



# INTEGUMENTARY SYSTEM

- Skin
  - thin type
  - thick type
  
- Keratinized adnexa
  - hair
  - nail
  
- Nonkeratinized adnexa
  - small sweat glands
  - great sweat glands
  - sebaceous glands
  - mammary gland

# Skin (integumentum)

## **Epidermis**

stratum corneum proprium  
(stratum lucidum)

stratum granulosum

stratum spinosum

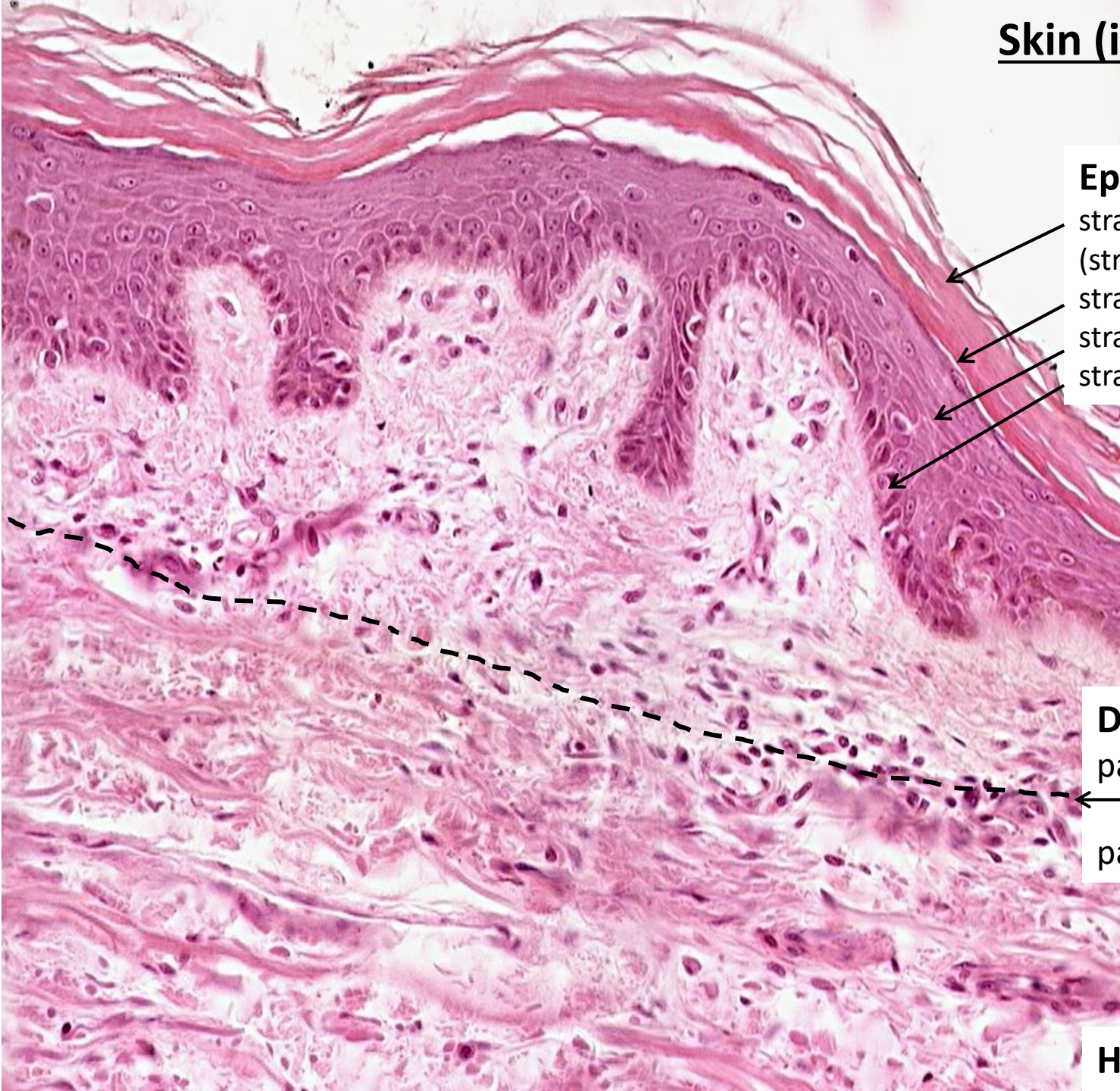
stratum basale

## **Dermis (corium)**

pars papillaris

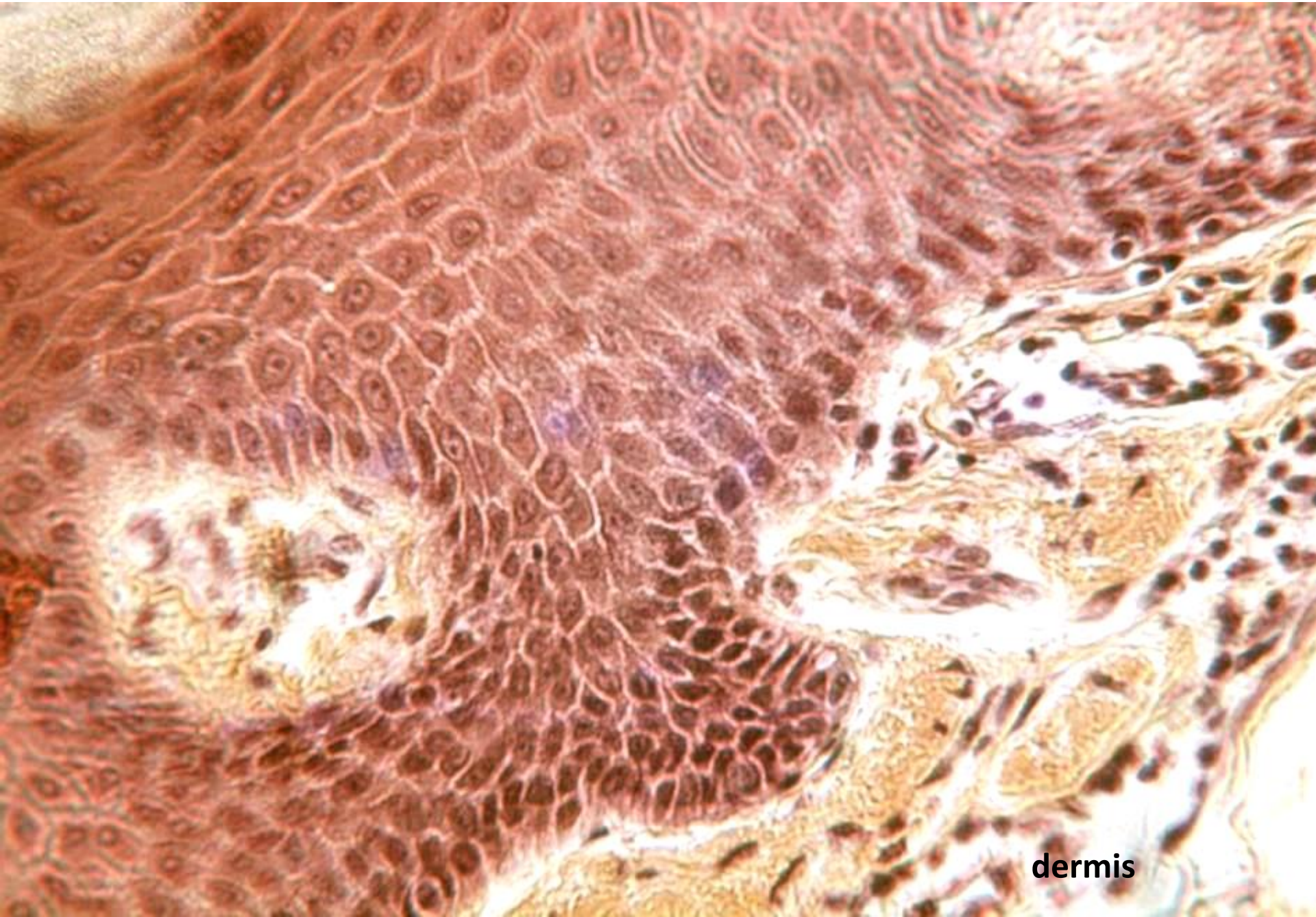
pars reticularis

## **Hypodermis)**



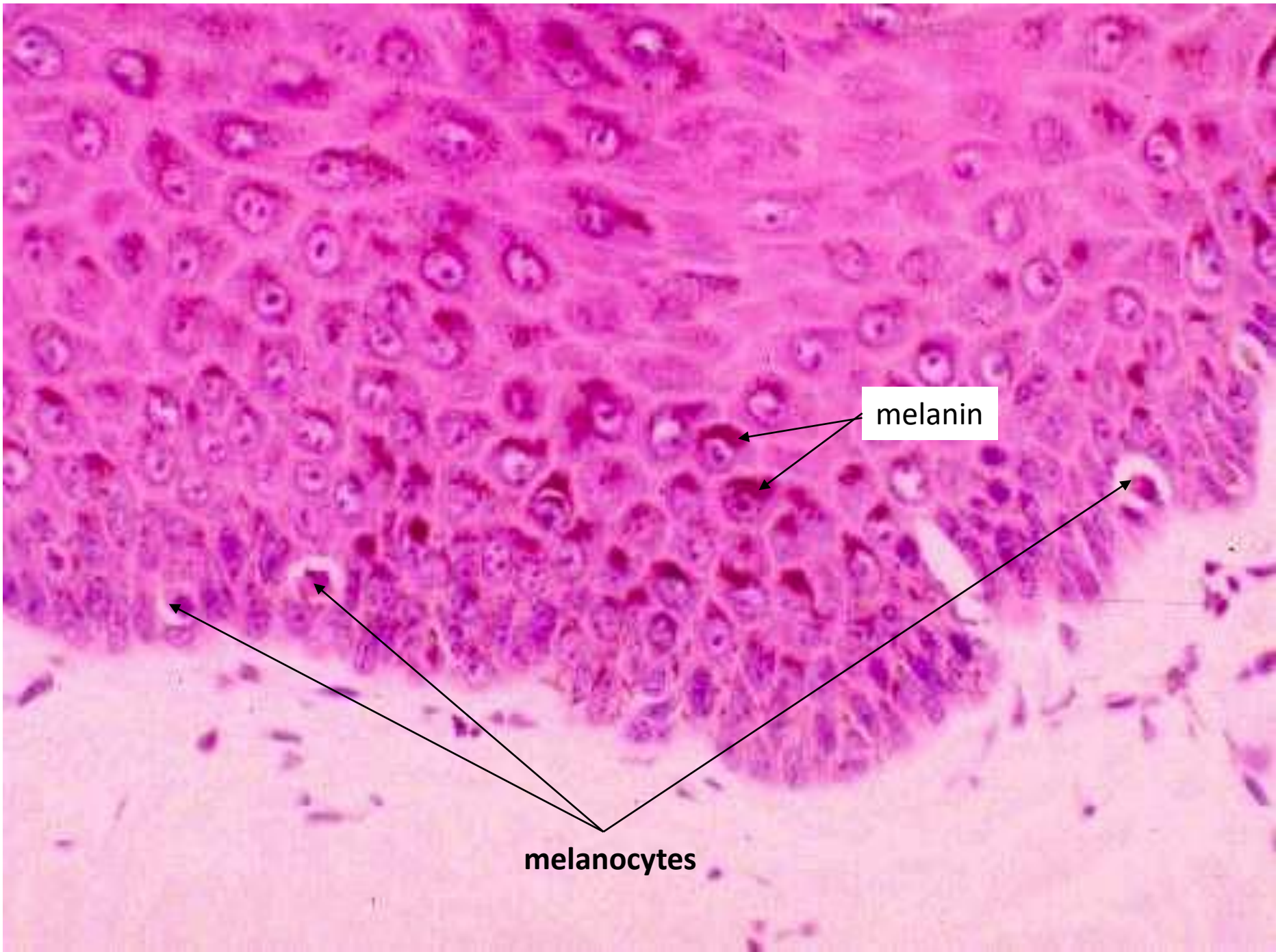


