

Oral mucosa



Learning Objectives

- 1- Know the classification of oral mucous membrane.
- 2-Discuss the macroanatomy and microanatomy of the oral mucous membrane; regional variation and its significance.
- 3-Discuss the macroanatomy and microanatomy of dentogingival junction and the mode of epithelial attachment.
- 4- Evaluate the clinical aspects of oral mucous membran

Definition

- It is the moist pink lining of the oral cavity.
- It is formed of 2 layers, the epithelium and lamina propria.



Classification according to function

A. Masticatory

* Firm and immobile

1. Gingiva
2. Hard palate

B. Lining

* Soft and pliable

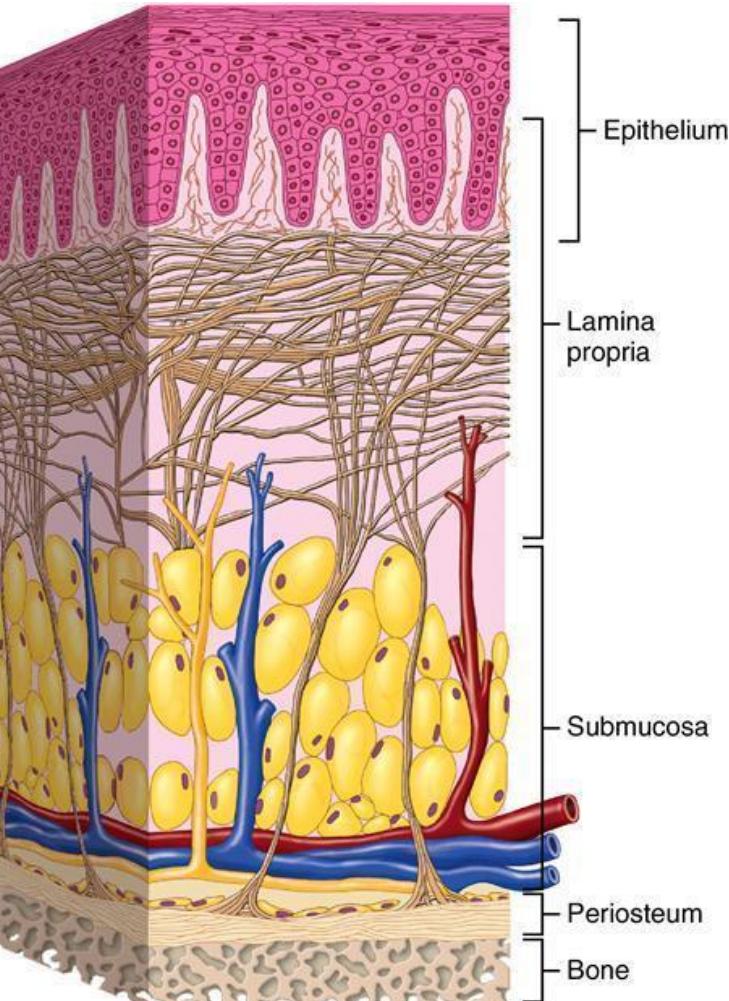
1. Labial & buccal mucosa
2. Vestibule
3. Alveolar mucosa
4. Floor of the mouth
5. Inferior surface of tongue
6. Soft palate

C. Specialized

* Special

Dorsal surface of
the tongue

Tissue layers



1. Epithelium

mucosa

2. Lamina propria

3. Submucosa

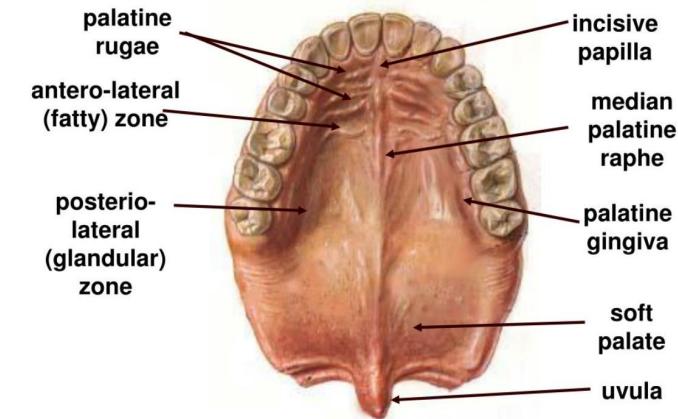
Separate oral mucosa from underlying tissue

(fat cells, glands, BLvs & nerves)

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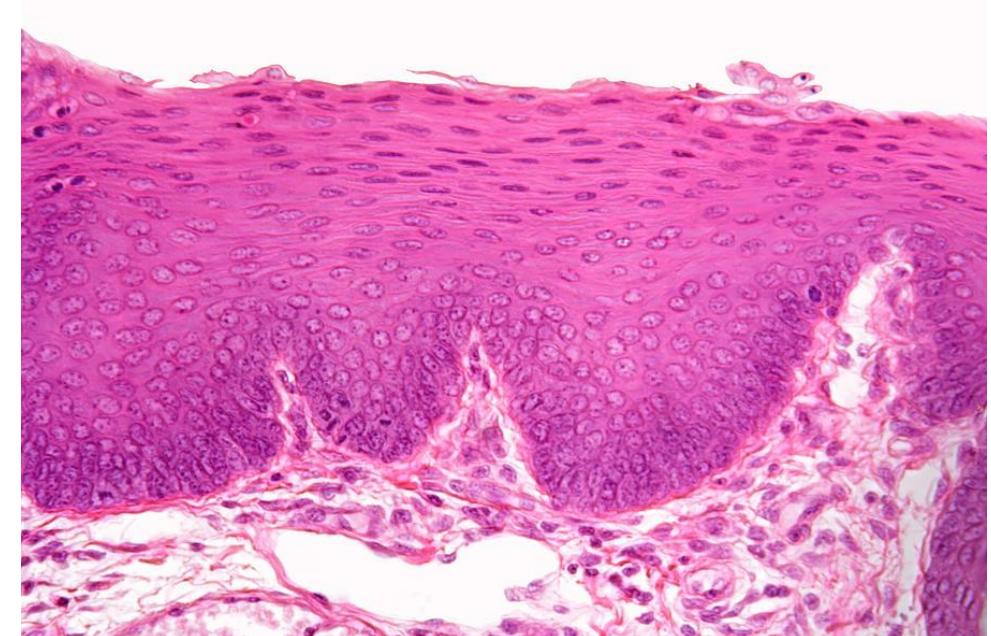
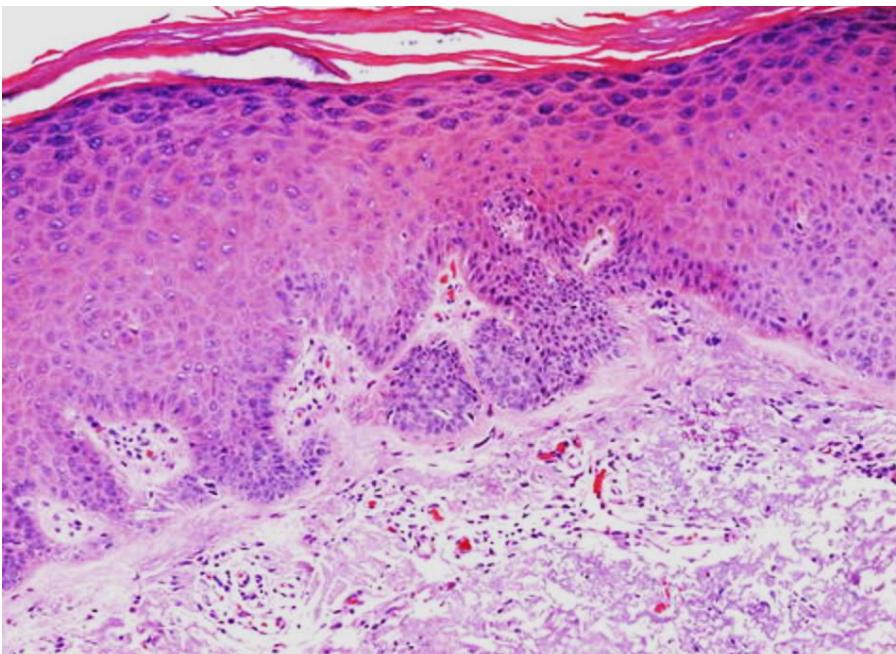
- Lining mucosa
- Anterolateral &
- posterior lateral part of hard palate

4. Bone, muscles



1. Oral epithelial

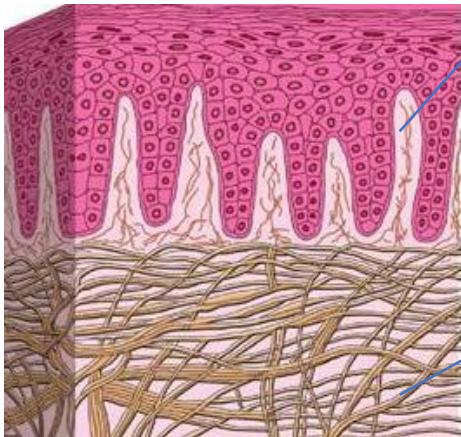
- Layers of tightly contact cells with little or no intercellular spaces.
- The epithelium is a **stratified squamous** type; it may be
- Types: A. Keratinized: -Inflexible
-Tough
- B. Non-keratinized: -Flexible
-Soft



