

# Histology of Oral Cavity and Tongue



# The Oral Cavity

## Lips

- Each lip has three surfaces:
  - Cutaneous surface
  - Red area
  - Oral surface
- Cutaneous Surface: Is covered by ordinary skin containing hair follicles, sebaceous glands and sweat glands.

## Red Area:

- Is covered by stratified squamous non keratinized epithelium. The dermis of red area contain a large number of blood vessels, giving reddish appearance.
- No hair follicles, sebaceous or sweat glands are present.

## Oral surface:

- Is covered by oral mucosa which consists of stratified squamous non keratinized epithelium and a connective tissue lamina propria.
- Small groups of mucous simple tubuloacinar glands are present.

# Cheeks

- Is formed by skeletal muscle and fibroelastic connective tissue.
- **Mucosa**: Consist of stratified squamous nonkeratinized epithelium lying upon lamina propria.
- **Submucosa**: It contains a large number of elastic fibers and numerous small branched tubuloacinar glands of mucous and mixed variety.

# Palate

- **Mucosa**: Lined by stratified squamous keratinized epithelium and lamina propria.
- **Submucosa** : Is composed of mainly collagen fibers, it contains simple tubuloacinar glands and adipose tissue.

# Structure of the Tongue

## Mucosa

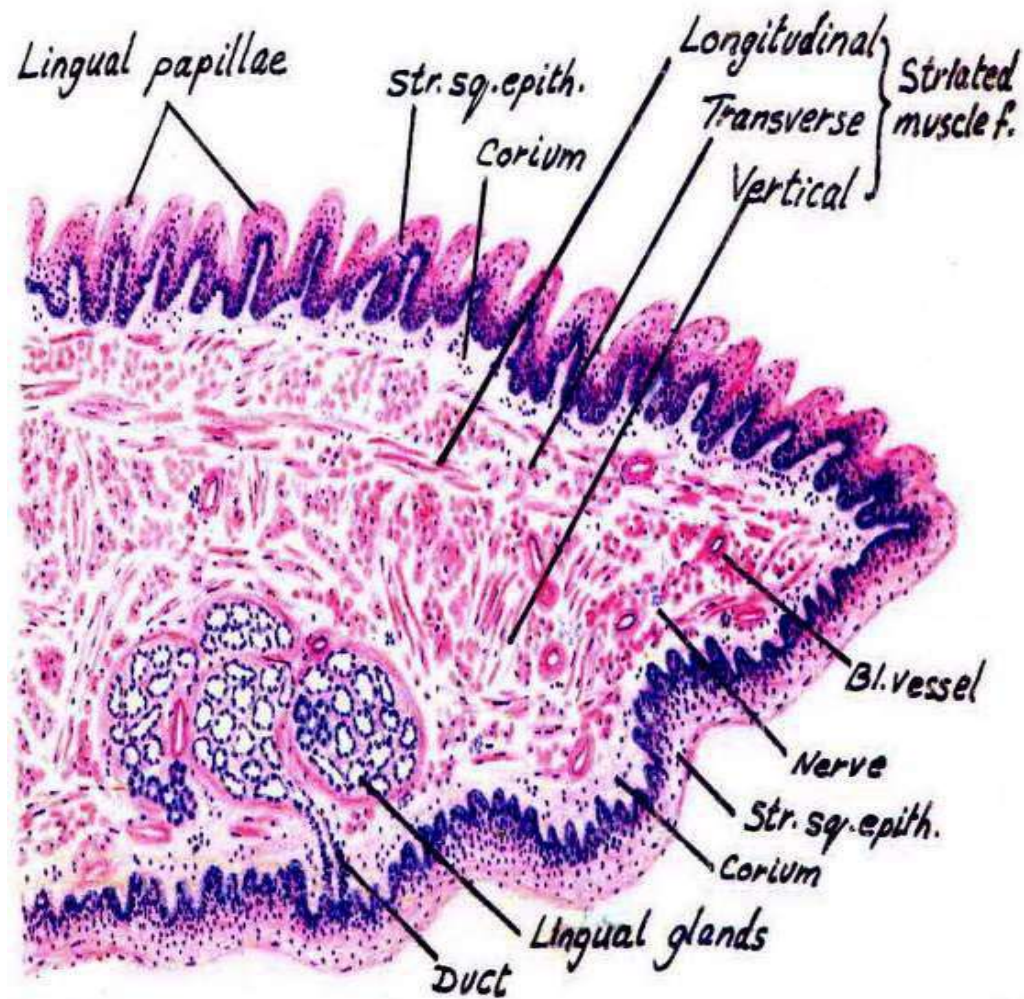
- **Stratified squamous** epithelium on both surfaces.
- The dorsal surface forms **papillae**.

## Submucosa

- Has **minor salivary** glands that secrete both mucous and serous secretions.

## Muscles

- Core of **skeletal striated** muscles running in all directions



# Tongue

- Tongue is a highly muscular organ covered by a **mucous** membrane.
- The skeletal muscle fibers are arranged in three directions longitudinal ,transverse and vertical.
- The mucous membrane is closely attached to muscle fibers and consist of **epithelium** and **lamina propria**.
- The epithelium is stratified non keratinized squamous on ventral side and partially keratinized on dorsal side.

# Tongue

➤ Tongue has three parts and two surfaces:

- Oral (anterior  $\frac{2}{3}$ )
- Pharyngeal (posterior  $\frac{1}{3}$ )
- Root (base)

➤ Surfaces:

- Dorsal
- ventral



# Dorsal surface

- Anterior two third: mucosa is rough, shows four types of papillae or projections:
  - Filiform
  - Fungiform
  - Circumvallate
  - Foliate
- Posterior one third: No papillae but shows nodular surface because of underlying lymphatic nodules, the lingual tonsils