**Epidermis**



**dermis**



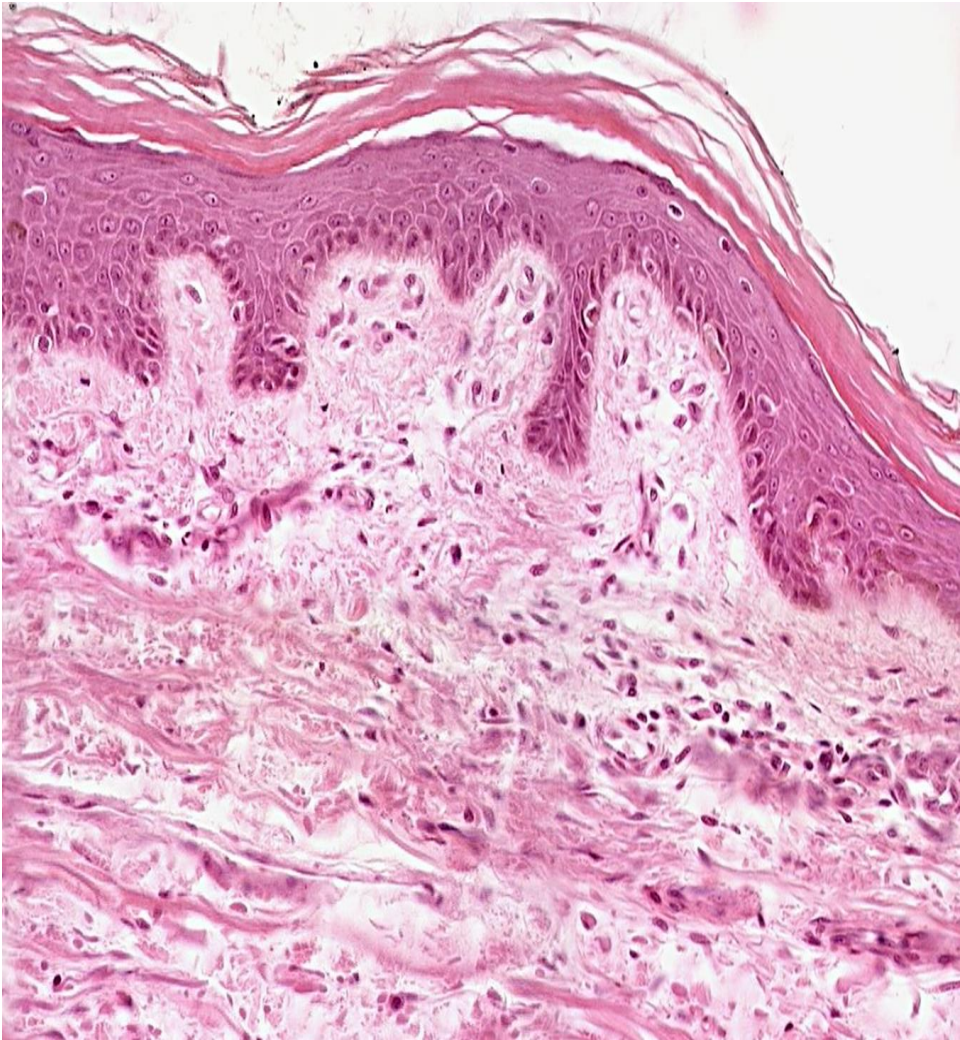


melanin

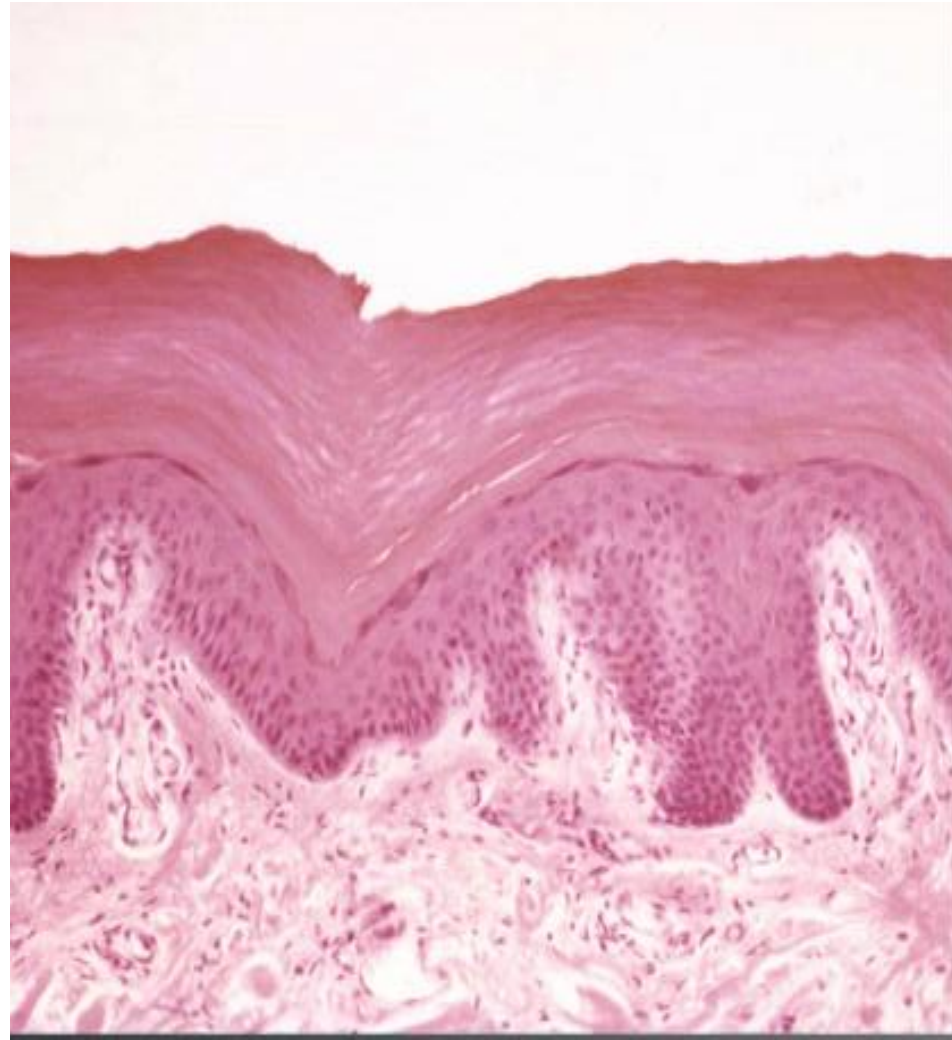
melanocytes



**Thin skin**



**Thick skin**



occurrence: palma manus, planta pedis

# Skin glands

small sweat (eccrine)