2. Lamina propria

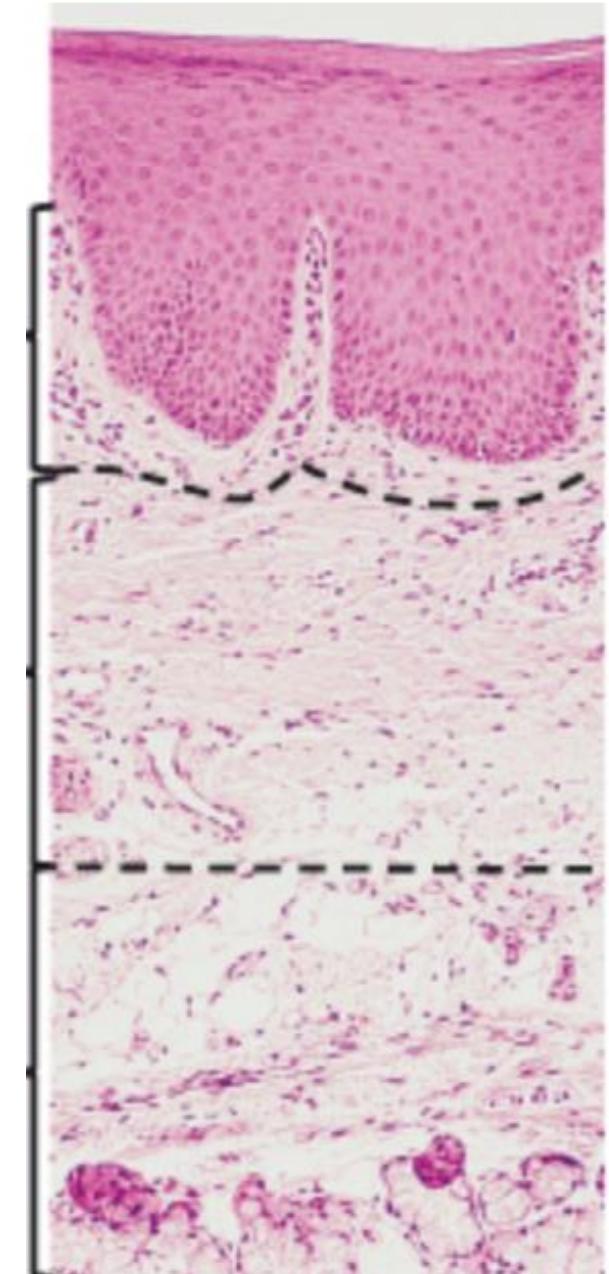
- Connective tissue supporting oral epithelium
- Has 2 layers: 1. **Papillary layer:**

- thin collagen fibers
- loosely arranged
- many blood capillaries



2. **Reticular layer:**

- net-like
- thick collagen bundels
- arranged parallel to surface



A. Masticatory mucosa (keratinized)

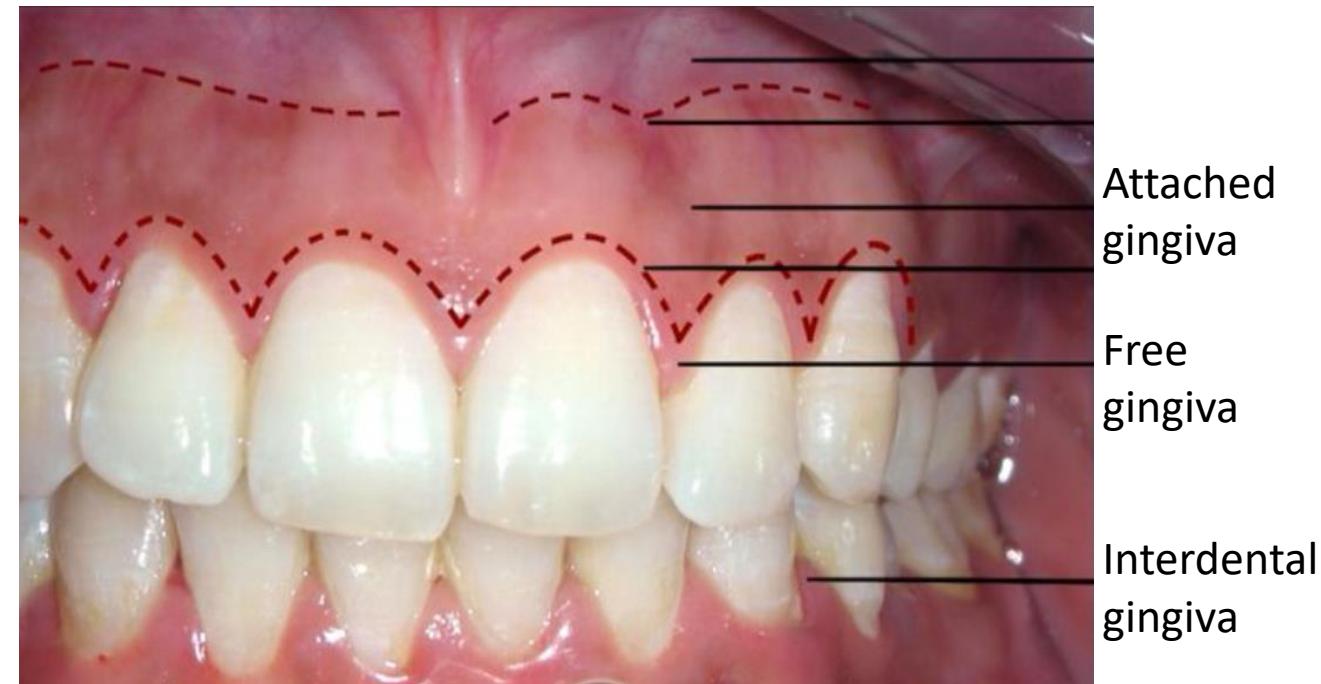
- 1. Gingiva:

Characteristics:- firm & immobile

- pink (coral) in color
- mostly keratinized
- help in mastication
- turnover rate is 41-57 days

Zones: - Free gingiva (0.5-2mm)

- Attached gingiva)
- Interdental gingiva (papilla)



A. Masticatory mucosa

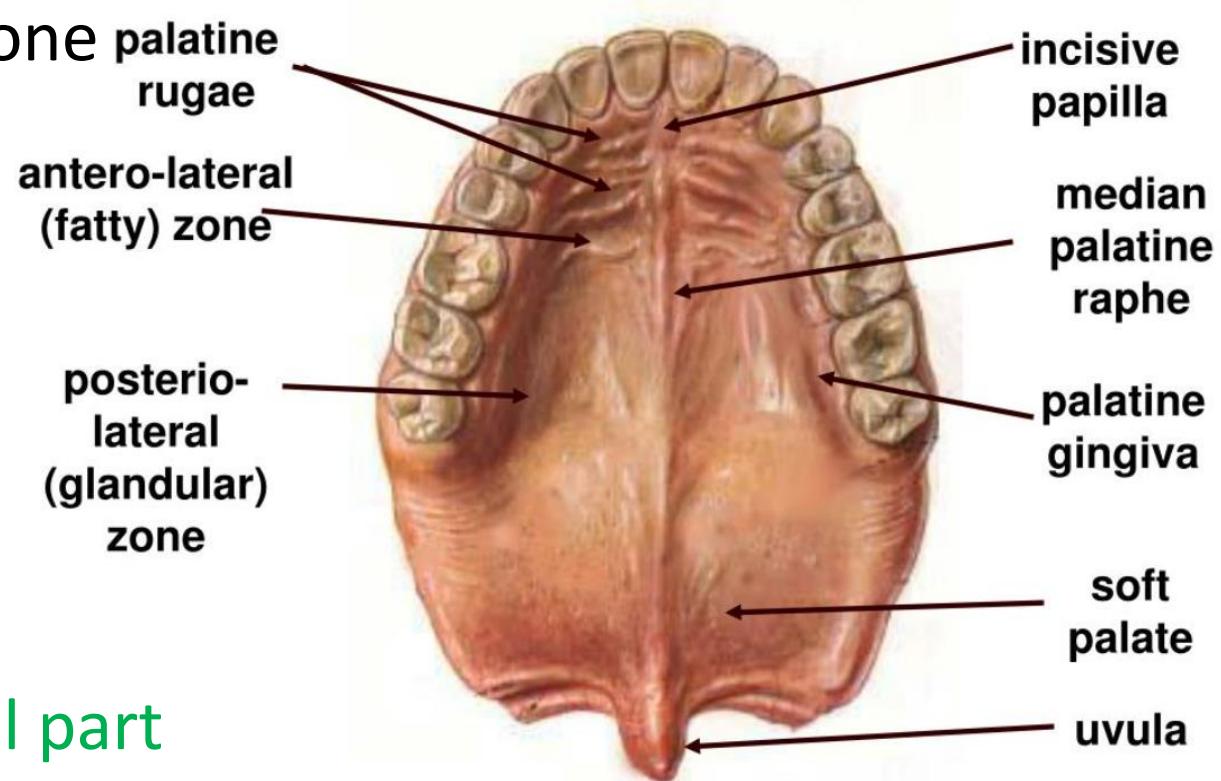
2. Hard palate:

Part of oral mucosa that covers palatal bone

Characteristics:- firm & immobile

- pink (coral) in color
- mostly keratinized
- help in mastication

Zones: - Median palatine raphe & gingival part
- Anterolateral part
- Posterolateral part



B. Lining (non keratinized)

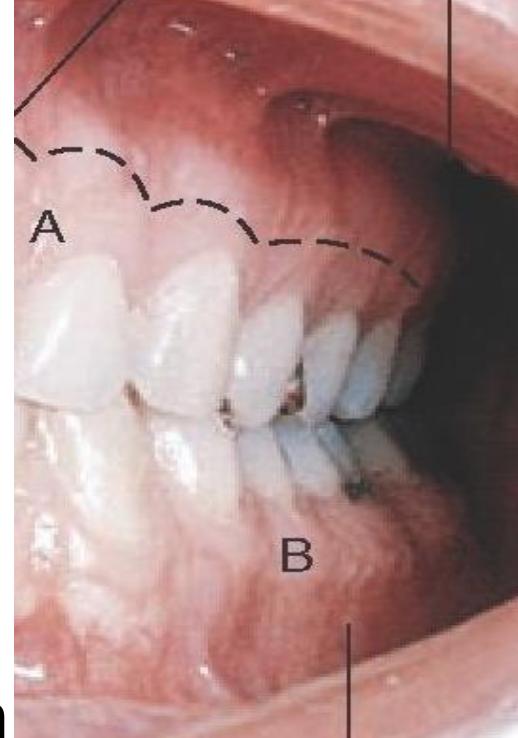
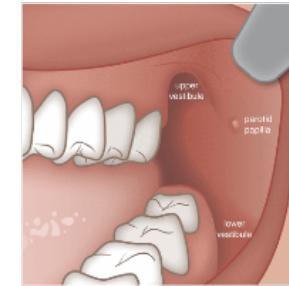
Firmly attached

1. Labial and Buccal mucosa
2. Inferior surface of the tongue
3. Soft palate



Loosely attached

1. Vestibule
2. Alveolar mucosa
3. Floor of the mouth



C. Specialized mucosa

The mucosa of the dorsal surface of the tongue covered by masticatory mucosa

But

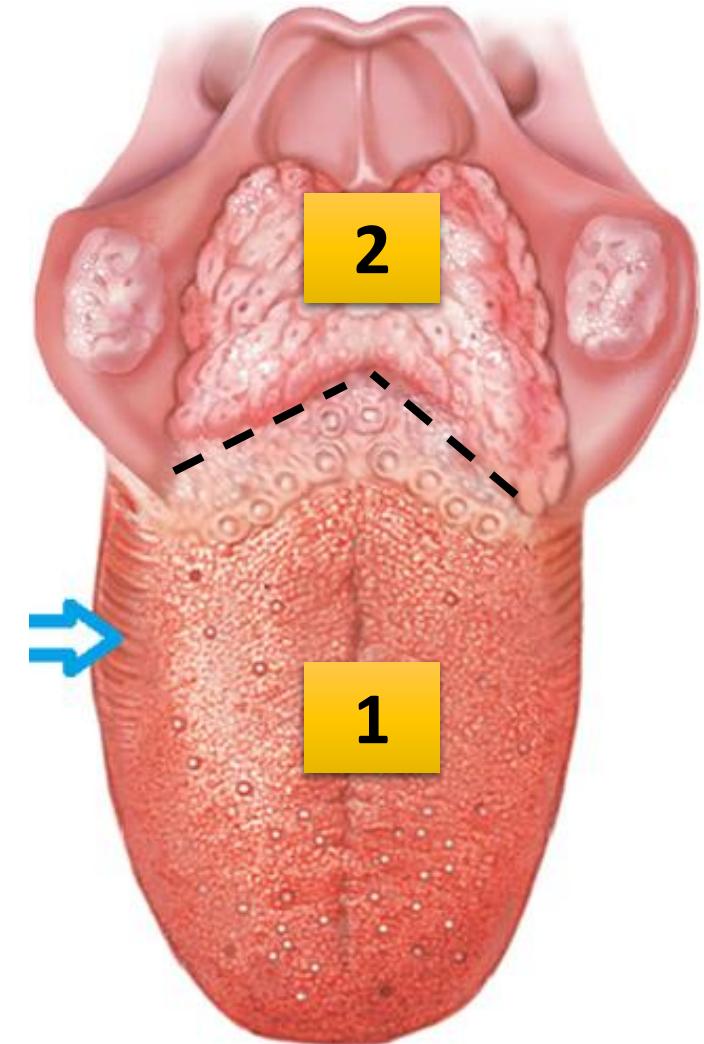
Highly extensible
lining
&
has different types
of **lingual papillae**.

Embryologic origin of the tongue mucous membrane

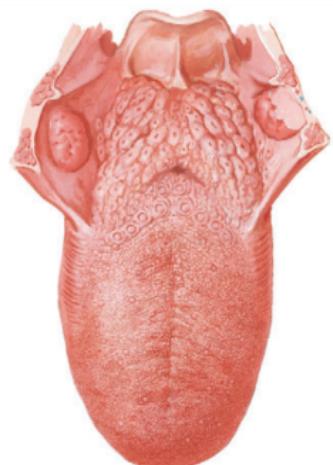
□ Composed of two parts, divided by the **V shaped groove, sulcus terminalis, or terminal groove.**

1. **The anterior two thirds (the body)(papillary)** from the ectoderm of the **first pharyngeal arch.** contains numerous papillae.

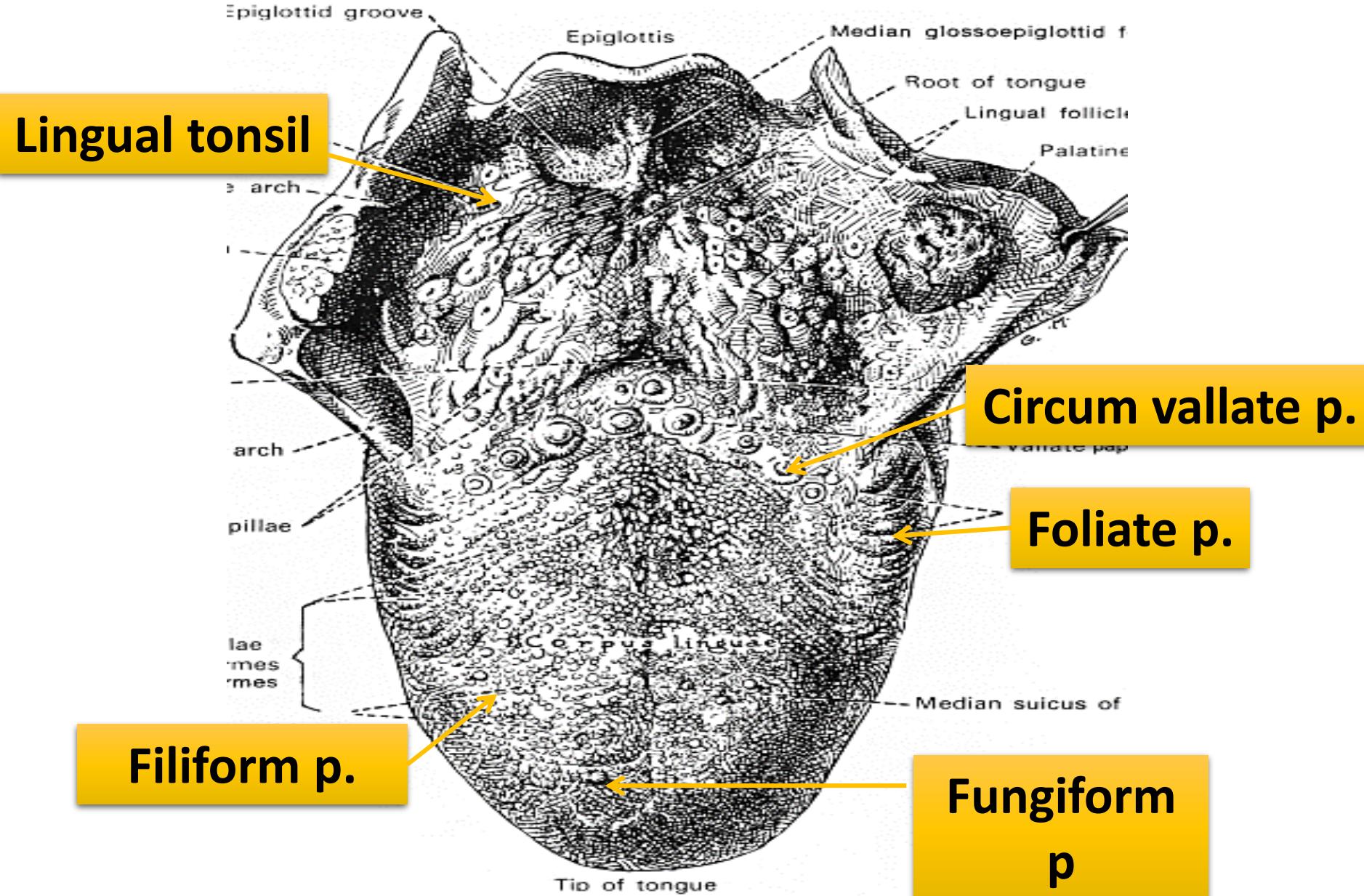
2. **The posterior one third (the base) (lymphatic)** from the endoderm of the **third pharyngeal arch.** contains extensive nodules of lymphoid tissue



