

The module: Tissue of the body

Session 4, practical

Duration : 1 hr

Glandular Tissues P1

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Histology Textbooks 'Basic Histology', Junqueira



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Glandular Tissues P1

Learning objectives:

- 1. How majority of glands are derivatives of epithelial tissue**
- 2. Differences between exocrine and endocrine glands**
- 3. Classification of exocrine glands**
- 4. functional histology of:**
 - a. unicellular gland (goblet) in jejunium , colon**
 - b. multicellular gland EX parotid gland ,
submandibular glands**
- 5. Location and function of myoepithelial cells**

Gland: Single cell or group of cells, derived from epithelia, secrete substances into ducts, onto a surface, or into the blood.

- **Glandular Epithelium:** cells derived from epithelium and specialized for secretion.

All glands are composed of epithelium.

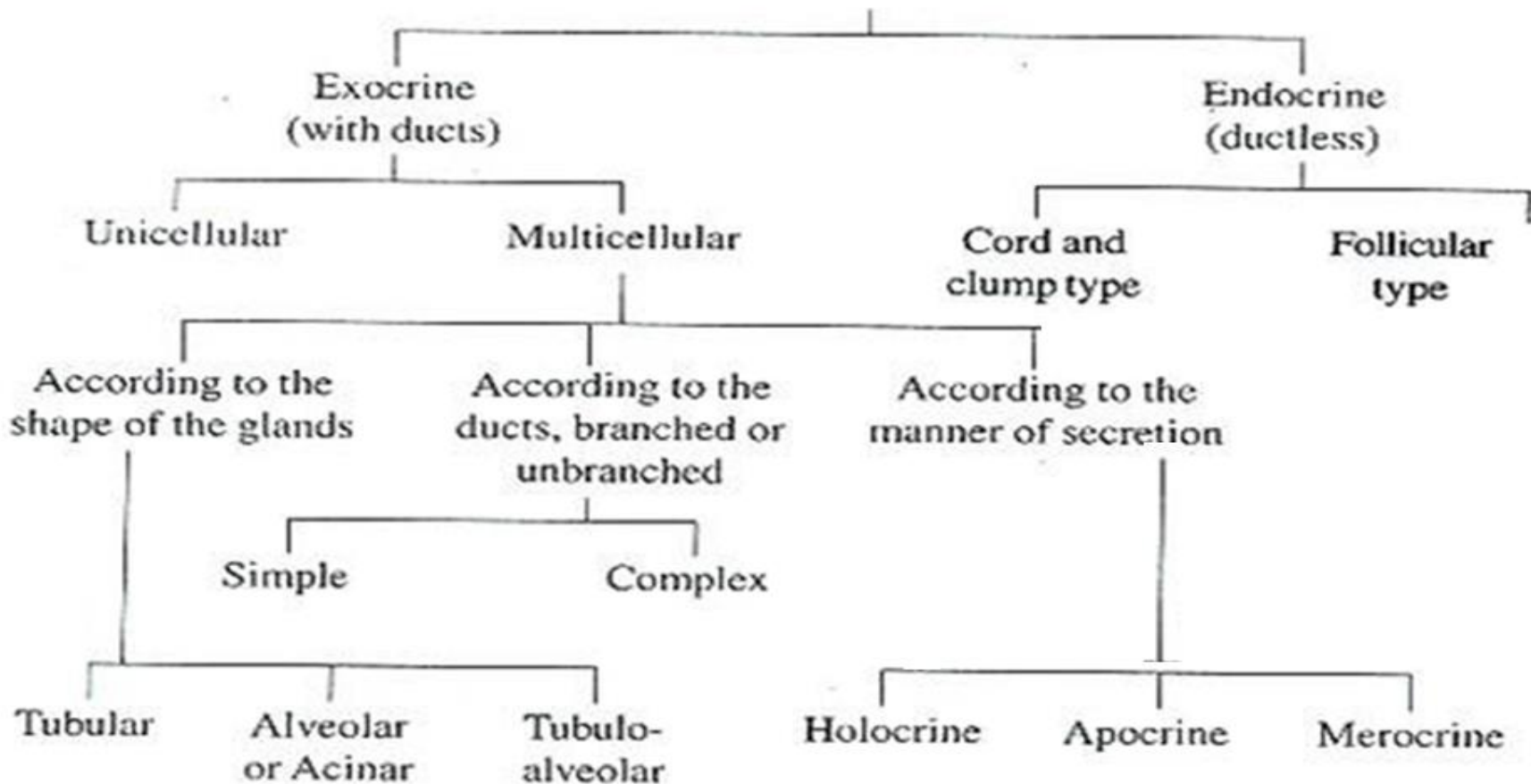
- The secretory cells either:
 1. Differentiate but remain in the lining epithelium
 2. Envaginate into the underlying connective tissue and remain attached to the lining epithelium
 3. Envaginate into the underlying connective tissue but lose their connection to the epithelium.



Generally glands classified according to the presence or absence of duct into exocrine and endocrine glands