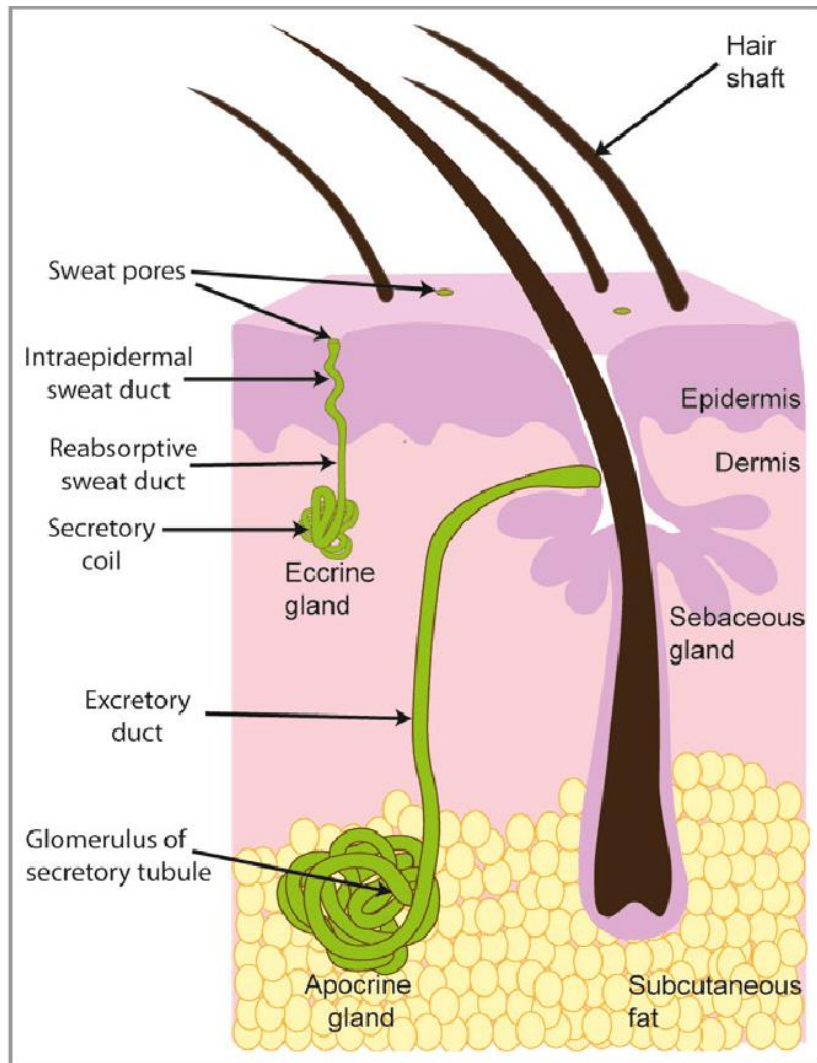
large sweat (apocrine)

sebaceous (holocrine)