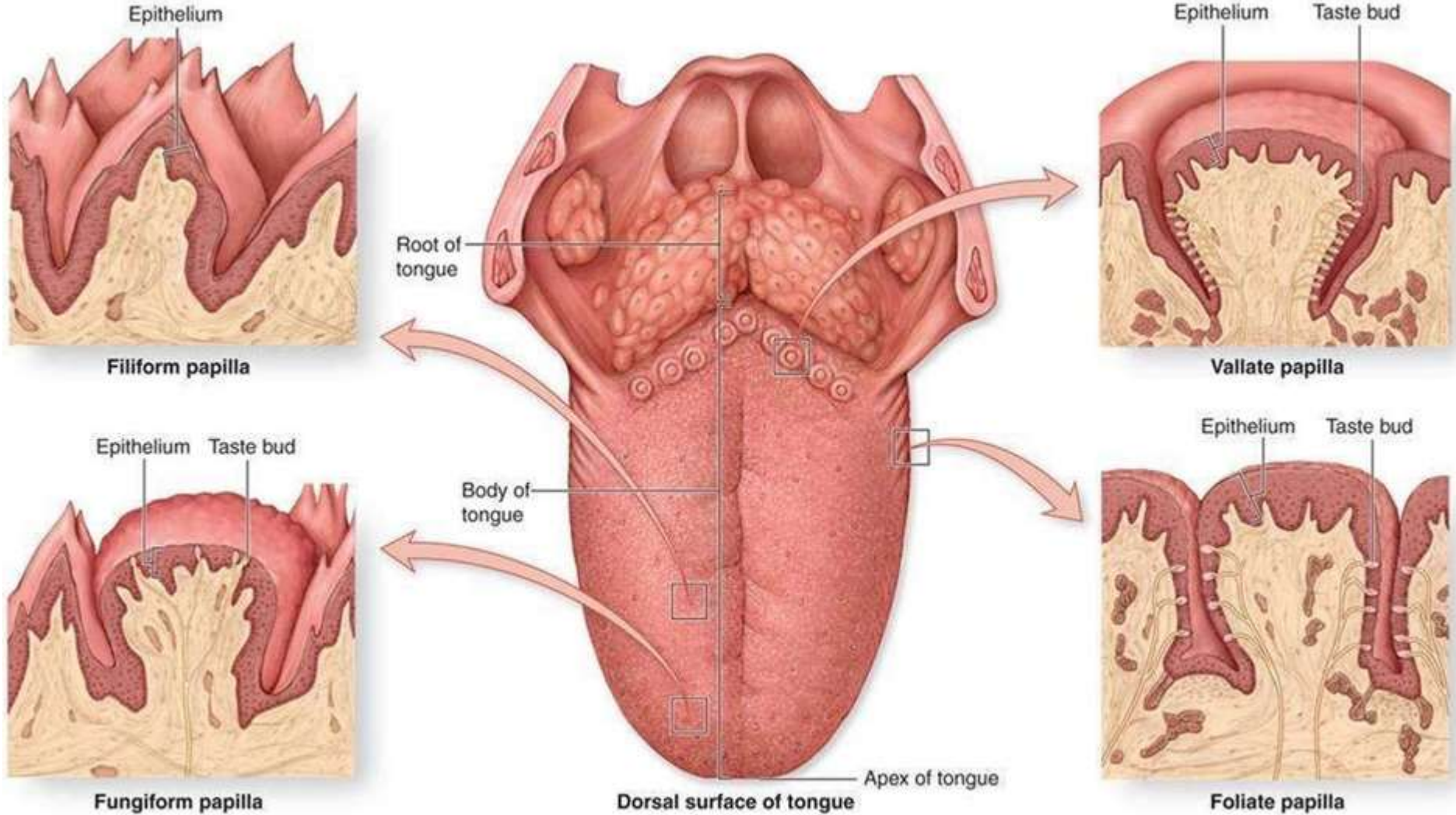
## Ventral surface

- Ventral surface is smooth , has no papillae because epithelium is closley attached to muscle.
- Covered by non keratinized stratified squamous epithelium.

# Lingual Papillae

- Anterior two third of mucosa is rough, shows numerous small projections called lingual papillae.
- These projections are formed of central core of connective tissue and a covering layer of epithelium.
  - Filiform
  - Fungiform
  - Circumvallate
  - Foliate