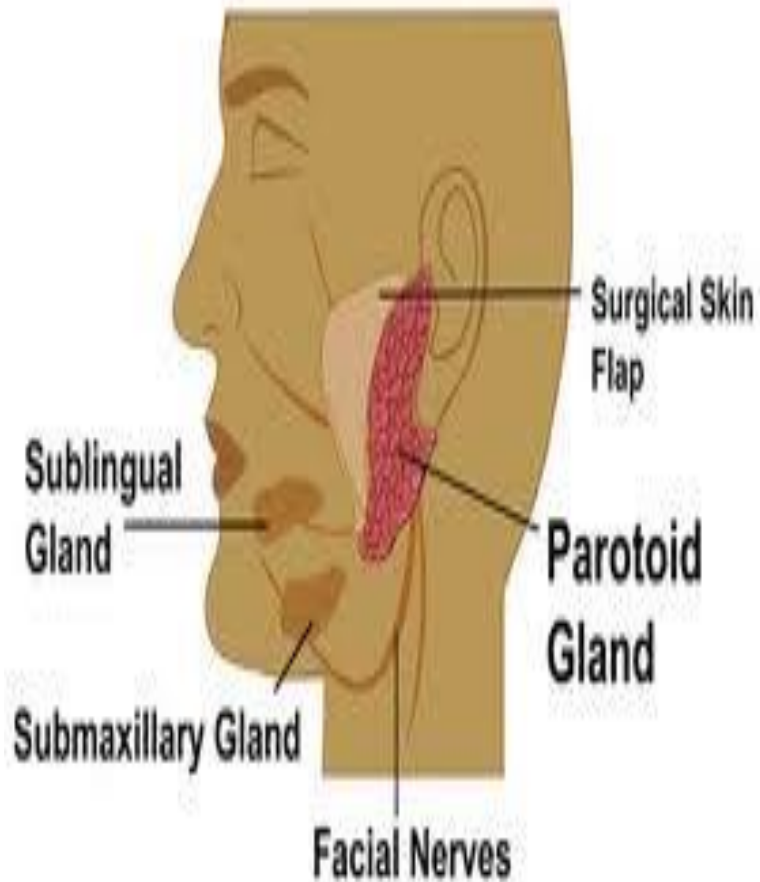
LO2

Classification by destination

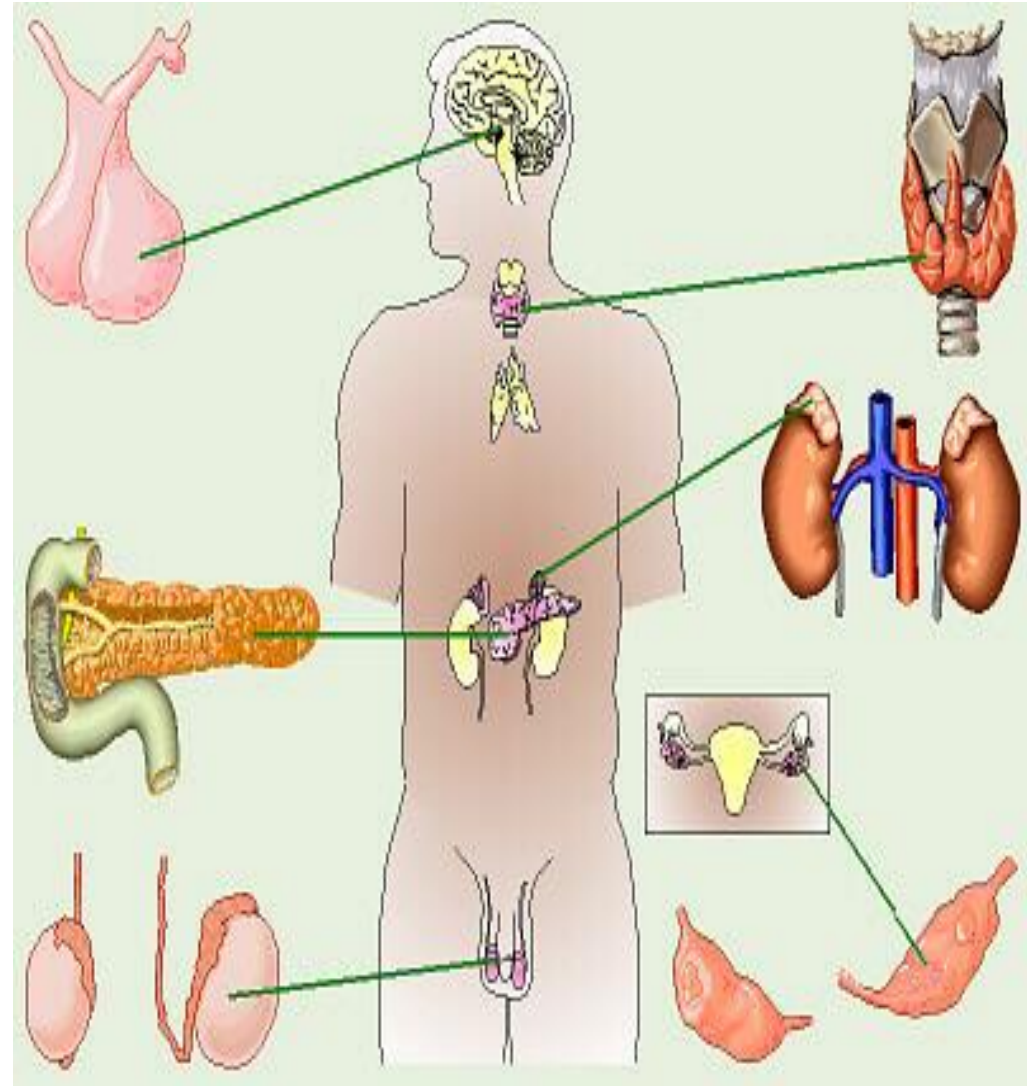


Exocrine glands

The Salivary Glands

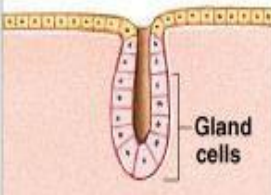
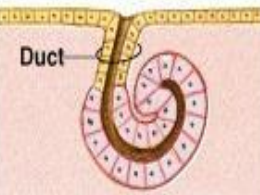
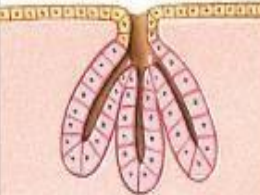

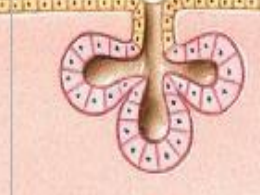


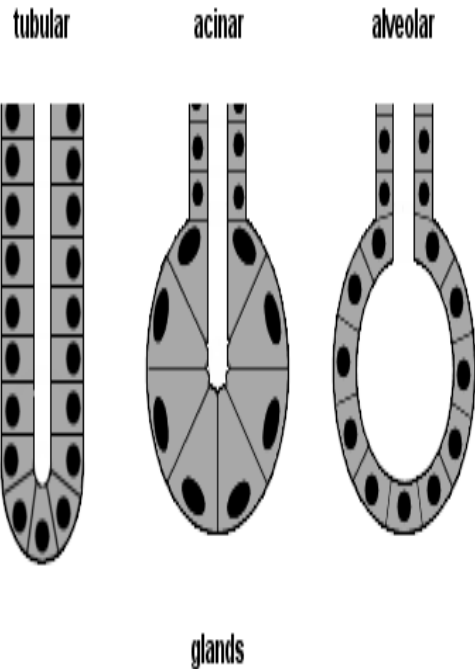
endocrine glands


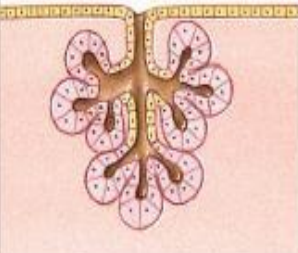
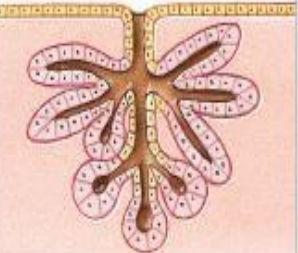


Exocrine glands classification:

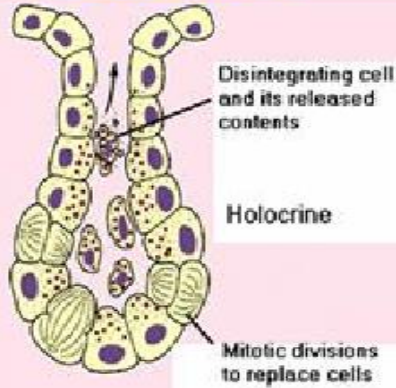
L03

SIMPLE GLANDS				
				
SIMPLE TUBULAR	SIMPLE COILED TUBULAR	SIMPLE BRANCHED TUBULAR	SIMPLE ALVEOLAR (ACINAR)	SIMPLE BRANCHED ALVEOLAR
<i>Examples:</i> Intestinal glands	<i>Examples:</i> Merocrine sweat glands	<i>Examples:</i> Gastric glands Mucous glands of esophagus, tongue, duodenum	<i>Examples:</i> Not found in adult; a stage in development of simple branched glands	<i>Examples:</i> Sebaceous (oil) glands