The dorsal surface of the tongue



Posterior third



Anterior two
third

Lingual tonsil

Filiform p.

Fungiform
p

Circum vallate p.

Foliate p.

1-Filiform papillae

- Numerous cone-shaped fine pointed papillae.
- About 2 to 3 mm high from the surface of the tongue.
- Arranged in parallel rows toward the midline.

Histologically:

The most numerous papillae

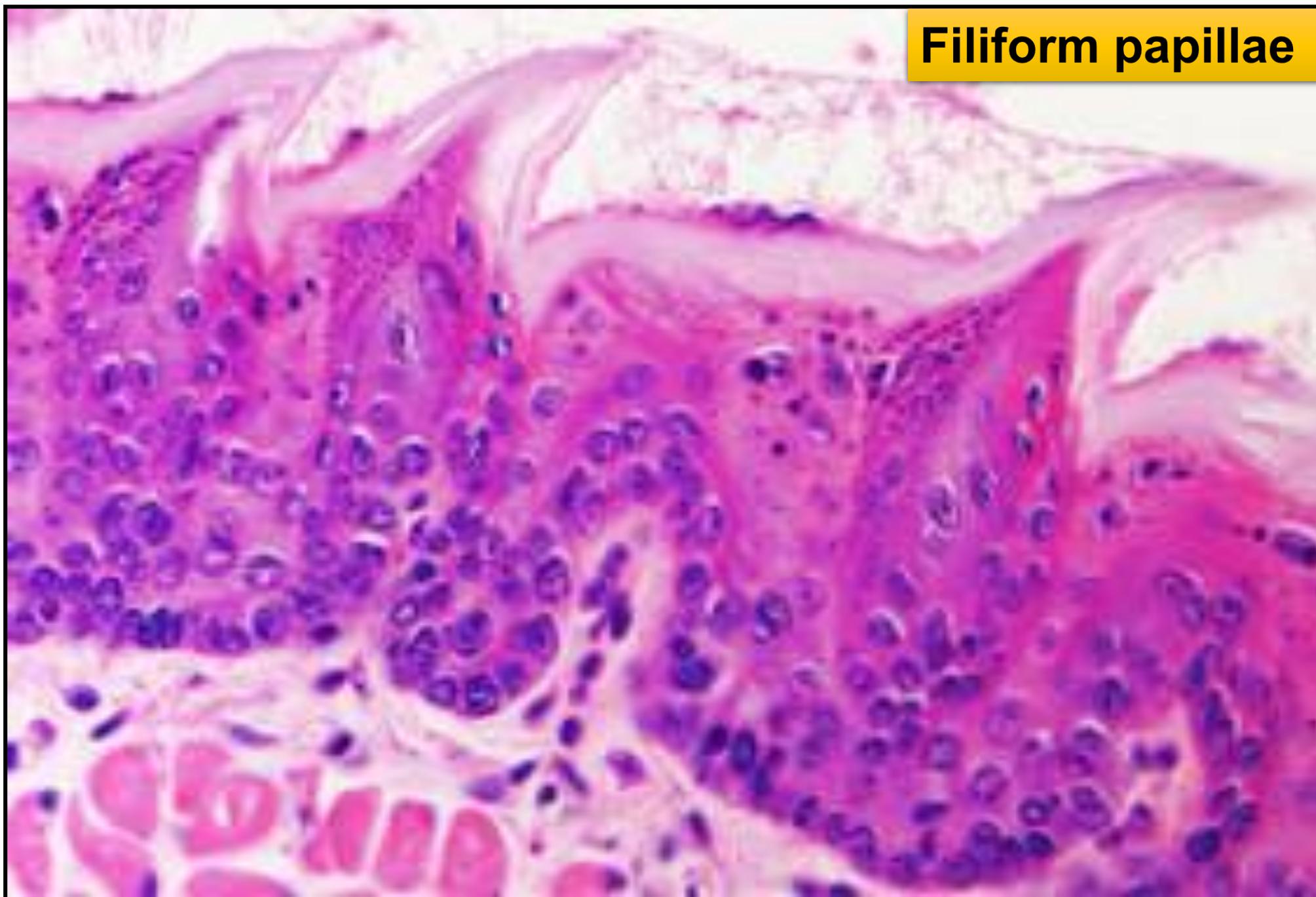
- 1- They have connective tissue core.
- 2- Covered by **keratinized stratified squamous epithelium**, thicker at their tips forming **tufts at the apex** of the papillae.
- 3- Do not contain taste buds.

Function:

- They have mechanical function.



Filiform papillae



2-Fungiform papillae

- Round, reddish prominence (mushroom shaped) interspersed between the filiform papillae and protrude above the surface of the tongue.
- They are few but more numerous near the tongue tip.

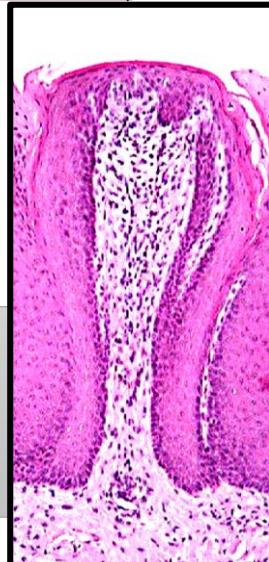
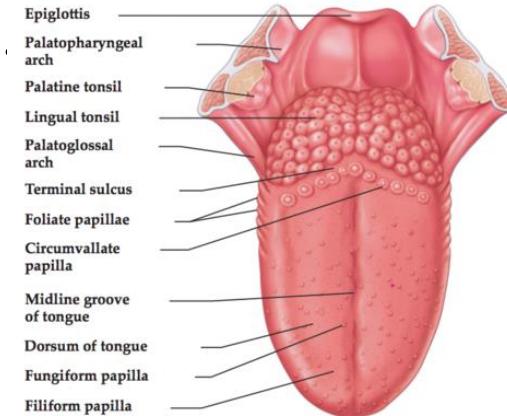
Histological structure:

- 1- They have connective tissue core rich in capillaries.
- 2- Their superior surfaces are covered by thin nonkeratinized epithelium, but the lateral surfaces are covered by keratinized epithelium.
- 3- One to three taste buds are found only on their superior surfaces.