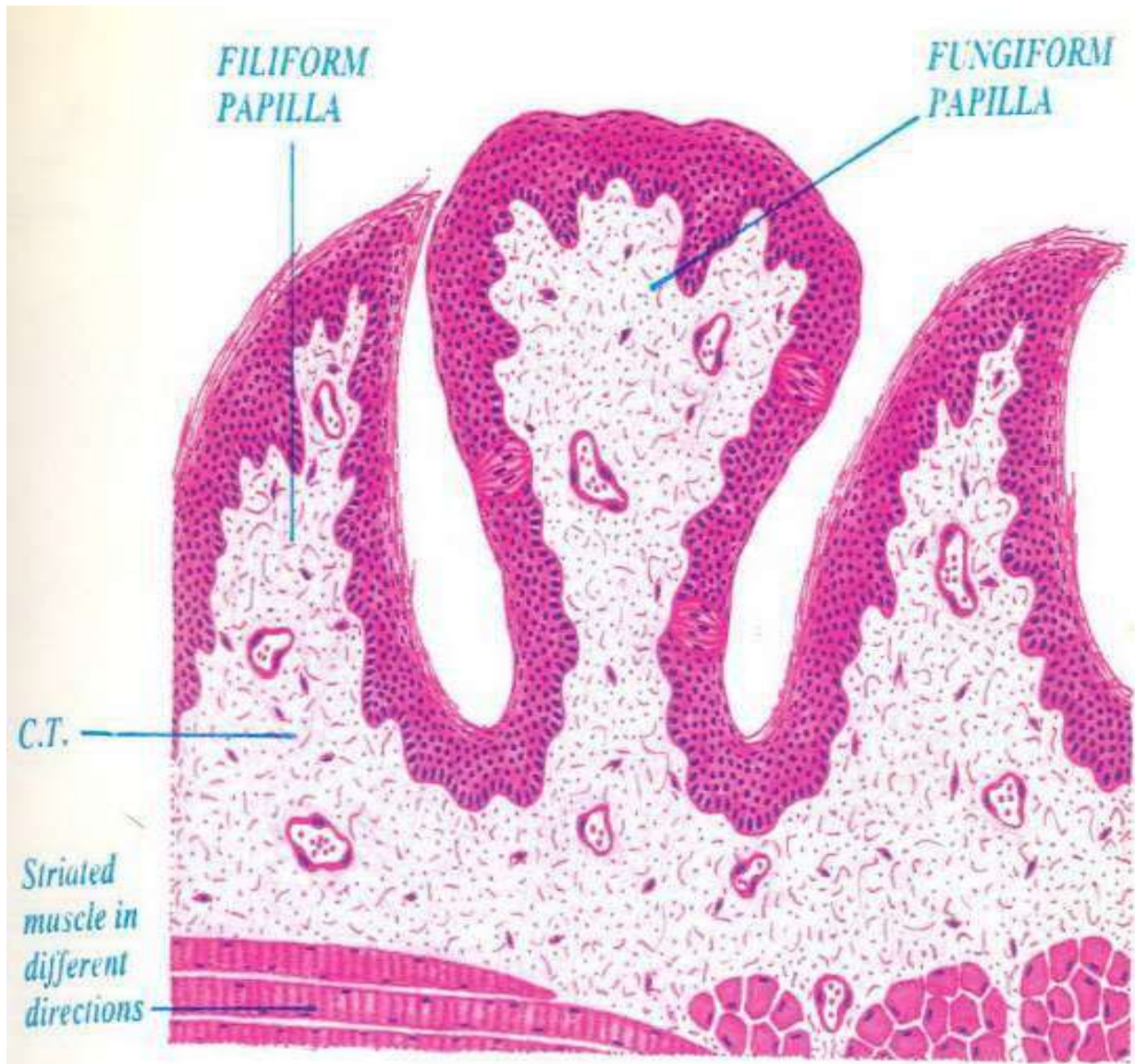
# Lingual Papillae

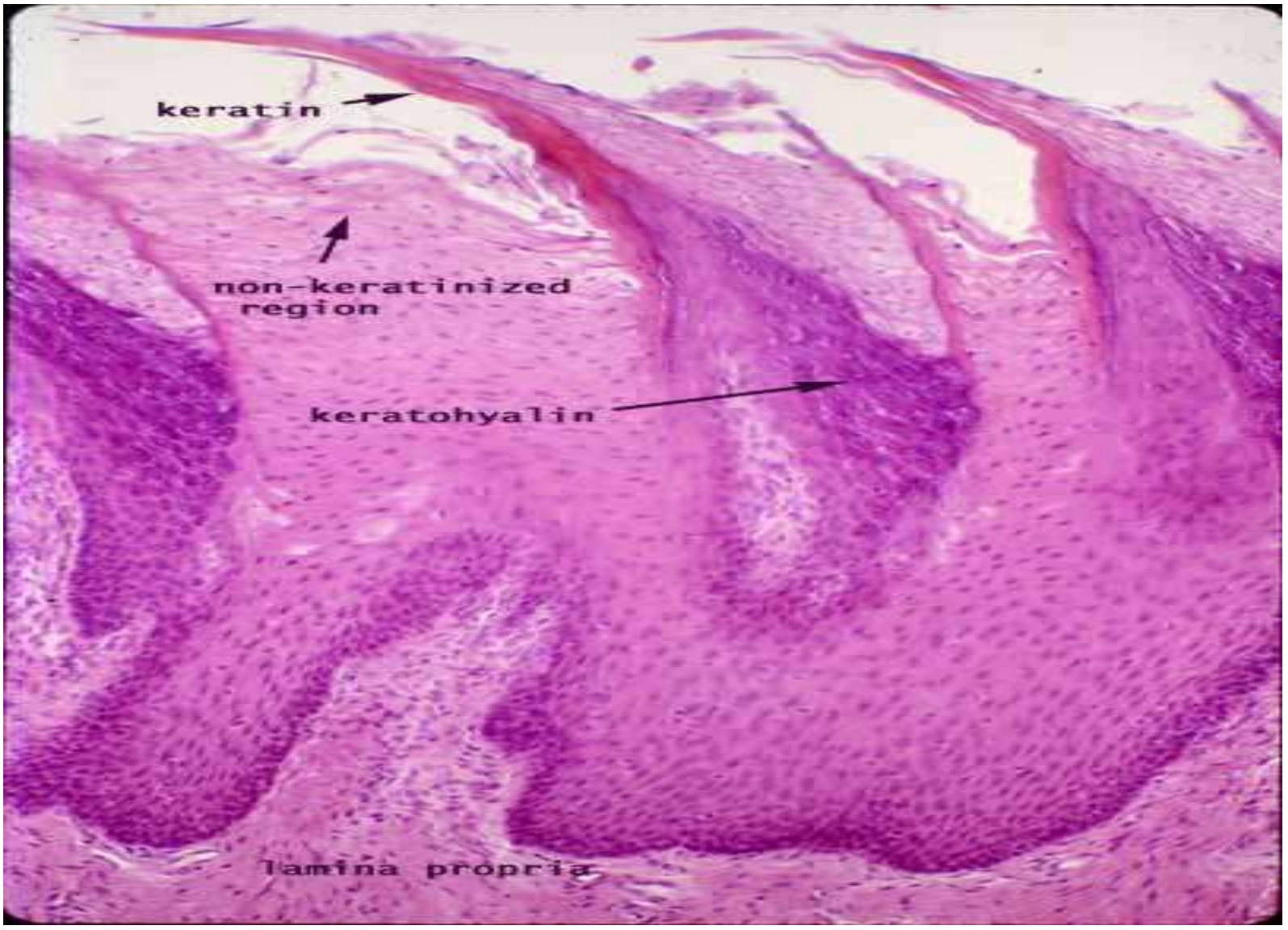


Each consists of a connective tissue core covered by stratified squamous epithelium.

# Filiform Papillae

- Thread like
- Most numerous present all over the tongue (anterior 2/3) .
- These papillae covered by stratified squamous keratinized epithelium.
- No taste buds are present.