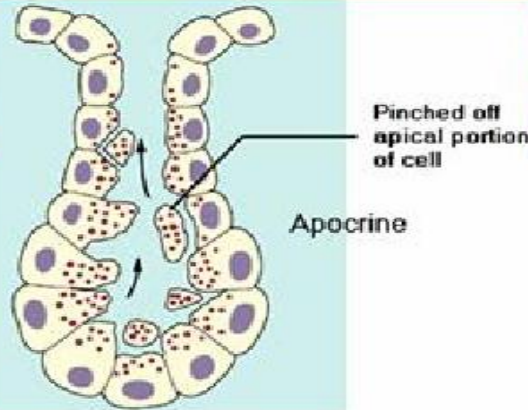


COMPOUND GLANDS		
		
COMPOUND TUBULAR	COMPOUND ALVEOLAR (ACINAR)	COMPOUND TUBULOALVEOLAR
<i>Examples:</i> Mucous glands (in mouth) Bulbourethral glands (in male reproductive system) Testes (seminiferous tubules)	<i>Examples:</i> Mammary glands	<i>Examples:</i> Salivary glands Glands of respiratory passages Pancreas

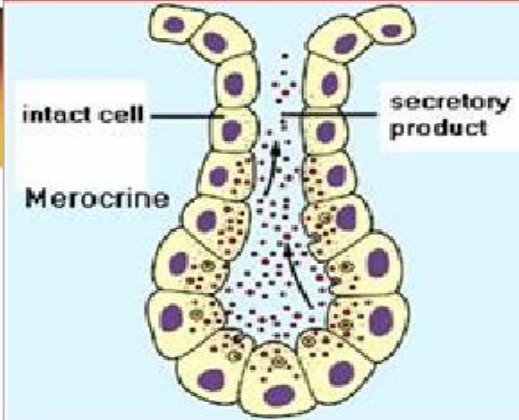
Holocrine



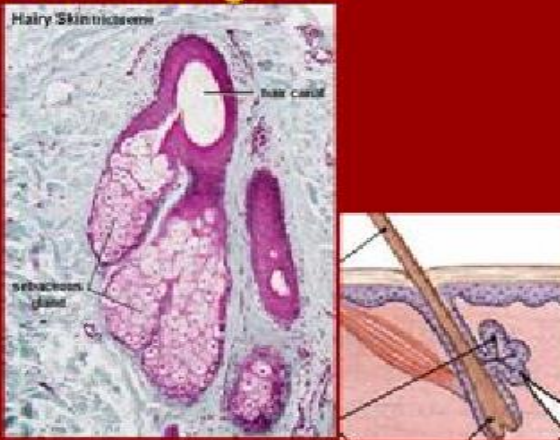
Apocrine



Merocrine



Sebaceous gland



Mammary Gland



Salivary gland

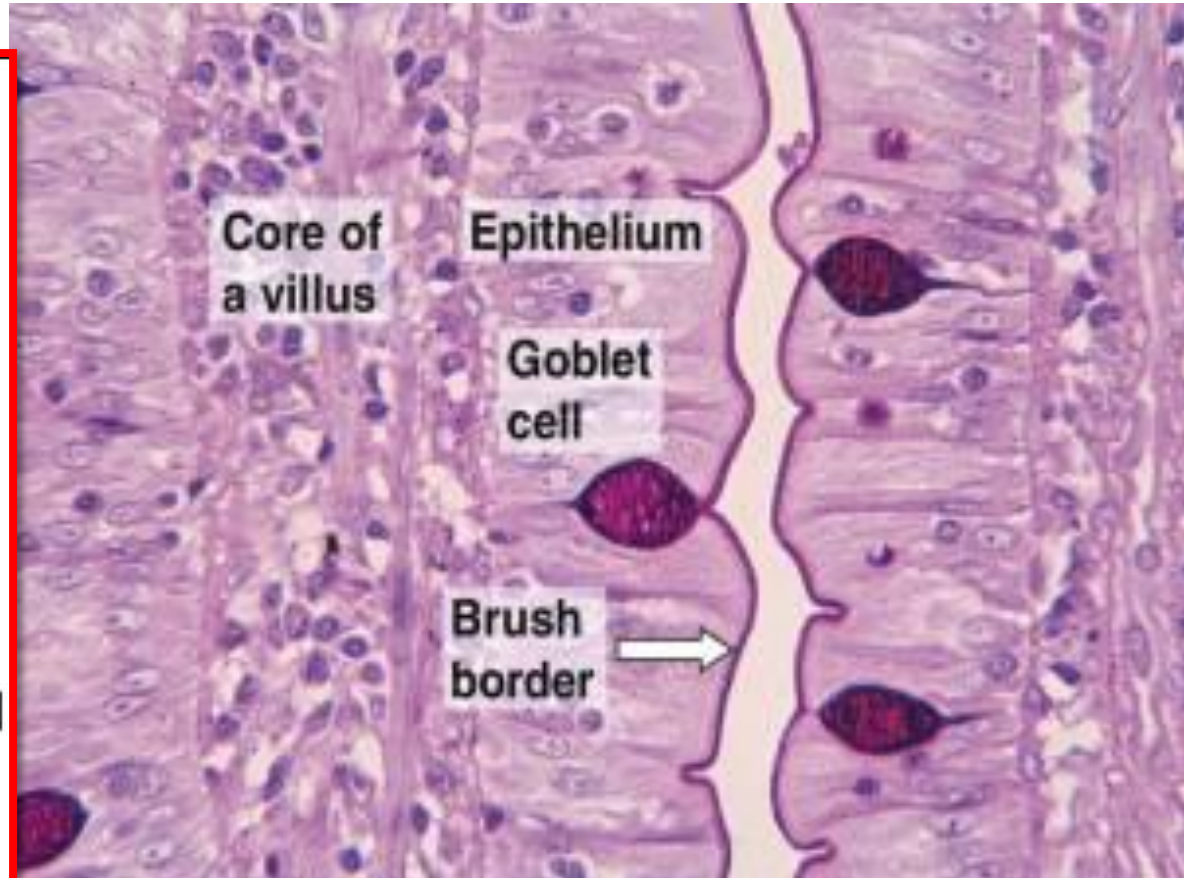
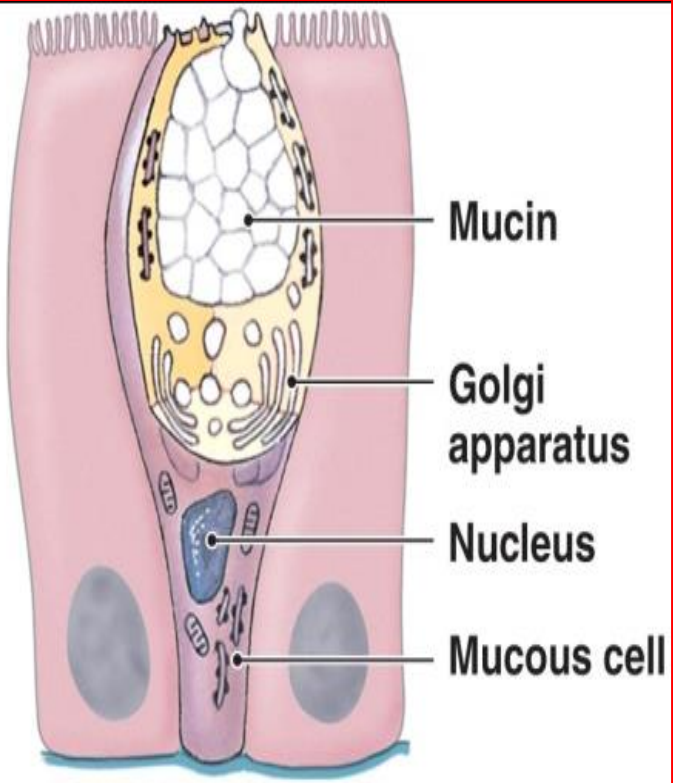


