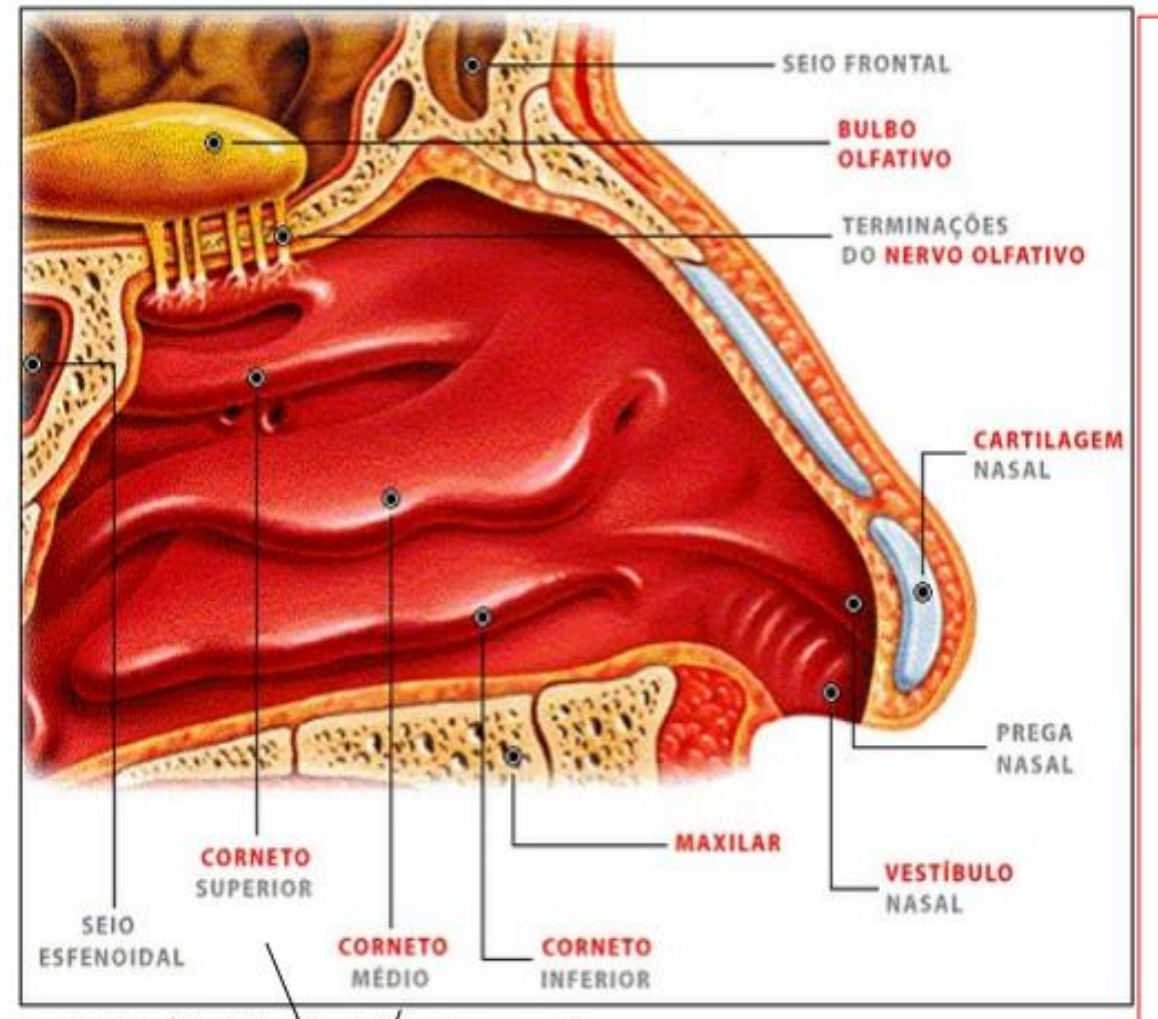
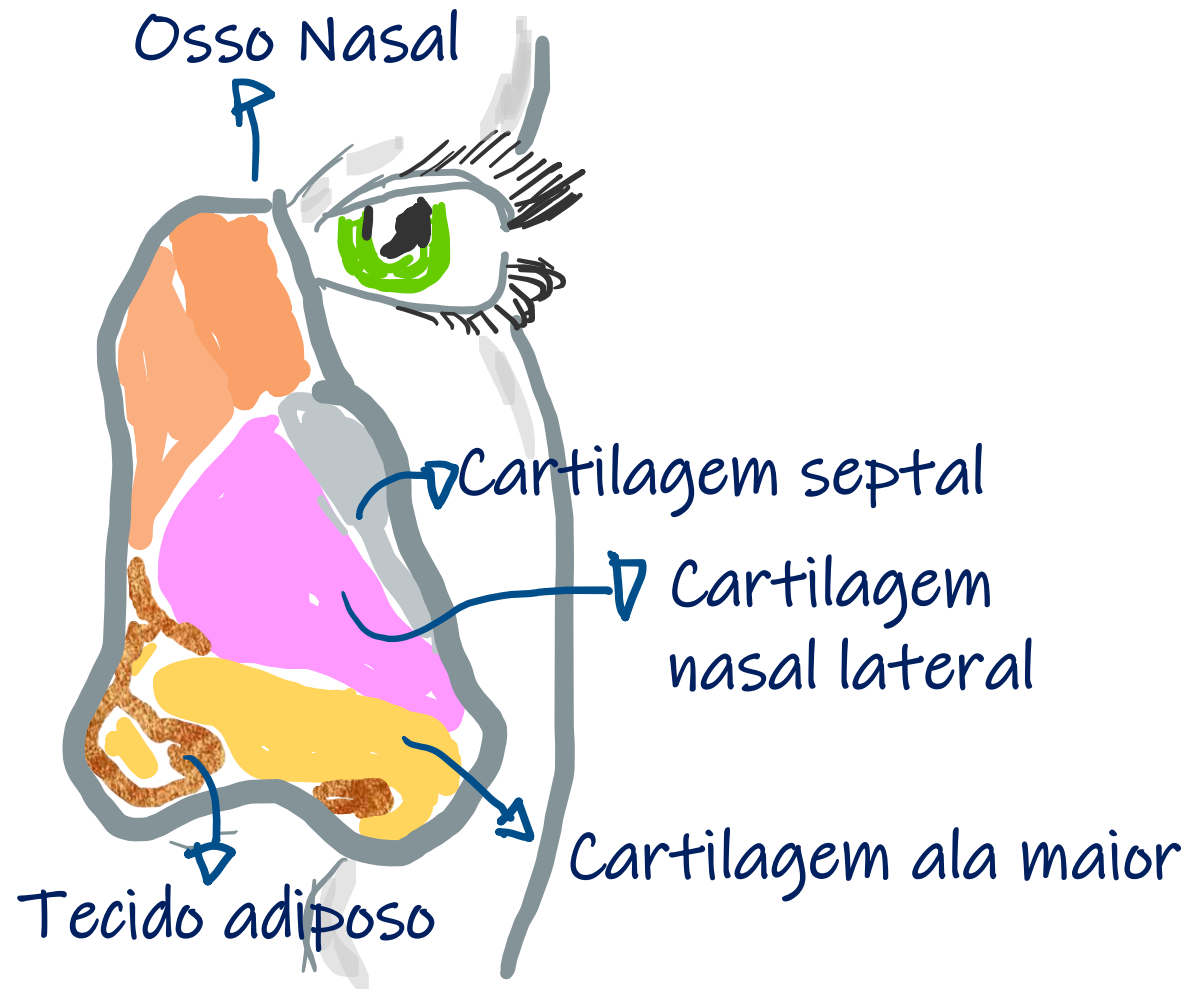
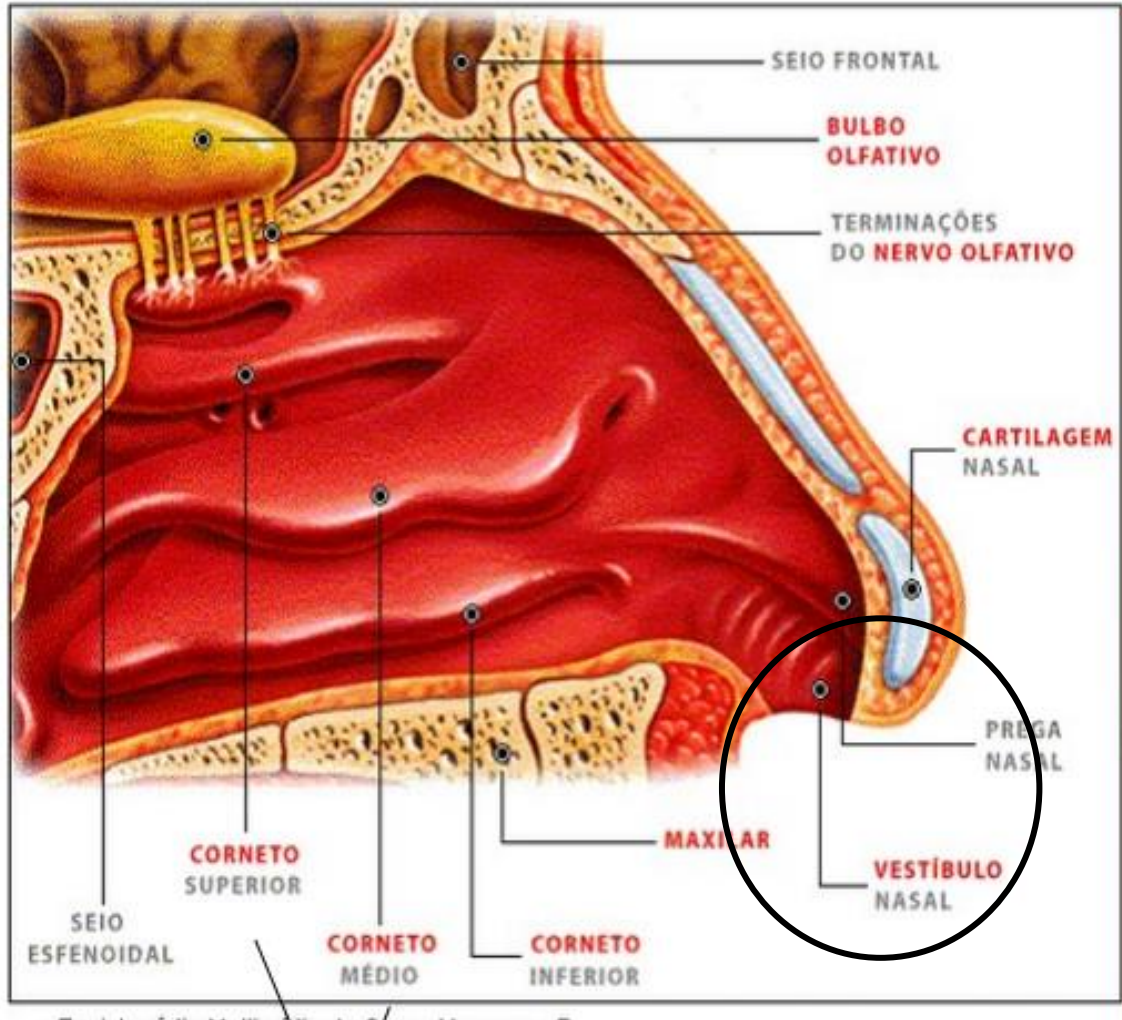


# Histologia do Sistema Respiratório

Profa. Ivana Beatrice Mânica da Cruz

# Nariz





## Vestibulo Nasal



Epiderme  
Derme  
Glândulas Sudoríparas  
Glândulas Sebáceas  
Folículos Pilosos

Epiderme: Epitélio estratificado pavimentoso não-queratinizado que se liga com o epitélio estratificado pavimentoso queratinizado da pele da face.

# Cavidade Nasal

Mucosa reveste as cavidades  
nasais



Constituição histológica

Epitélio  $\Rightarrow$  Varia conforme o local  
Lâmina própria Fina



Apoiada



Pericôndrio  
Cartilagem hialina

Periosteio  
Osso

Cílios e Muco: movimentação de limpeza  
mucociliar Desloca materiais particulados  
em direção à nasofaringe

Cavidade nasal ⇒ Epitélio Respiratório

Reveste grande parte  
das vias respiratórias

Mucosa Nasal

Epitélio Pseudoestratificado colunar ciliado com células caliciformes

Tecido Conjuntivo vascularizado  
Fibras Colágenas e Elásticas

⇒ Denominado  
Lâmina Própria

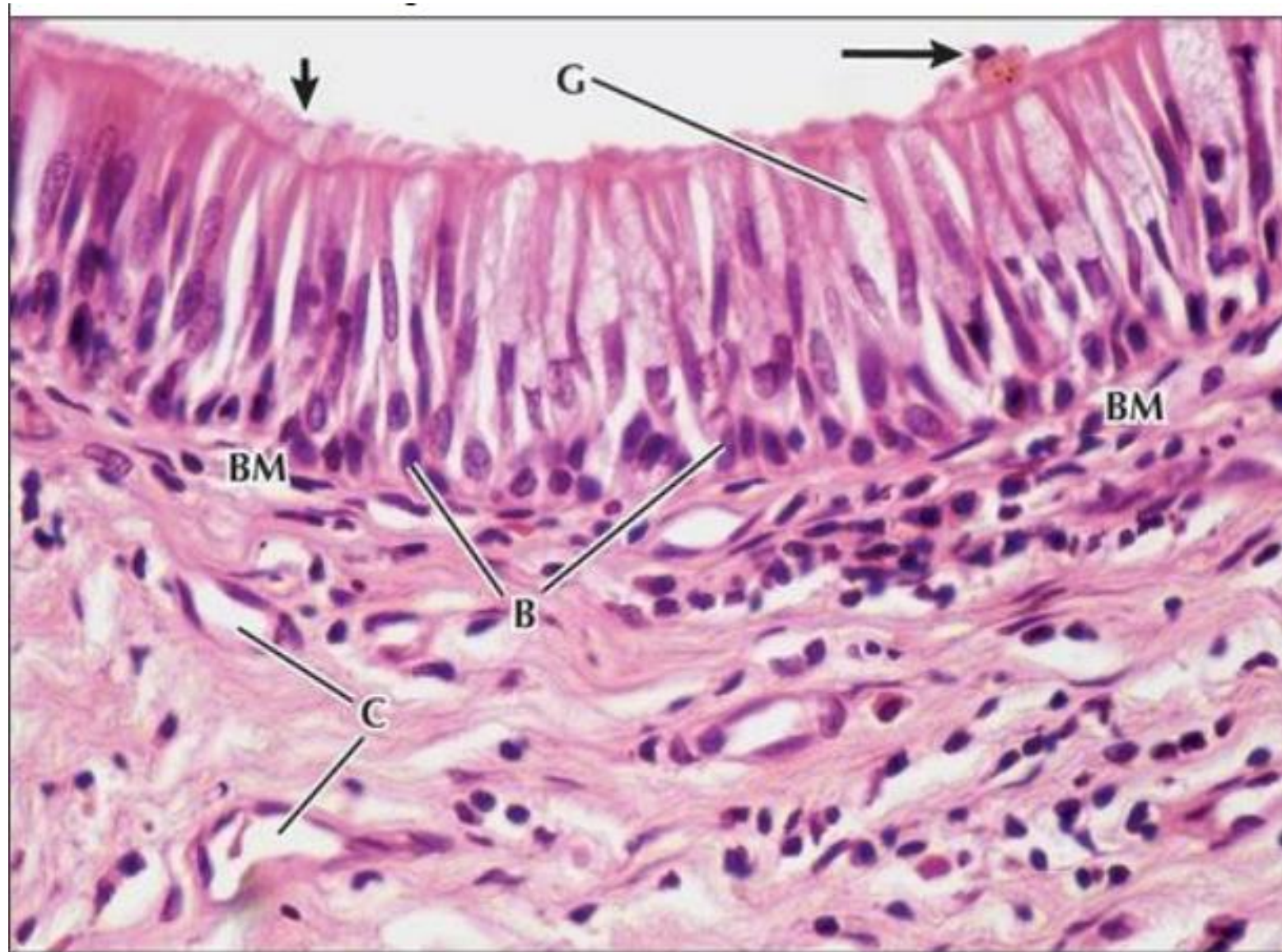
Cartilagem

ou

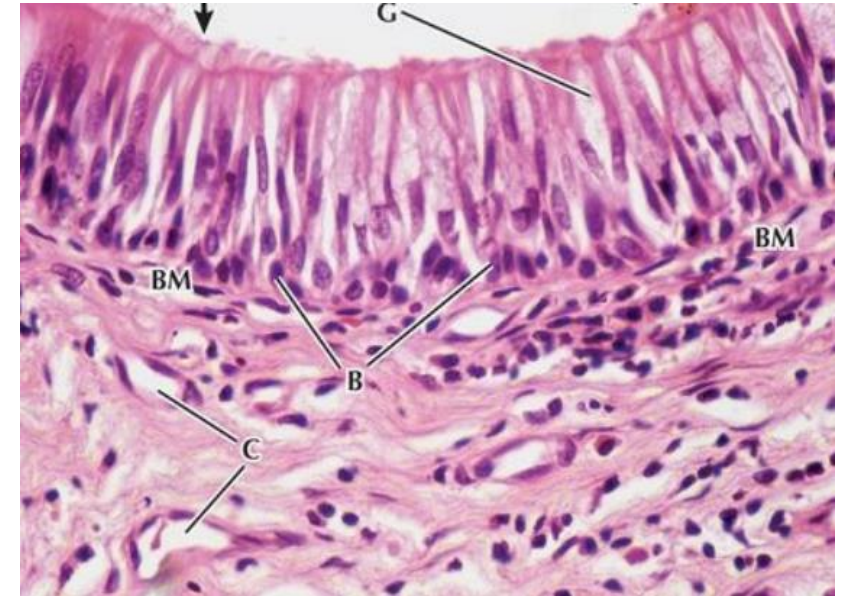
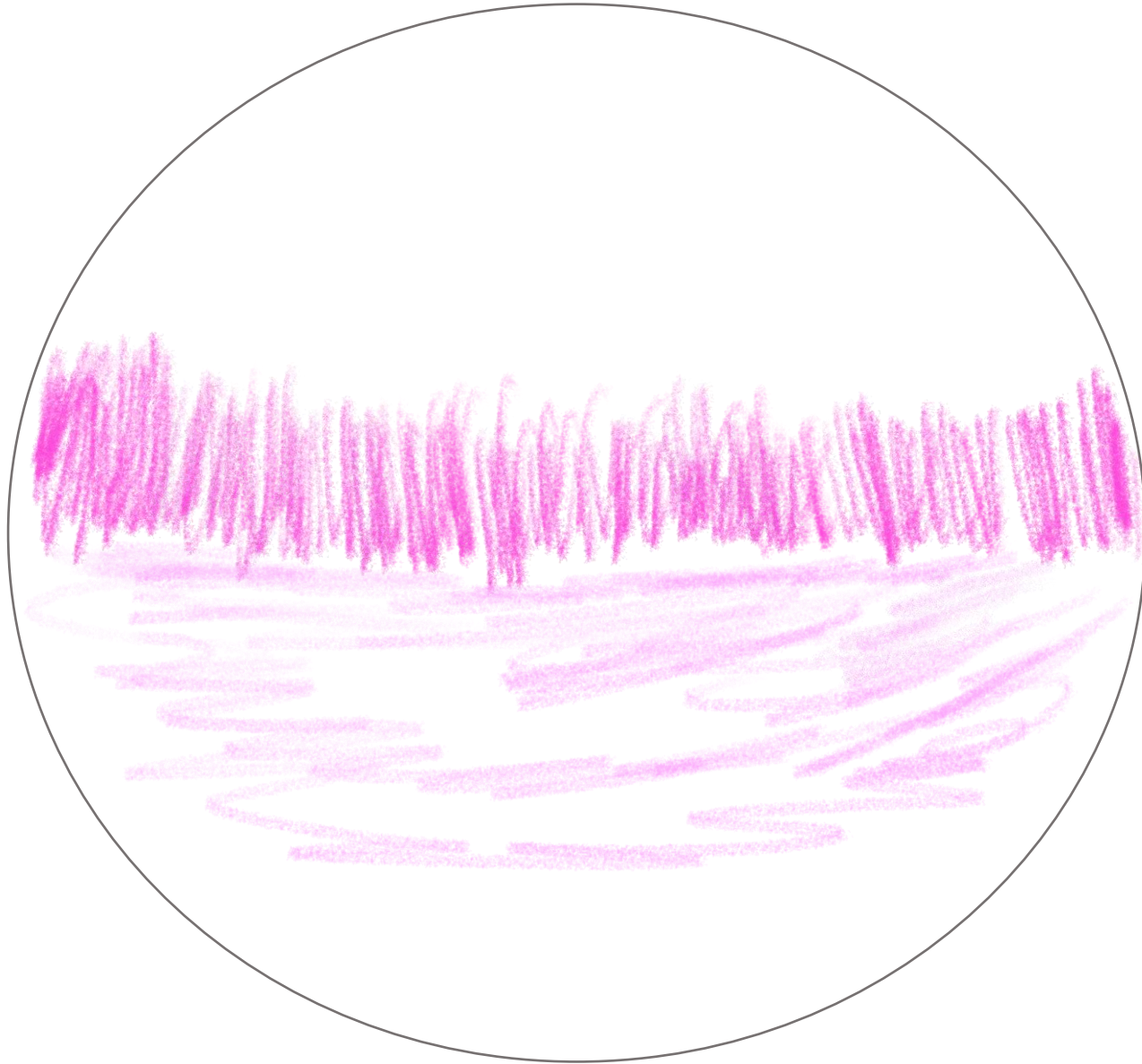
Osso