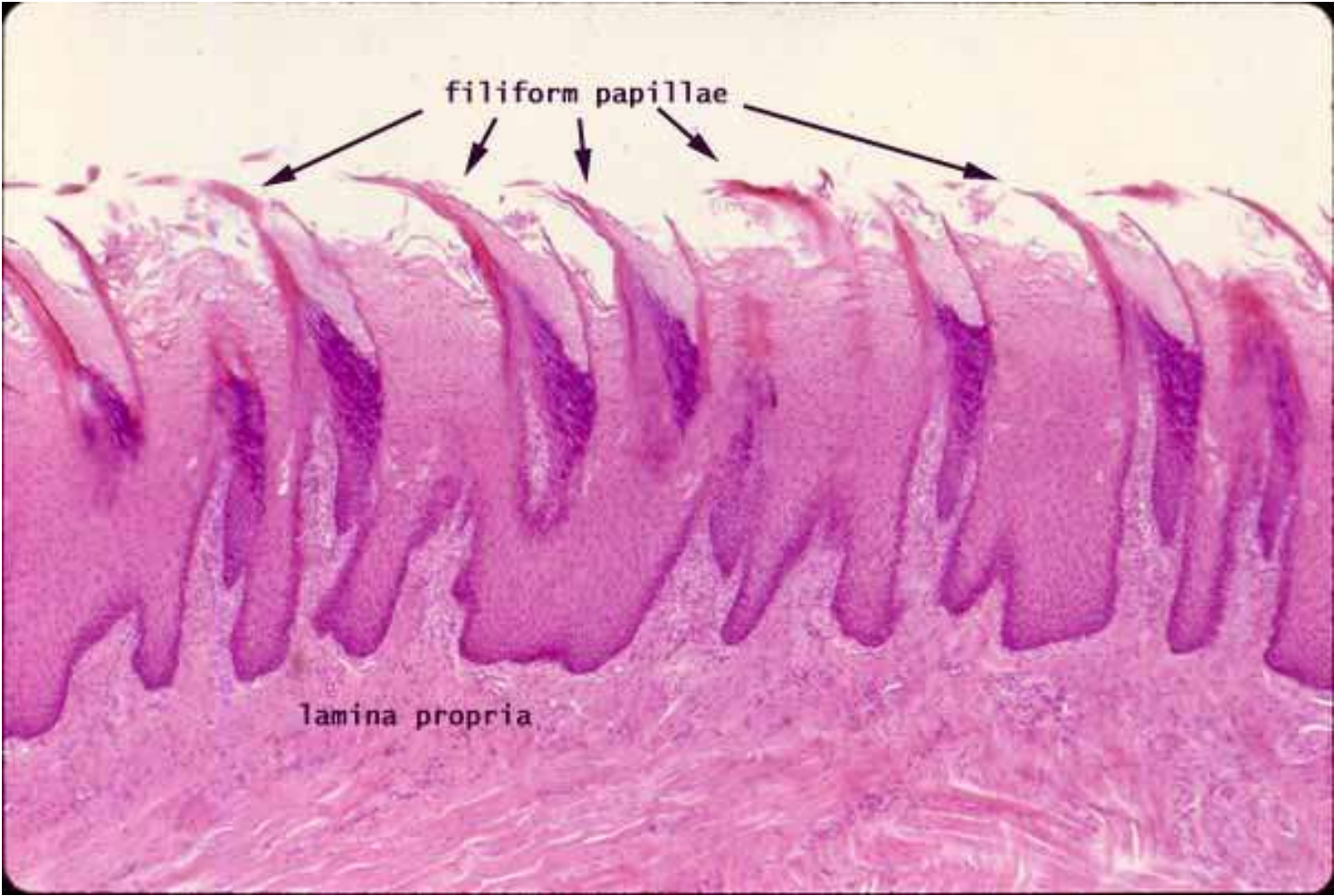


keratin

non-keratinized  
region

keratohyalin

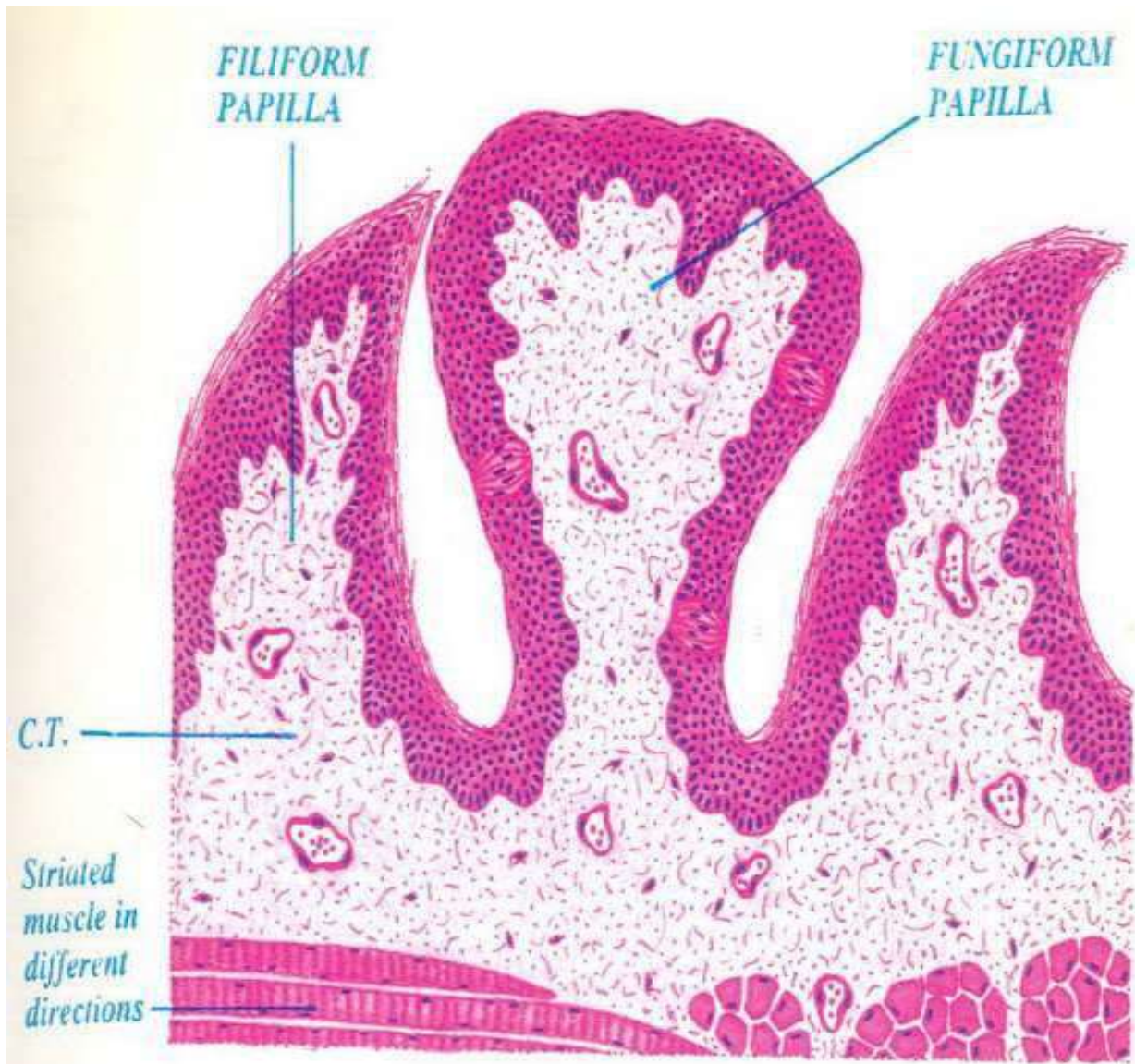
lamina propria





# Fungiform papillae

- Mushroom shaped structure has dilated upper part and a lower narrow.
- Present among the filiform papillae and more abundant in the region close to the tip of tongue.
- These papillae covered by stratified squamous non keratinized epithelium.
- Each papillae contain large number of taste buds.



# Circumvallate Papillae

- Also called vallate papillae, are 8 - 12 papillae located just anterior to the sulcus terminalis.
- Large circular papillae, each is surrounded by a deep groove.
- These papillae covered by stratified squamous non keratinized epithelium and has numerous taste buds.