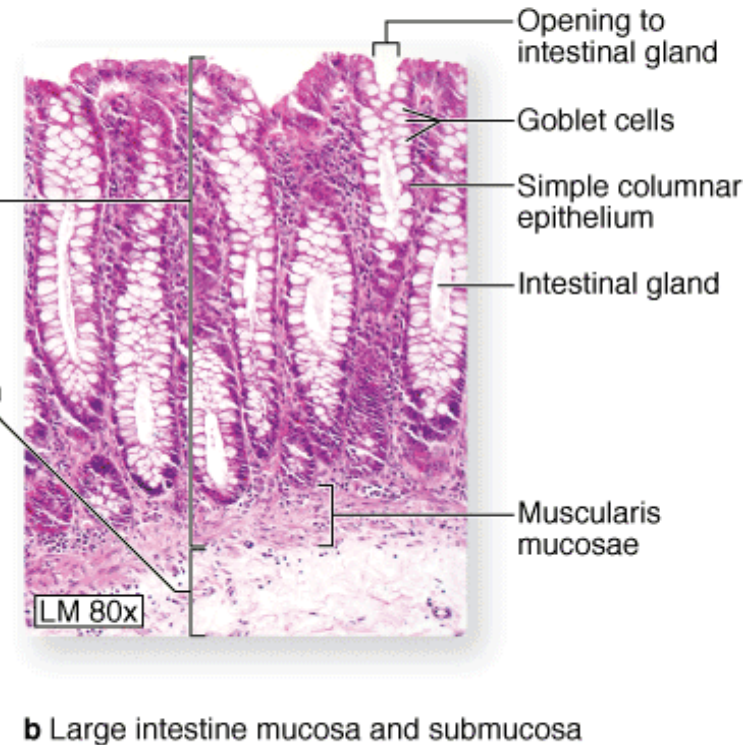
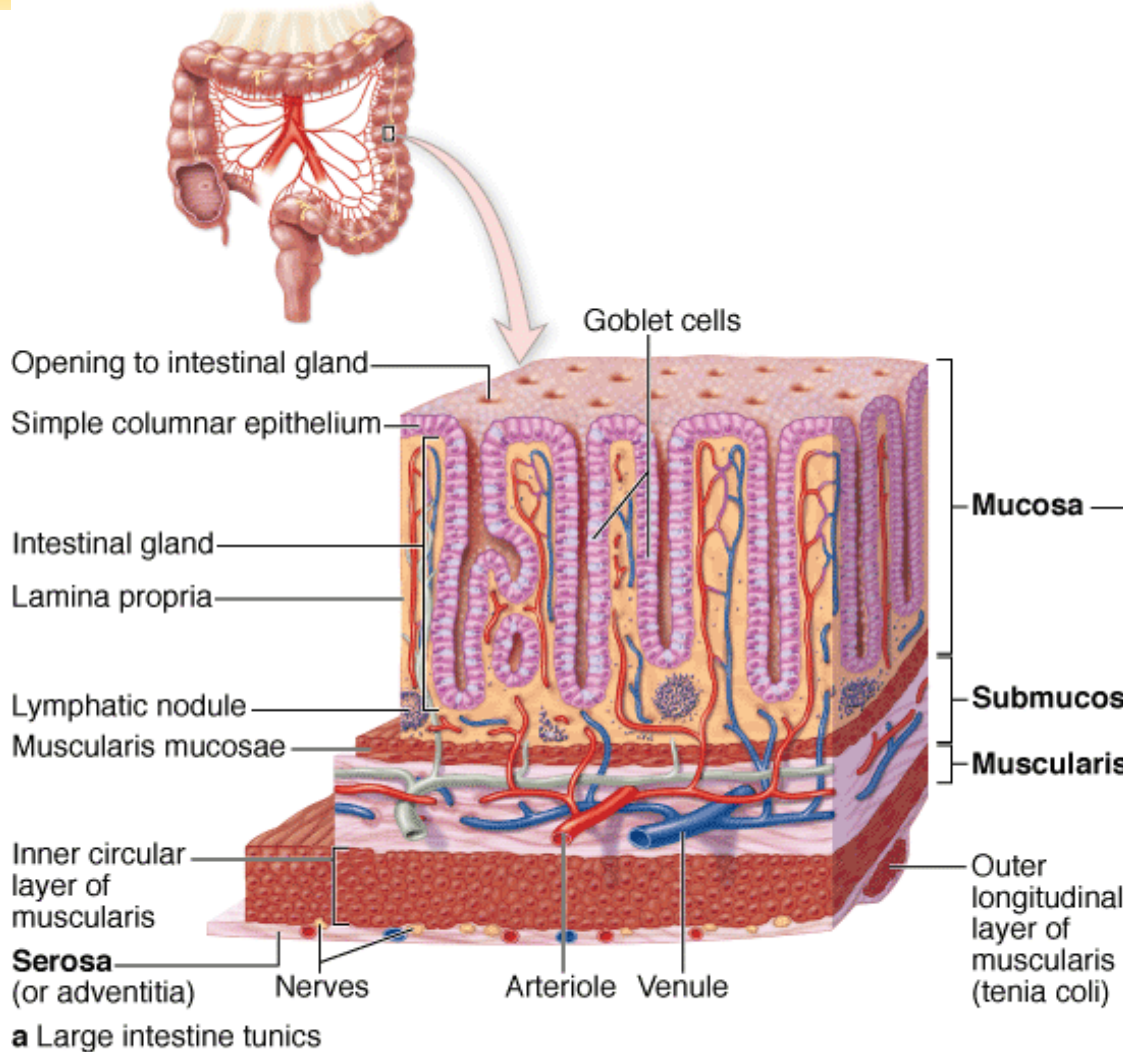
unicellular glands

Lo4

Ex: goblet cells are present as single cells. no ducts .