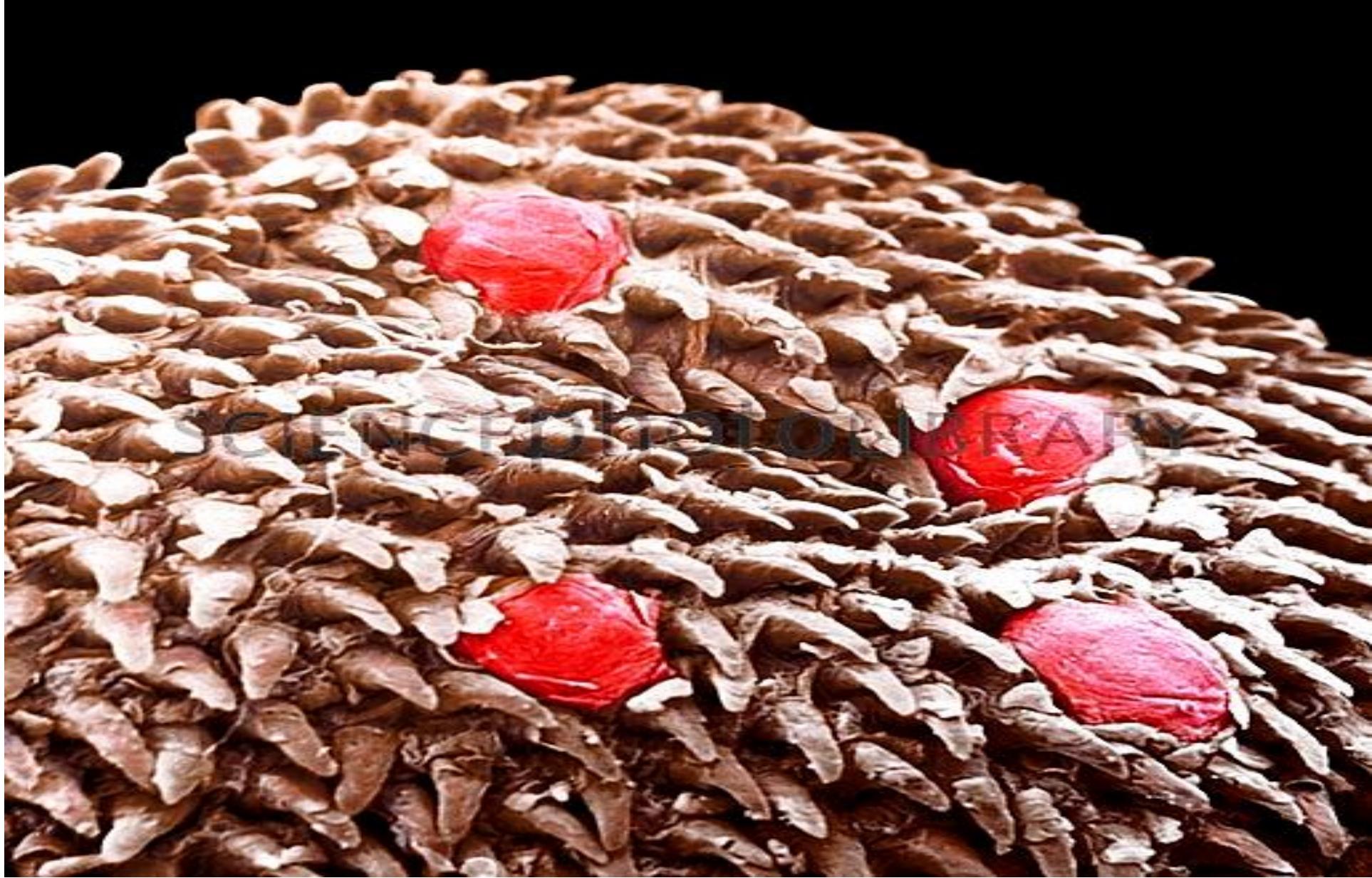
Function:

Taste sensation.

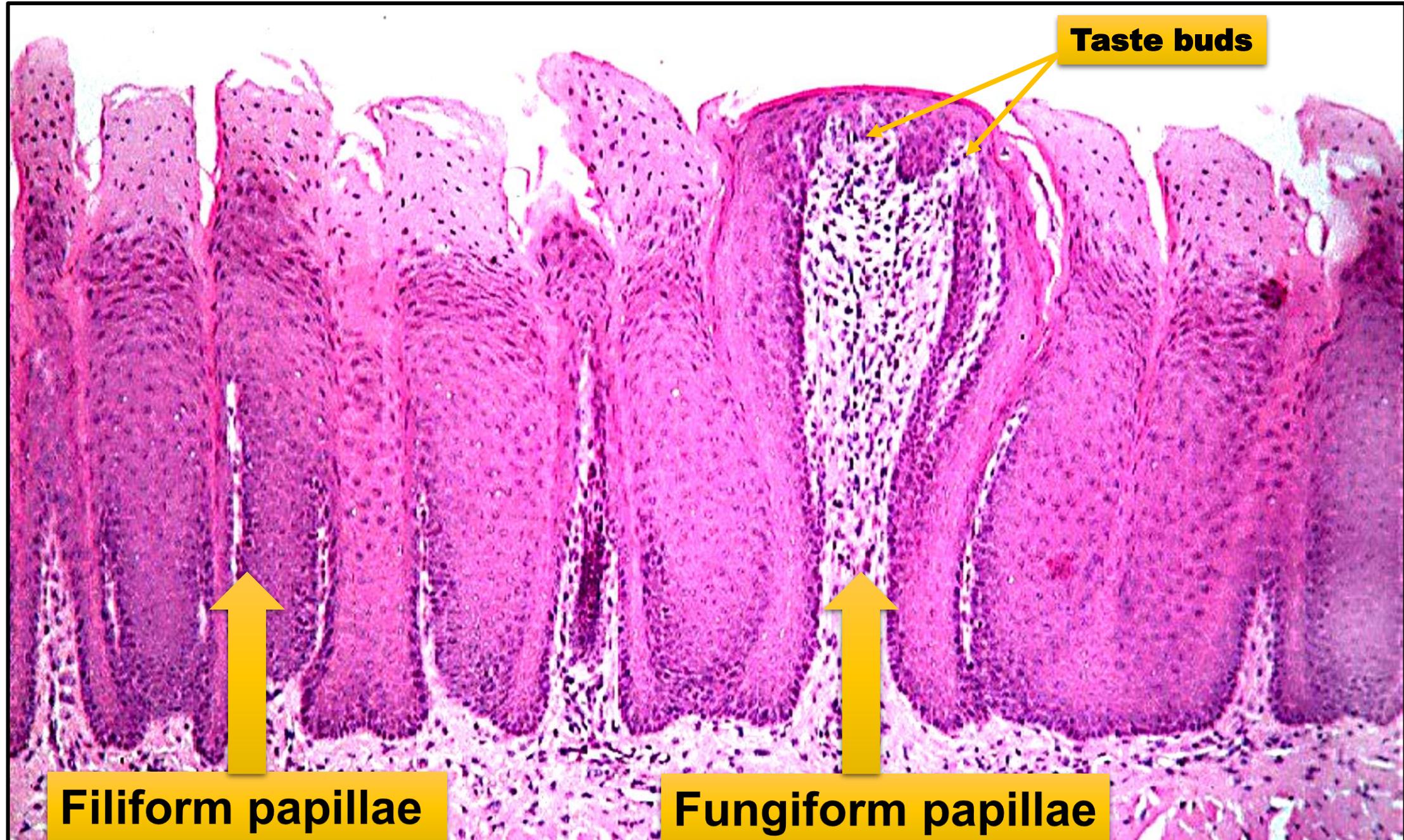
A rich capillary network visible through the relatively thin nonkeratinized epithelium = reddish color







SEM showing Fungiform and Filiform papillae



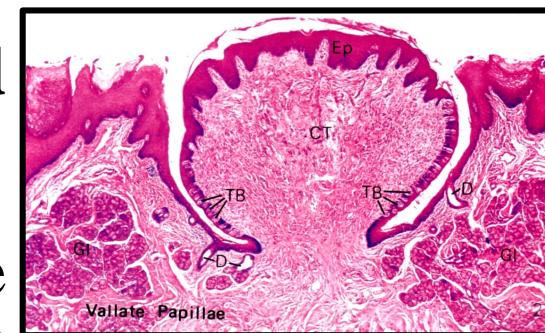
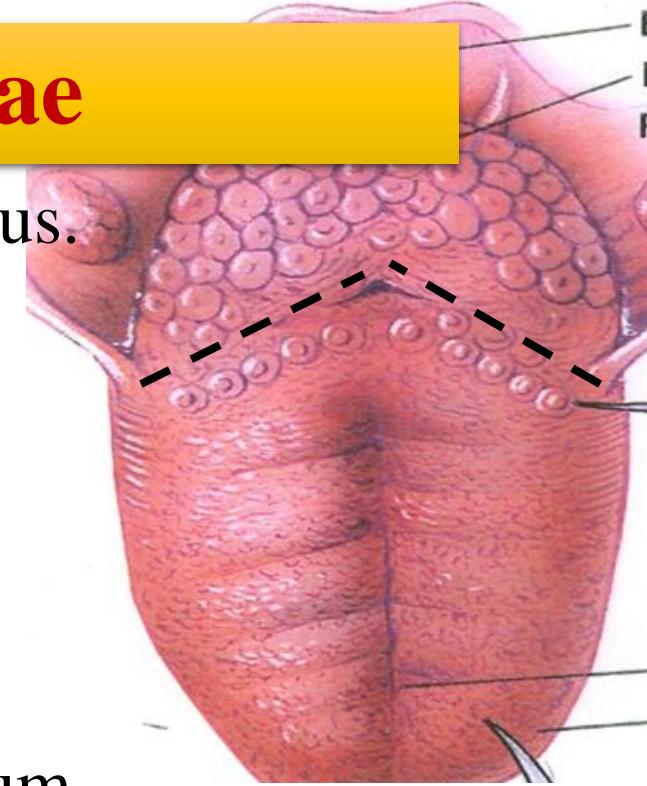
3- Circumvallate (Vallate) papillae