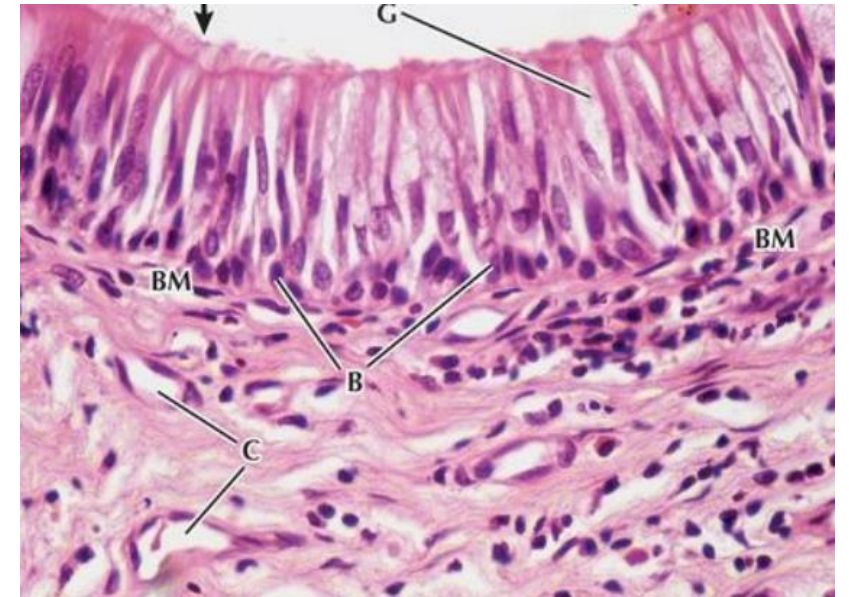
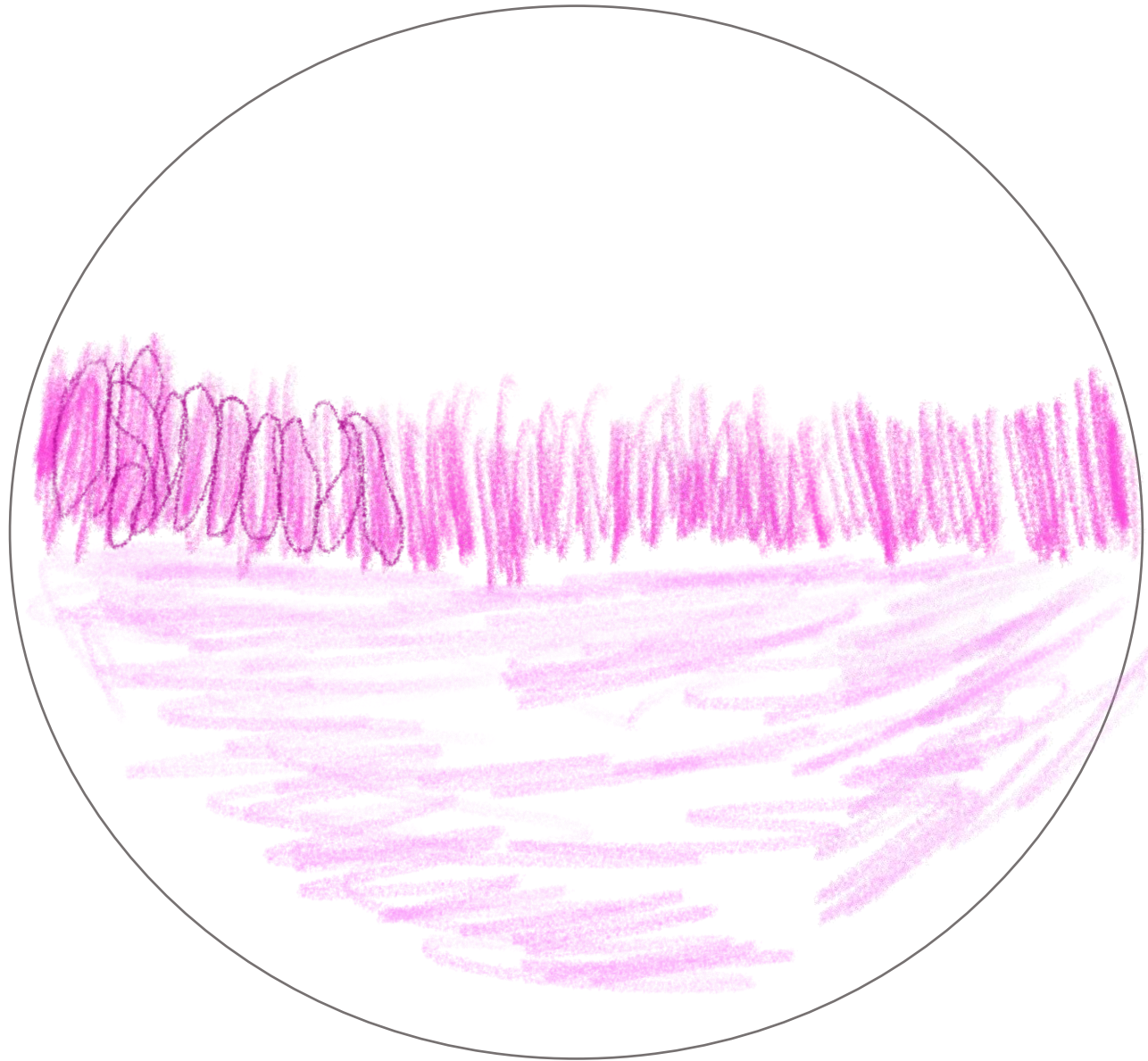
Esquema Histológico

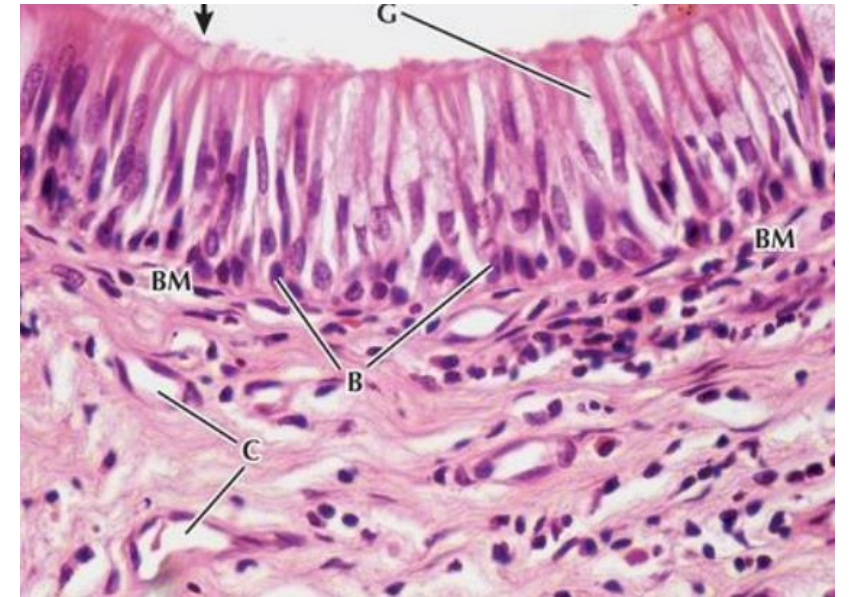
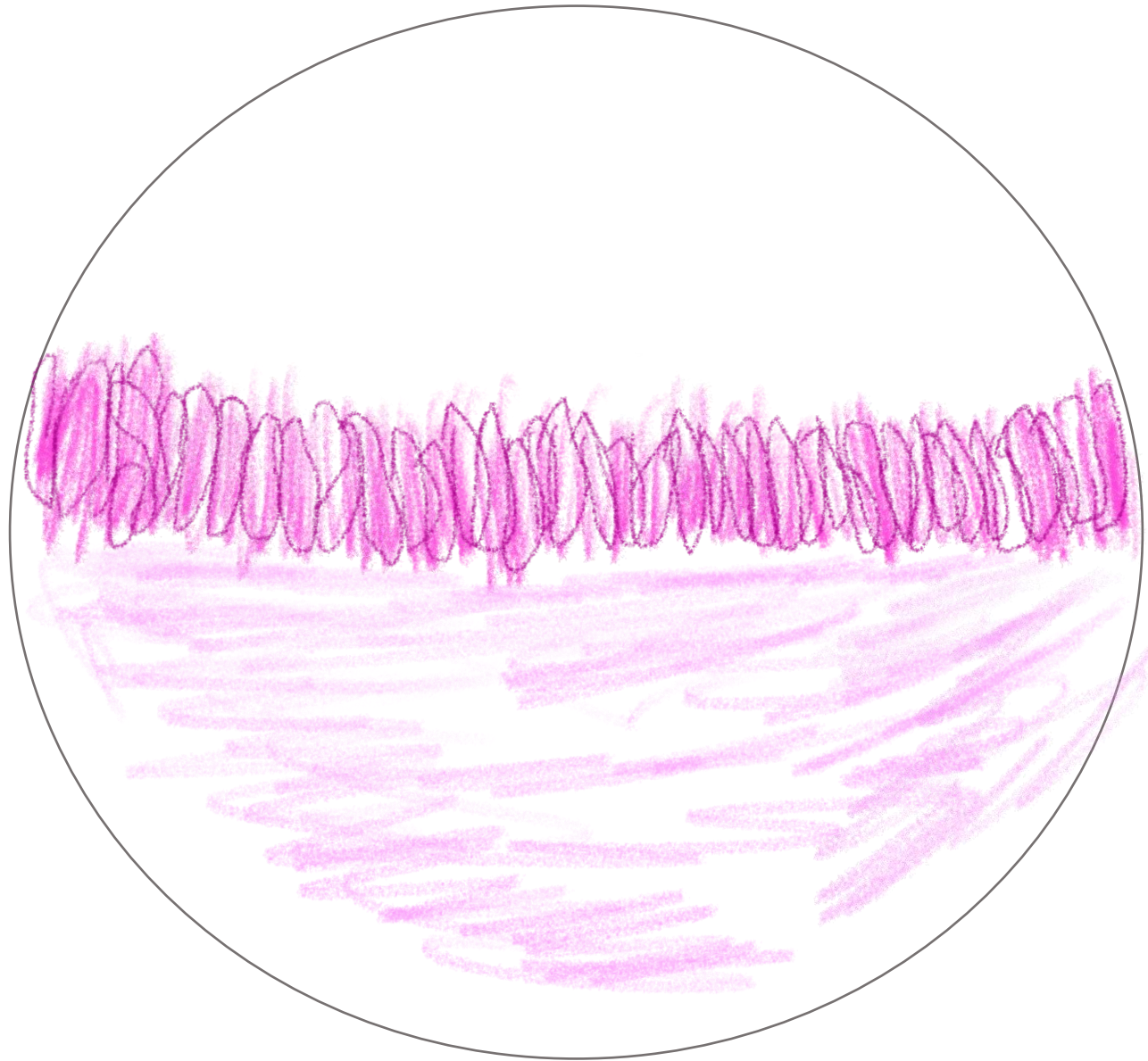
# MUCOSA RESPIRATÓRIA NASAL

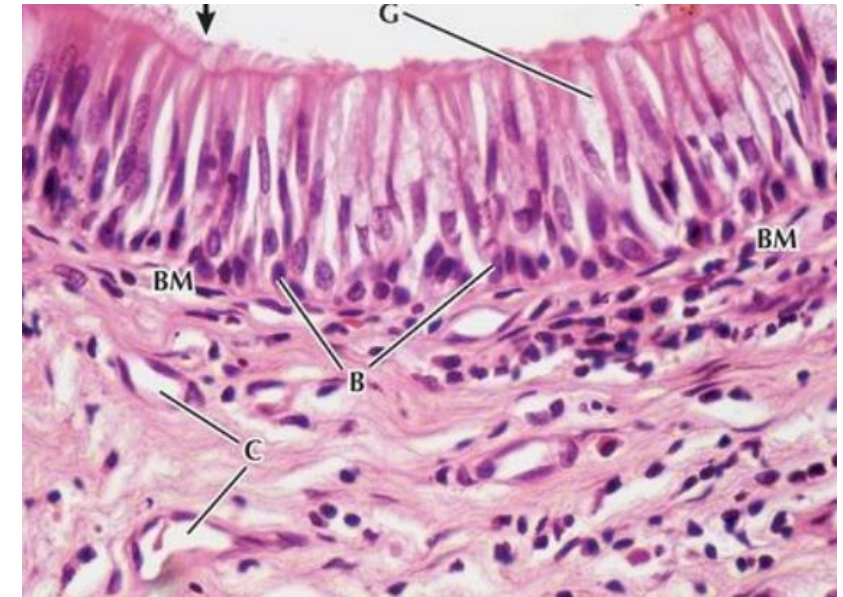
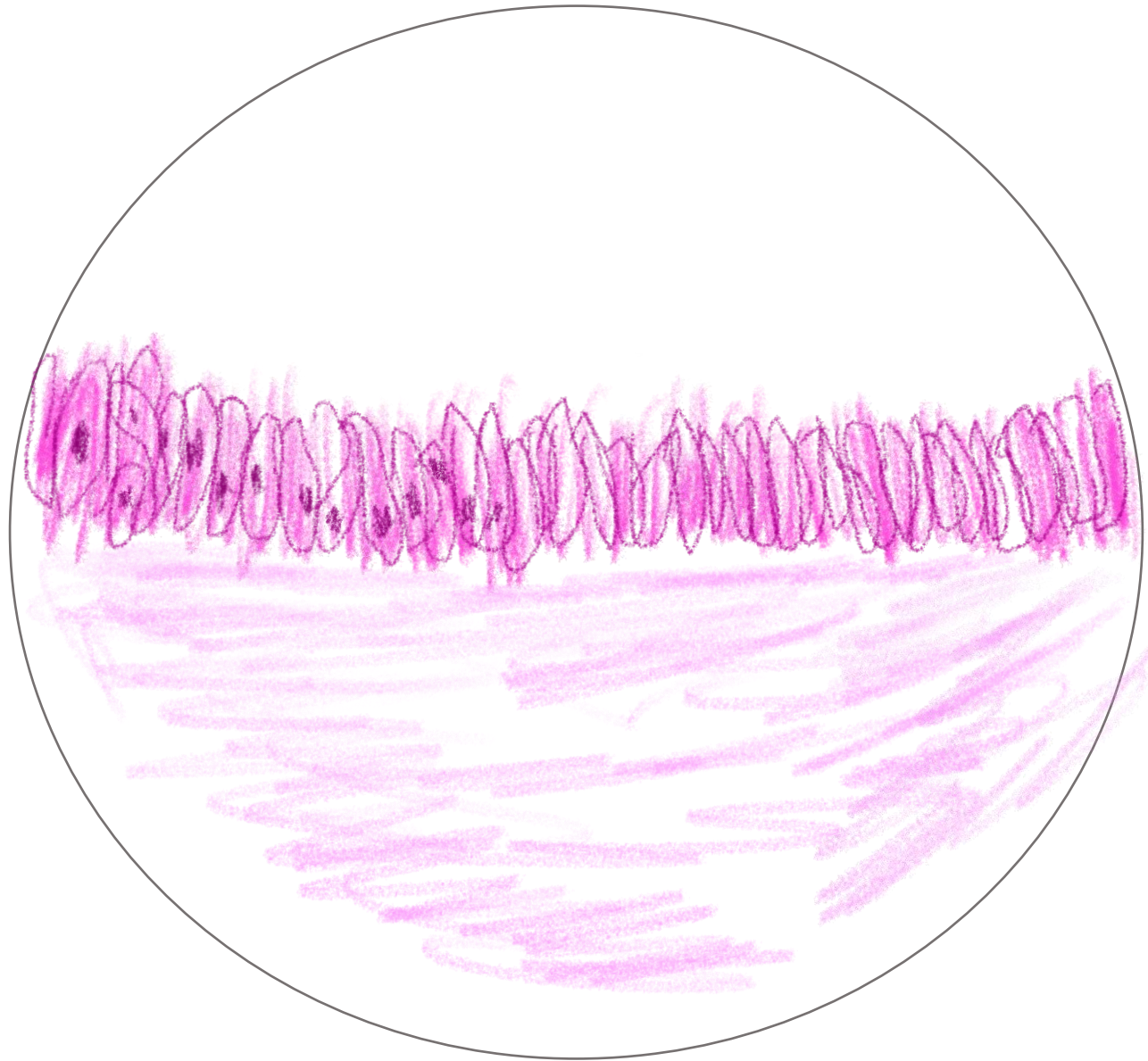


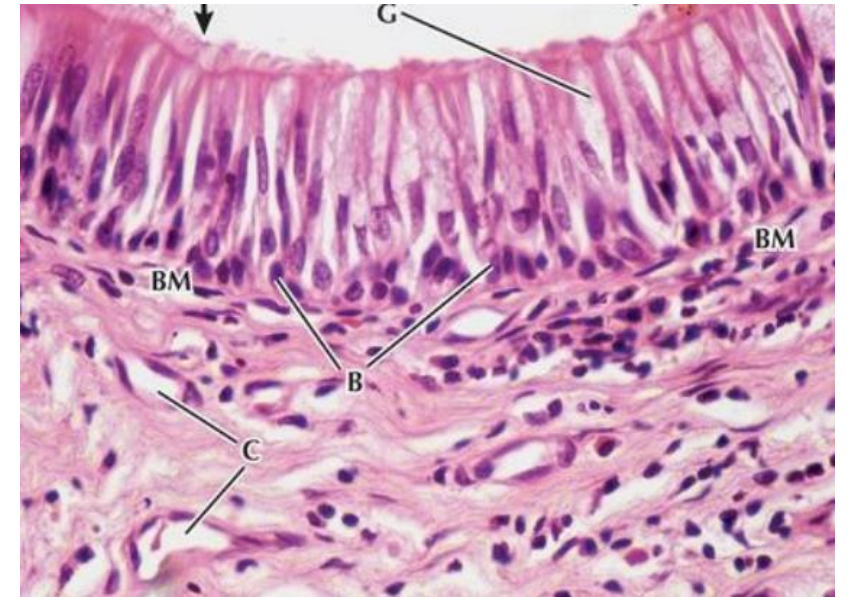
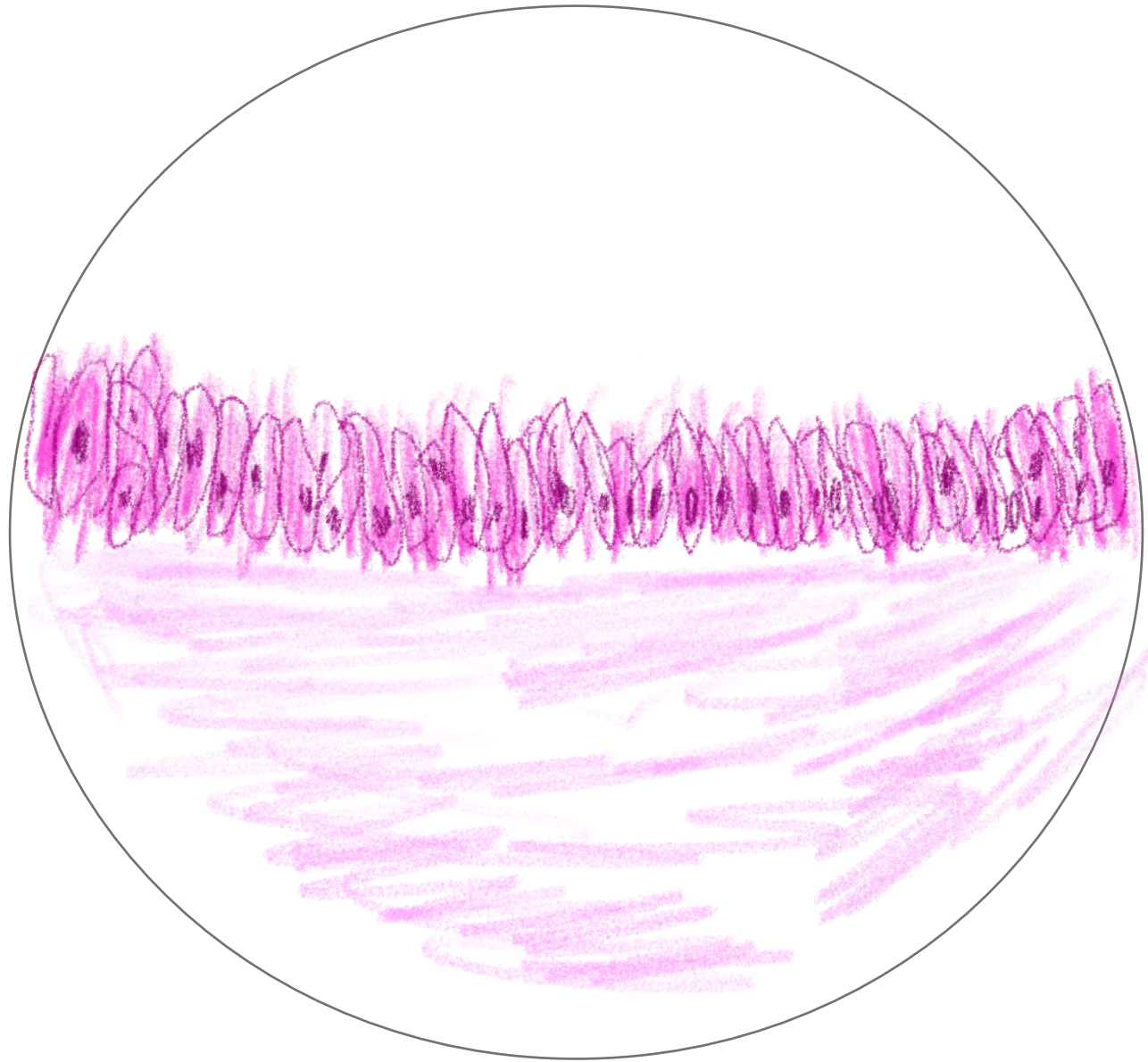
285x HE

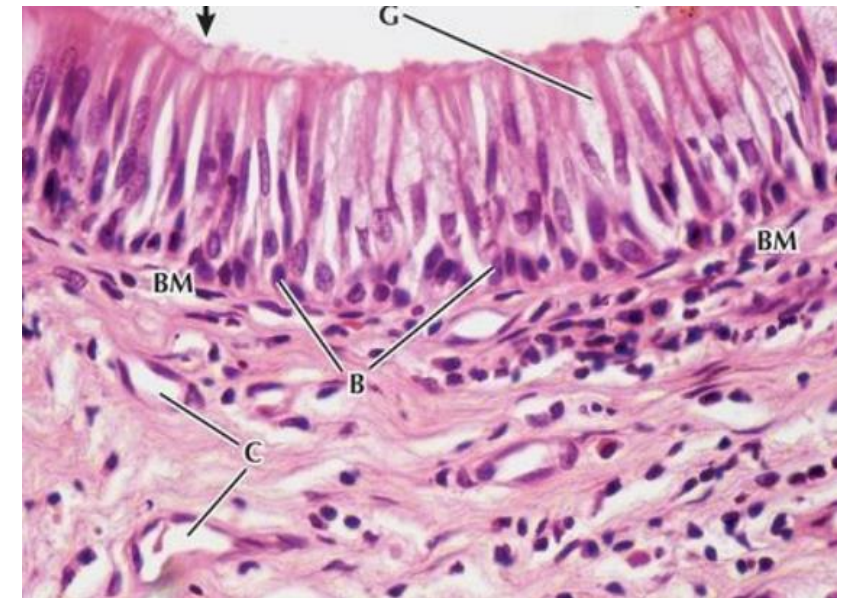
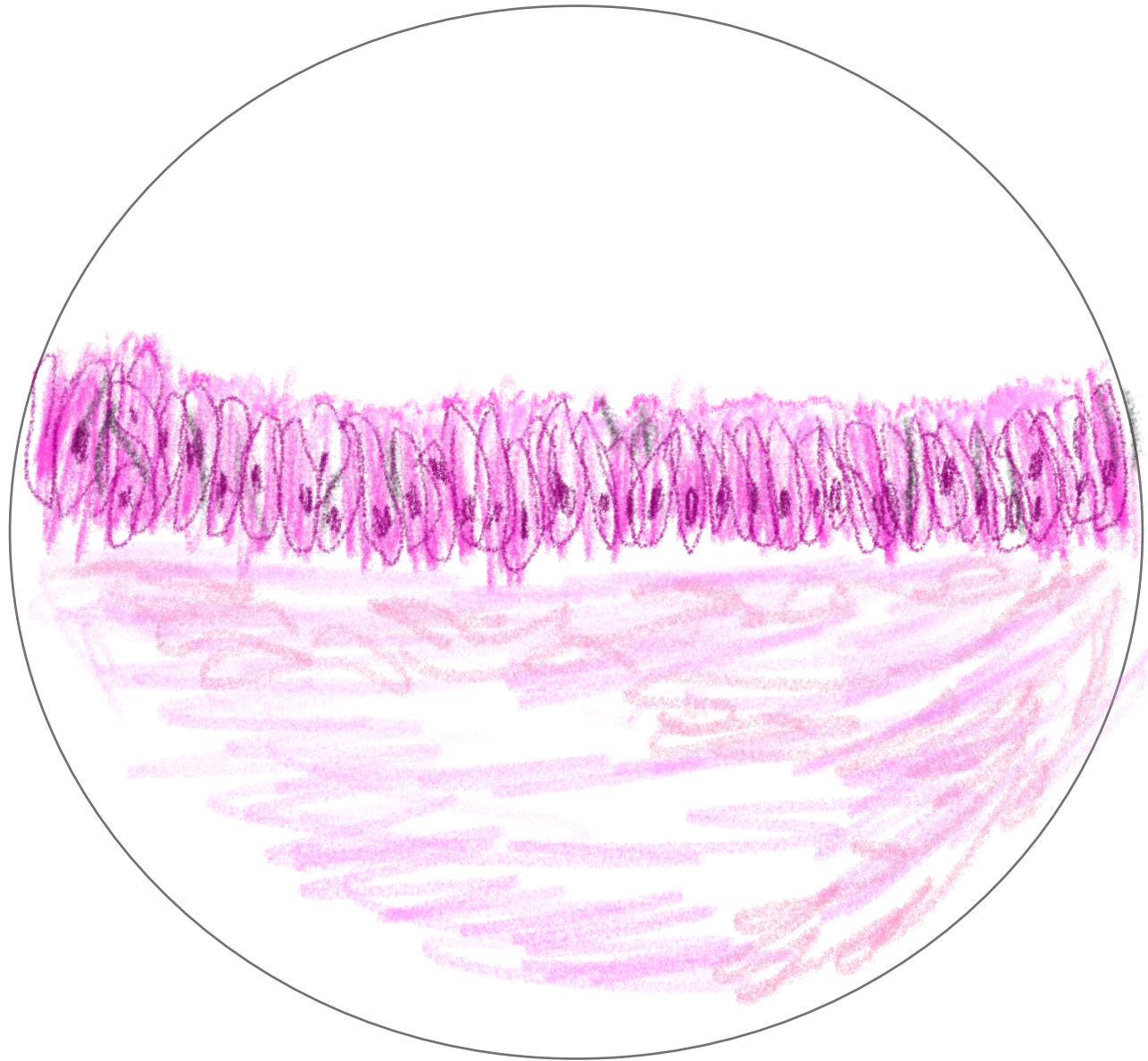