CIRCUMVALLATE

PAPILLA

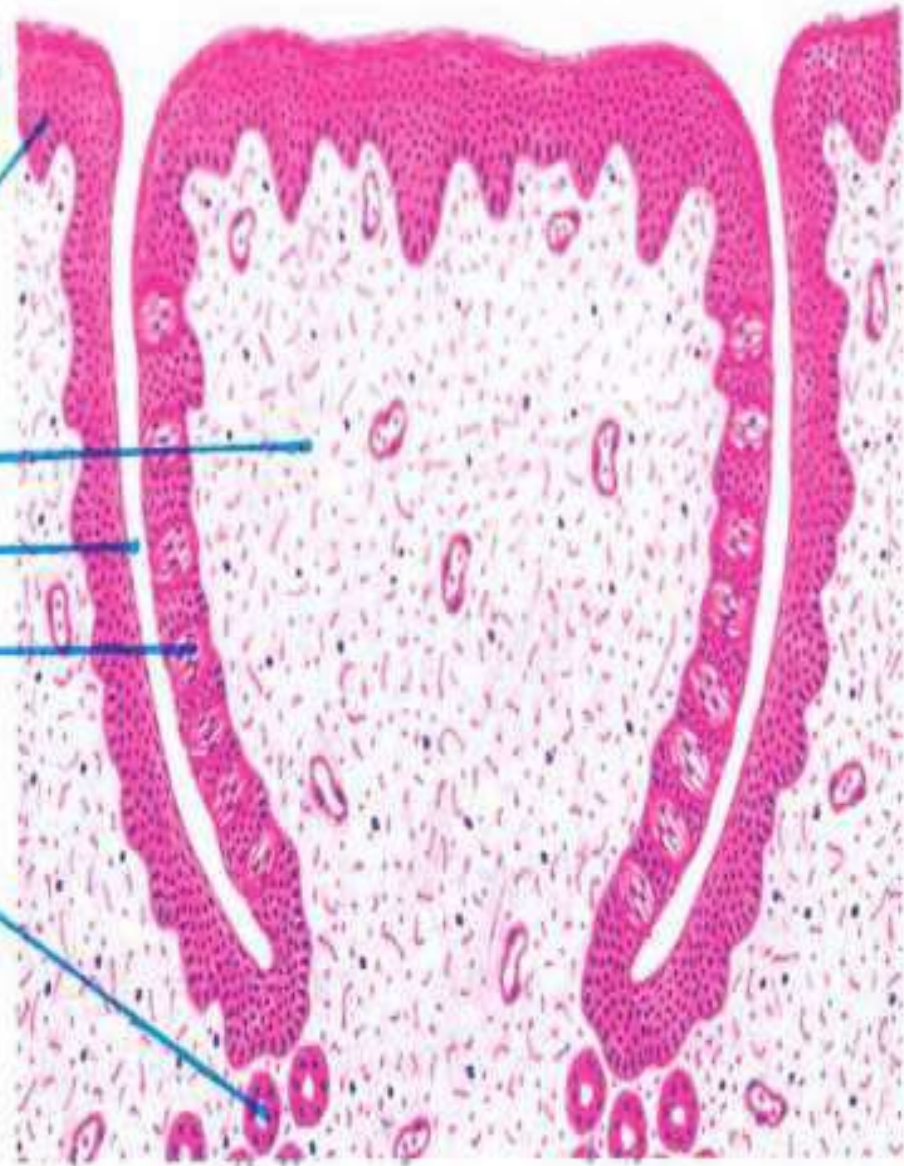
St. sq. epith.  
keratinized

Lamina propria

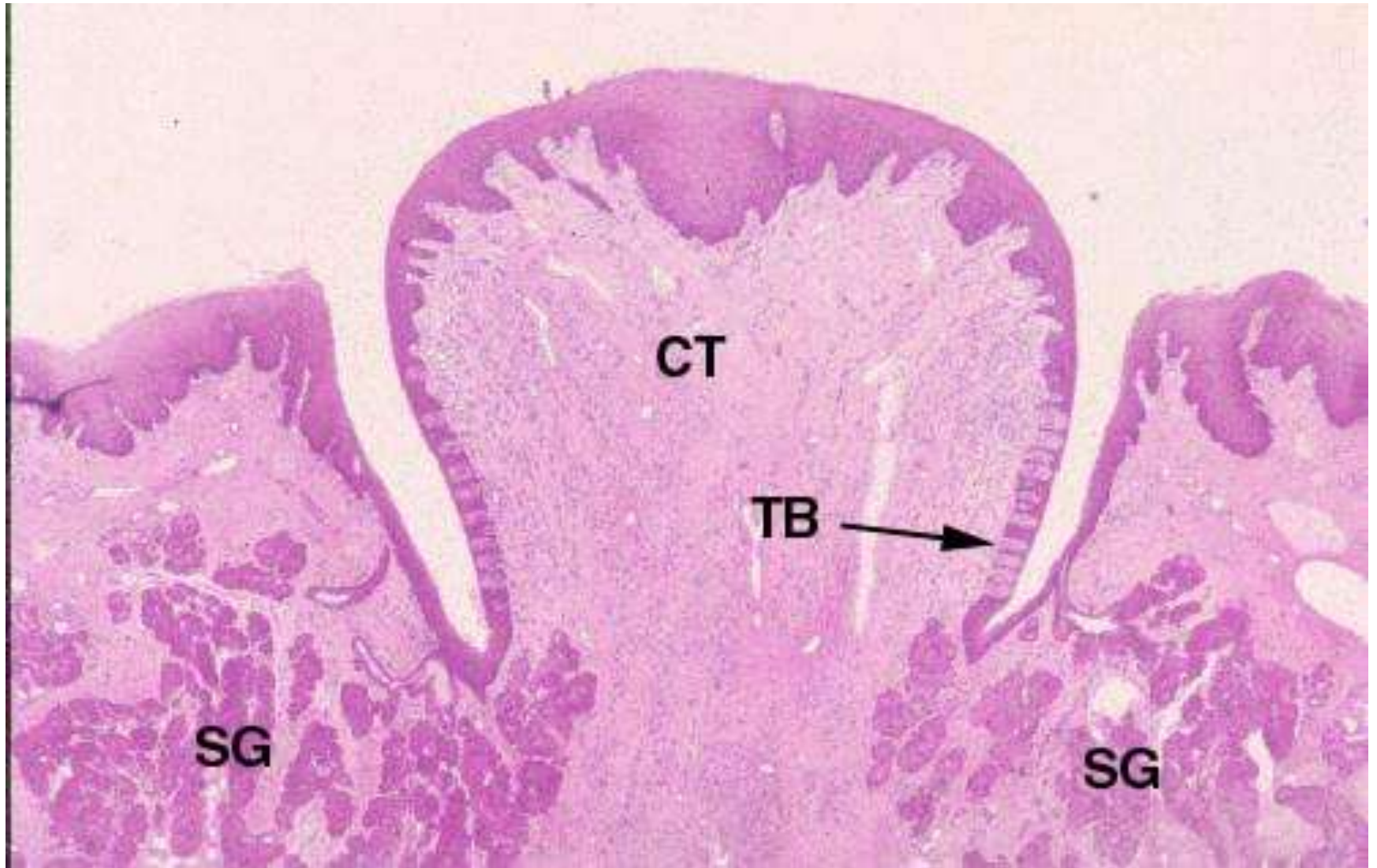
Deep groove

Taste bud

Von Ebner's  
serous glands



# Circumvallate papillae



# Foliate Papillae

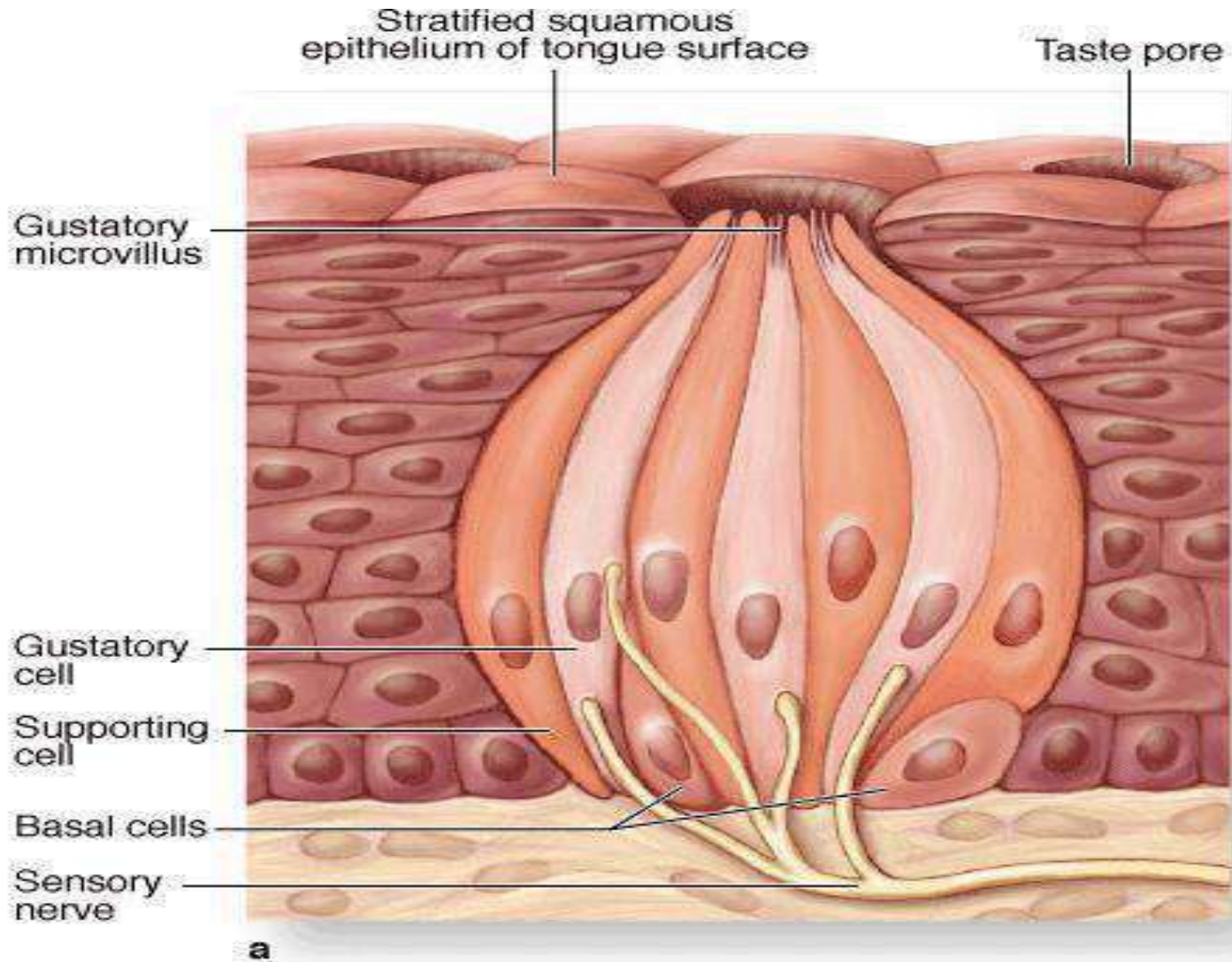
- Leaf like papillae are well developed in mammals.
- These papillae are present on the sides of the tongue.
- These papillae covered by stratified squamous non keratinized epithelium.

