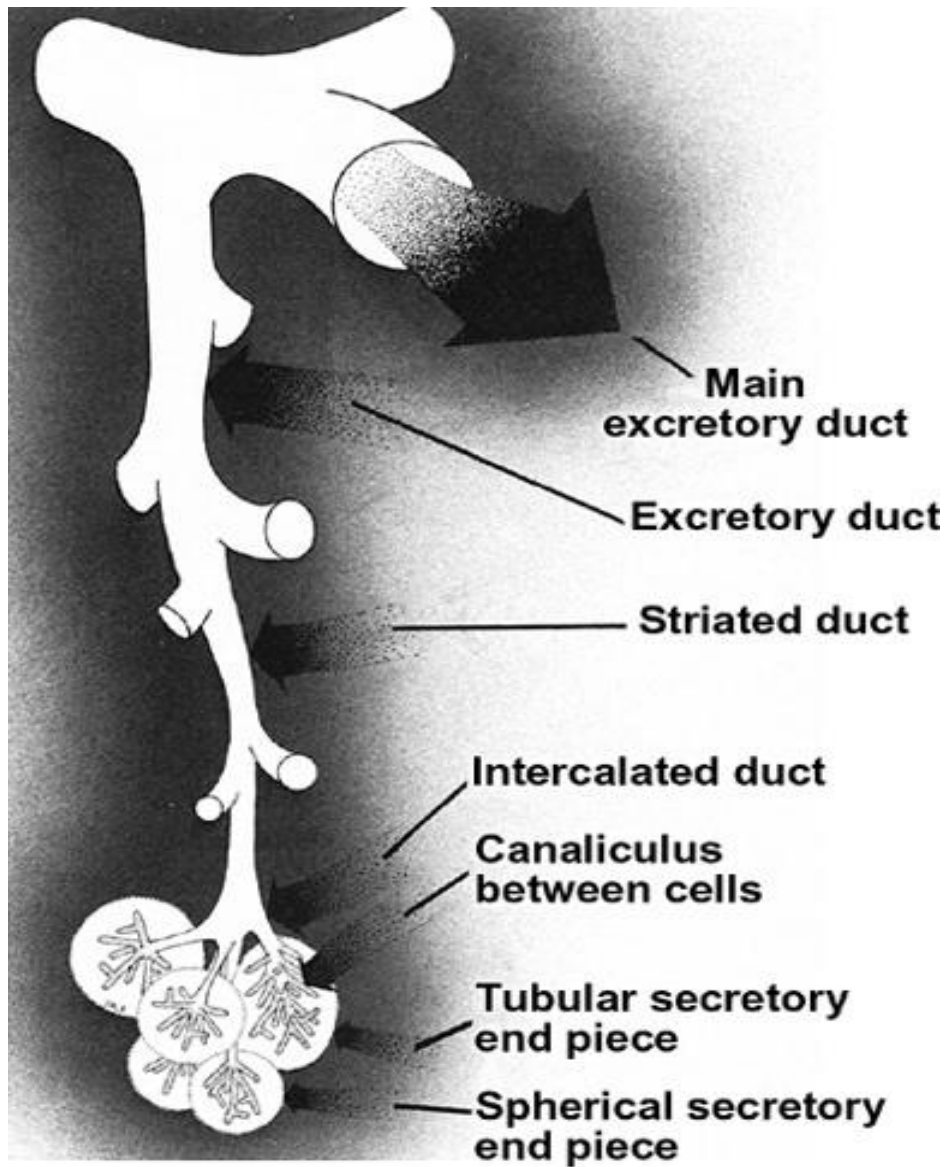
### **B. Duct system include**

- (1) canaliculi,
- (2) intercalated duct (Lined by small cuboidal cells),
- (3) striated duct: Larger duct into which the intercalated ducts empty.

- ❖ Main ductal component in **intra**lobular portion of gland.
- ❖ Lined by tall columnar cells (Centrally located nucleus  
With Prominent striations )
- ❖ Function: -Modify the salivary secretion-Changes from isotonic to hypotonic. -Na<sup>+</sup> reabsorption & K<sup>+</sup> excretion.  
(4)excretory duct: Larger than striated ducts
- ❖ Main excretory ducts leading from the gland to the oral cavity
- ❖ Near the striated ducts they are lined by pseudostratified with columnar cells admix with small basal cells and goblet cells.
- ❖ As they approach oral cavity epithelium changes to a stratified epithelium.
- ❖ Function: Modify the final saliva by altering its electrolyte concentration.

**CONNECTIVE TISSUE: Capsule** –demarcate gland from adjacent structures.

Septa –divide gland into lobes and lobules -Carry the nerves and blood vessels and excretory ducts. Cells of Fibroblast, Macrophages, Dendritic cells, Mast cells, Plasma Cells, Adipose tissue are present with collagen and elastic fibers,



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