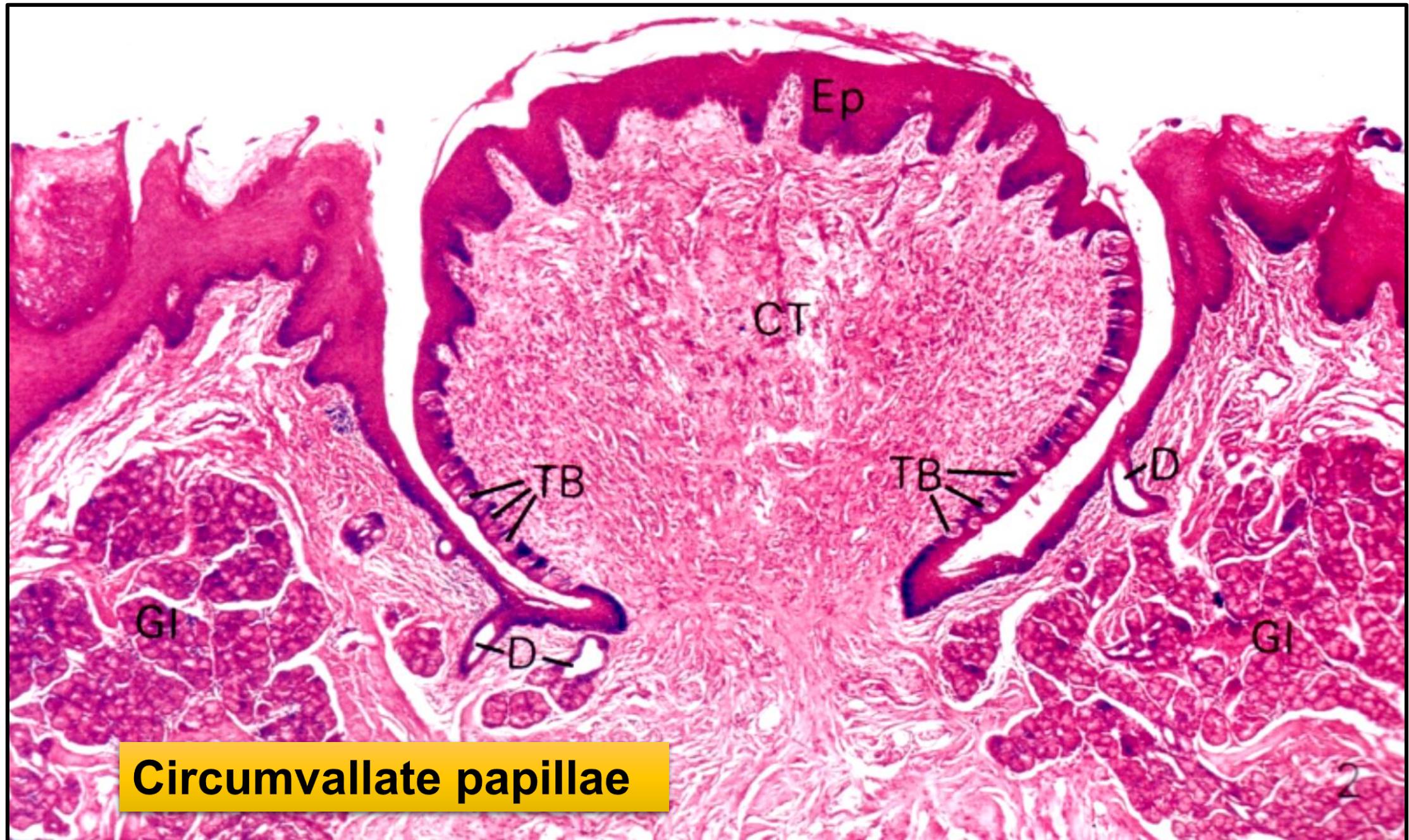
- From **8 to 10 papillae** in front of the V shaped terminal sulcus.
- They do **not protrude** above the tongue surface.
- Bounded by **deep circular furrow**, have **narrow base**.
- Their free surfaces show numerous **secondary papillae**.
- **Histological structure:**

1- The **superior** surfaces are covered by **keratinized** epithelium.

2- Their **lateral** surfaces are covered by **nonkeratinized** epithelium that contains **numerous taste buds**.

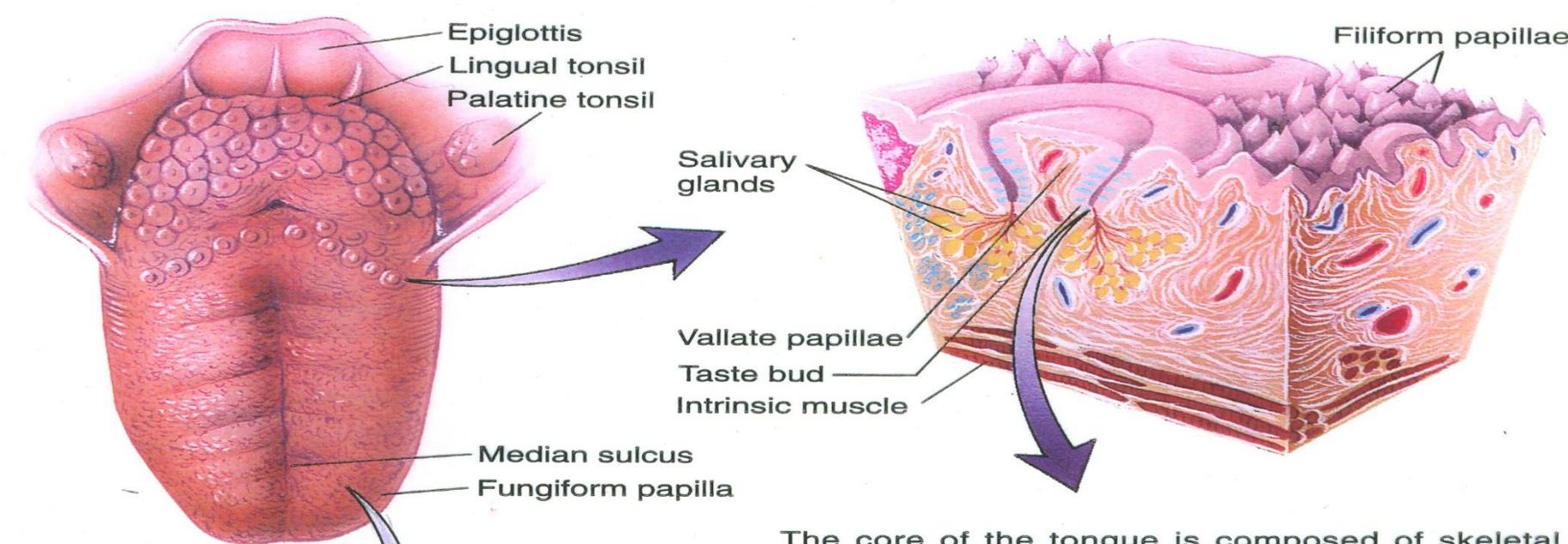
3- The duct of **Von Ebner's serous salivary gland** open into the **furrow**, they serve to **wash out** the soluble elements of food and it is the main source of **salivary Lipase**.



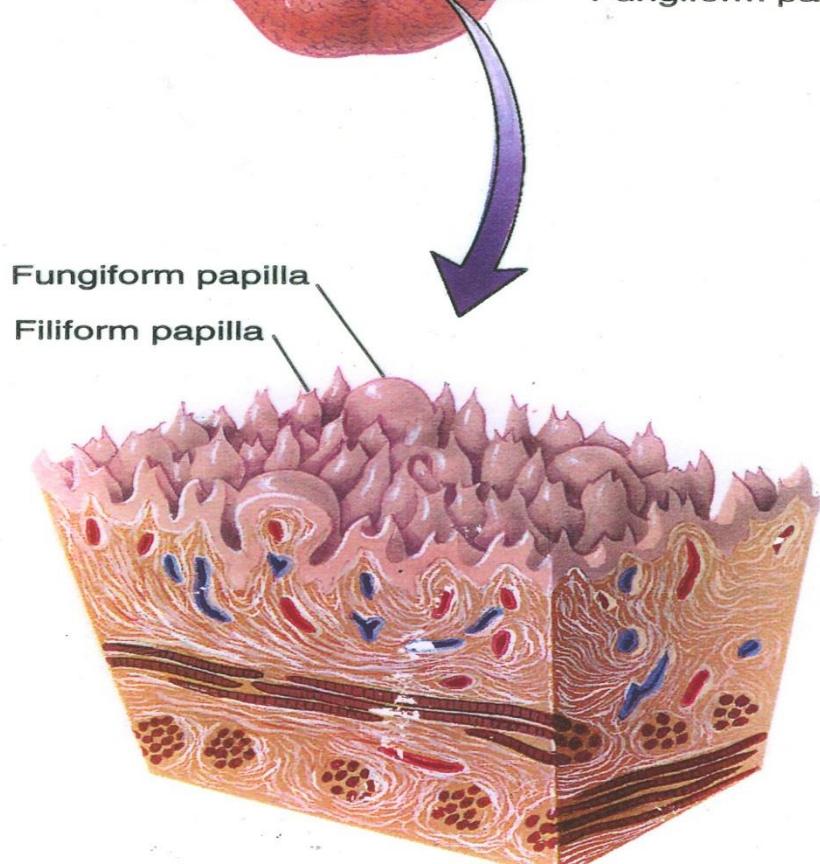


Circumvallate papillae

2



The core of the tongue is composed of skeletal muscle fibers that interlace with one another, connective tissue, and minor salivary glands.