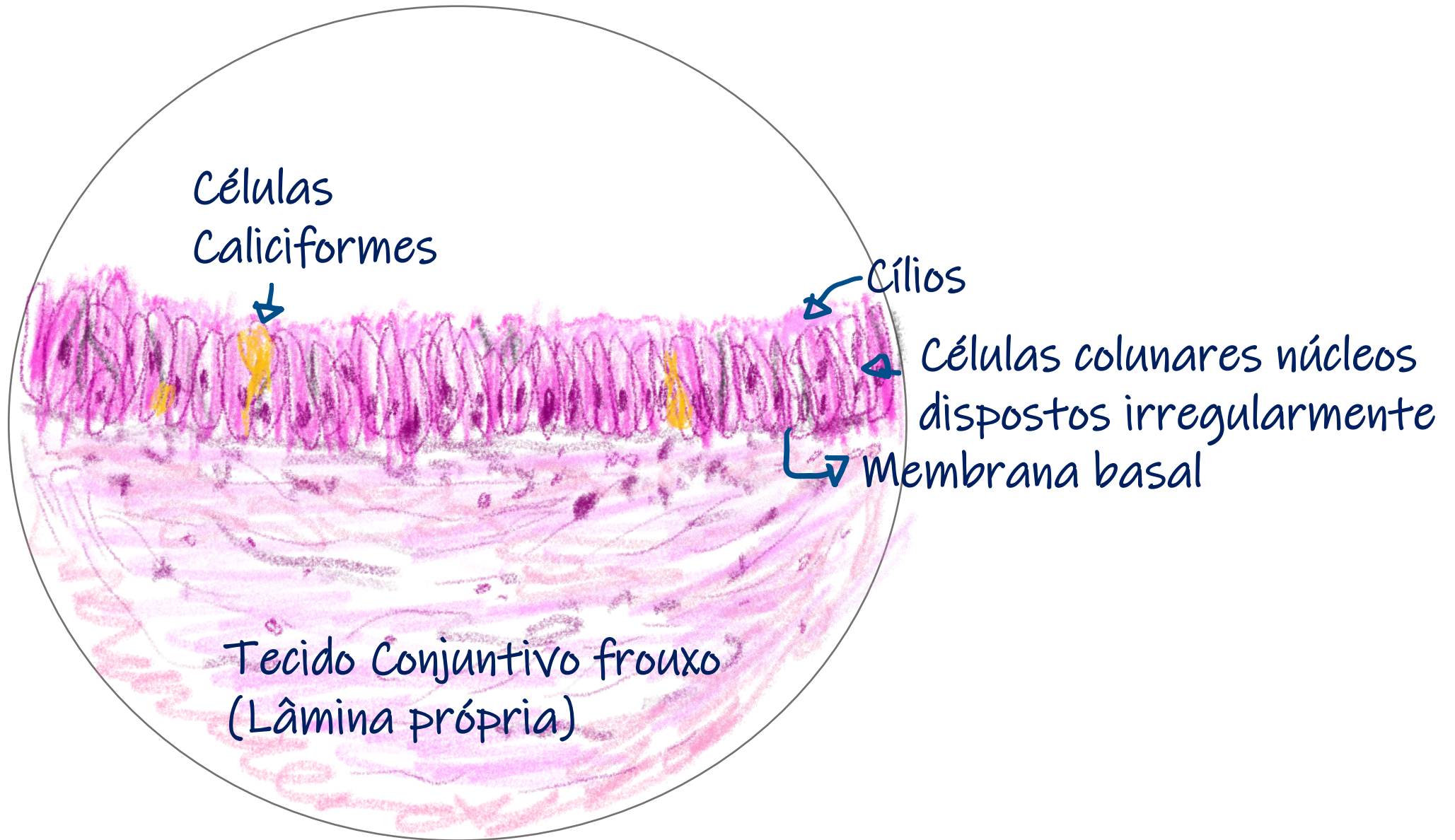






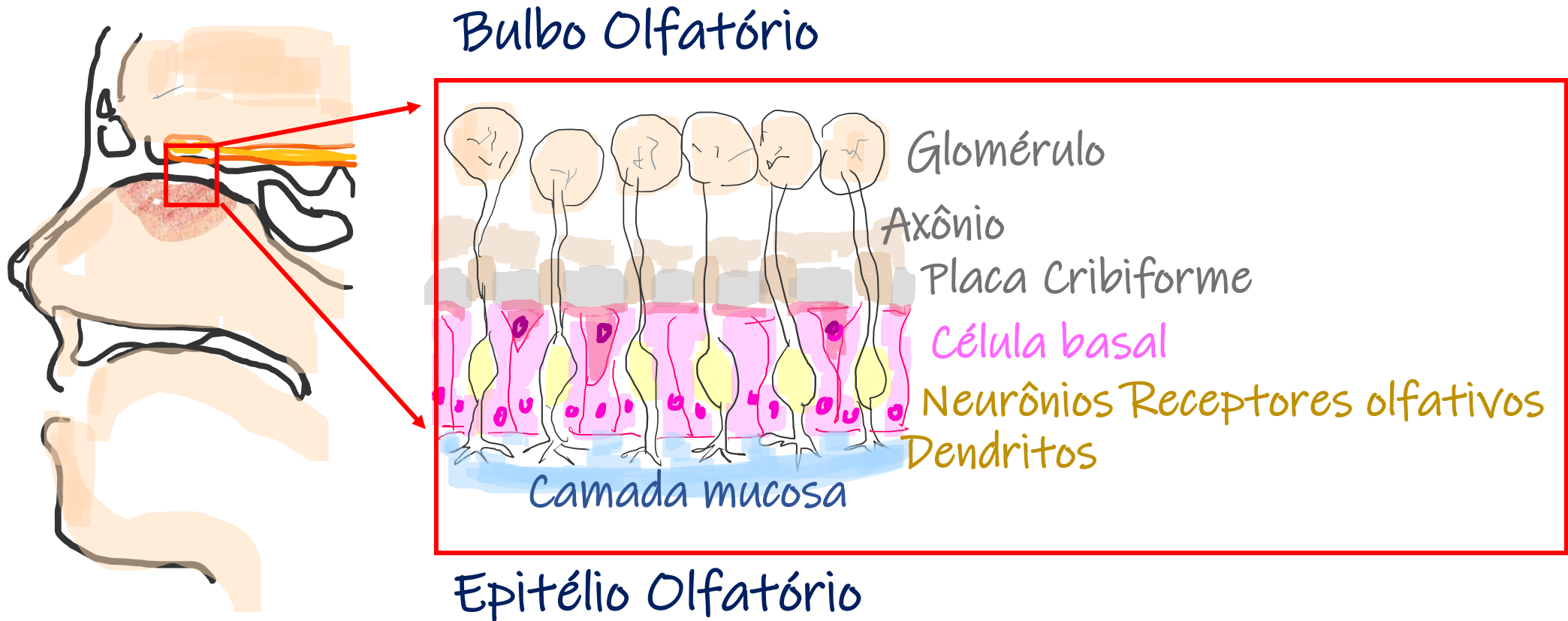


# MUCOSA RESPIRATÓRIA NASAL



# Mucosa Olfatória

Atividade sensorial ➡ Detecção de odores



# Mucosa Olfatória

Epitélio Olfatório – recebe extremidades neurais do bulbo olfatório

Lâmina Própria

= ∇ Glândulas de Bowman

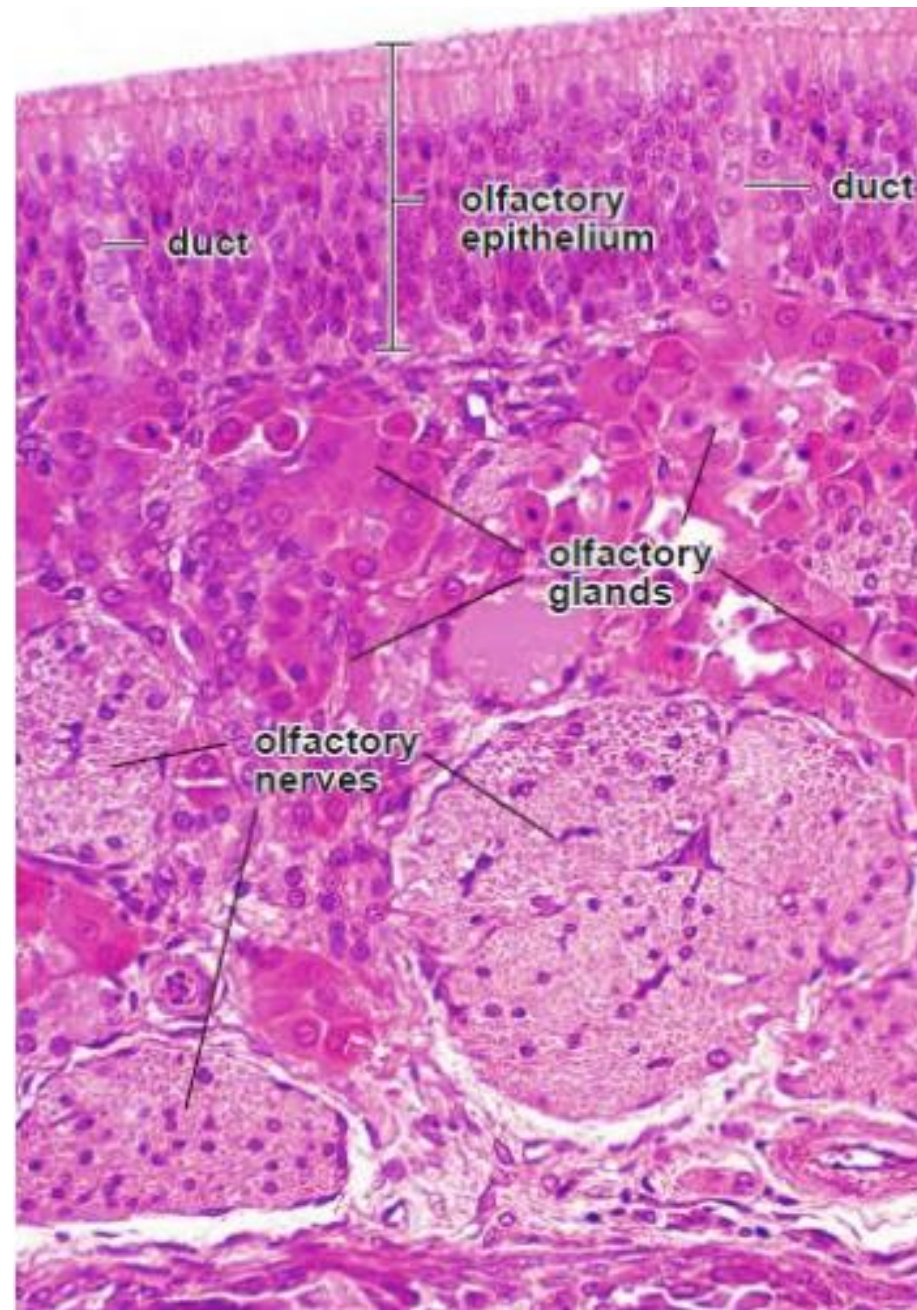
Produção de Muco – manter umidade

Dissolução de moléculas olfativas

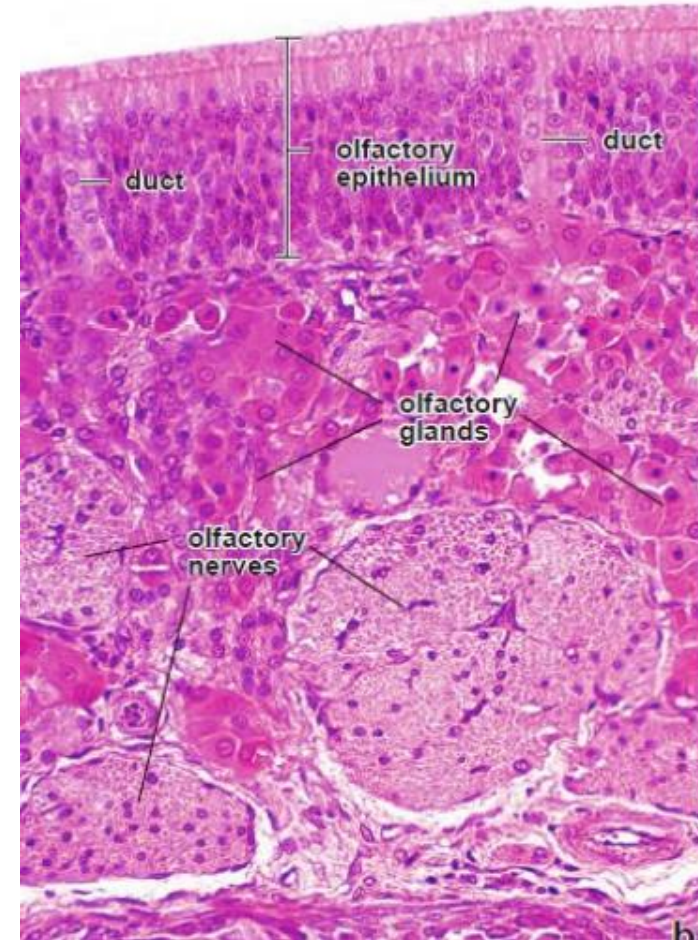
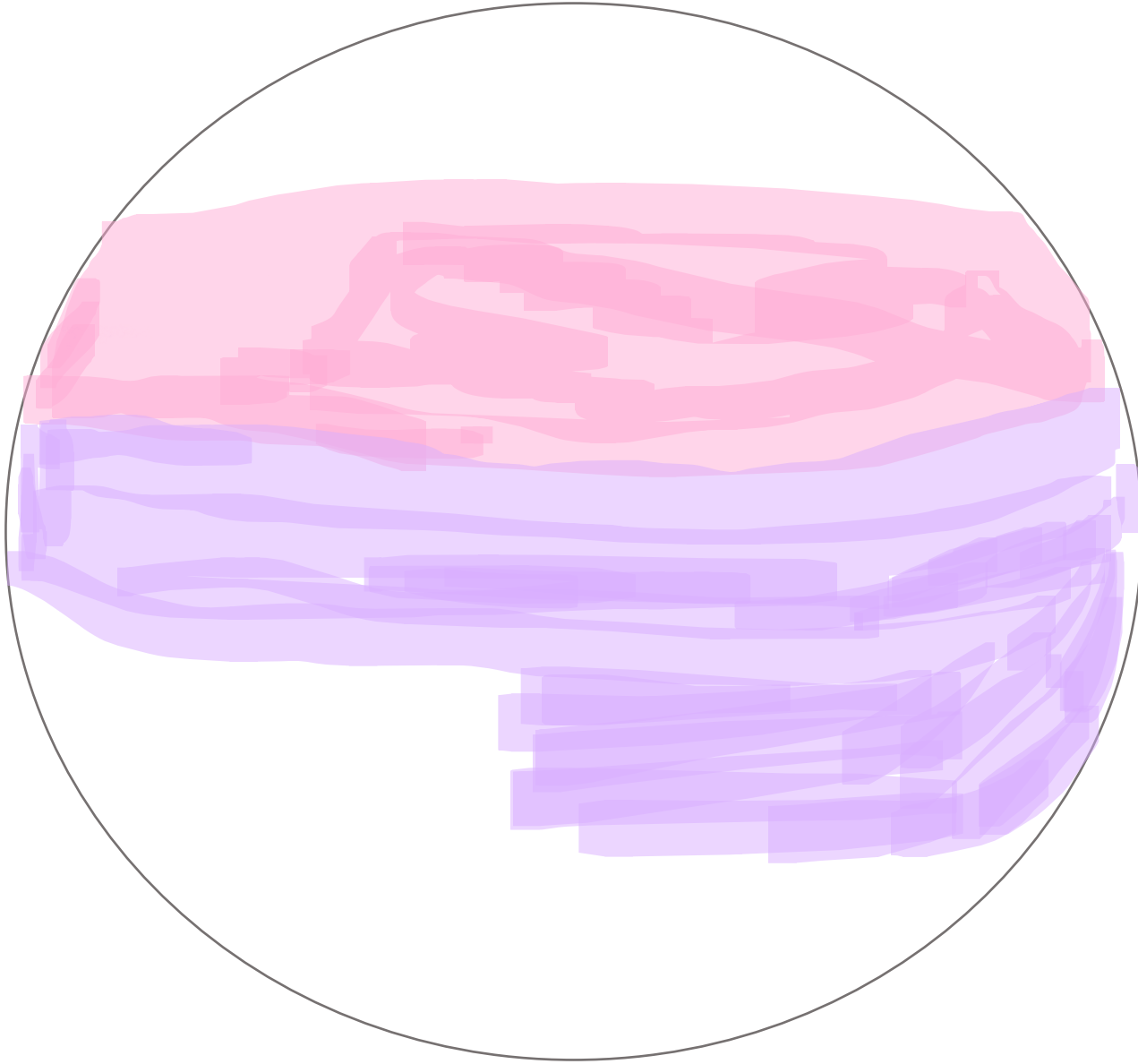
Produz: proteína de ligação a odorantes (OBP)

Osso

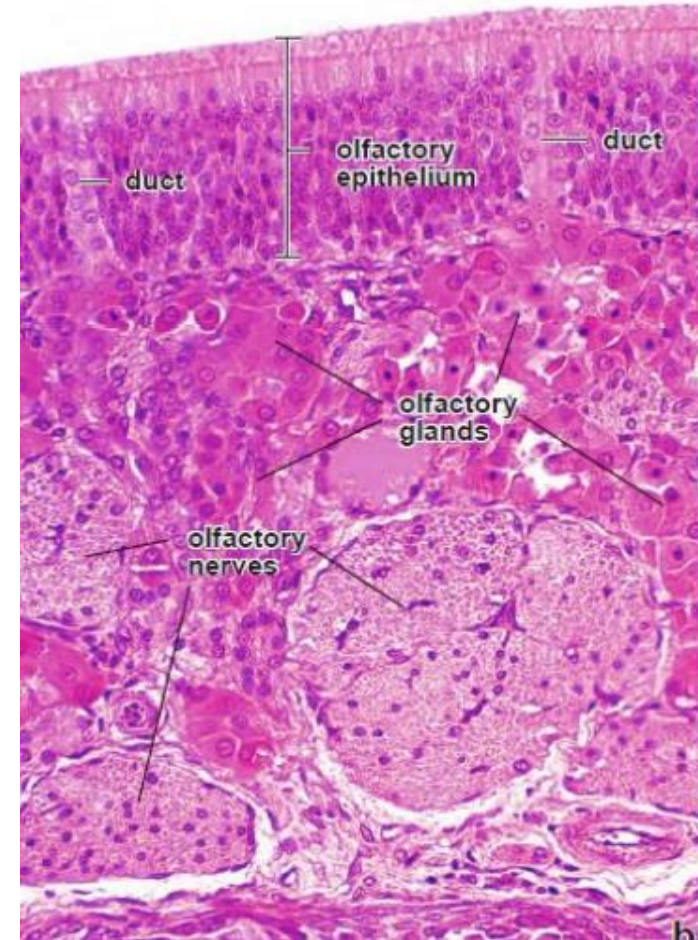
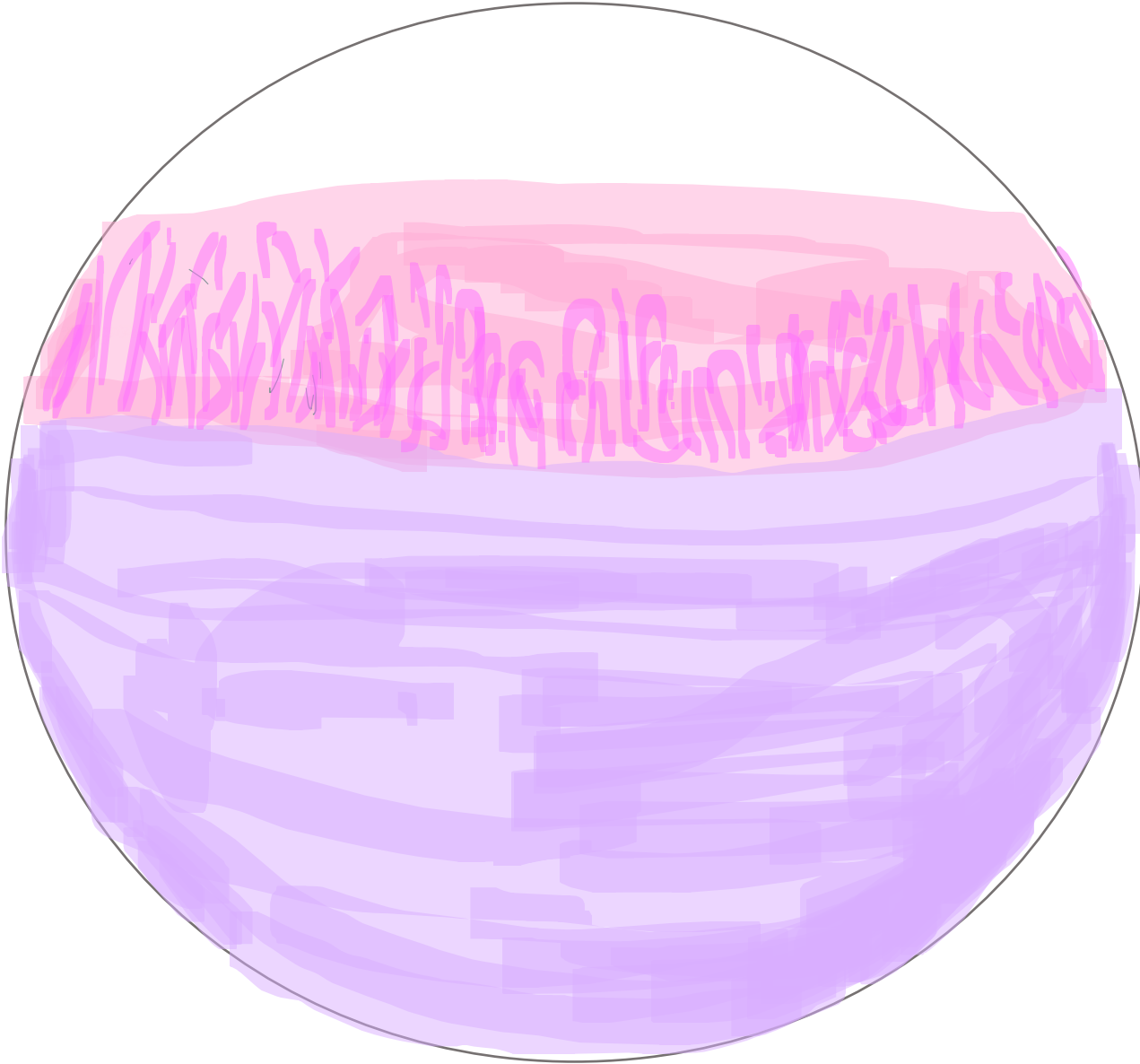
# Mucosa Olfatória