Ex: jejunum of small intestine

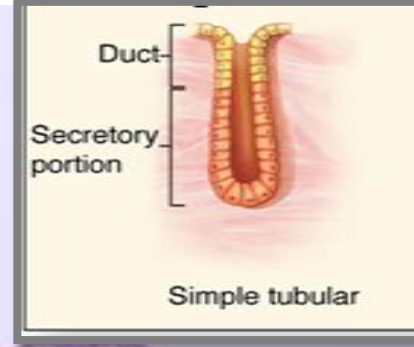




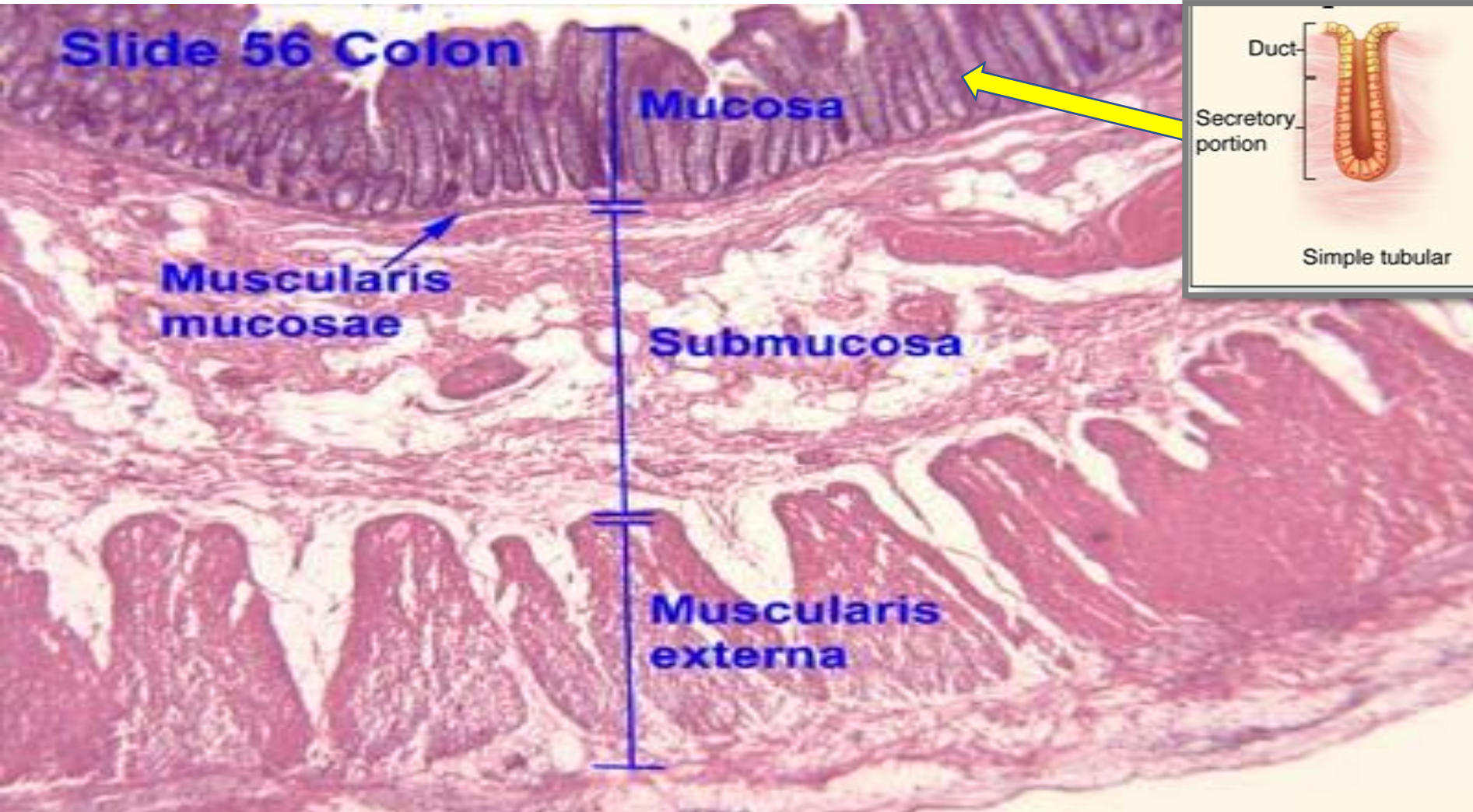
Source: Mescher AL: *Junqueira's Basic Histology: Text and Atlas, 12th Edition*: <http://www.accessmedicine.com>
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Large intestine colon Simple tubular gland
unbranched duct

Lo4

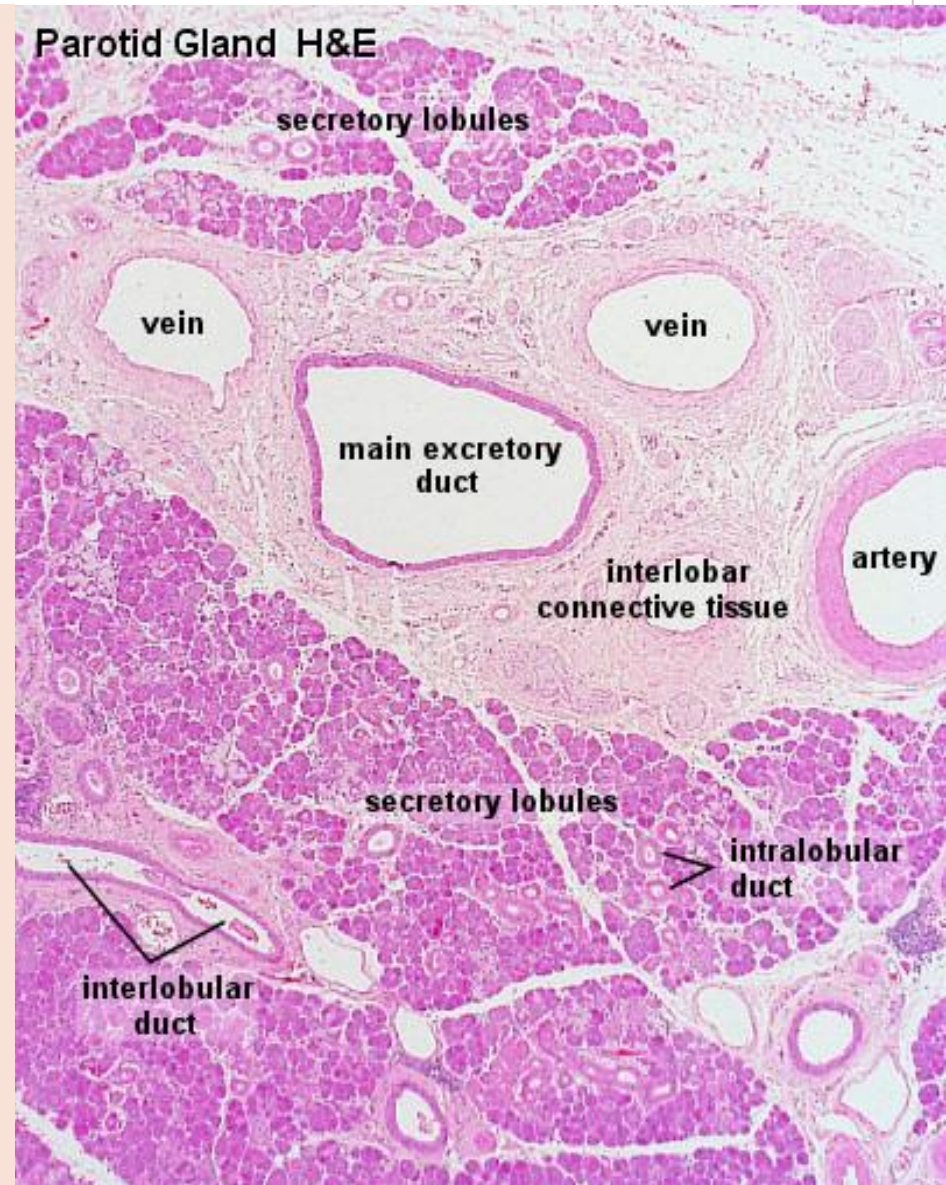


simple gland contain a single unbranched duct The secretory portion of the simple glands can be straight