# Taste Buds

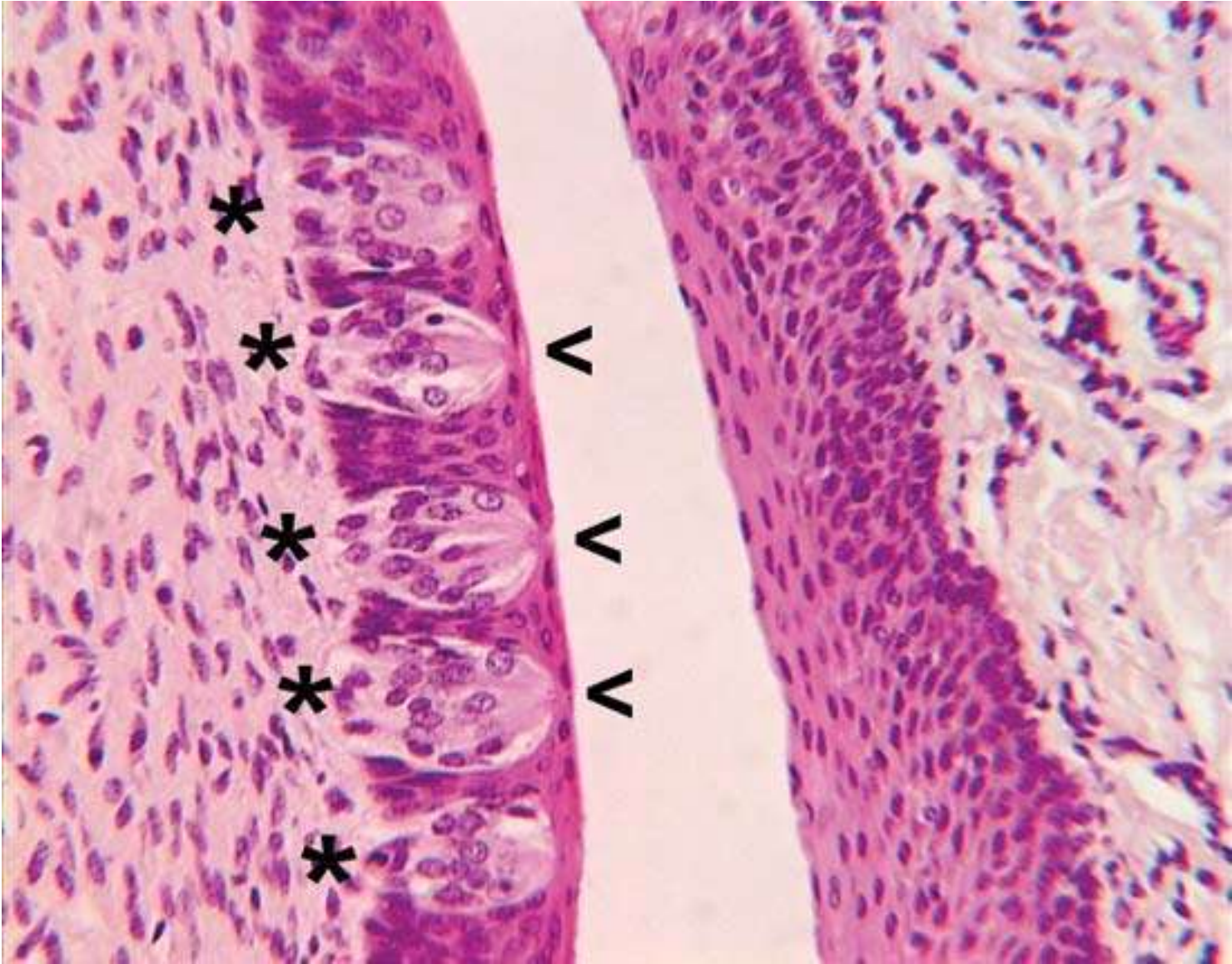
- These are receptors for the taste sensation.
- It appears as an oval pale staining body within the epithelium covering fungiform, foliate and circumvallate.
- Three types of cells are present:
  - Sustentacular cells ( supporting cell)
  - Neuroepithelial cells (taste cells)
  - Basal cells

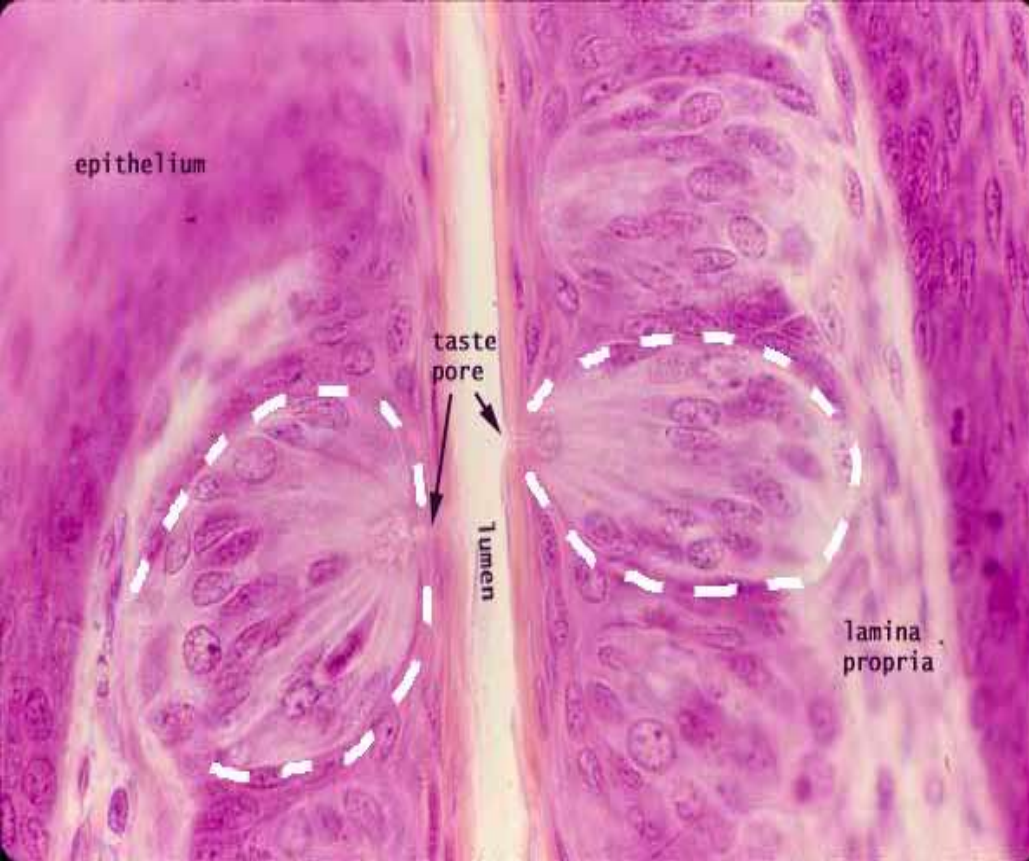
# Taste buds

Onion-shaped structures in the epithelium of lingual papillae e.g. fungiform and circumvallate papillae.