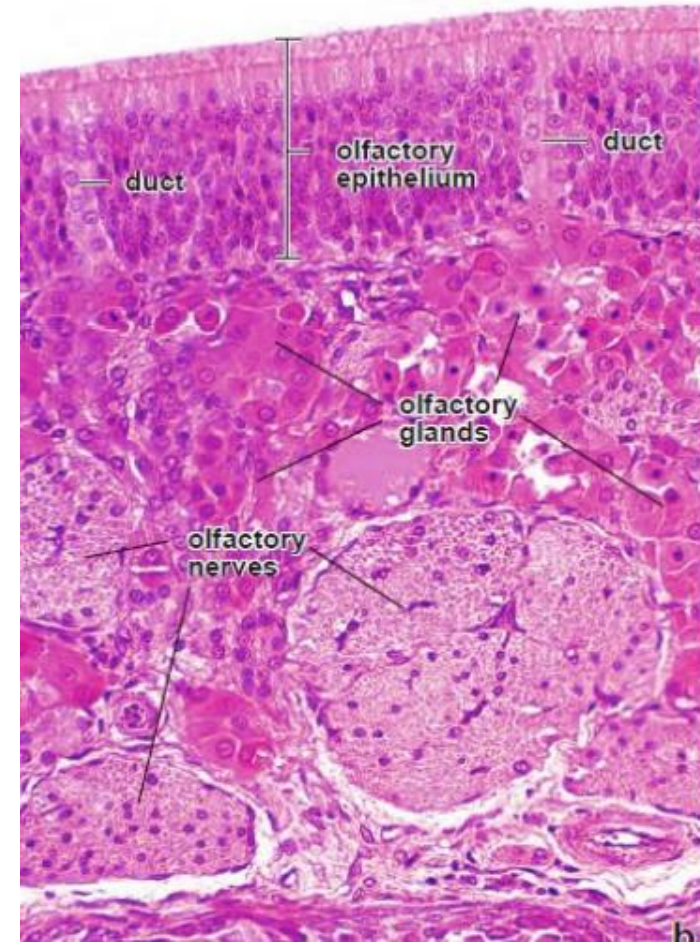
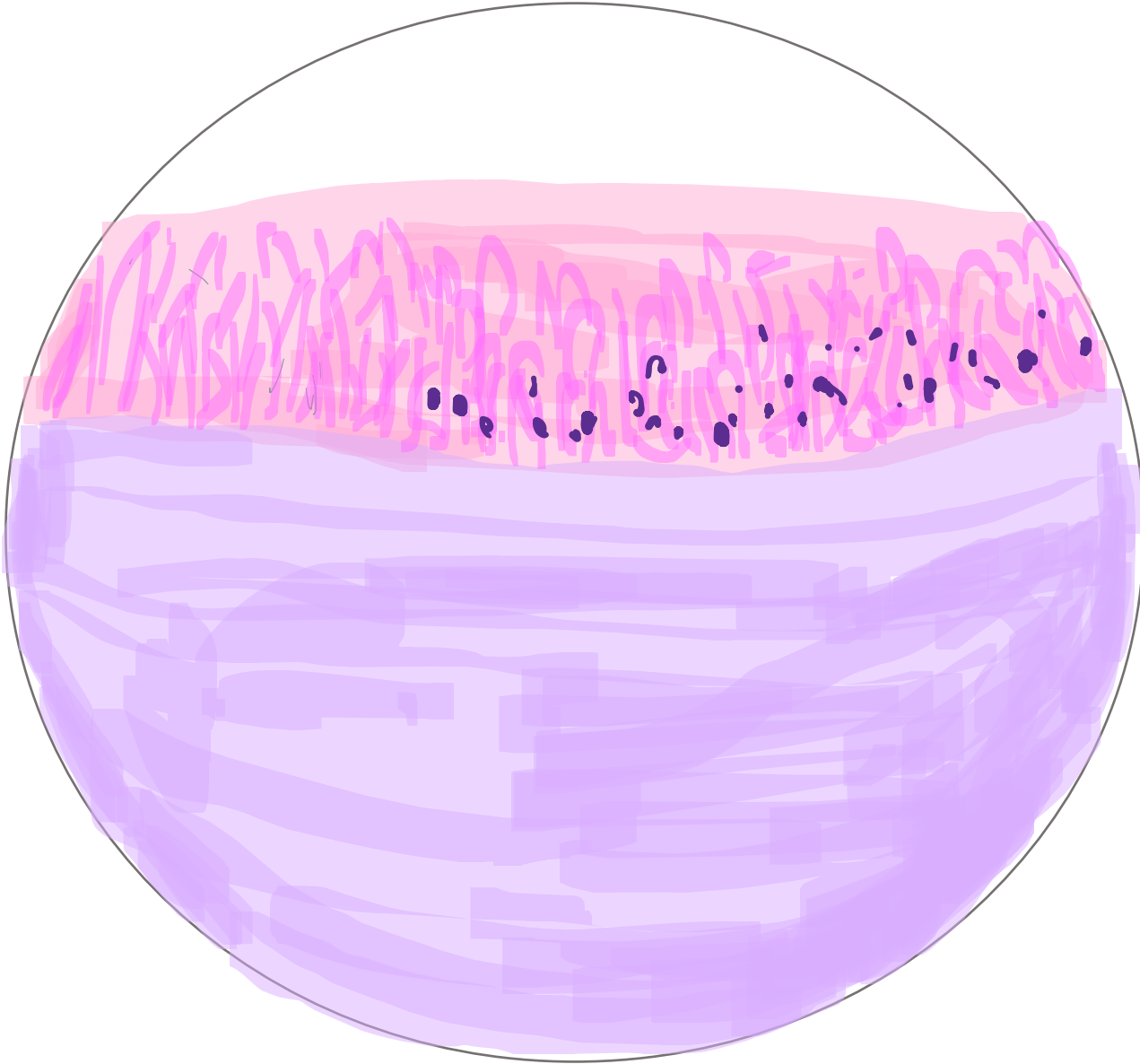
# Mucosa Olfatória



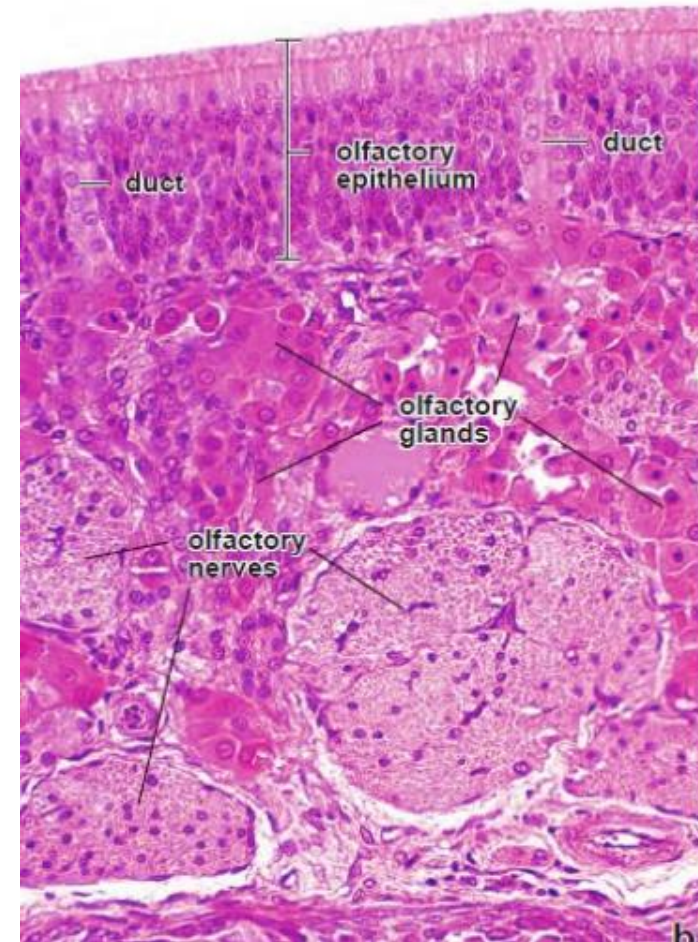
# Mucosa Olfatória



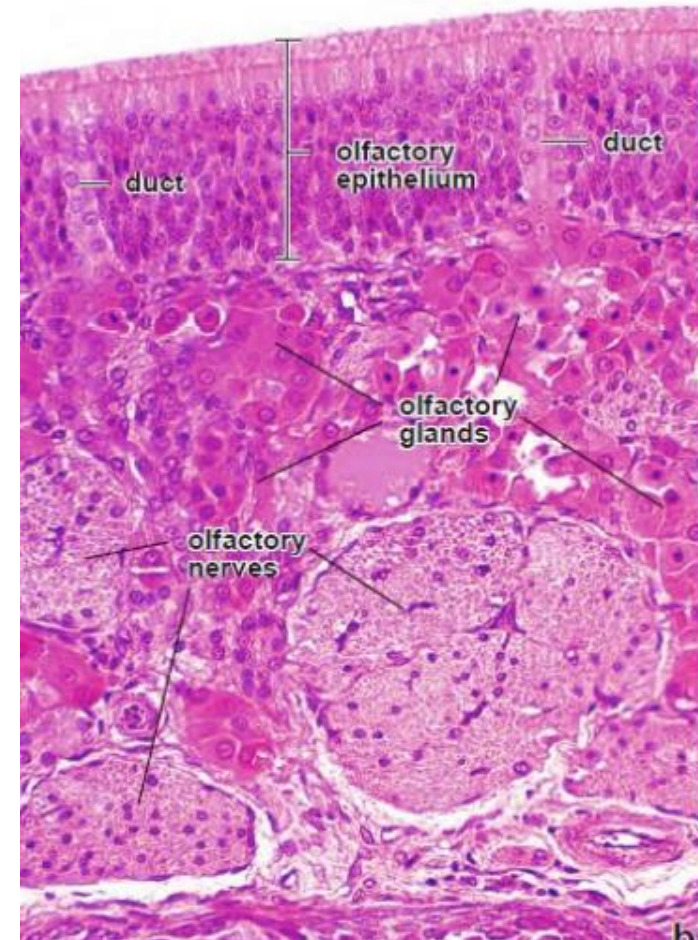
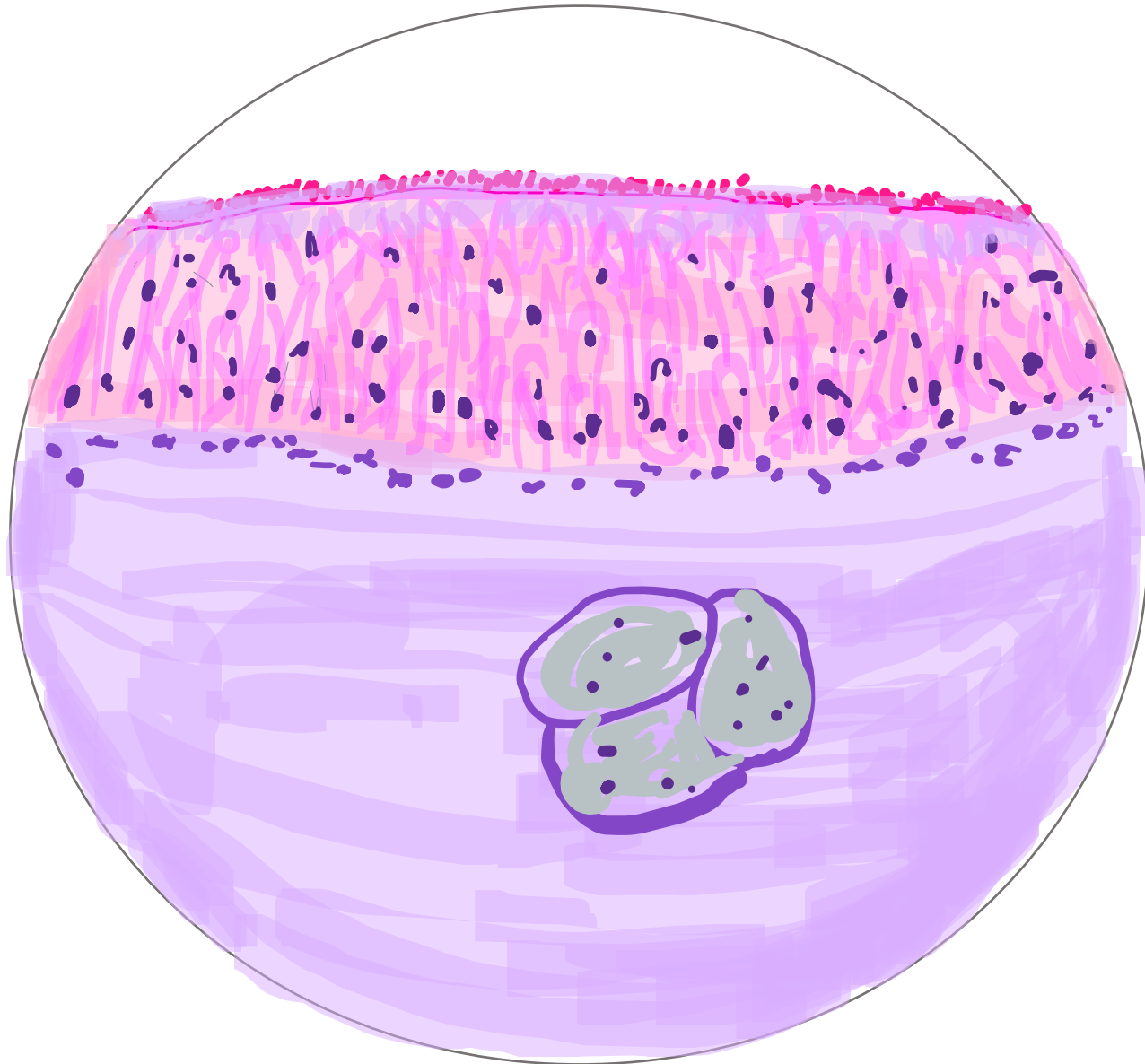
# Mucosa Olfatória



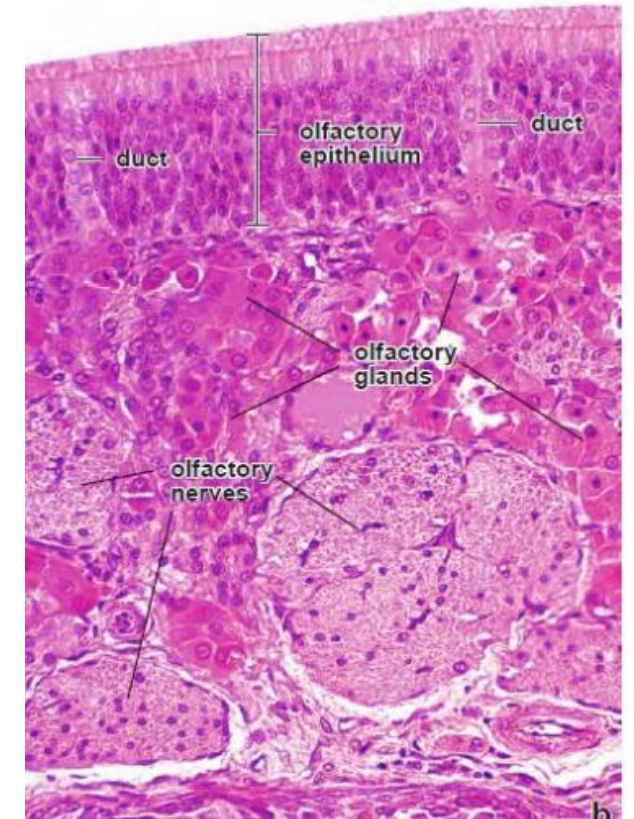
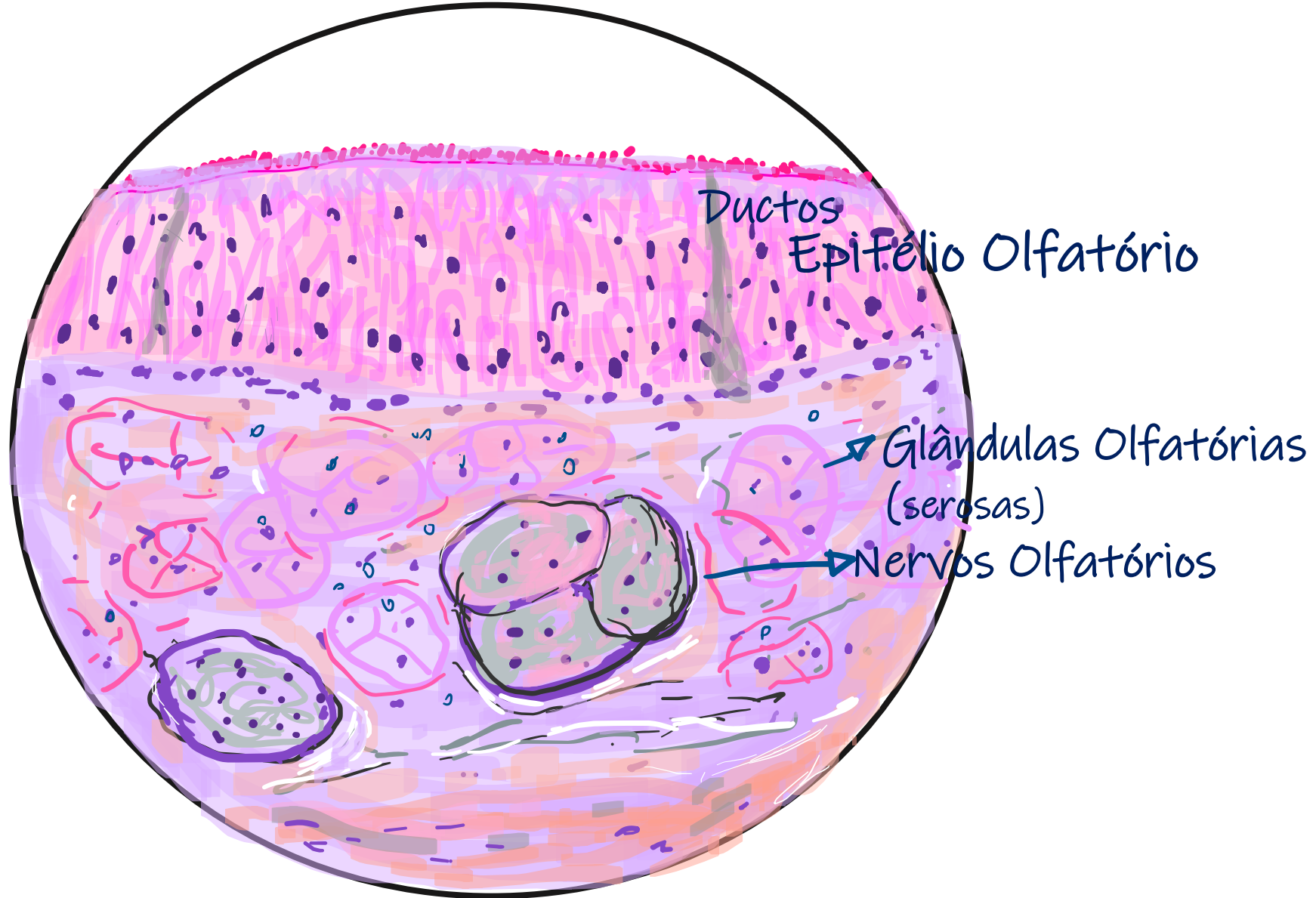
## A hand-drawn diagram of a cross-section of a tooth, showing the crown, root, and pulp chamber. The crown is colored pink and the root is colored purple. The pulp chamber is outlined in black and contains several black dots representing pulp tissue. The diagram is enclosed in a circular frame.