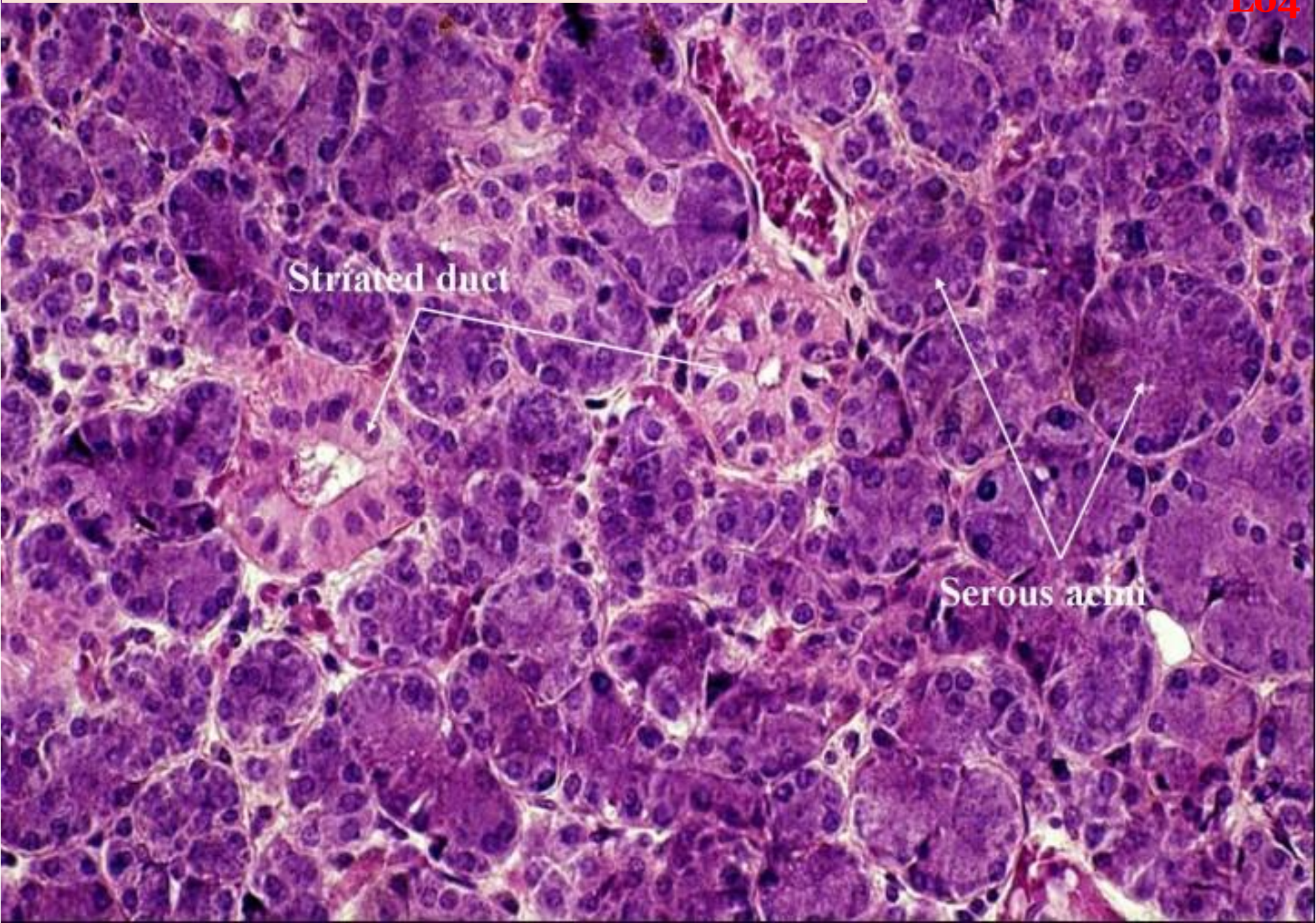
COMPOUND GLANDS (Parotid gland)

- The parotid gland is one of a pair of salivary glands
- entirely serous exocrine gland.
- compound tubuloacinar gland .
- the enzyme secretion is stored in the apical cytoplasm of Serous cells as **zymogen** granules
- reabsorption of Na^+ and Cl^- ions by striated duct