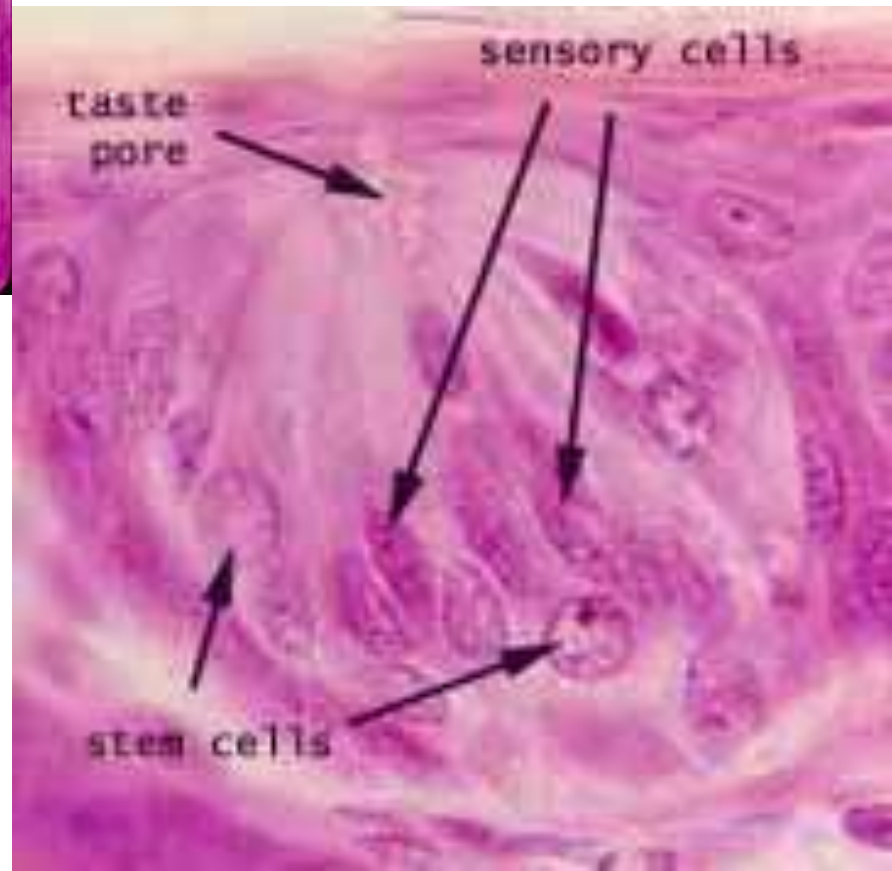


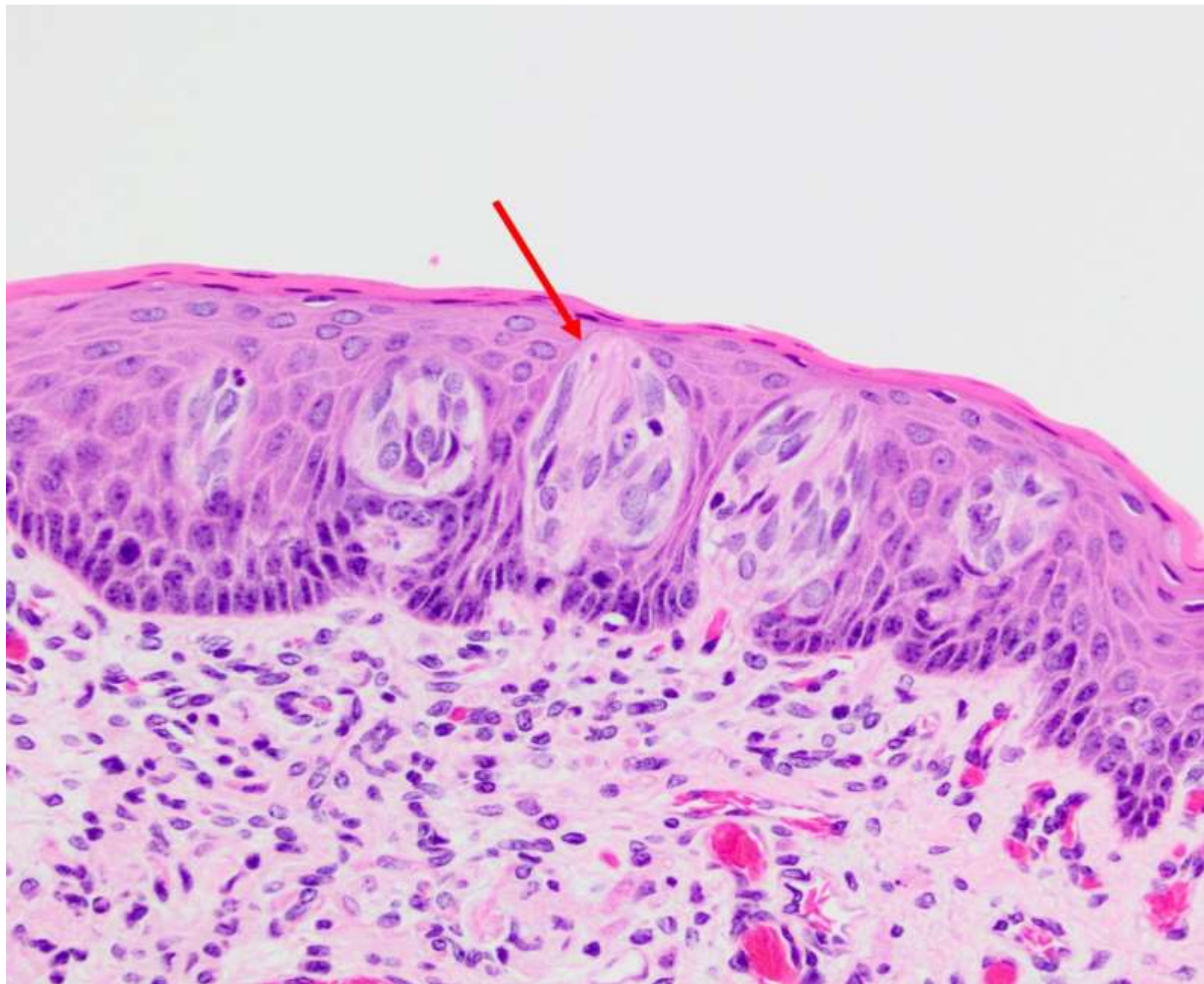






## Taste buds





# Glands of Tongue

## **Anterior lingual glands:**

- Mixed glands located under the tip of the tongue and their ducts open on to the ventral surface.