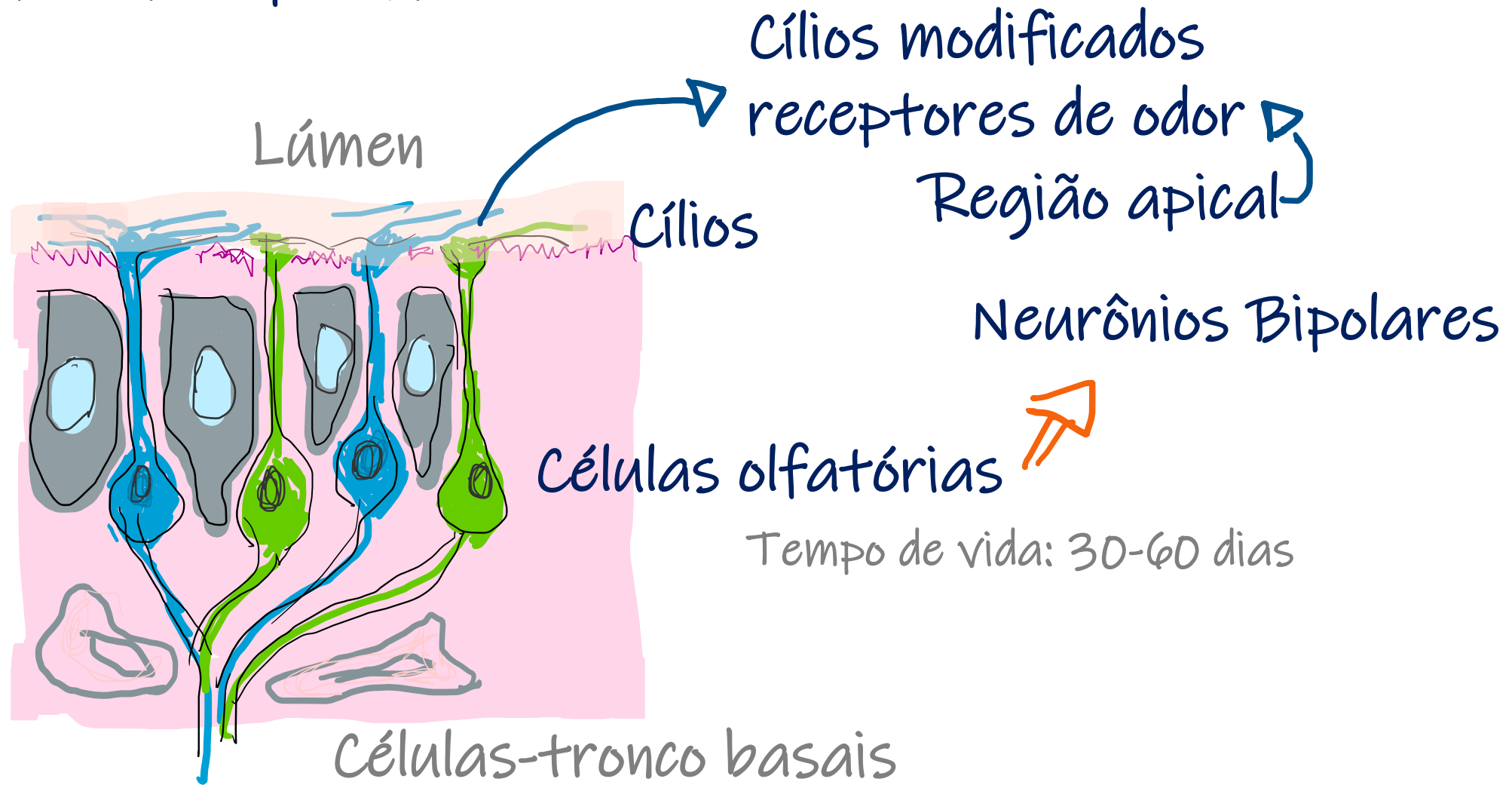
# Mucosa Olfatória



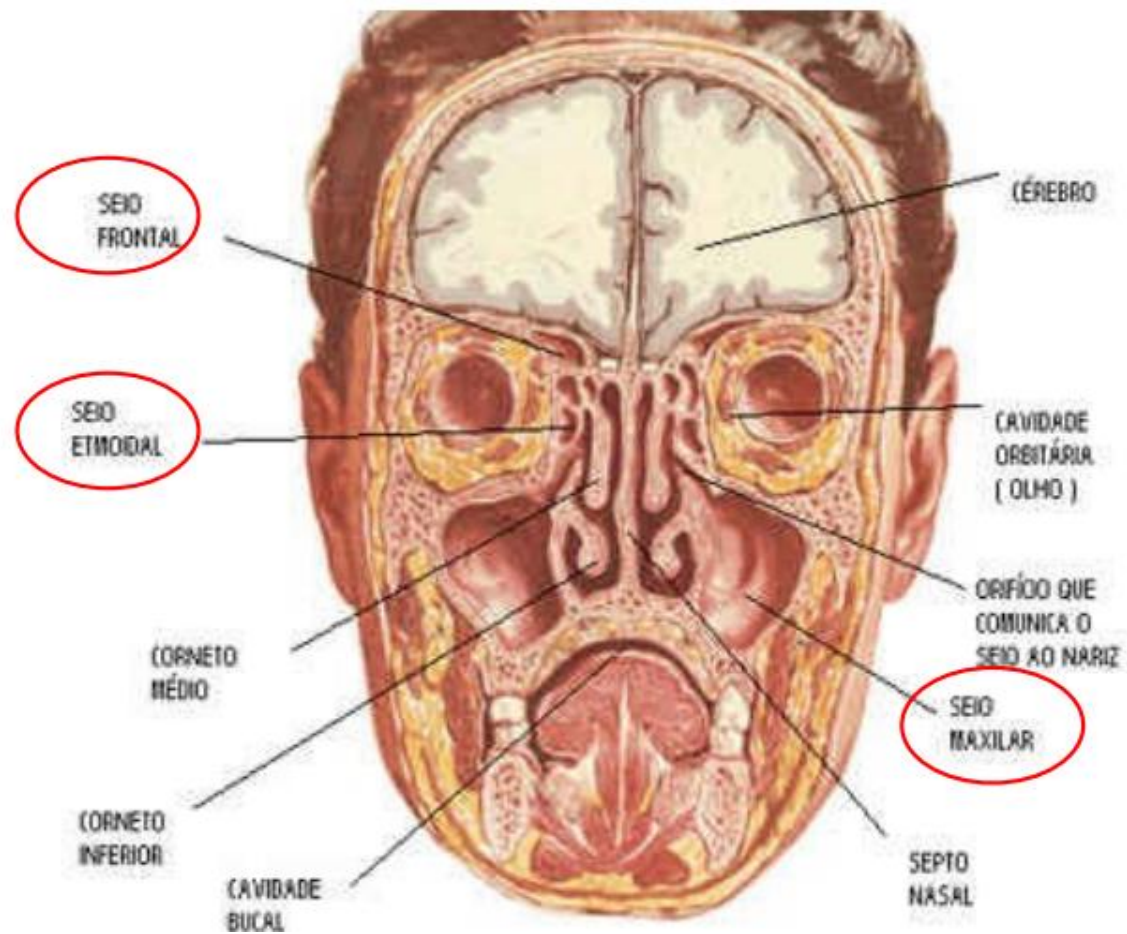
# Mucosa Olfatória



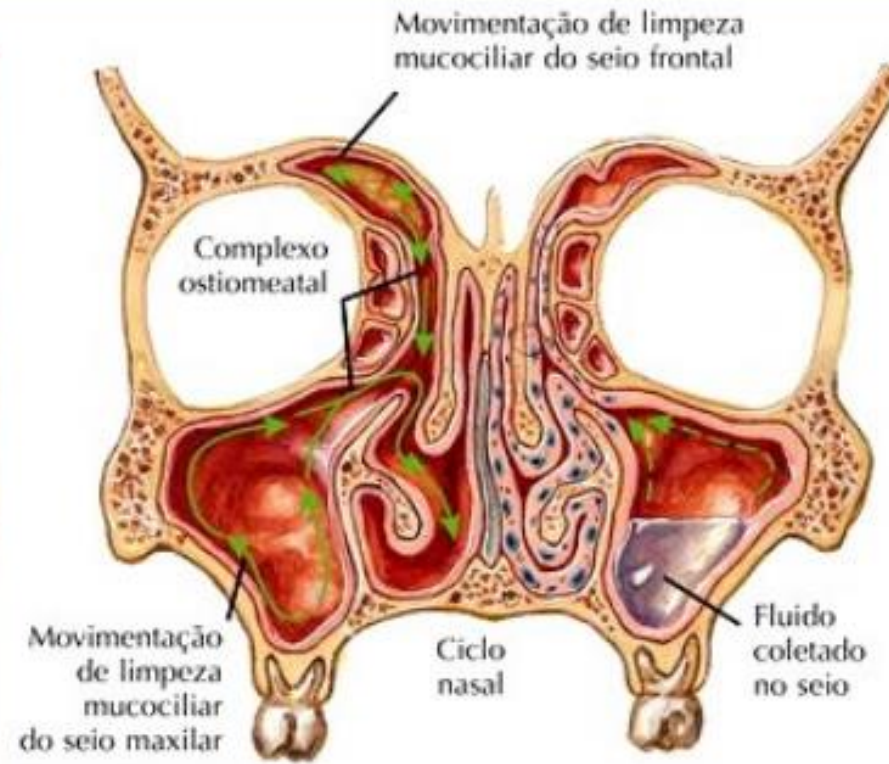
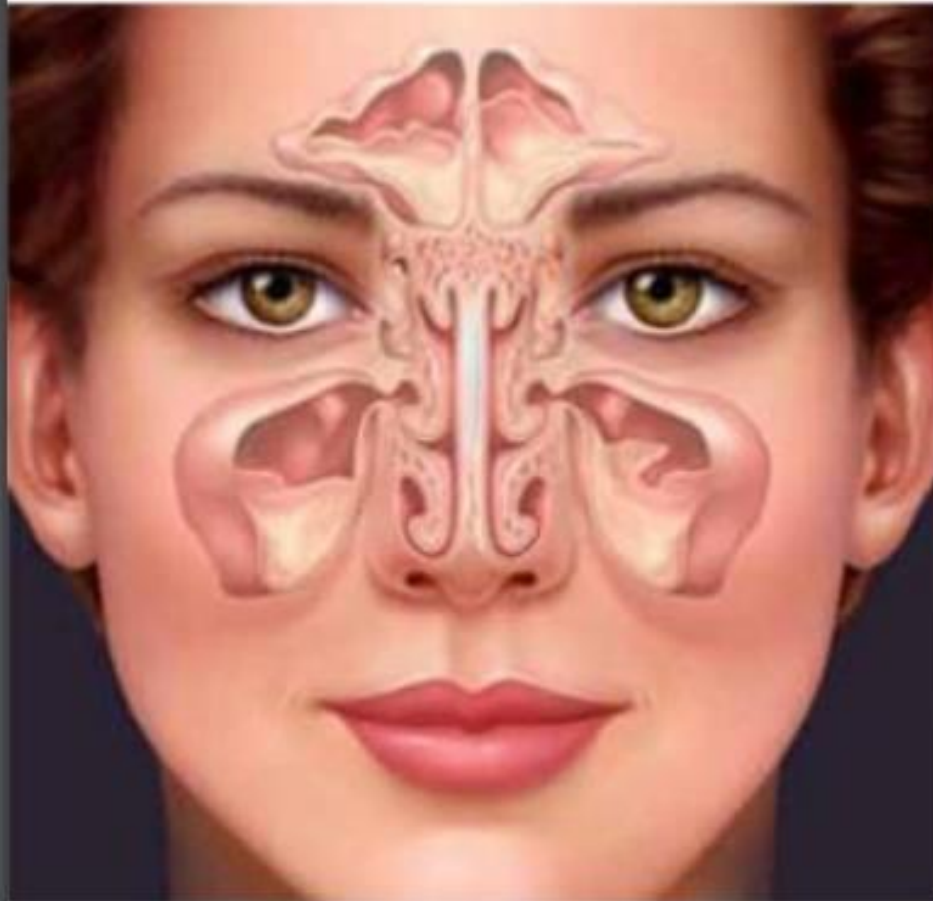
# Epitelélio Olfatório



## Seios paranasais

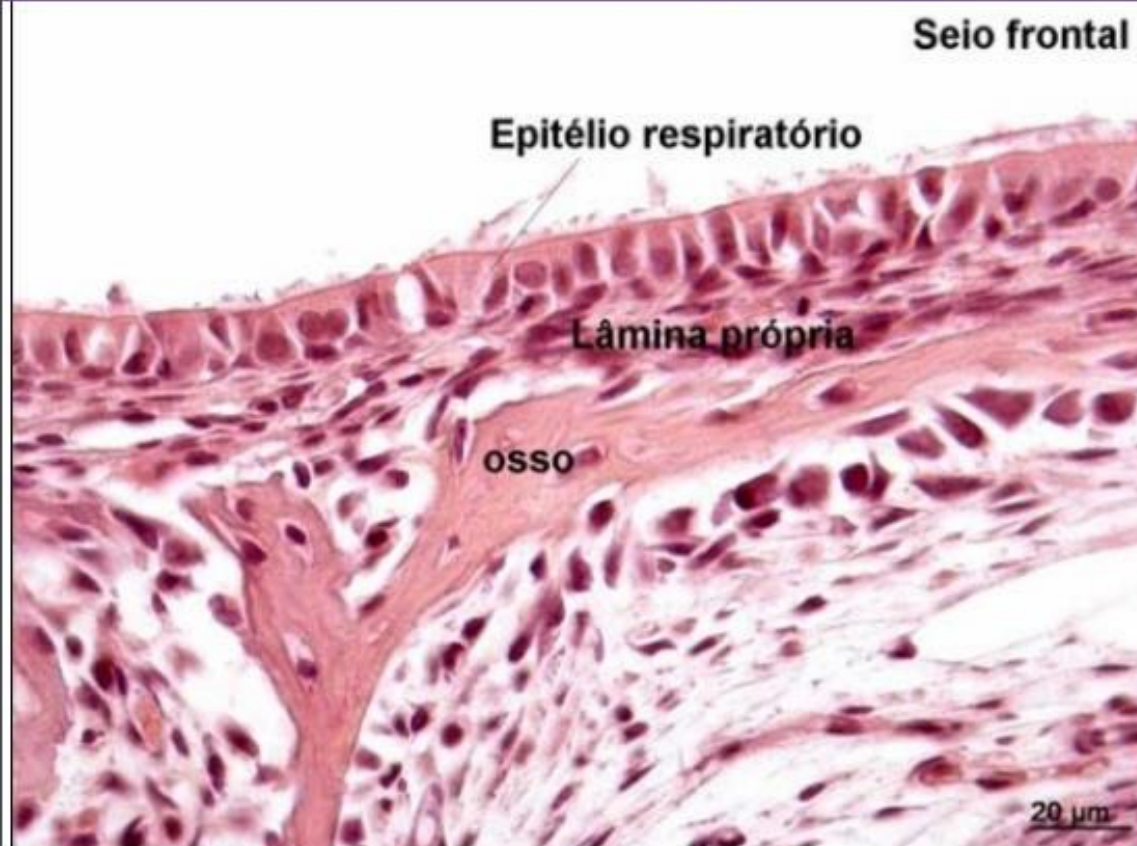


# Seios paranasais



Os cílios drenam os seios através da propulsão do muco (movimentação de limpeza mucociliar) em direção a pequenas aberturas para a cavidade nasal

## Seios paranasais



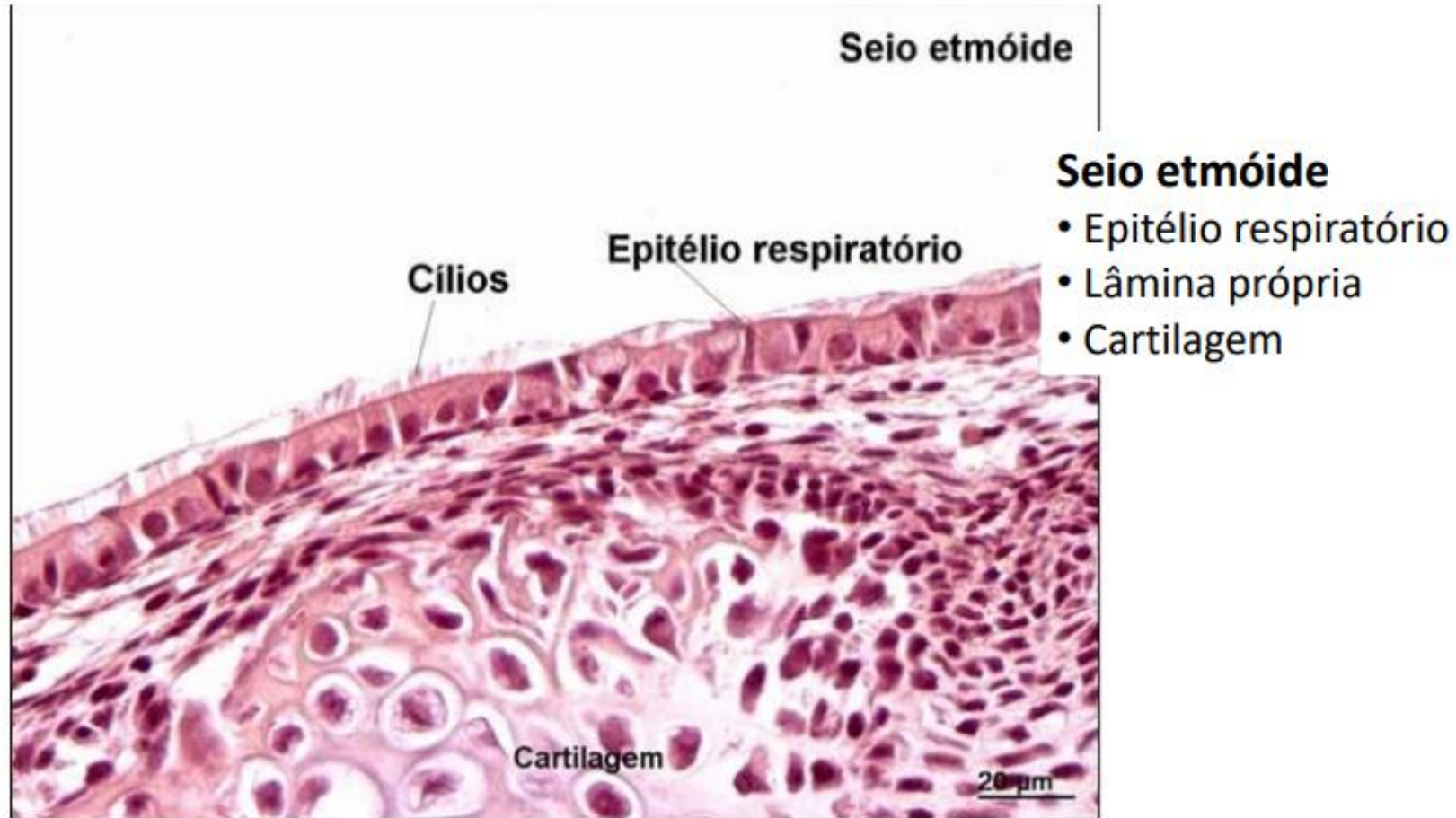
### Seio frontal

- Epitélio respiratório
- Lâmina própria
- Osso

[www.unifesp.br](http://www.unifesp.br)

- Epitélio pseudo-estratificado cilíndrico e ciliado
- Ausência de tecido cavernoso e poucas glândulas e células caliciformes

## Seios paranasais



- Epitélio pseudo-estratificado cilíndrico e ciliado
- Ausência de tecido cavernoso e poucas glândulas e células caliciformes

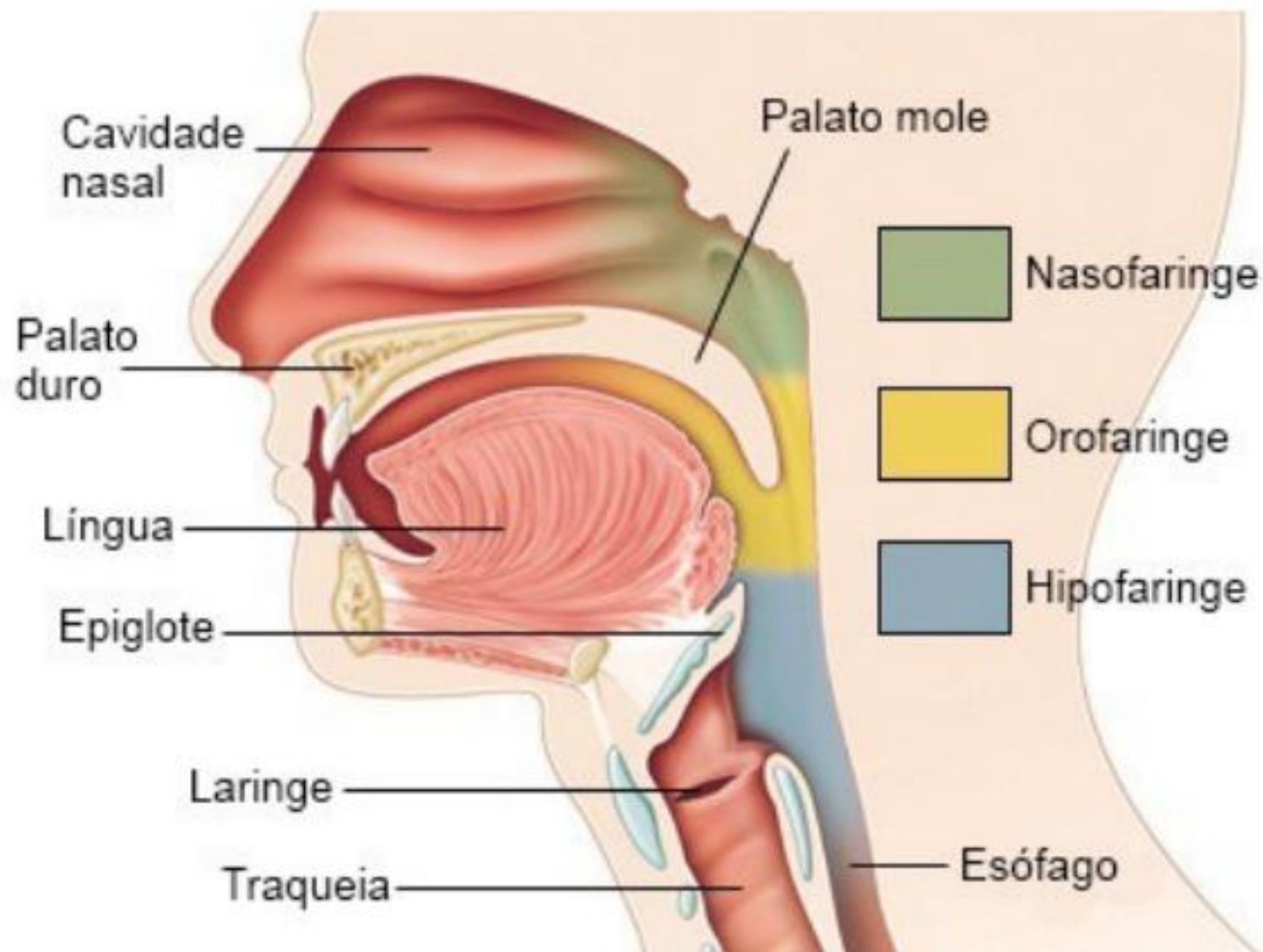
## Seios paranasais



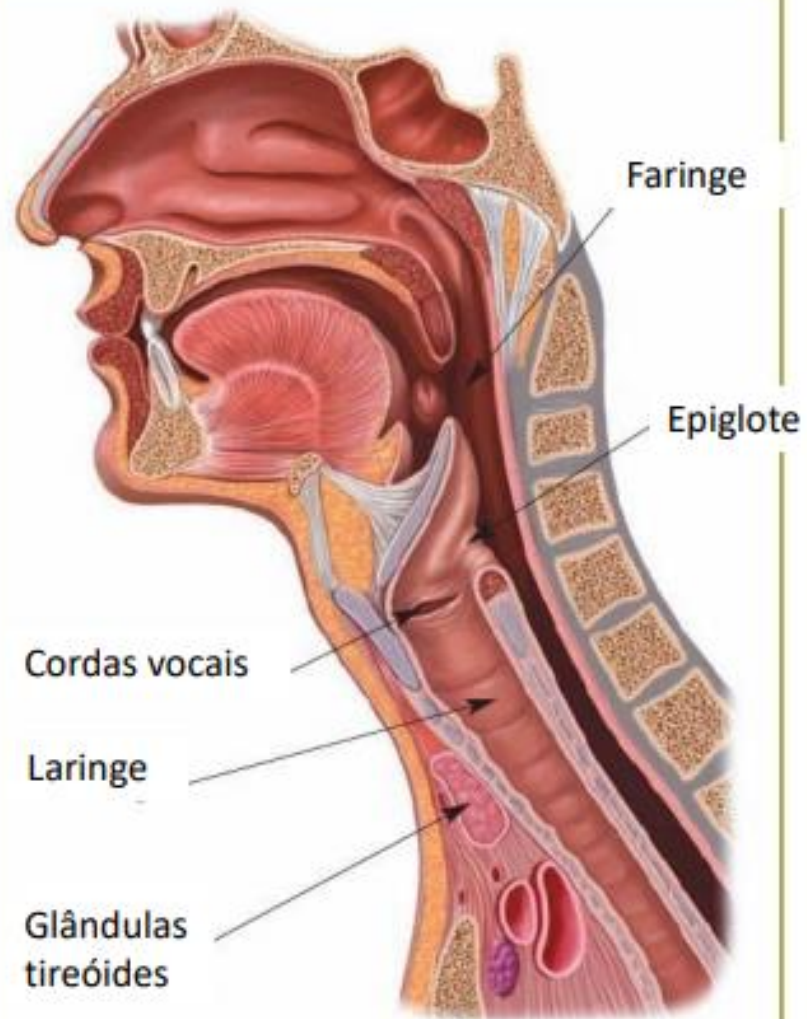
### Sinusite

- Inflamação da membrana mucosa dos seios paranasais
- Causada por infecções bacterianas, virais ou fungicas.
- Os seios inflamados e bloqueados favorece o crescimento bacteriano