Gll. sudoriferae

Gll. sebaceae



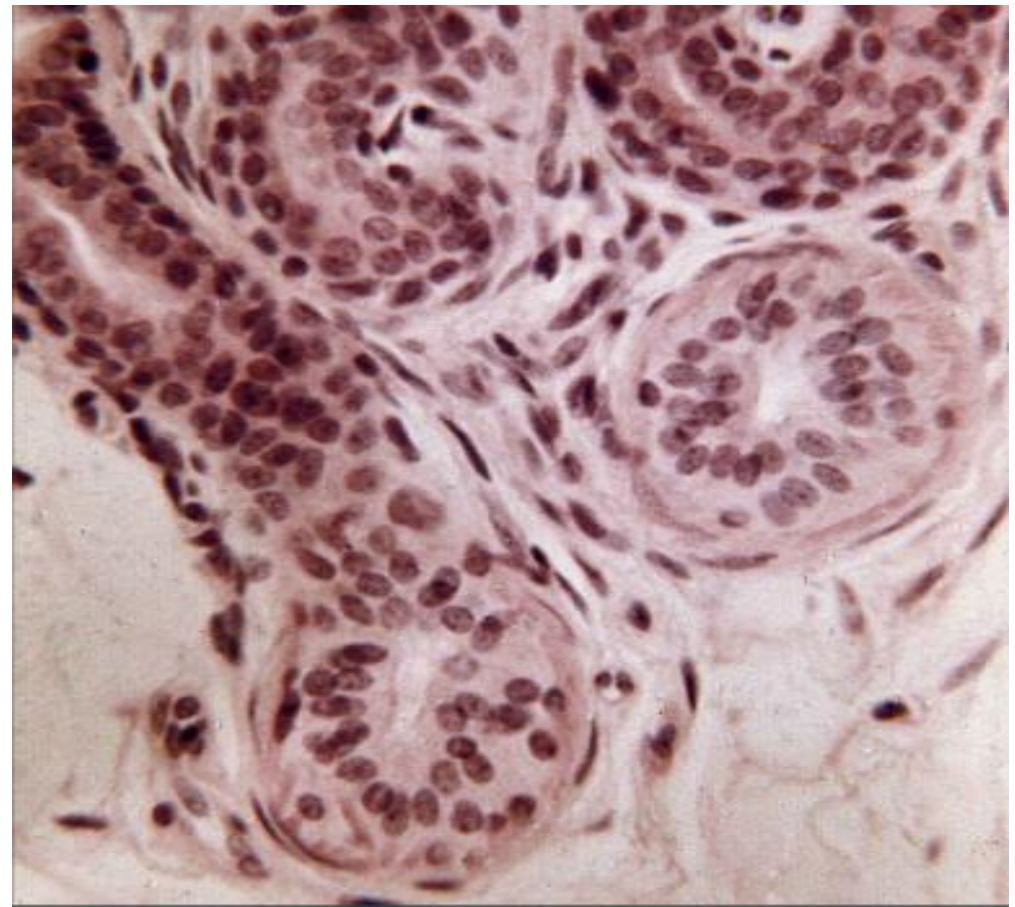
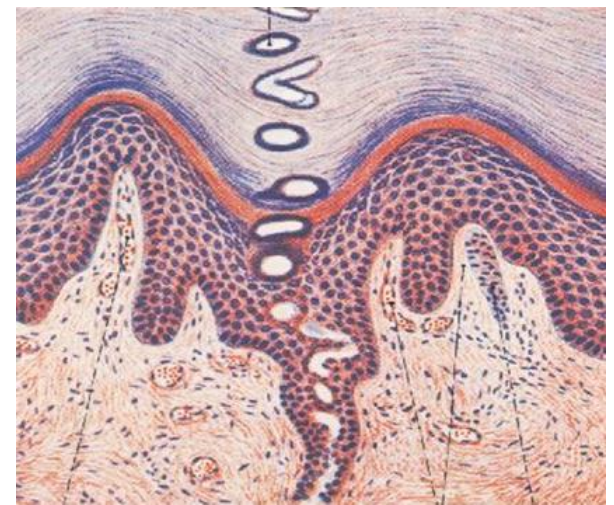
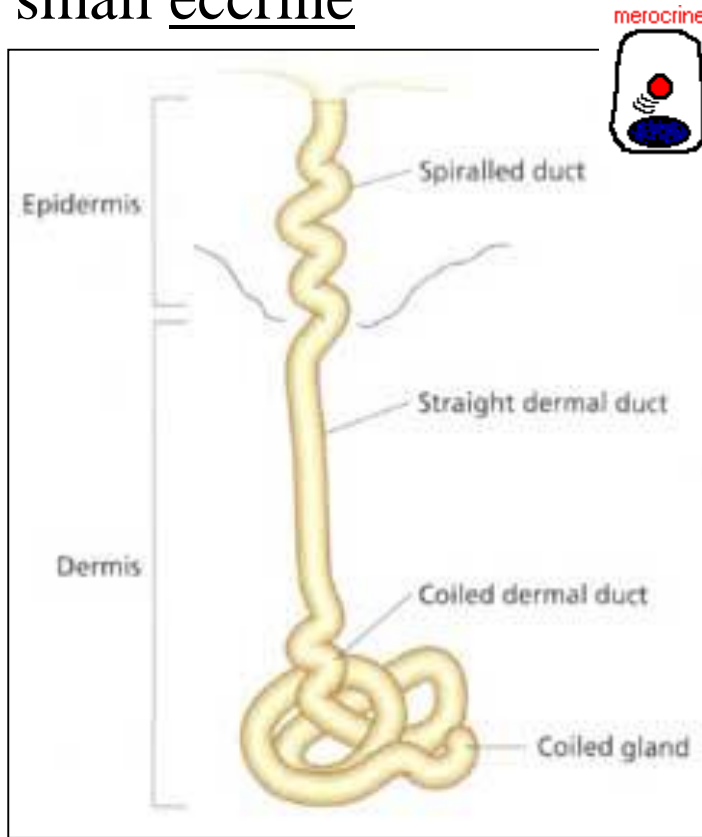
## General structure of glands:

- excretory portion (ducts)
- secretory portion
  - glandular cells
  - myoepithelial cells