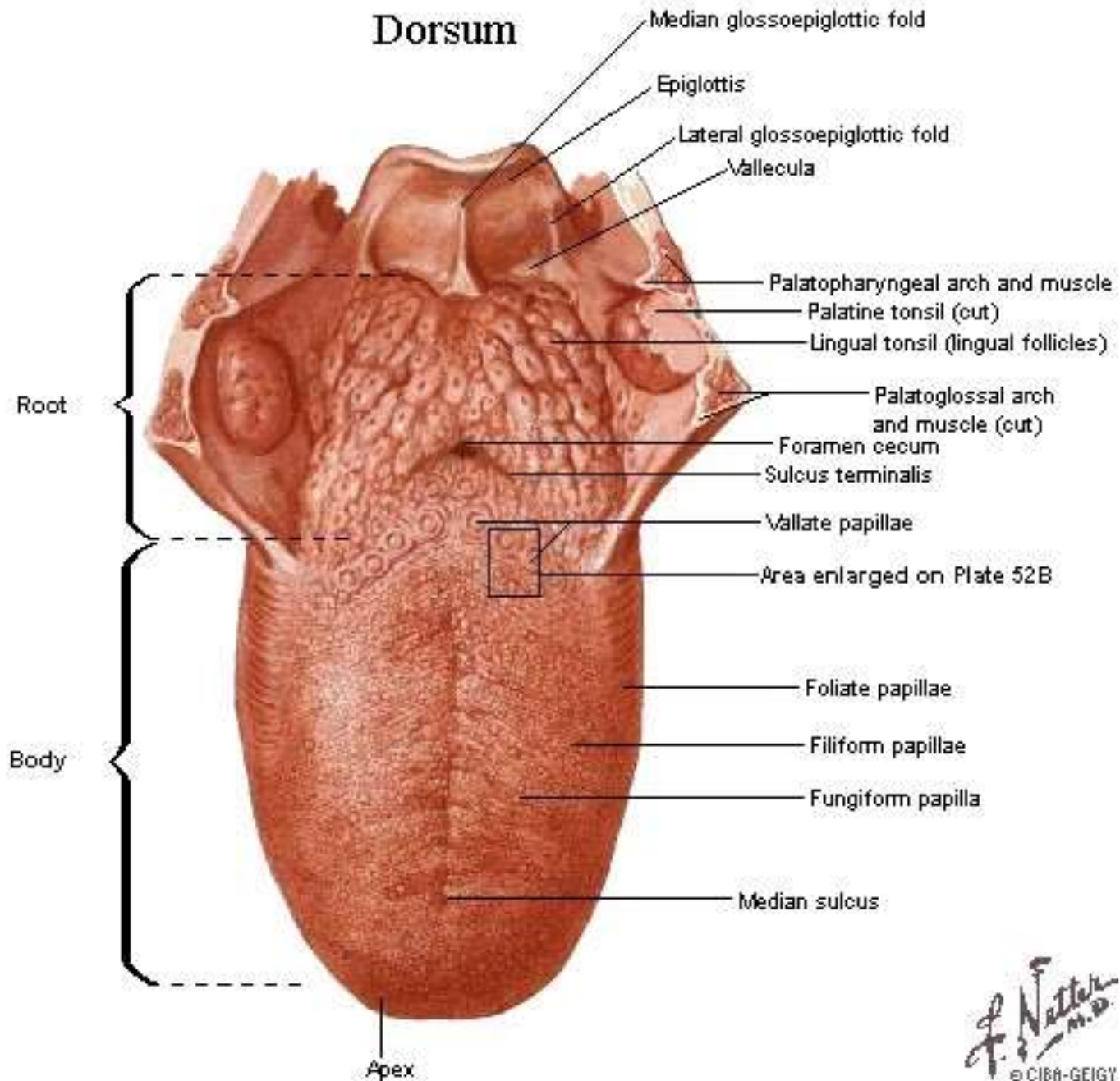
## **Glands of Von Ebner:**

- Purely serous glands located in circumvallate papillae and their ducts open into the grooves of circumvallate papillae.

## **Mucous glands of the root:**

- Purely mucous glands lie in the posterior one third of the tongue and their ducts open into the crypts of lingual tonsil.

# Tongue Dorsum





- 1. Which type of papillae on the tongue is the most abundant?**
  - a. Filiform papillae
  - b. Circumvallate papillae
  - c. Fungiform papillae
  - d. Foliate papillae

**2. Which type of papillae on the tongue is not well developed in man?**

- a. Filiform papillae
- b. Circumvallate papillae
- c. Fungiform papillae
- d. Foliate papillae



**3. Taste cells on our tongue that receive the stimulation of taste are known as**

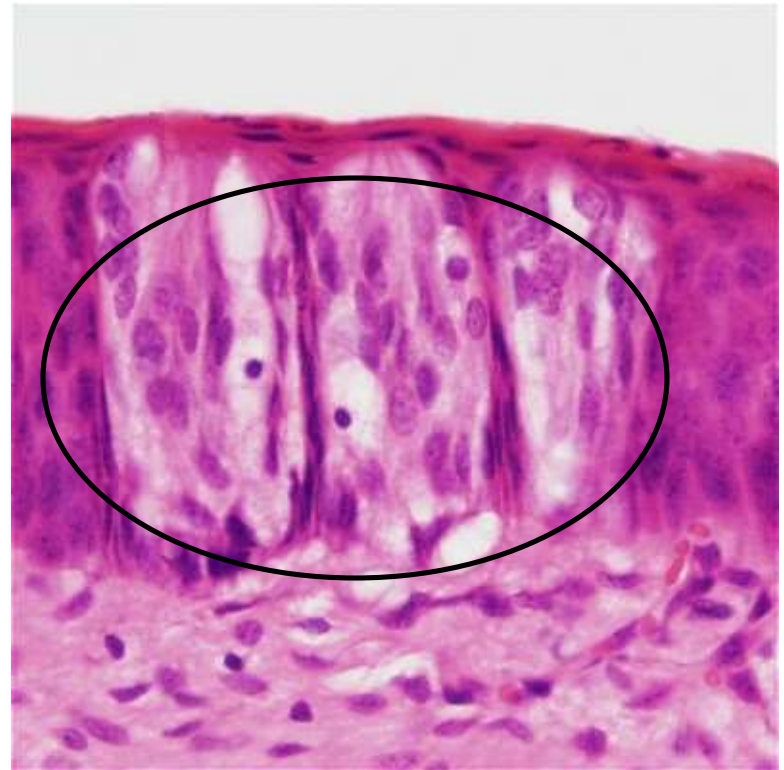
- a) taste buds
- b) cotton buds
- c) receptors
- d) tube

#### **4. The epithelium of soft palate on pharyngeal surface is**

- a) Pseudostratified columnar ciliated epithelium.
- b) Stratified columnar ciliated epithelium
- c) Stratified squamous non keratinized epithelium
- d) Stratified squamous keratinized epithelium

## 5. Identify a histological feature

- a) Corpus-fundic gland
- b) Portal triad
- c) Taste bud
- d) Brunner's glands



1. A

2. D

3. A

4. A

5. C