# Faringe

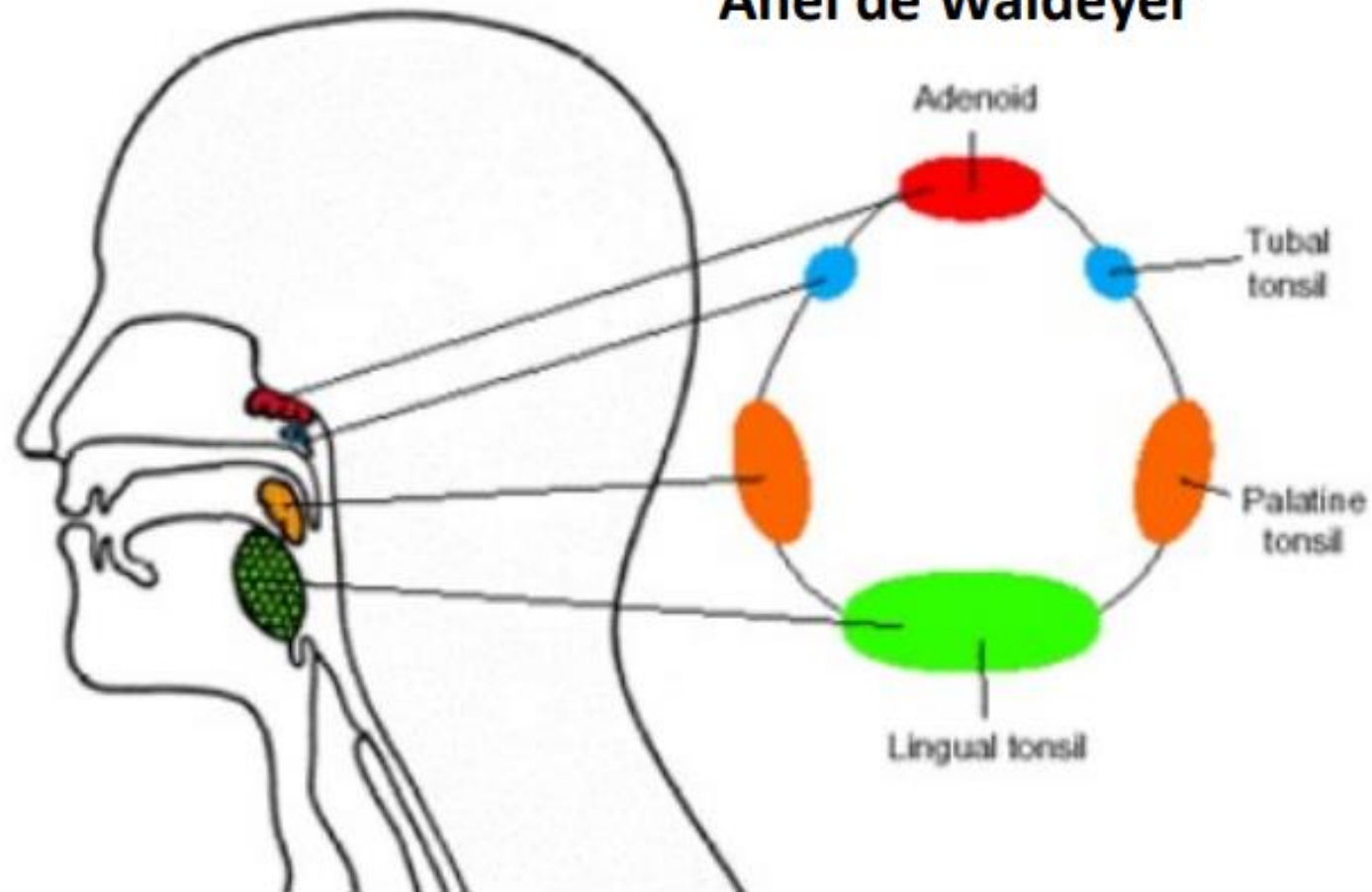


# Faringe



## Faringe

### Anel de Waldeyer



Tonsilas



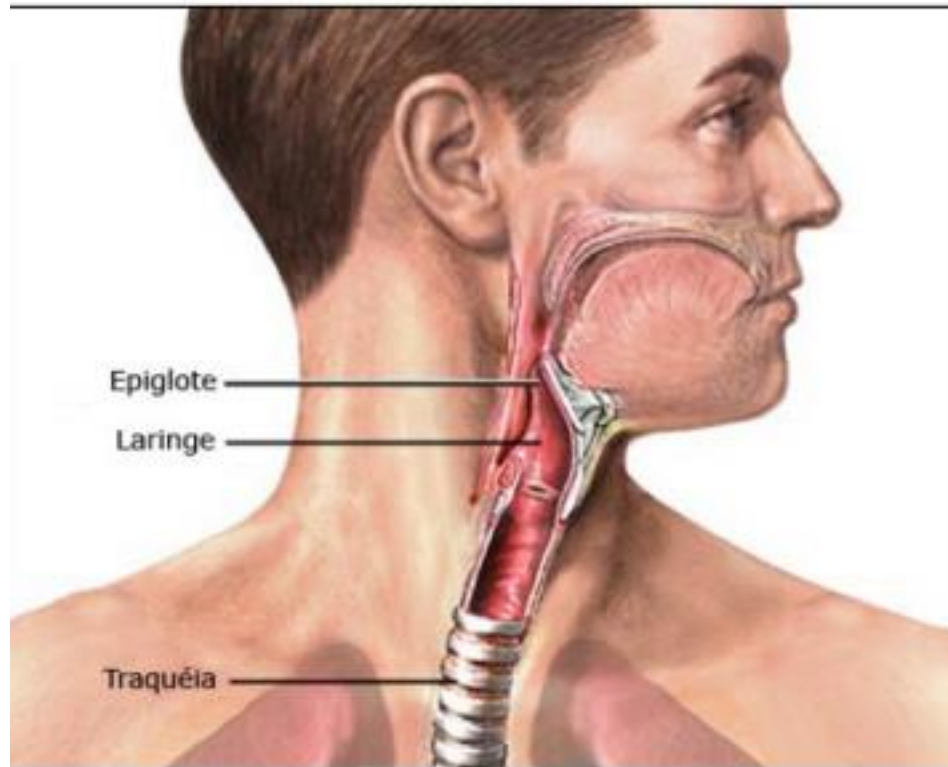
Sistema  
Imune

# Faringe

Epitélio pseudoestratificado  
cilíndrico ciliado

Muitos linfócitos  
presentes

# Laringe e Cordas Vocais



➤ **Localização:**  
Entre a faringe e a traquéia

- Tem 4-5 cm comprimento

➤ **Função: Fonação**

- fecha-se durante a deglutição, impedindo entrada de alimentos nas vias aéreas superiores

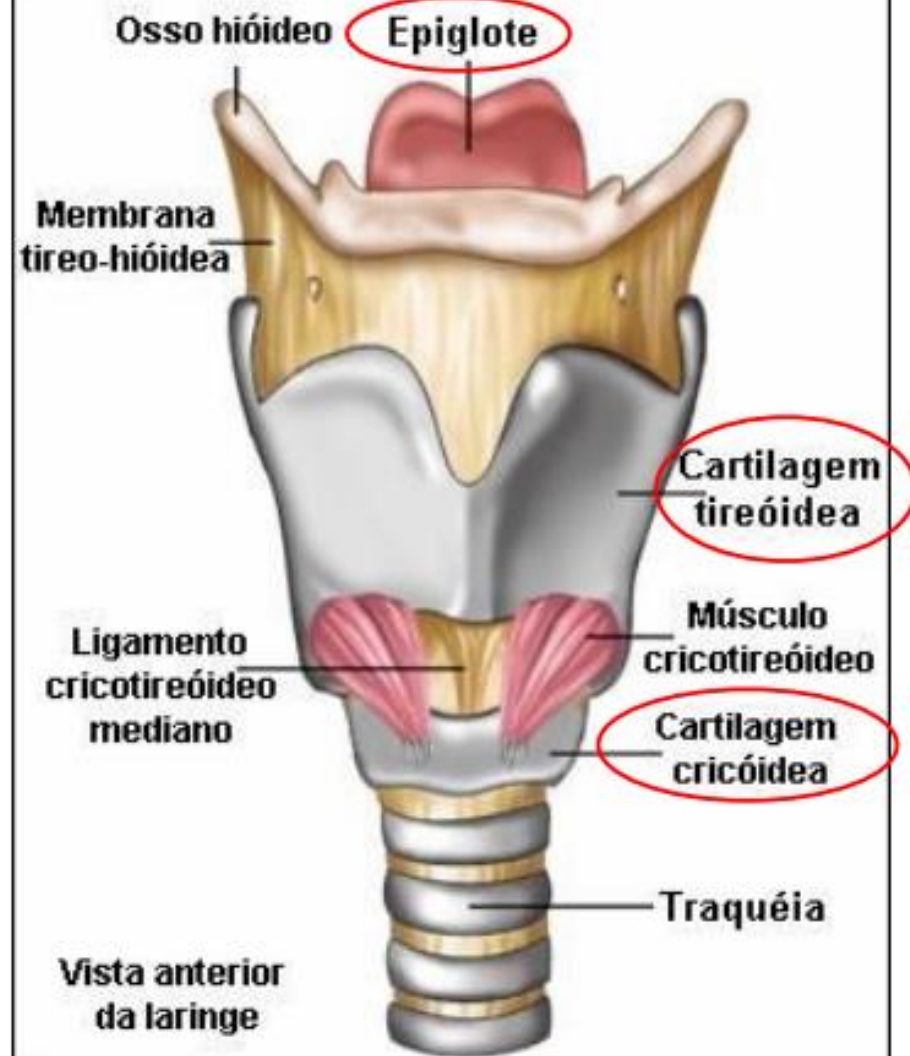
➤ **Constituição:**

- Arcabouço de cartilagem hialina elástica, unidas por tecido conjuntivo e associadas a músculos esqueléticos
- Pregas vestibulares
- Pregas vocais

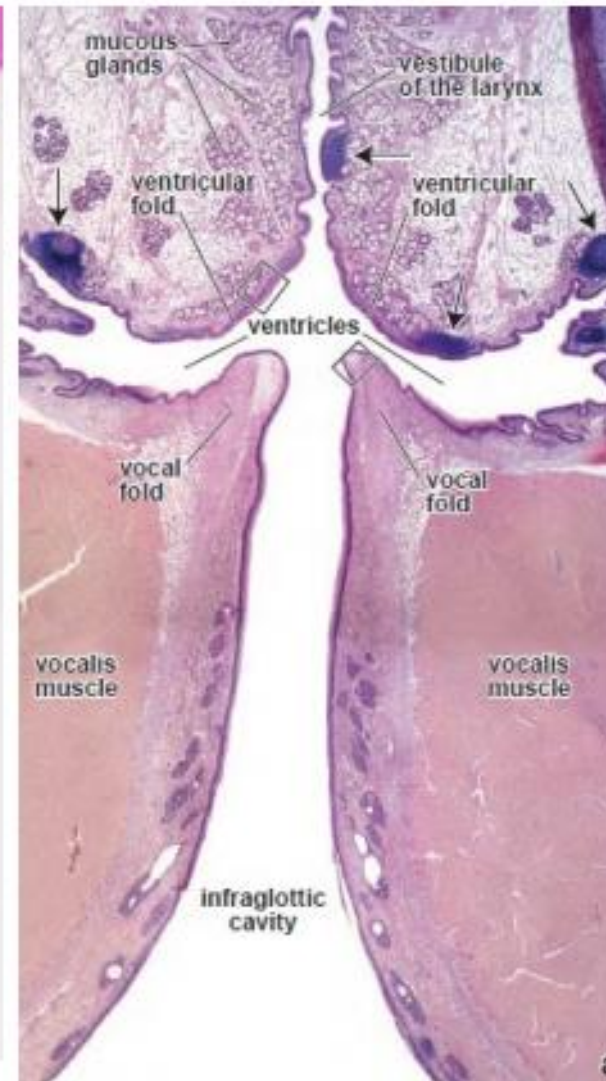
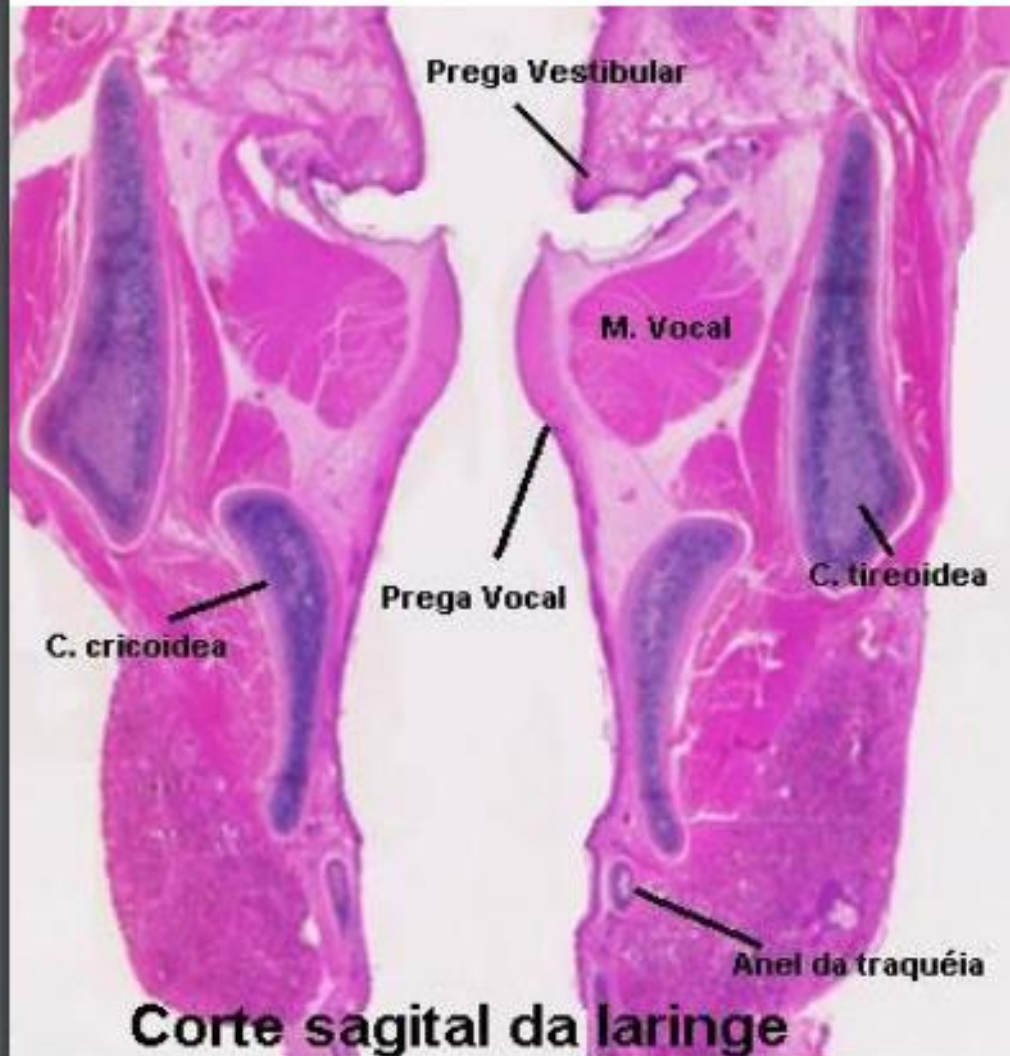
## Laringe e Cordas Vocais



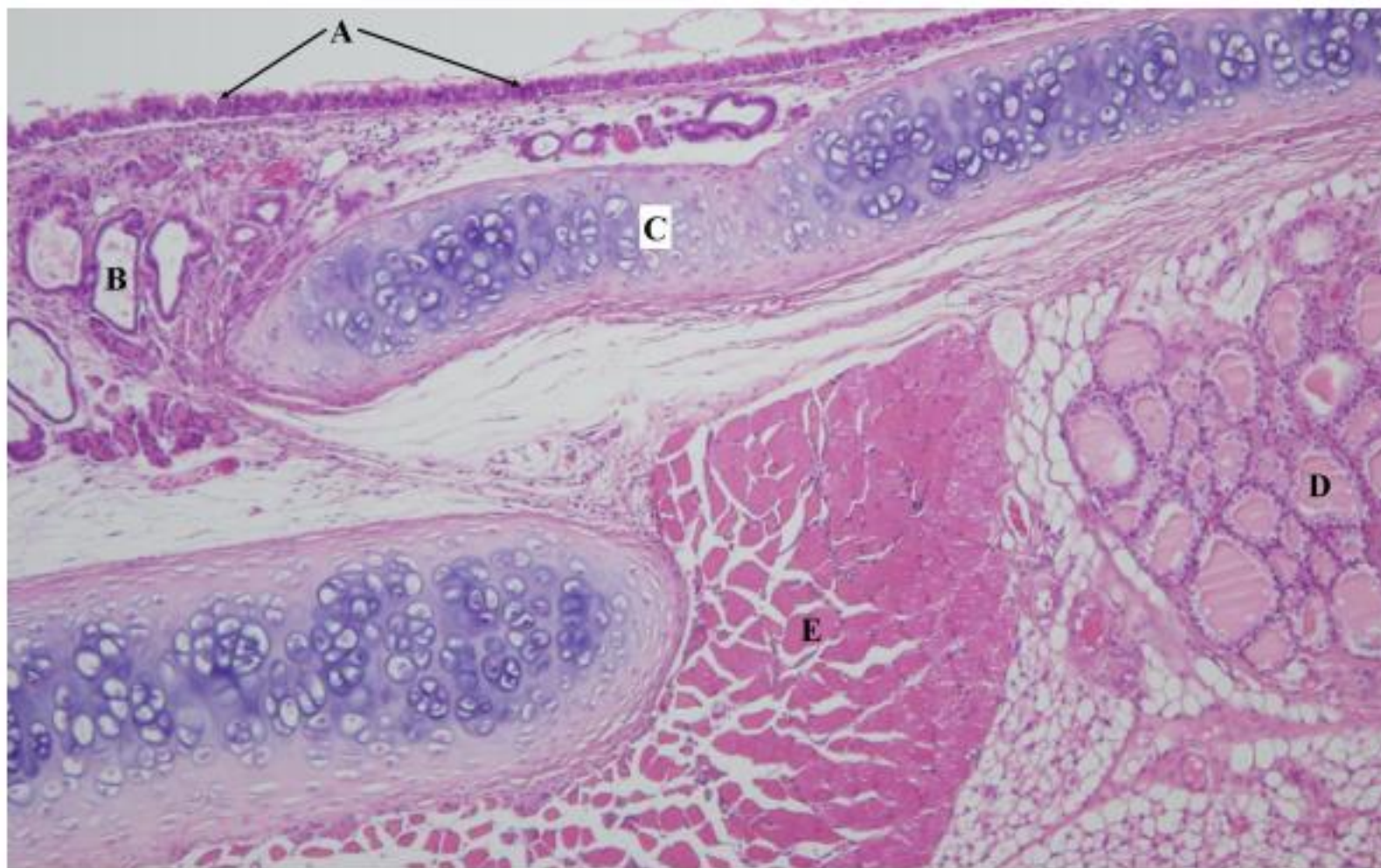
# Laringe



# Parede da Laringe

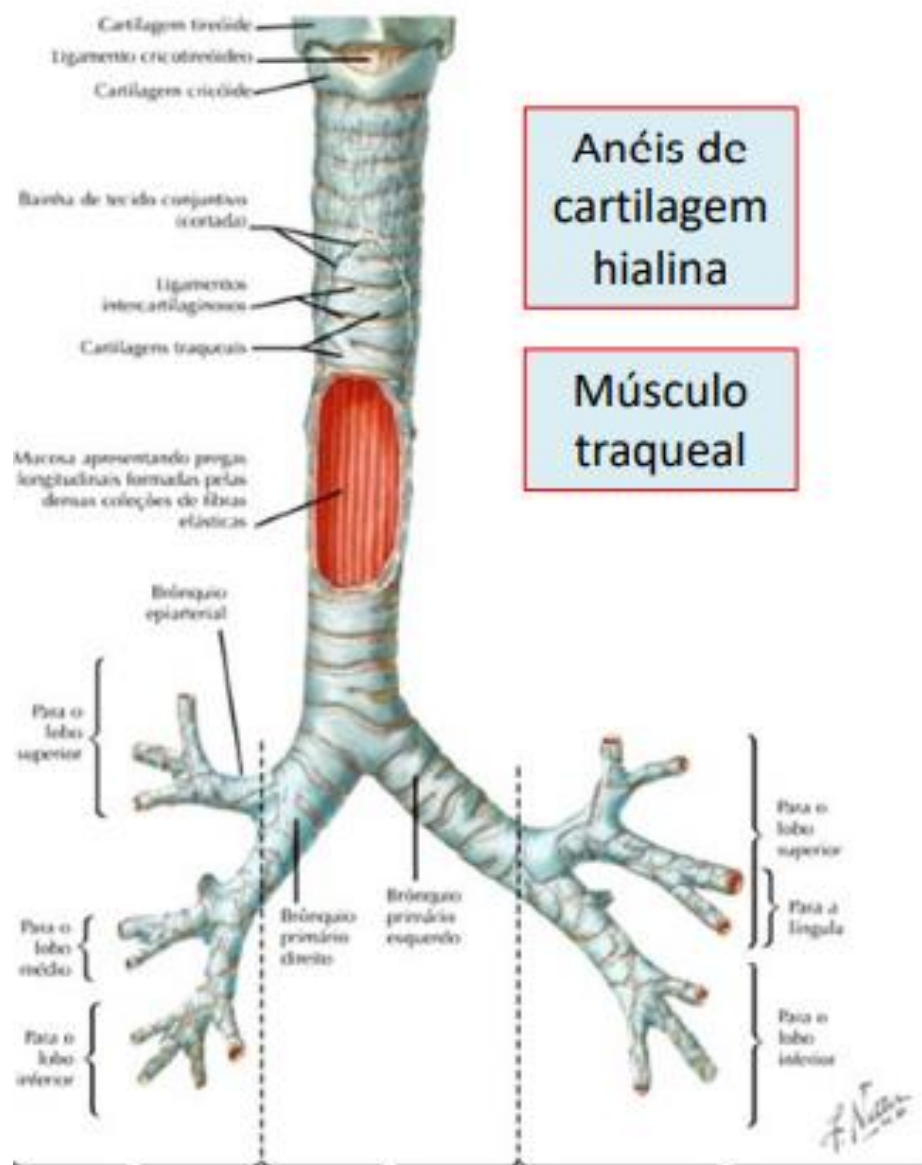


# Laringe



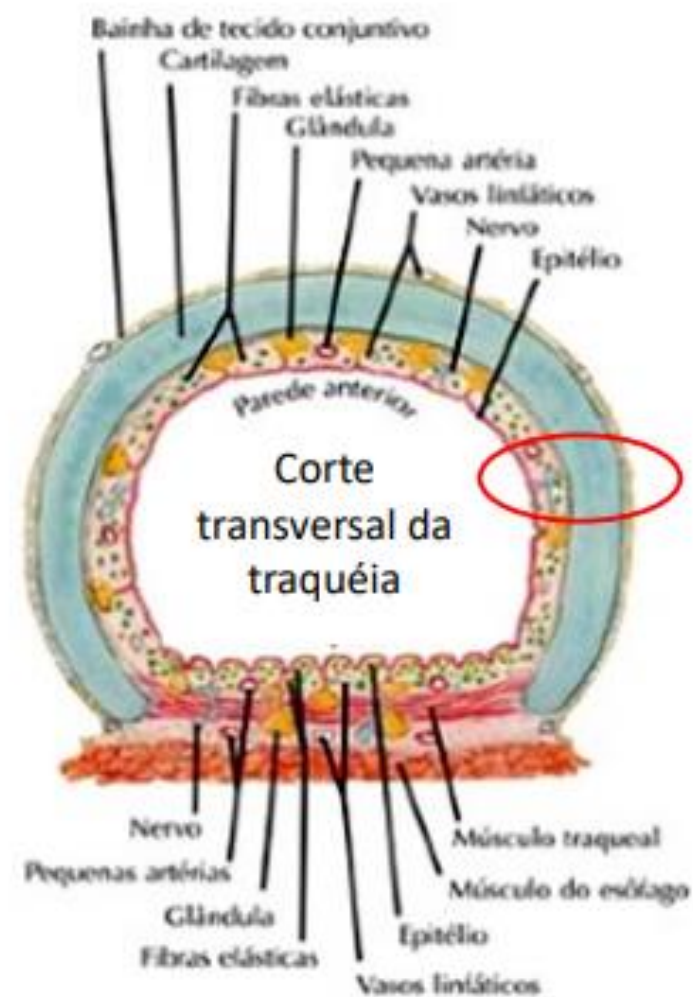
**A:** Epitélio pseudoestratificado cilíndrico ciliado **B:** Glândulas **C:** Cartilagem hialina **D:** Glândula tireóide **E:** Músculo esquelético traqueal