Low power view of the Parotid gland

Lo4

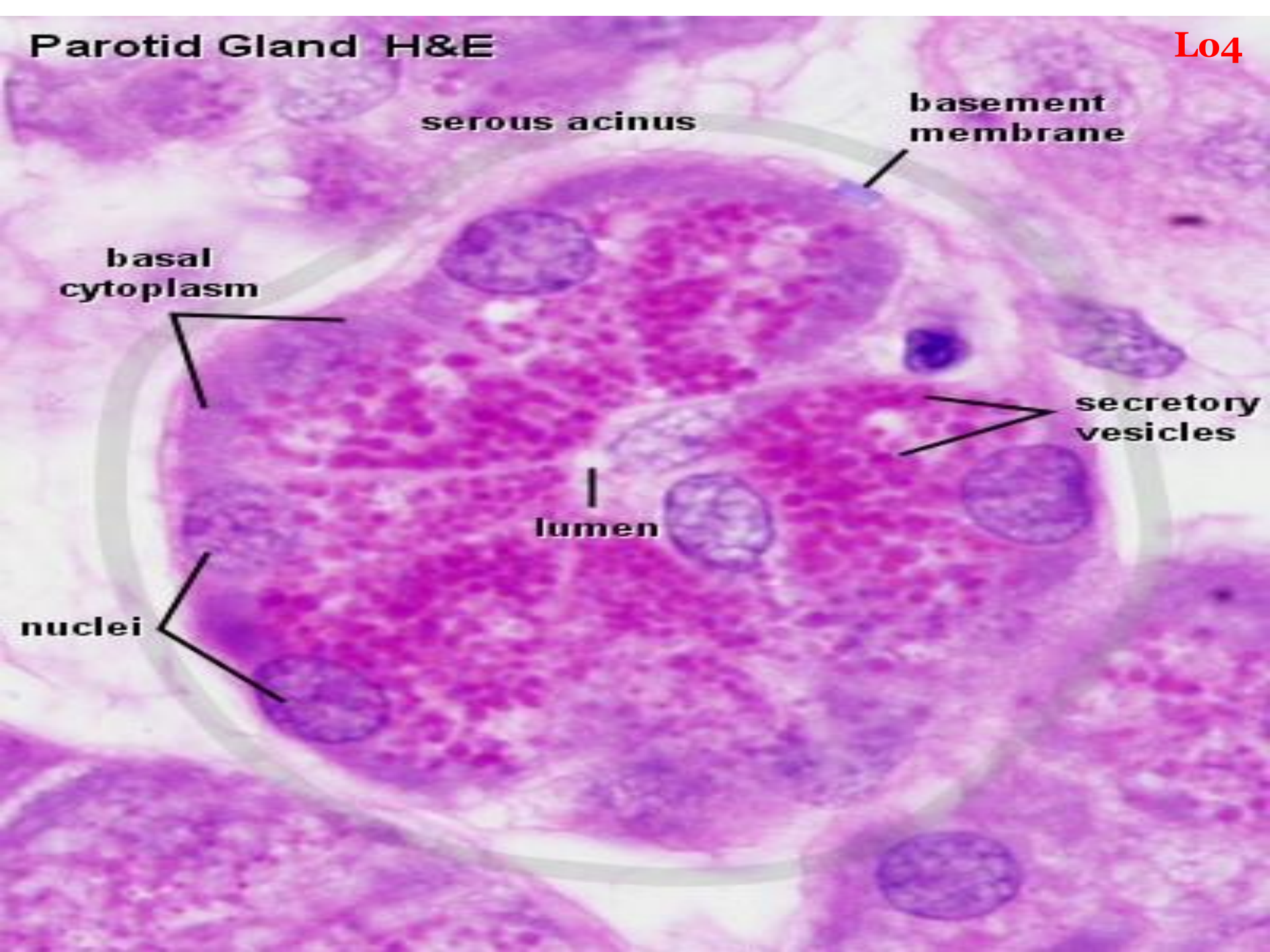


Striated duct

Serous acini

Parotid Gland H&E

L04



serous acinus

basement membrane

basal cytoplasm

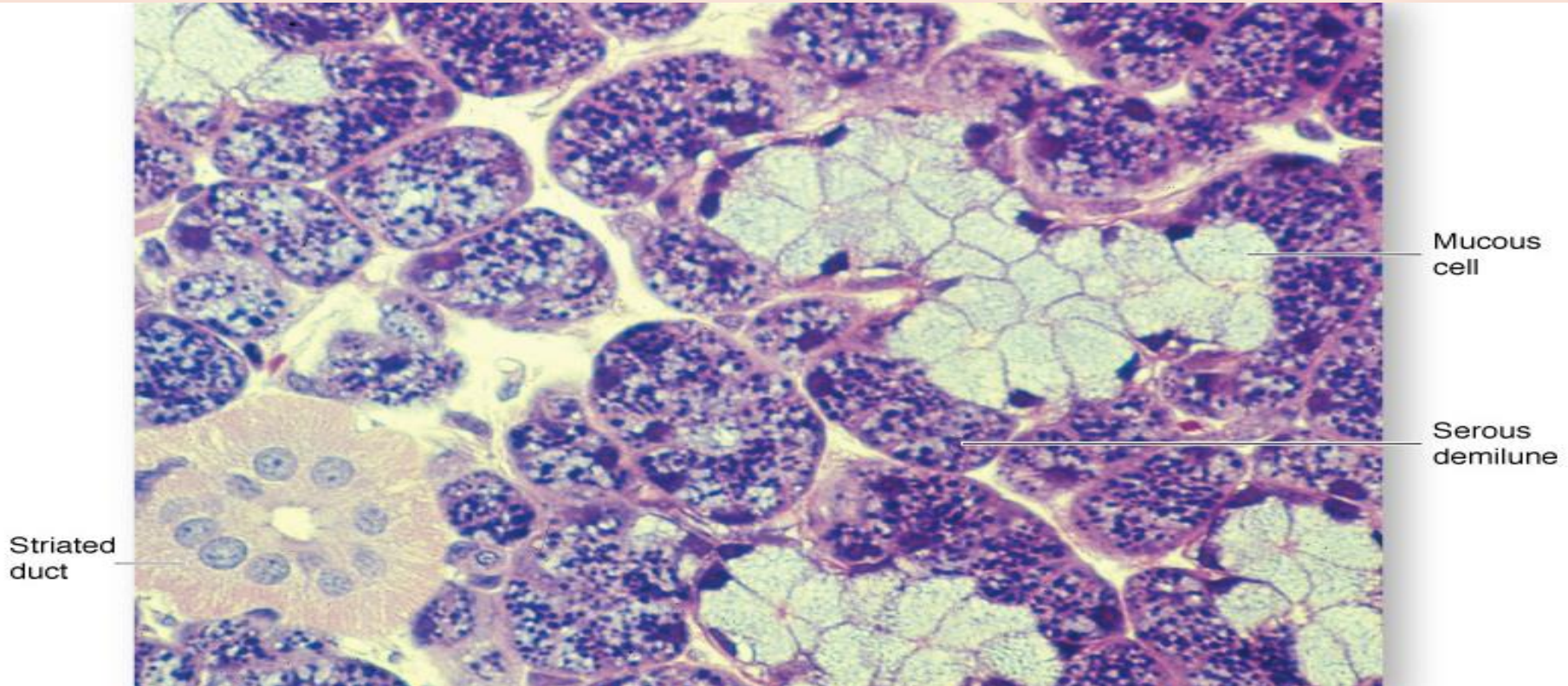
secretory vesicles

lumen

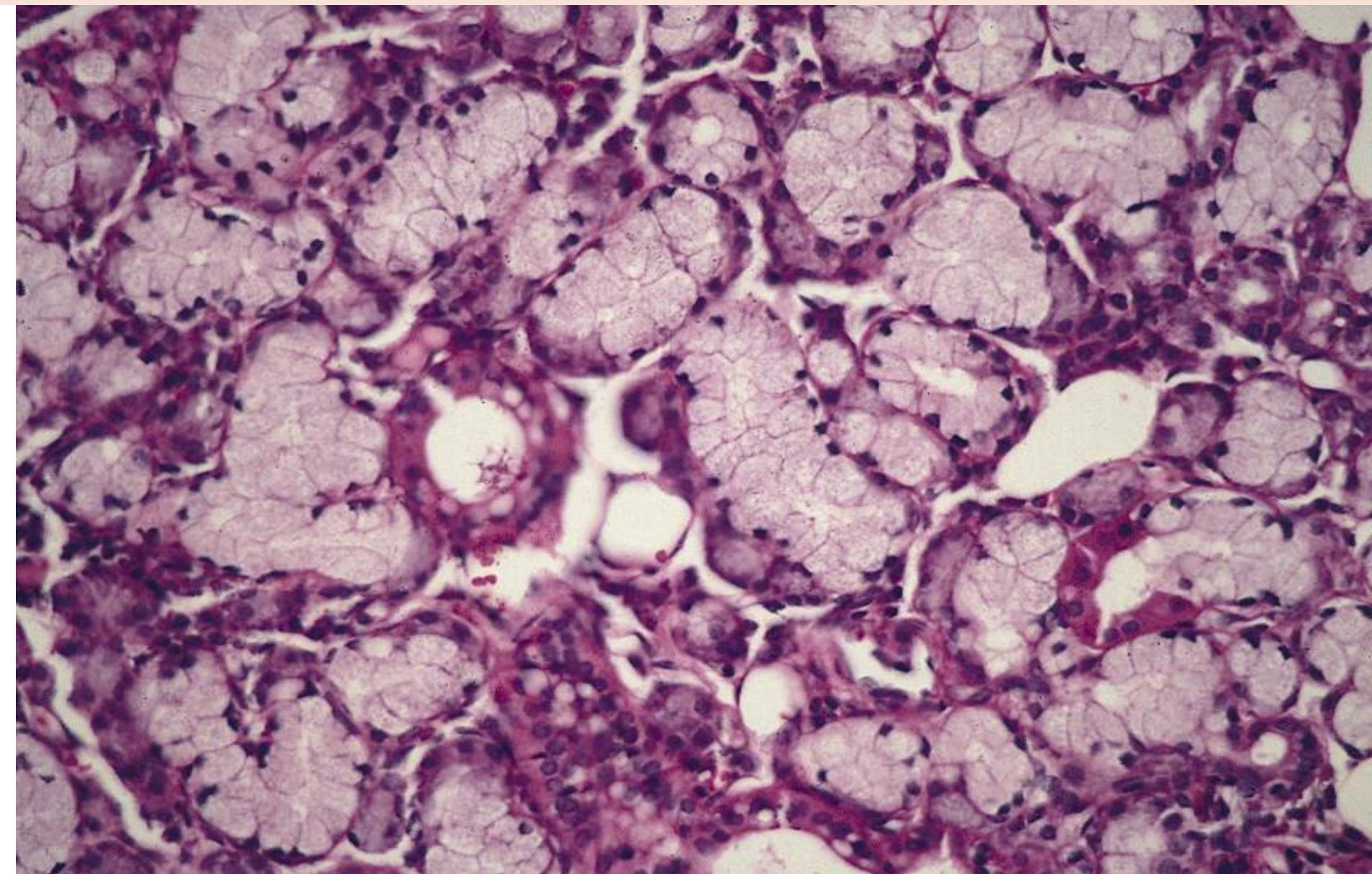
nuclei

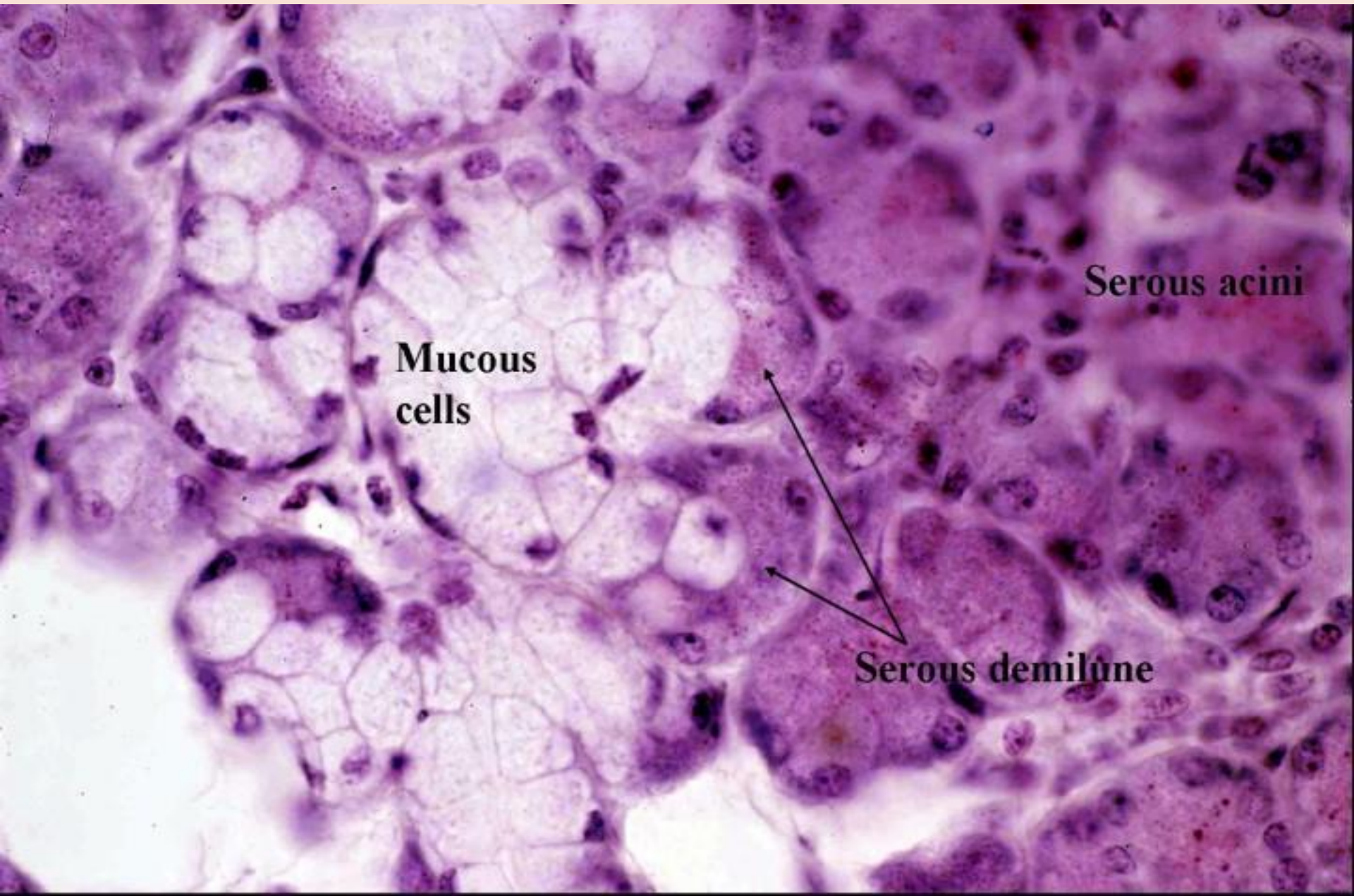
submandibular salivary glands

- One of the major salivary glands .
- Seromucous, compound tubuloacinar gland .
- Submandibular glands contain a mixture of both mucous and serous secretory cells.
- Serous cell present as crescent or demilune



Submandibular salivary glands (H&E) 10x





**Mucous
cells**

Serous acini

Serous demilune

Myoepithelial cells

Lo5

Myoepithelial cells :
are cells usually found in glandular epithelium as a thin layer above the basement membrane but generally beneath the luminal cells.

These may be positive for alpha smooth muscle actin and can contract and expel the secretions of exocrine glands.
They are found in the sweat glands, mammary glands, lacrimal glands, and salivary glands.