# SWEAT GLANDS (gll. sudoriferae)

small eccrine

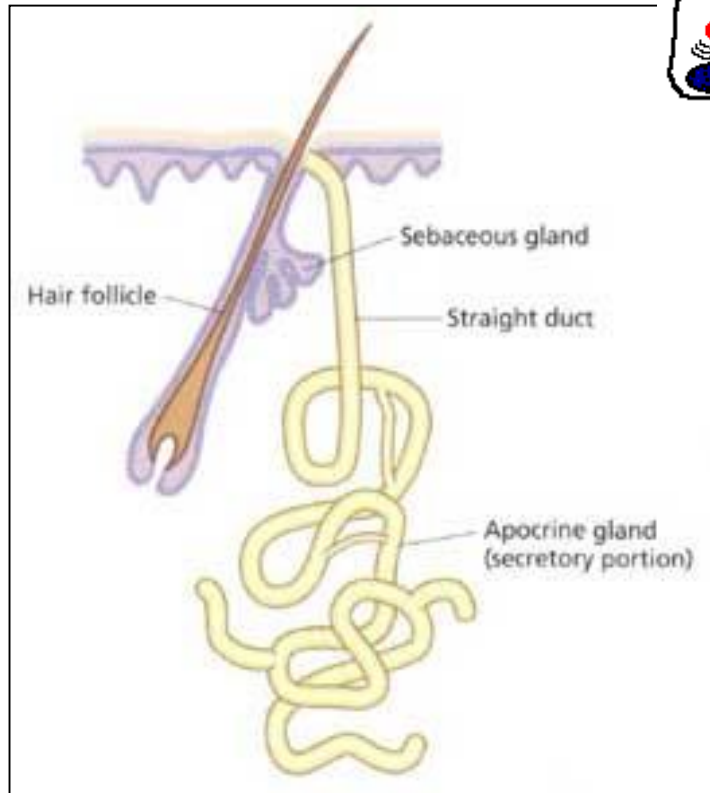


SWEAT –  $H_2O$ ,  $NaCl_2$ ,  $NH_3$ ,  
urea, uric acid, proteins

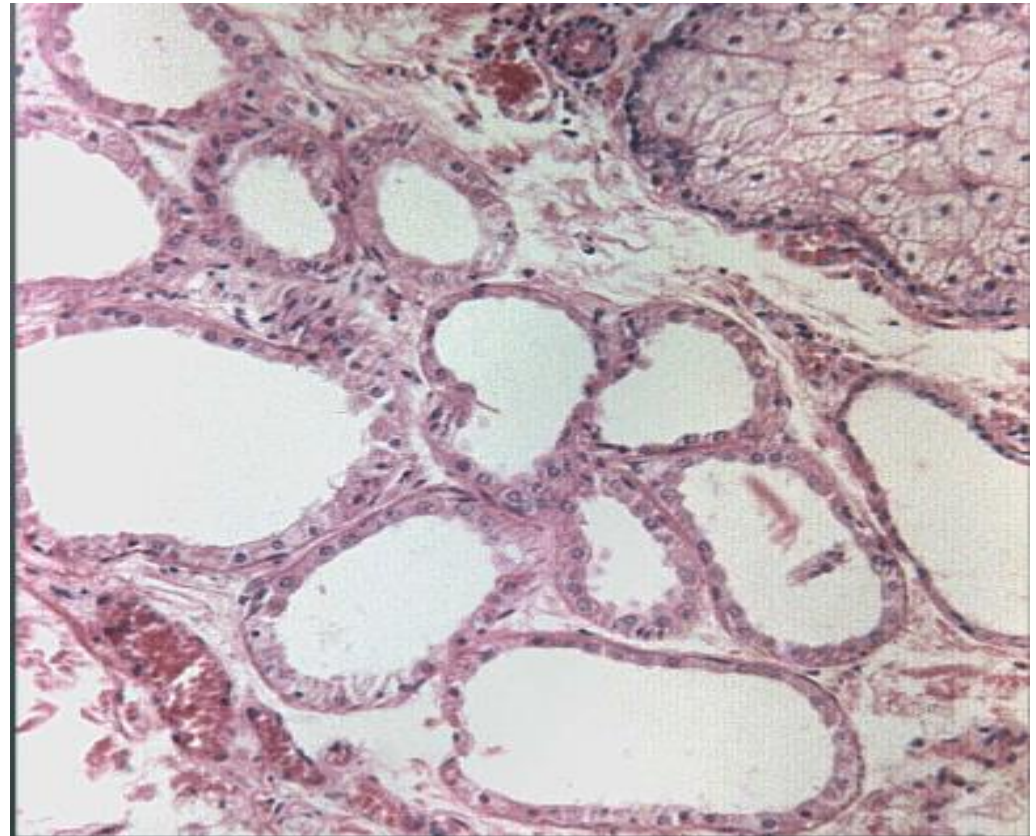
# SWEAT GLANDS (gll. sudoriferae)

## large apocrine

apocrine

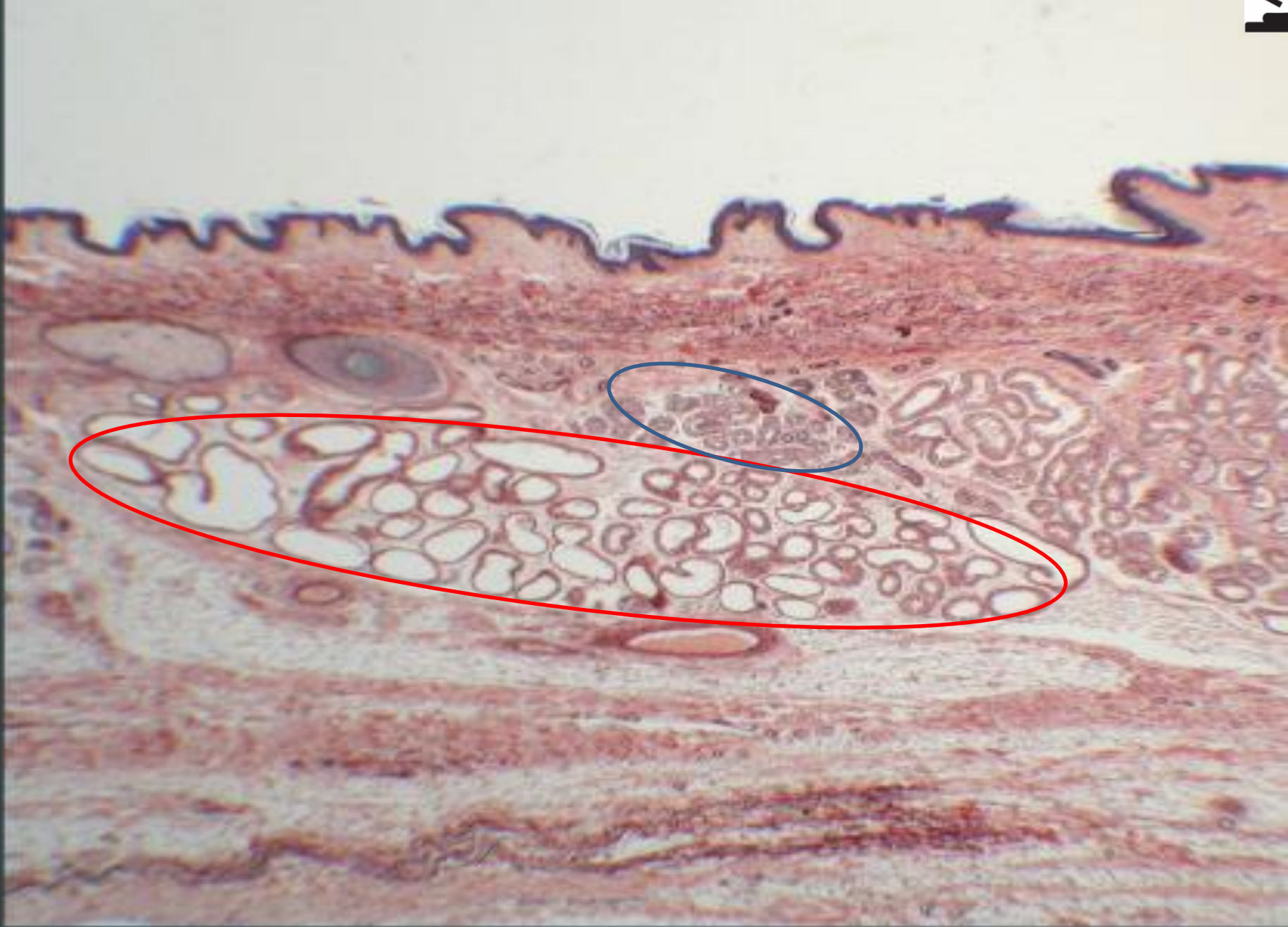


after puberty complete sweat  
– pheromones, fats, steroids;  
under hormonal influence





Skin from axilla – great sweat glands (apocrine, aromatic)