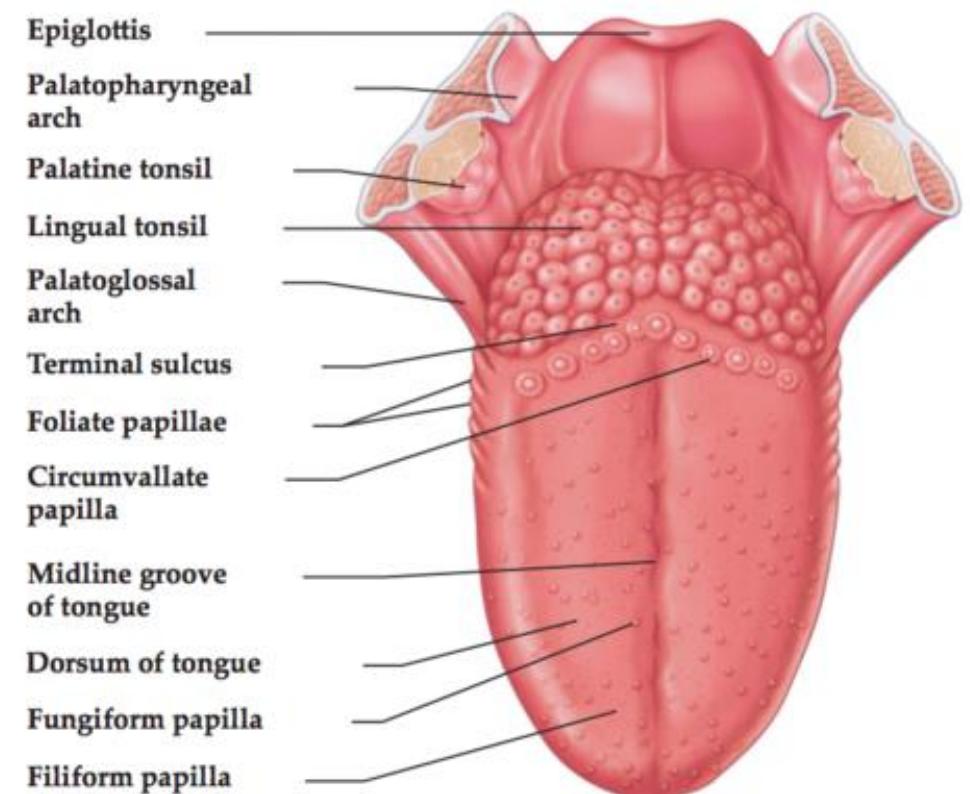
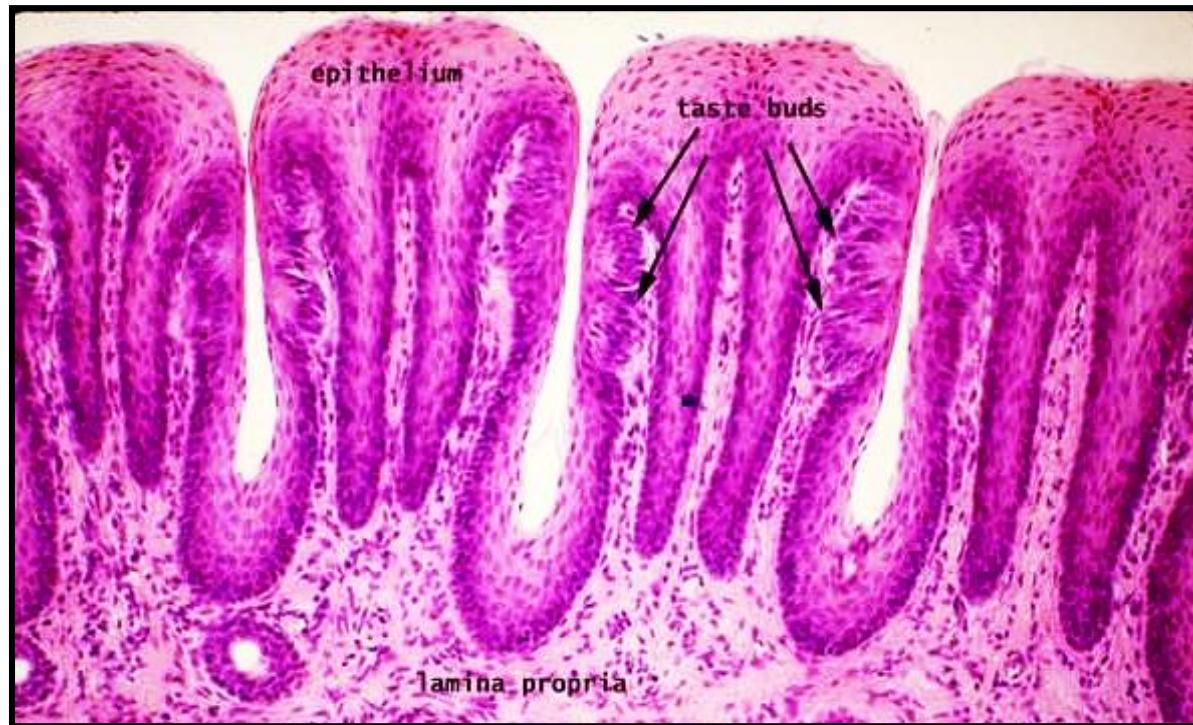
Circumvallate Papillae

Fungiform Papillae

Filiform Papillae

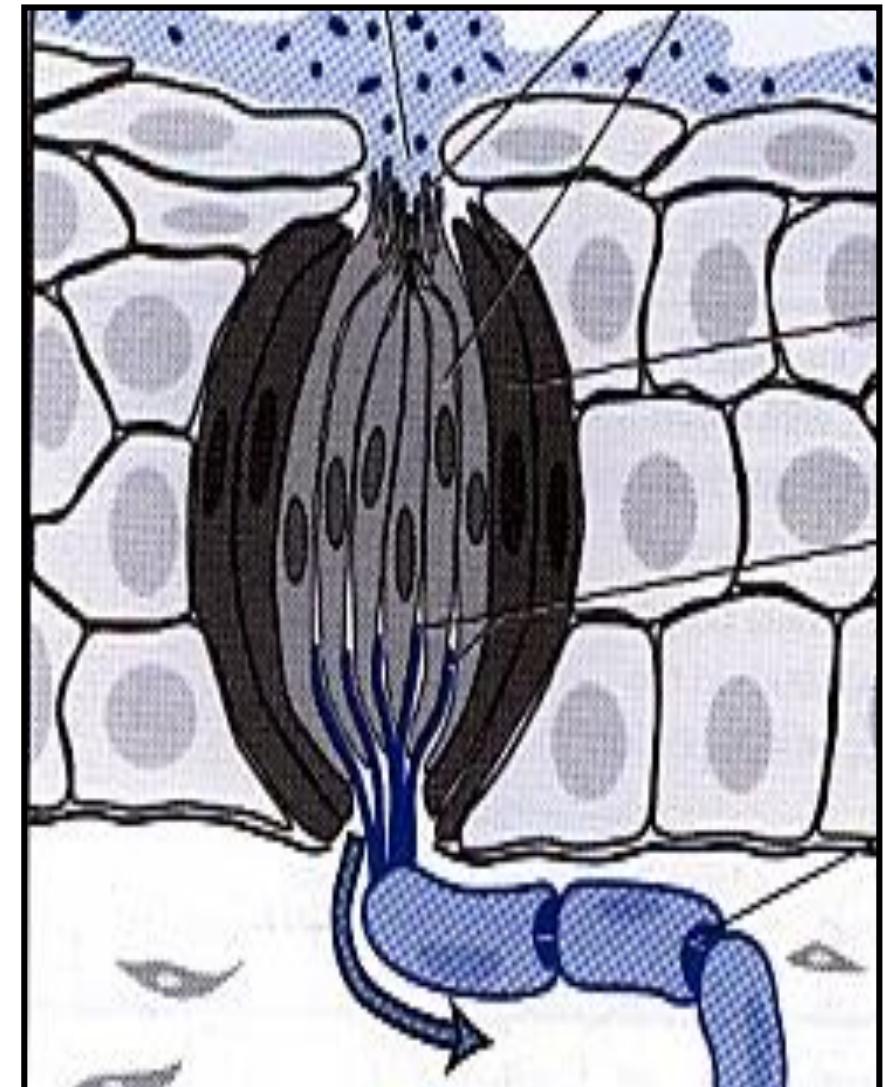
4- Foliate papillae

- Present on the **lateral border of the posterior parts** of the tongue appearing as **parallel clefts**. They are **from 4 to 11 papillae**.
- They bound narrow folds of the mucous membrane and contain few taste buds on their lateral walls.