# Traquéia

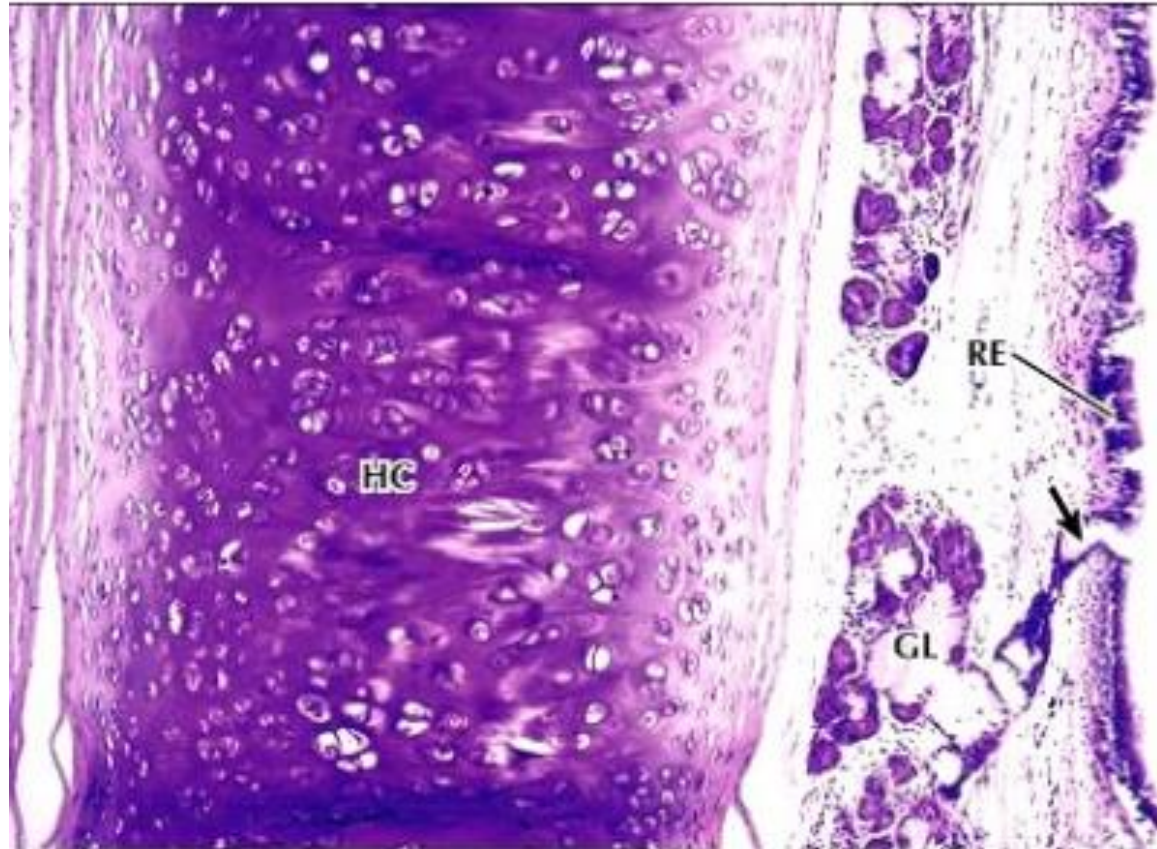


Anéis de  
cartilagem  
hialina

Músculo  
traqueal



# Traquéia



60x HE

RE: Epitélio respiratório  
GL: glândula seromucosa  
Seta: ducto da glândula  
HC: cartilagem hialina

**MA: ácinos mucosos**  
SD: células serosas,  
menores e mais  
intensamente coradas

# Traquéia



420x HE

BM: membrana basal  
B: células basais  
G: células caliciformes  
Setas: cílios

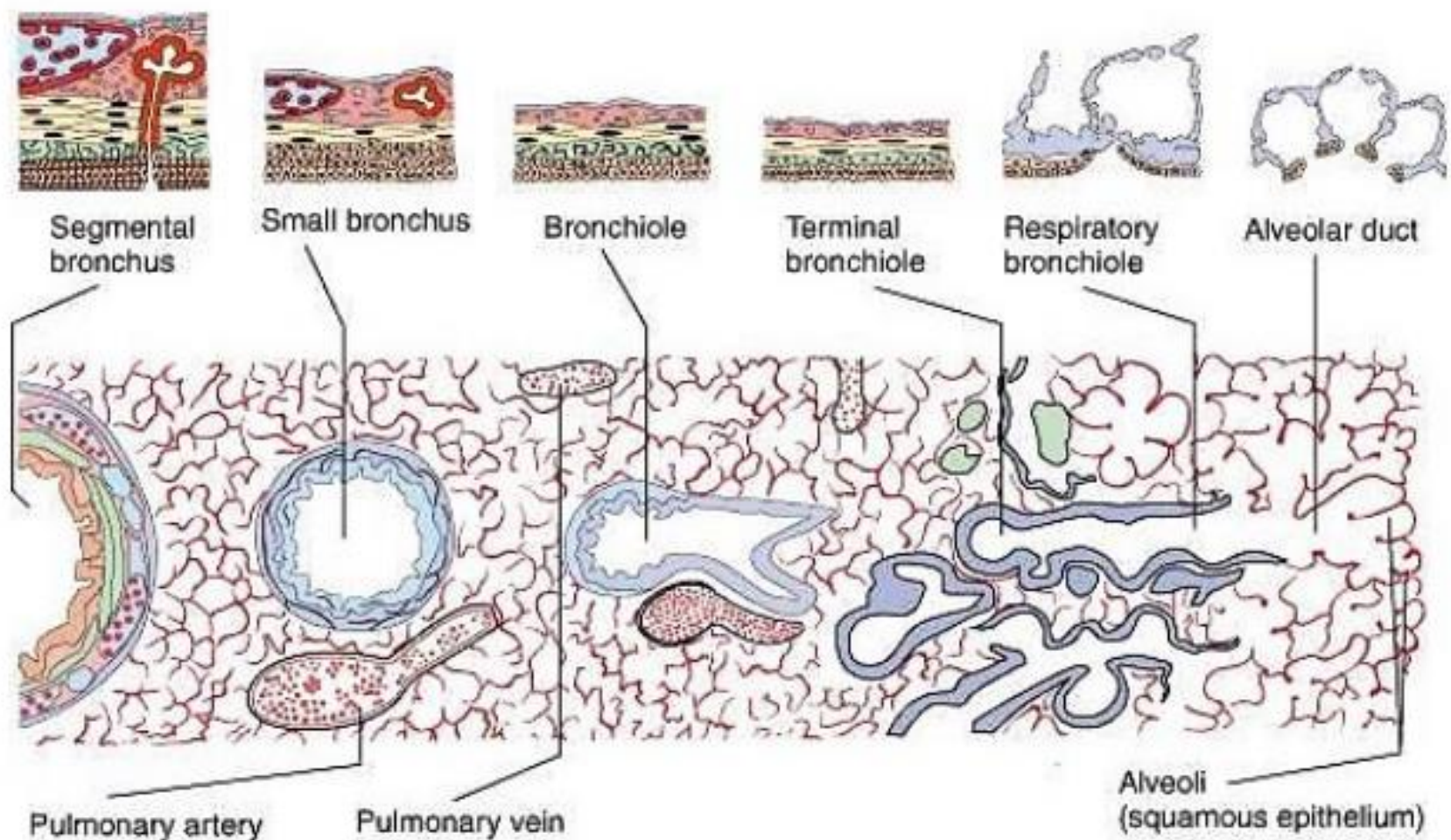
Células de **K**utlchitsky,  
neuroendócrinas



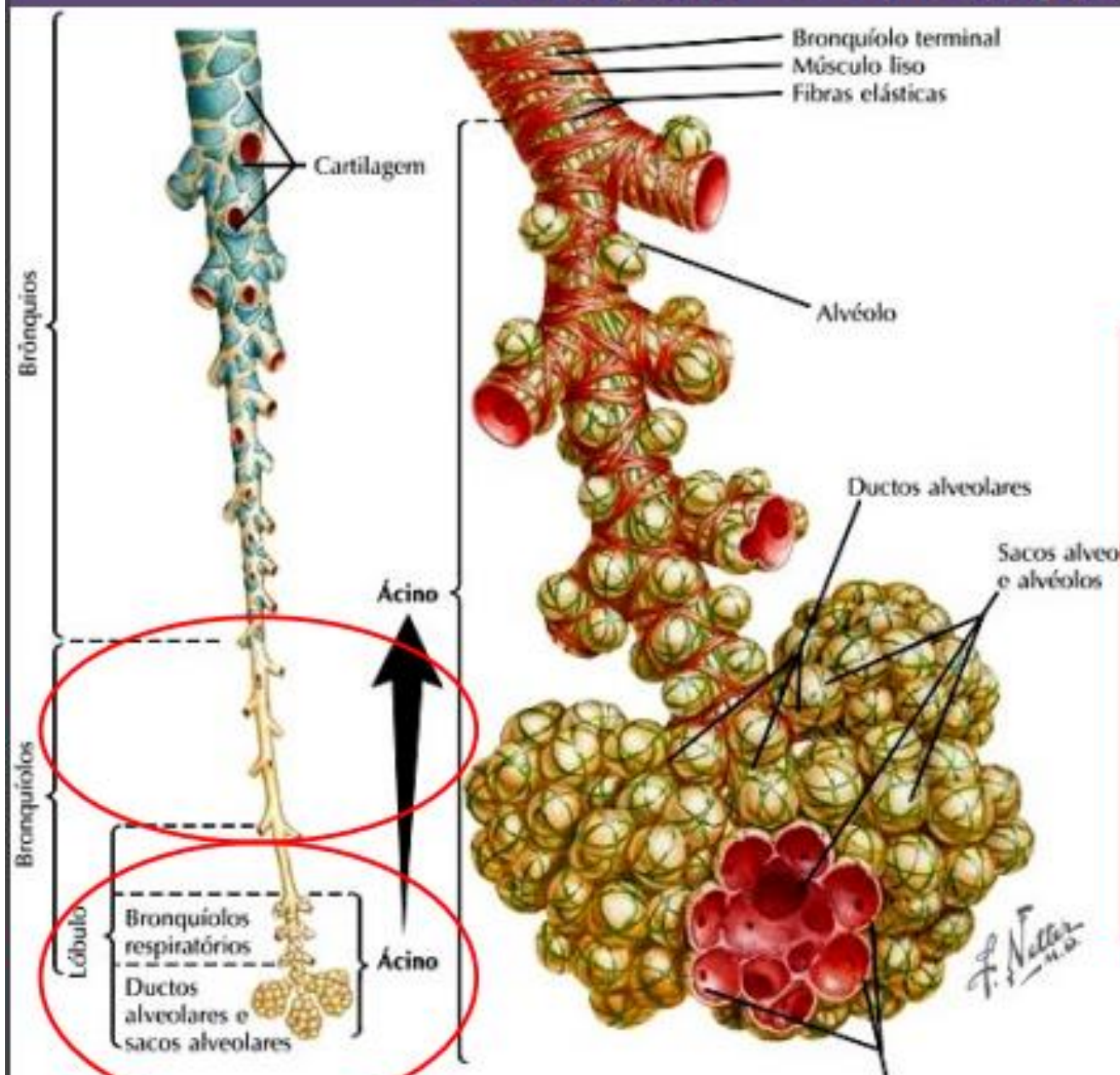
20.000x HE

Cílios se originam de  
corpúsculos basais (BB), com  
microtúbulos no seu eixo.  
Setas: microvilos

## Resumo das Principais Estruturas



# Brônquio e Bronquíolos

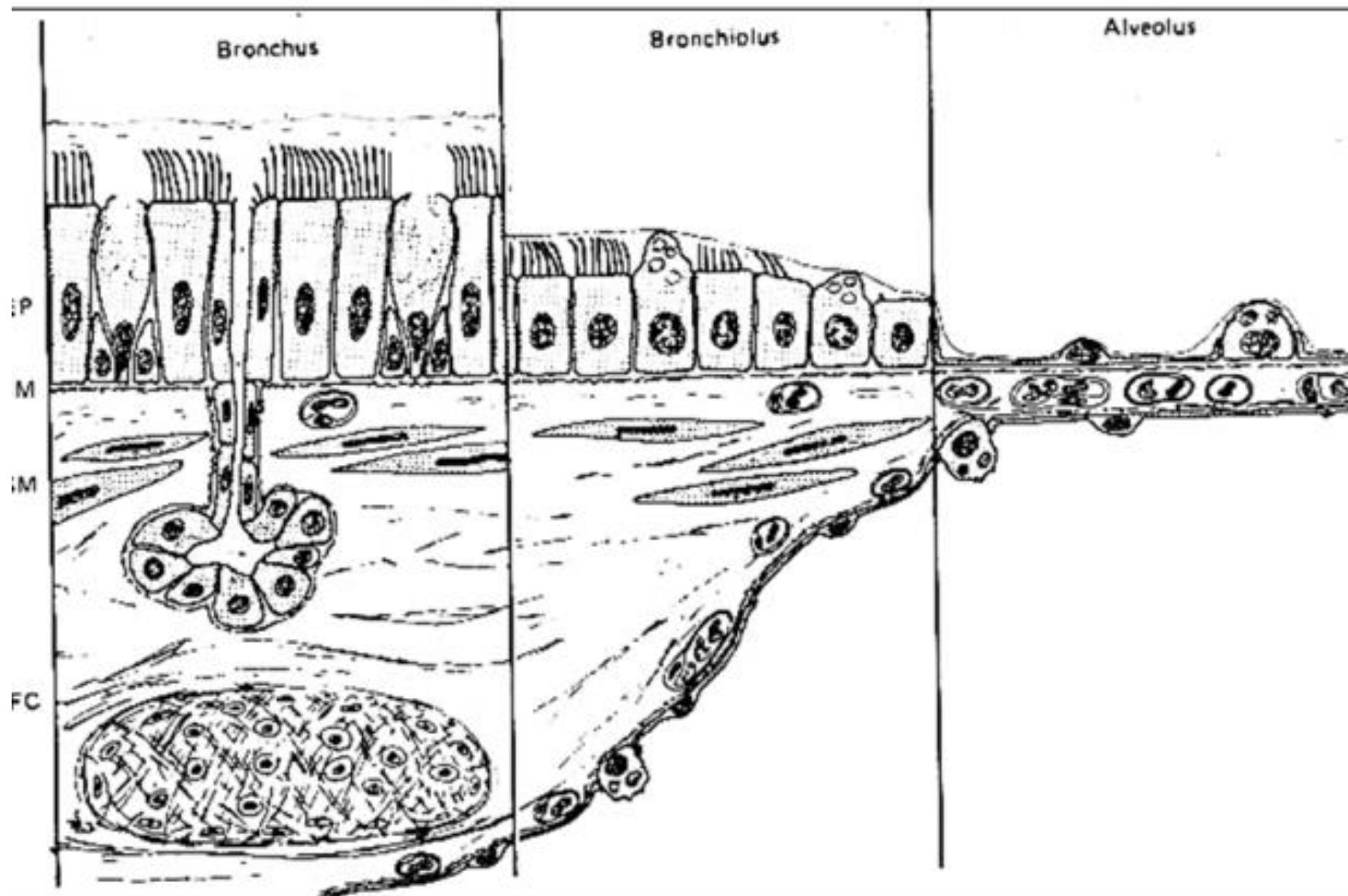


- Placas de cartilagem vão se tornando mais esparsas.