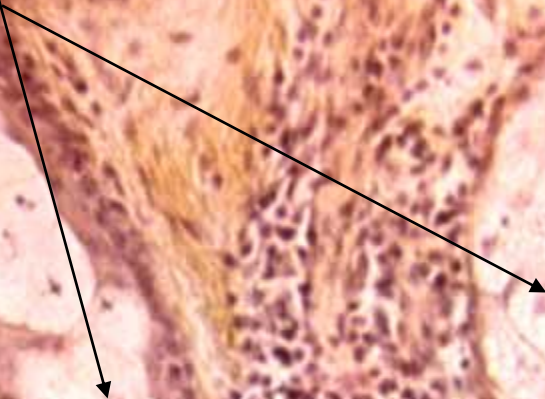


# Sebaceous glands (HES)



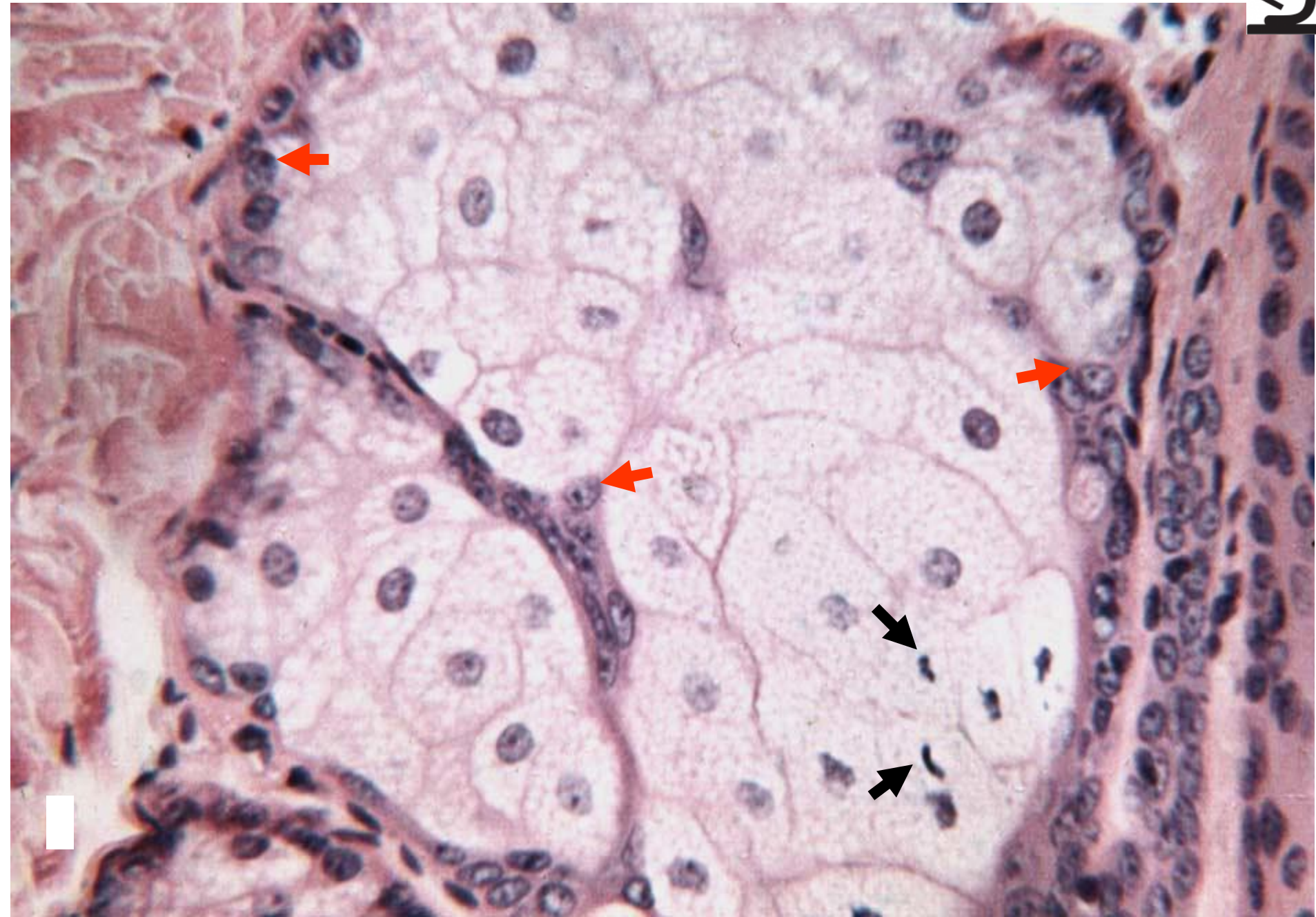
hair follicle

*m. arrector pili*