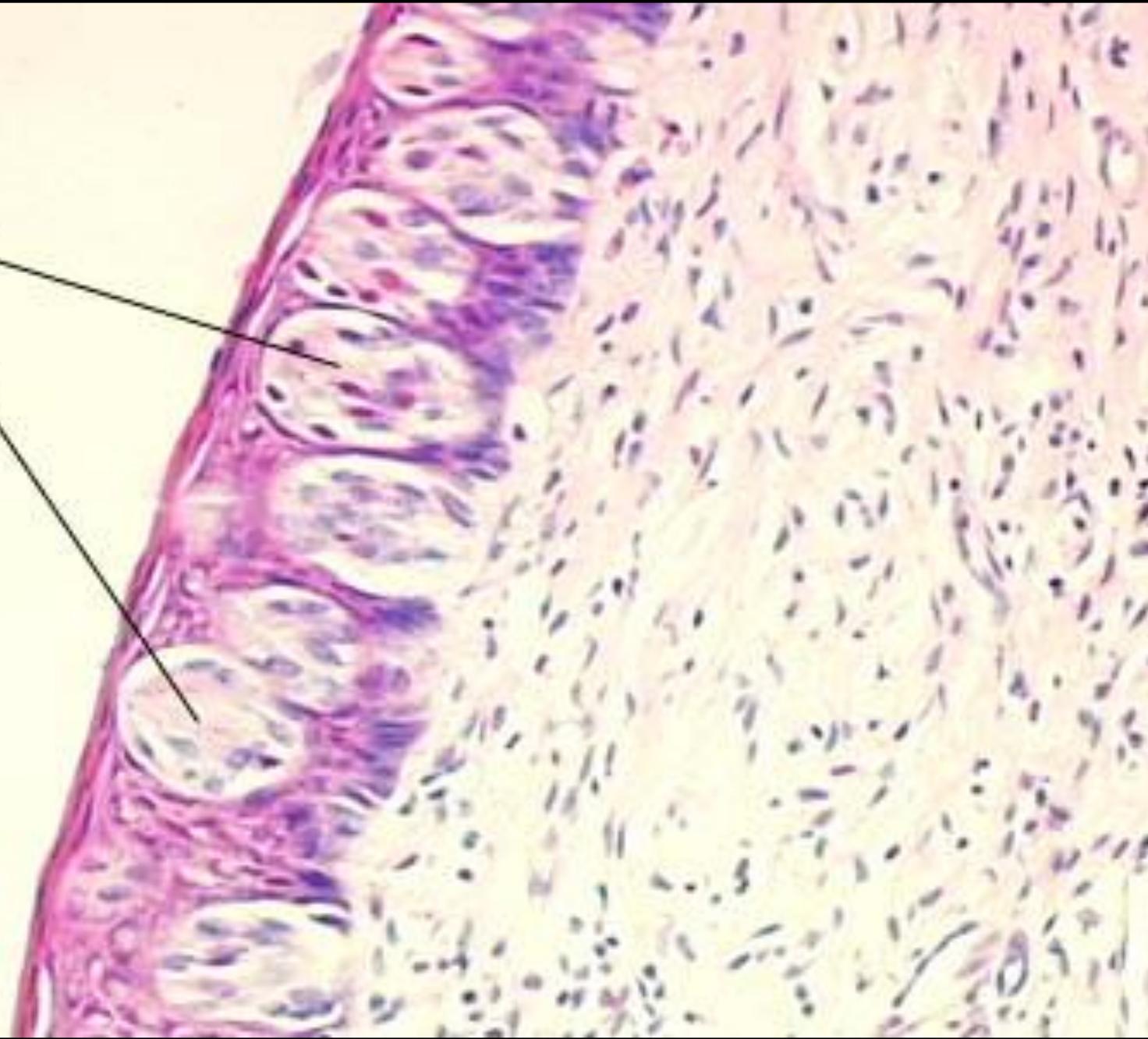
Taste buds

- Small ovoid or barrel shaped intraepithelial organ
- Their outer surface is almost covered by a few flat epithelial cells around a small opening called **taste pore** (a taste bud may have more than one taste pore).
- They are generally associated with the papillae of the tongue-the **circumvallate, foliate, and fungiform** although some are distributed in the **soft palate, epiglottis, larynx, and pharynx**.



Appear as pale
structures between
epithelium

taste bud



Taste buds contains two types of cells

1- Supporting cells: The outer ones, arranged like the staves of a barrel the inner ones are shorter and spindle shaped.

Lighter in color than sensory cells

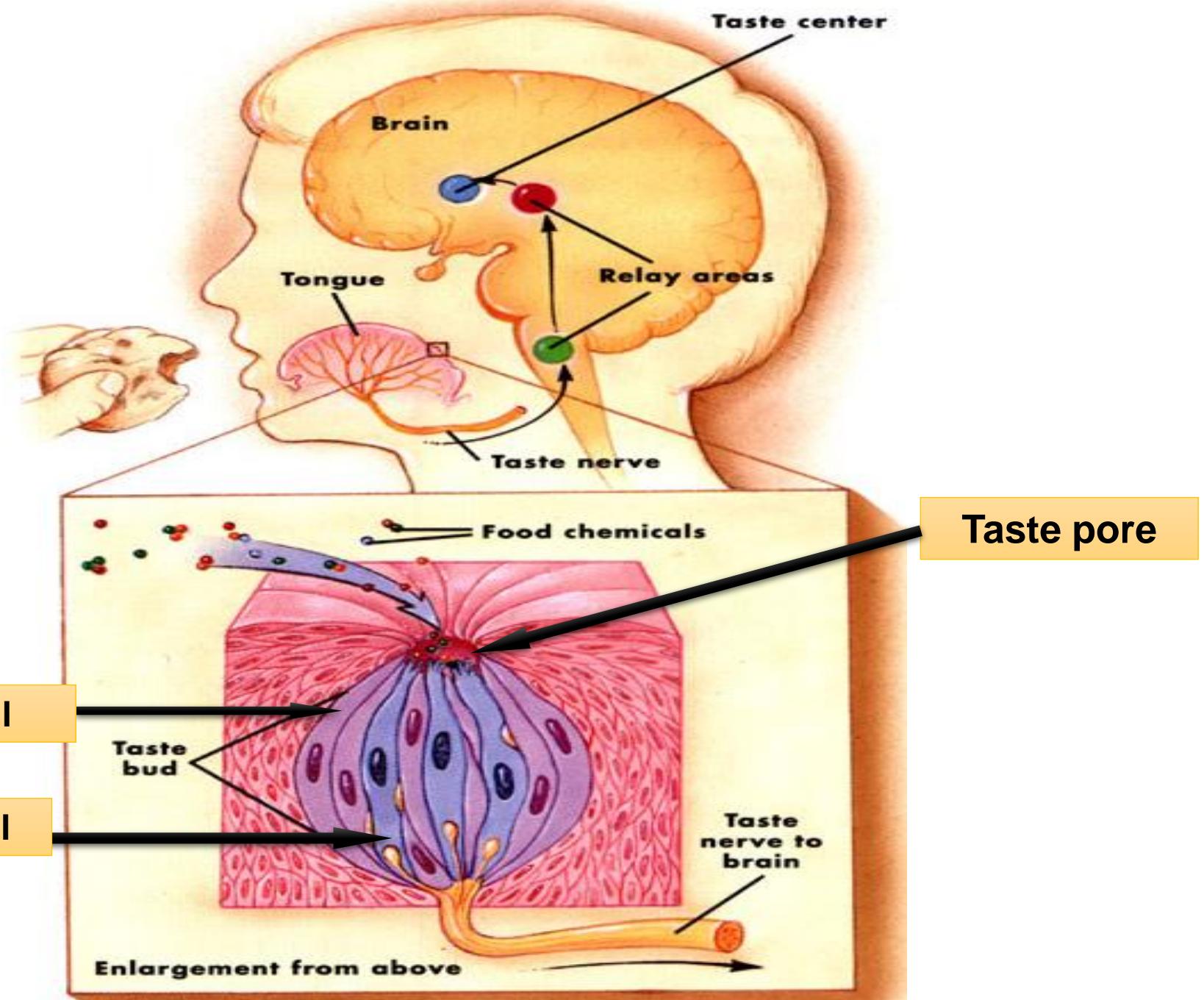
2- Neuroepithelial (Sensory) cells:

- a) 10 to 12 arranged in between the supporting cells.
- b) Receptors of taste stimuli.
- c) Slender, dark staining cells that have finger like processes at their superficial end.
- d) A rich plexus of nerves found below the taste buds, some fibers enter the epithelium and end in contact with them.

3- stem cells



Taste bud



thank
you