- Após a última placa, começam os bronquíolos

- Ductos alveolares e sacos alveolares conduzem aos alvéolos

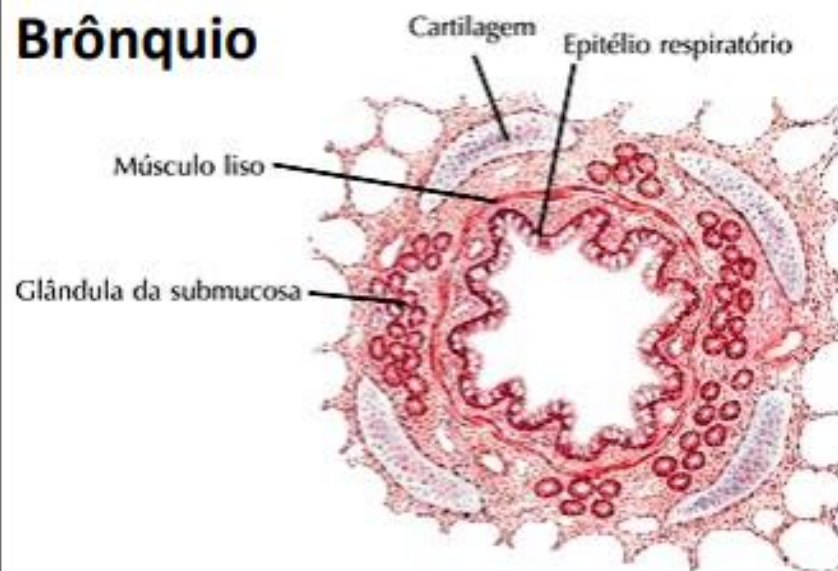
## Brônquio – Bronquíolo - Alvéolo





# Brônquio e Brônquíolos

## Brônquio



Ep. pseudoestratificado cilíndrico ciliado

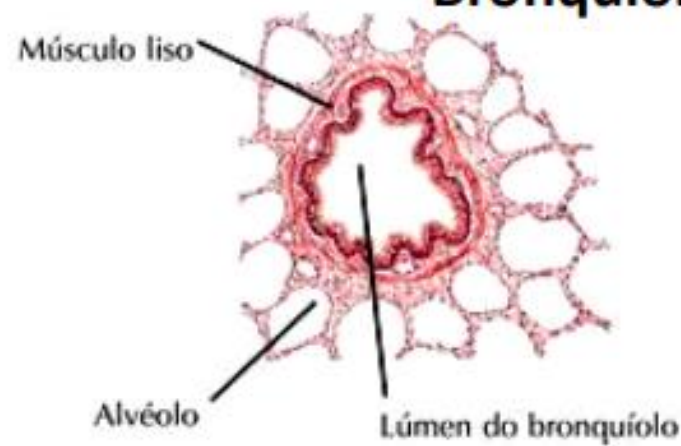
Lâmina própria

Músculo liso

Submucosa

Cartilagem hialina

## Bronquíolo

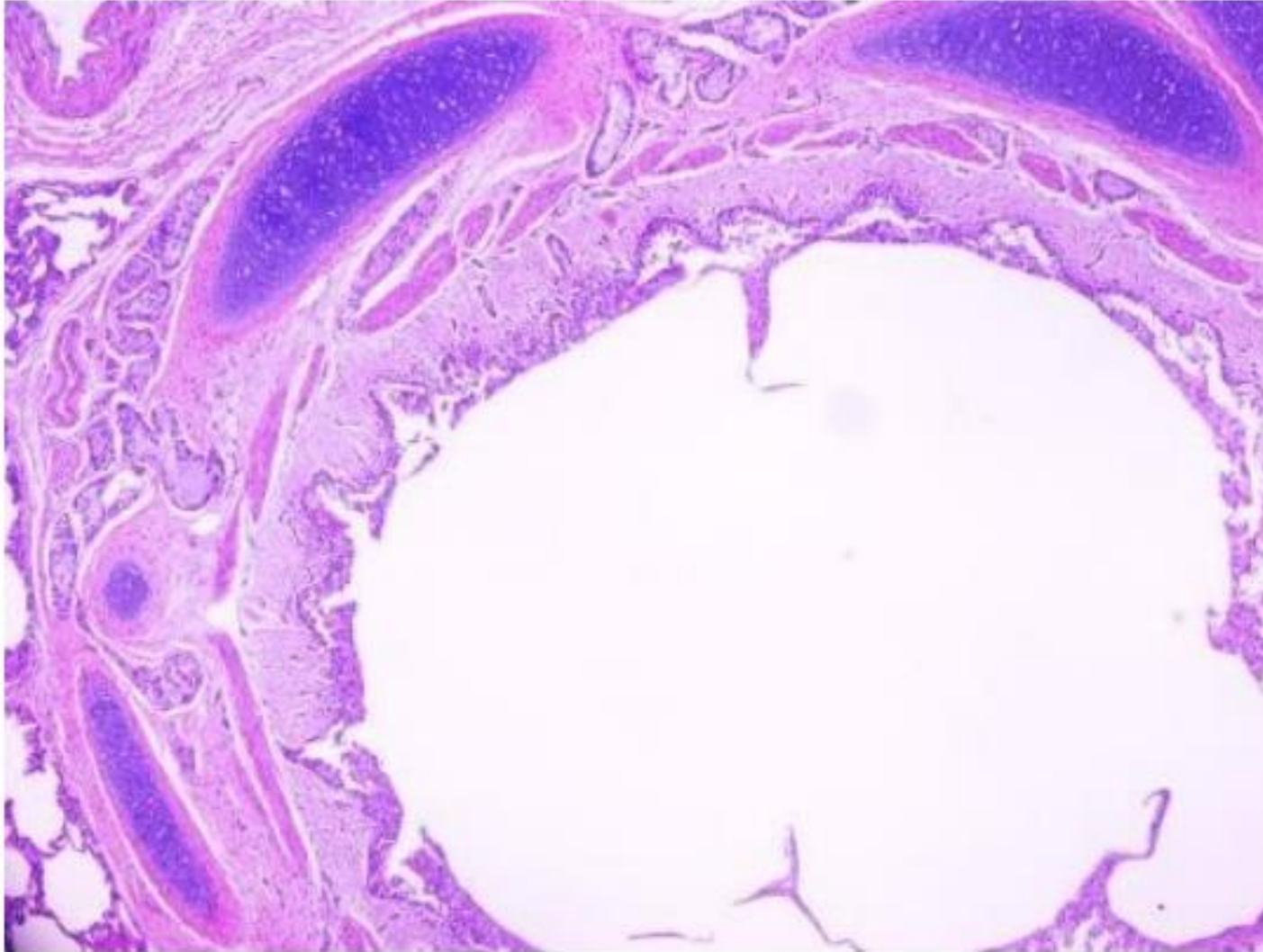


Ep. simples cilíndrico ciliado

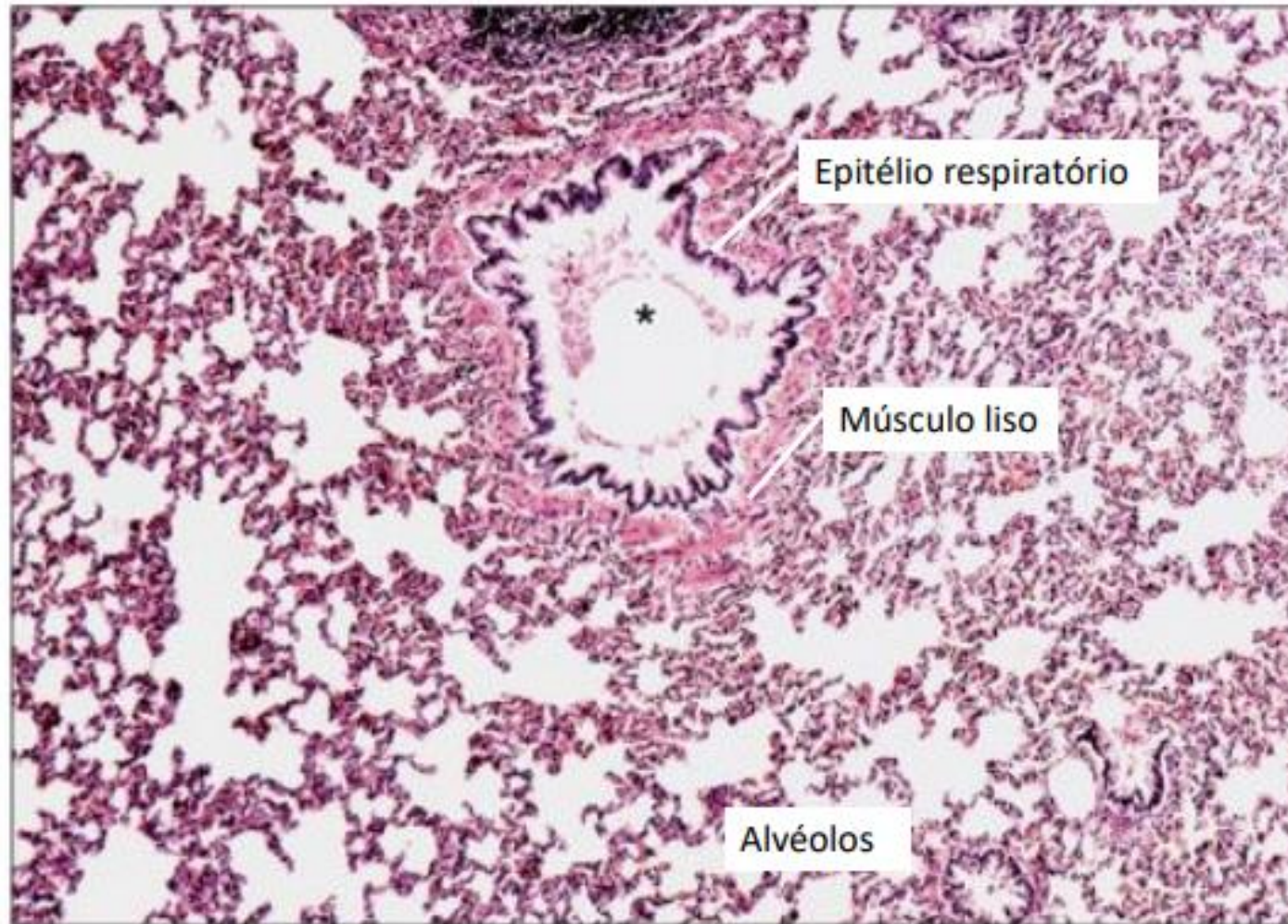
Lâmina própria

Músculo liso

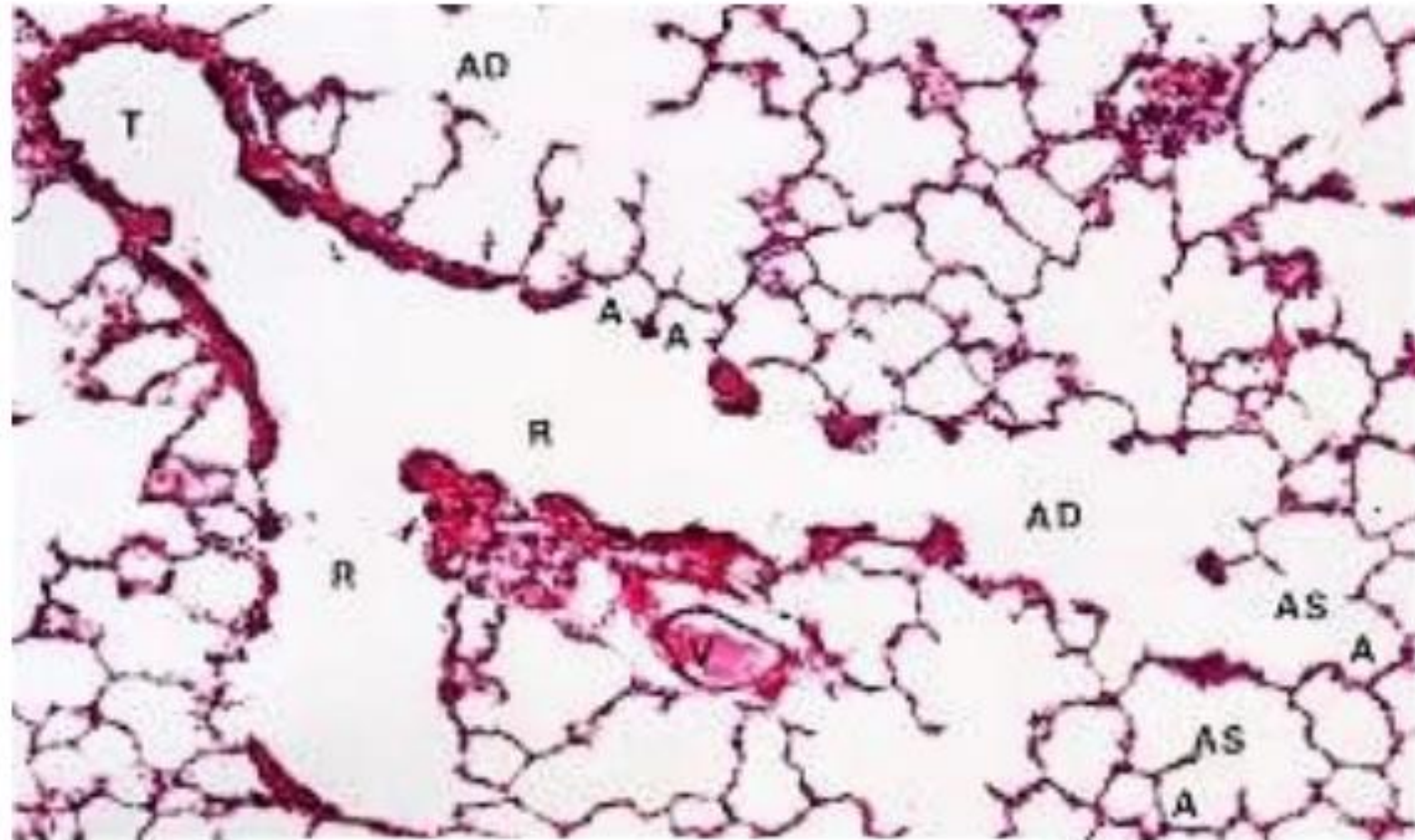
## Brônquio



## Bronquíolos

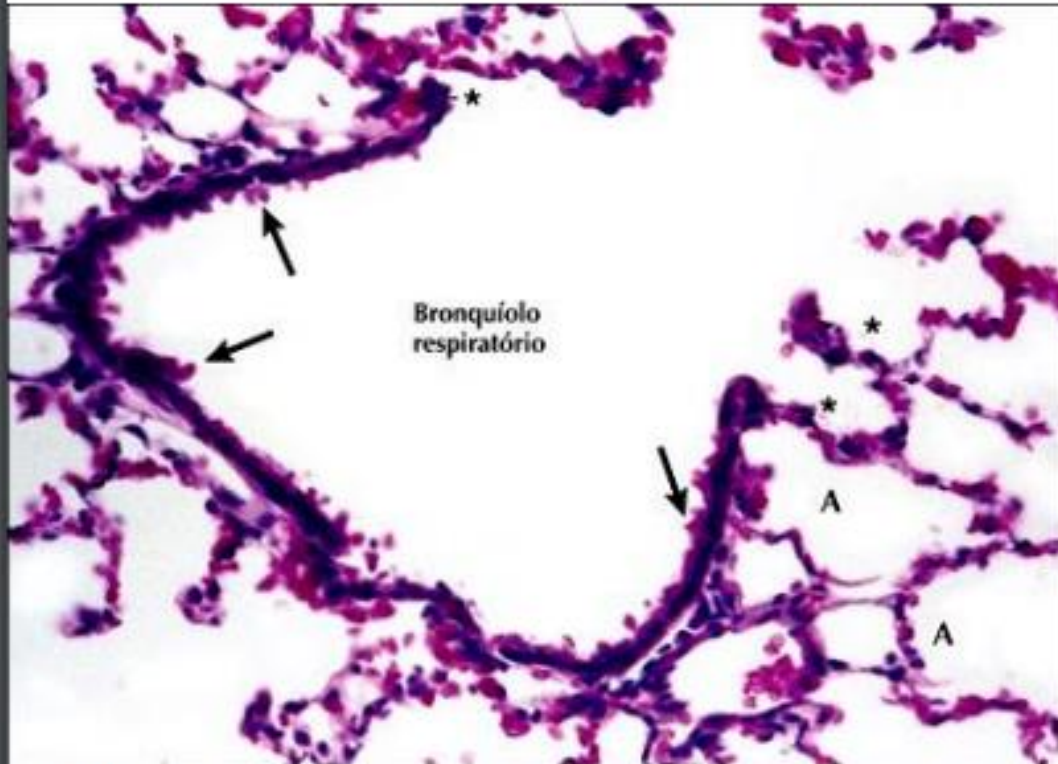
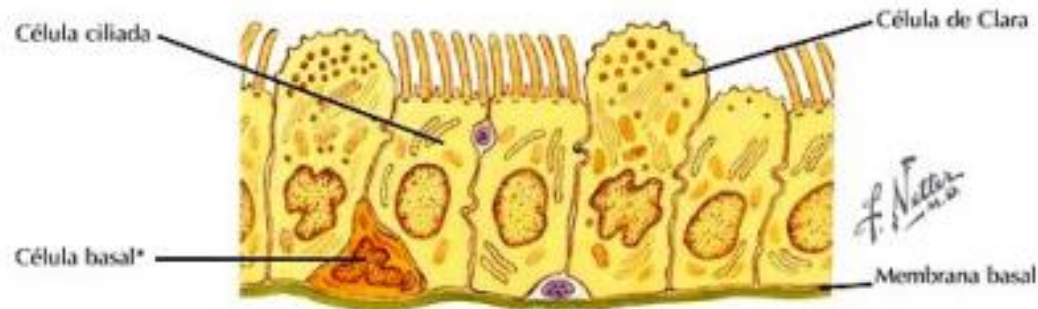


150x HE



- T = Bronquiolo terminal
- R = Bronquiolo respiratorio
- AD = Ducto Alveolar
- AS = Septo alveolar
- A = Alvéolo

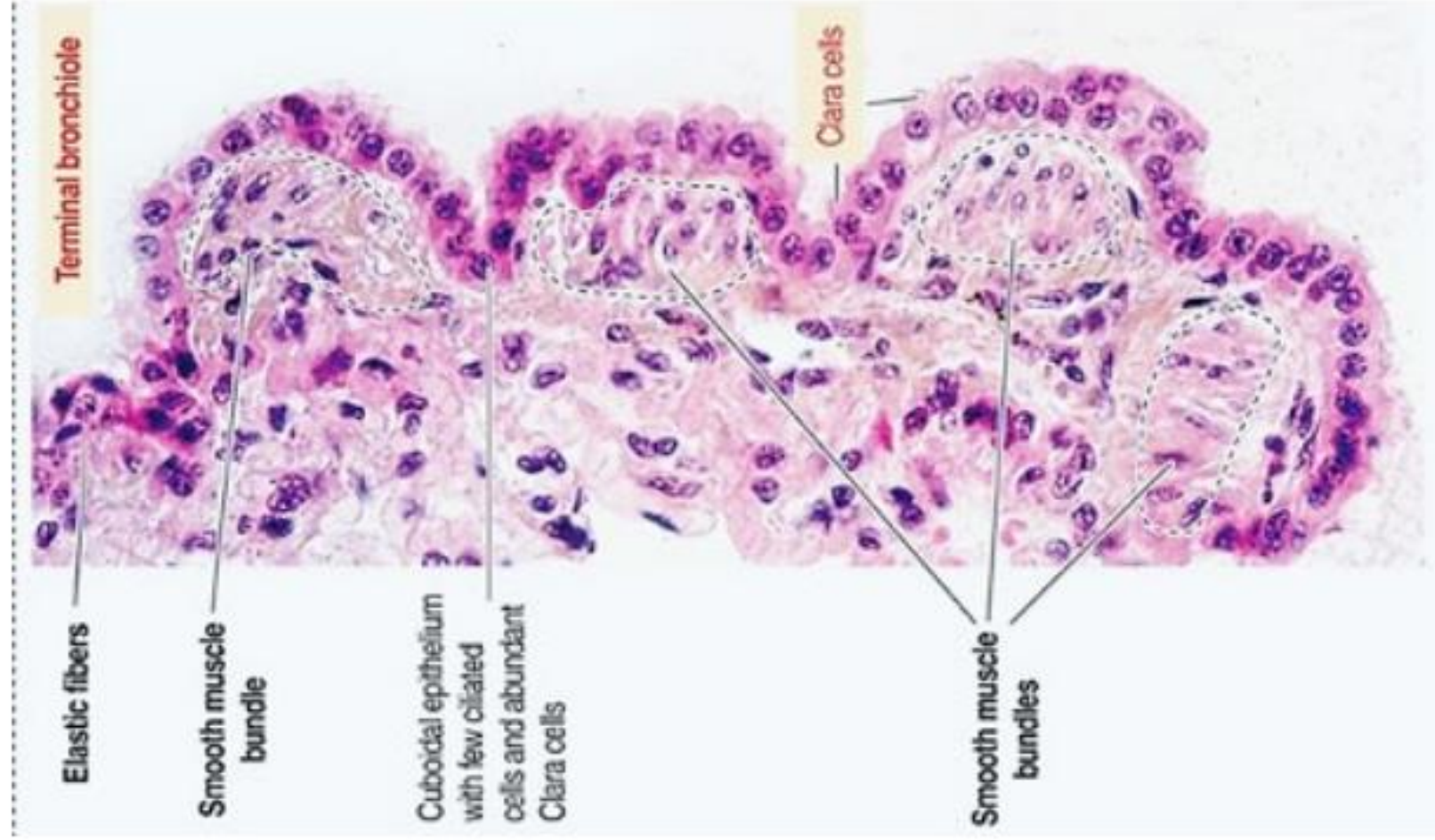
# Brônquiólos



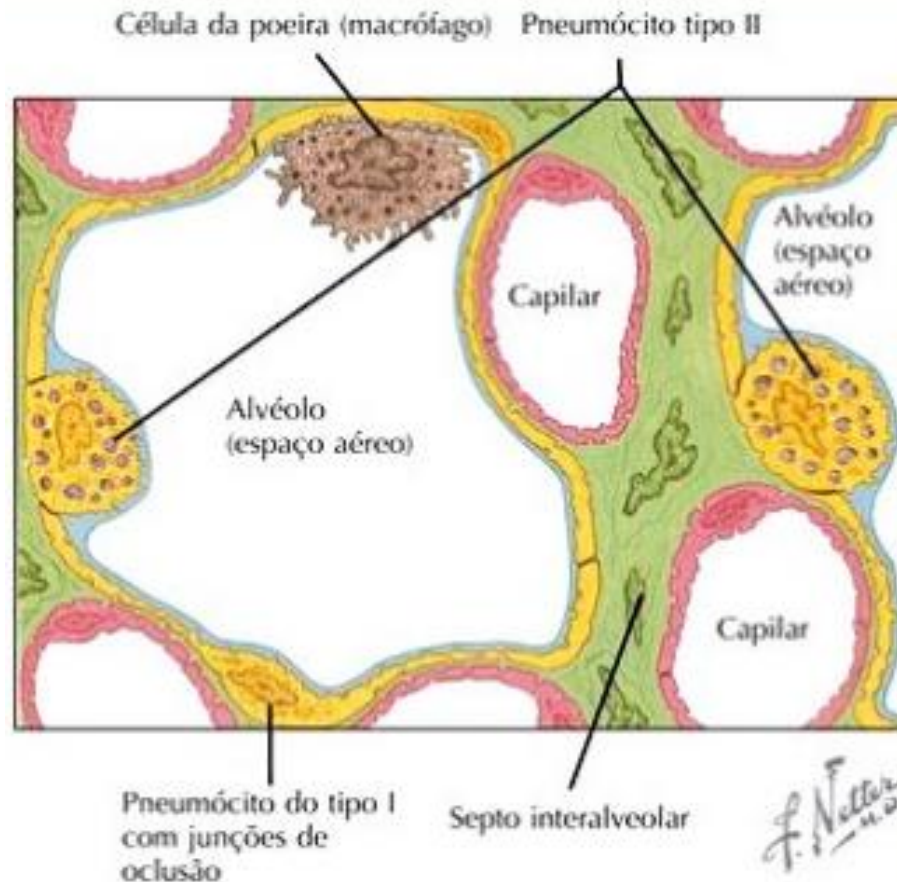
270x HE

- Epitélio simples cilíndrico ciliado.
- Presença de células não ciliadas, secretoras em formato de cúpula: **células de Clara**
- Inexistem glândulas
- Músculo liso

## Bronquíolos: Terminal e Respiratório



# Alvéolos Pulmonares



- **Pequenas evaginações saculares** dos bronquíolos respiratórios, de ductos alveolares e sacos alveolares

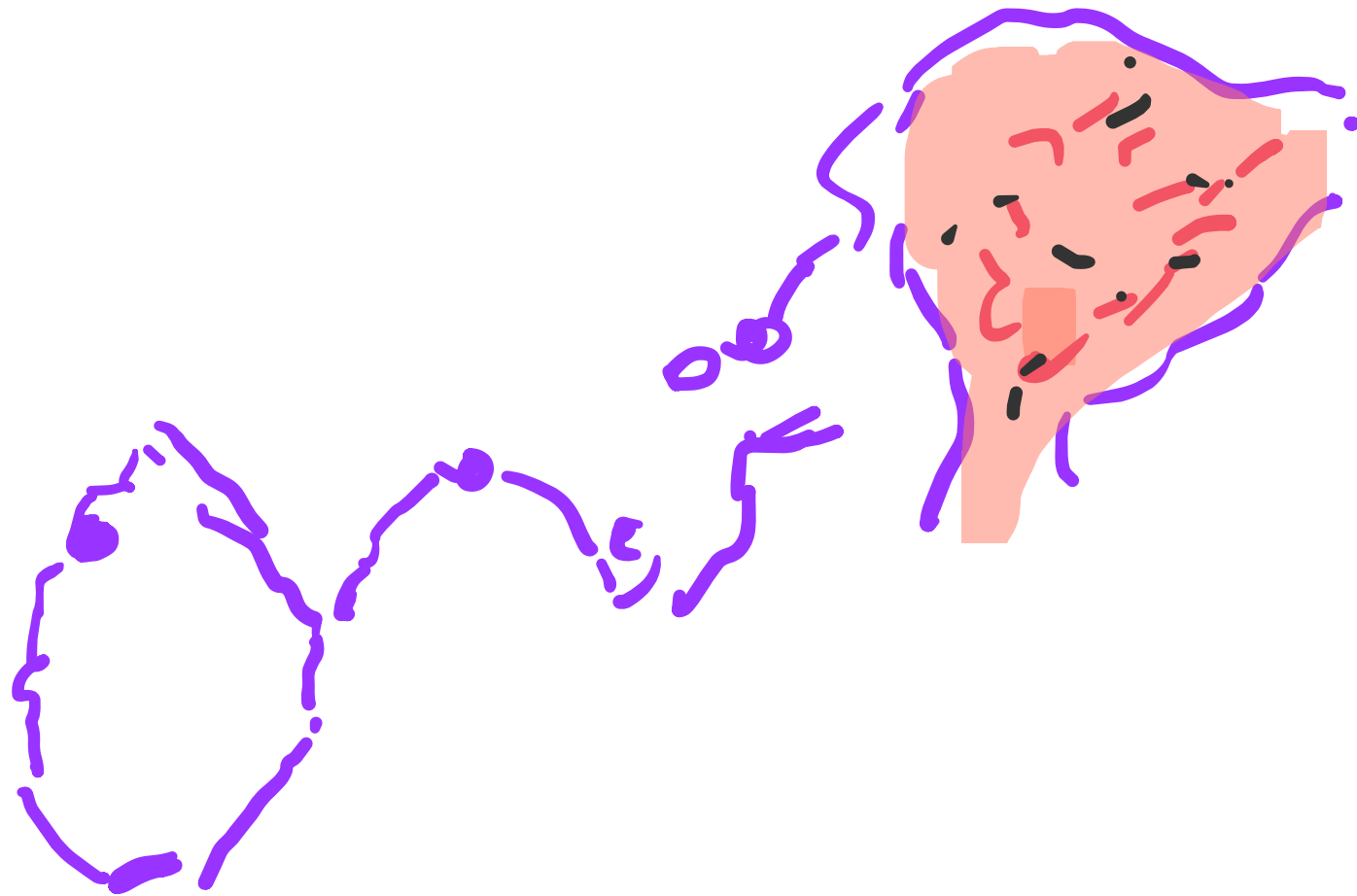
- Separados por **septos alveolares**

- **Epitélio simples pavimentoso**  
Pneumócitos apoiados sobre uma lâmina basal

**Pneumócitos tipo I:** trocas gasosas

**Pneumócitos tipo II:** surfactante

**Macrófagos alveolares:** limpeza





# Alvéolos Pulmonares