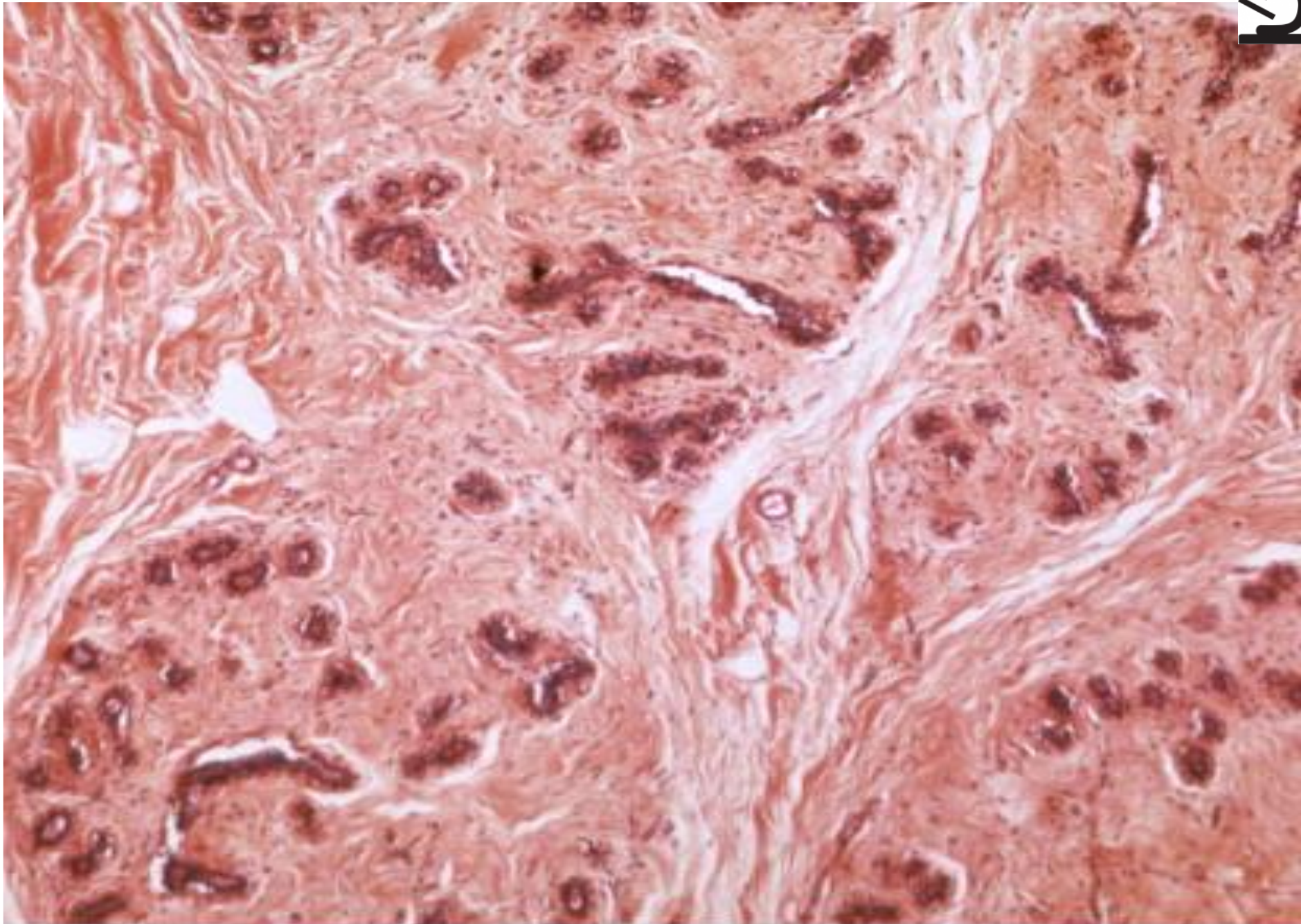


# Sebaceous glands (HE)



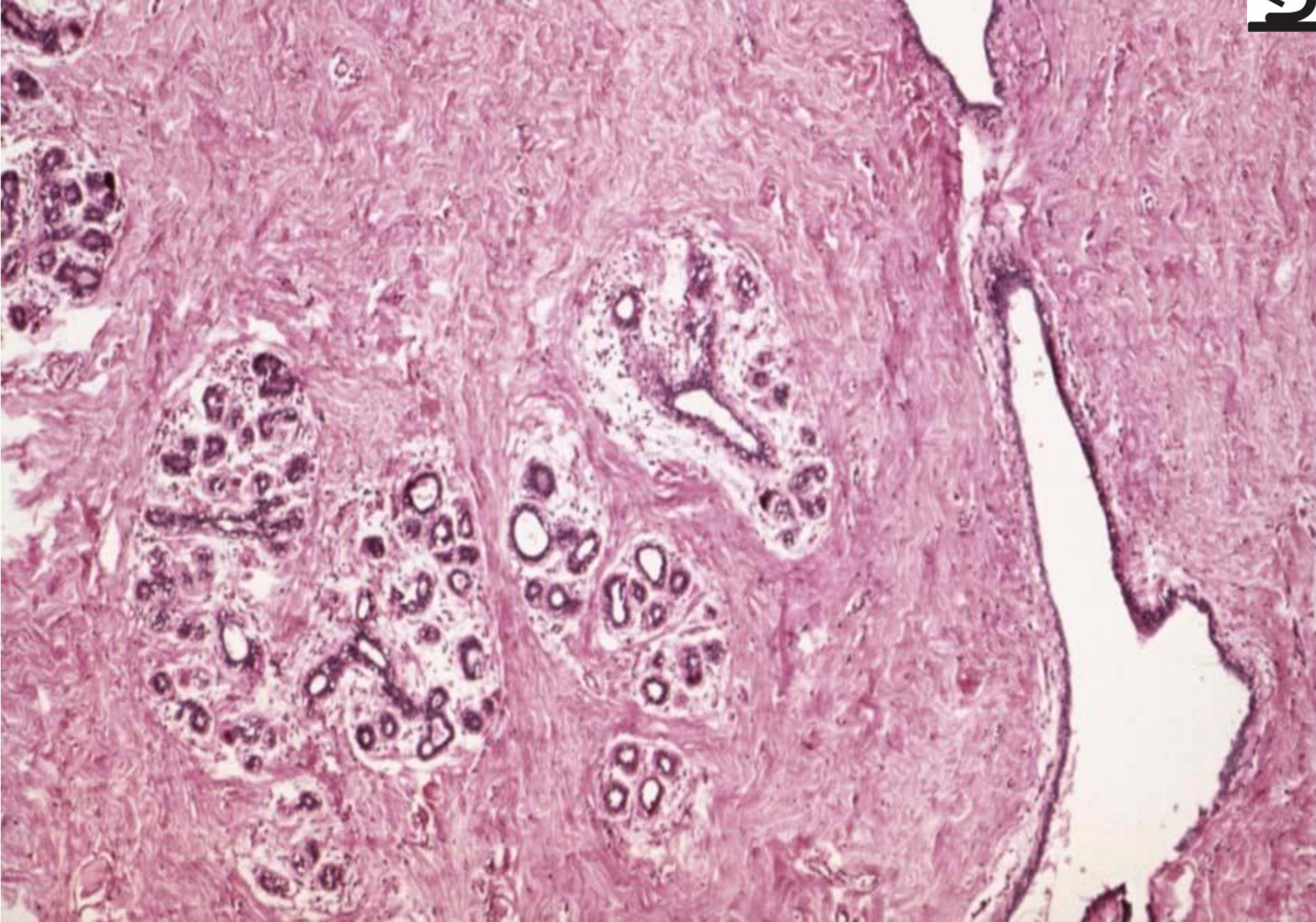


Mamma non lactans (HE)



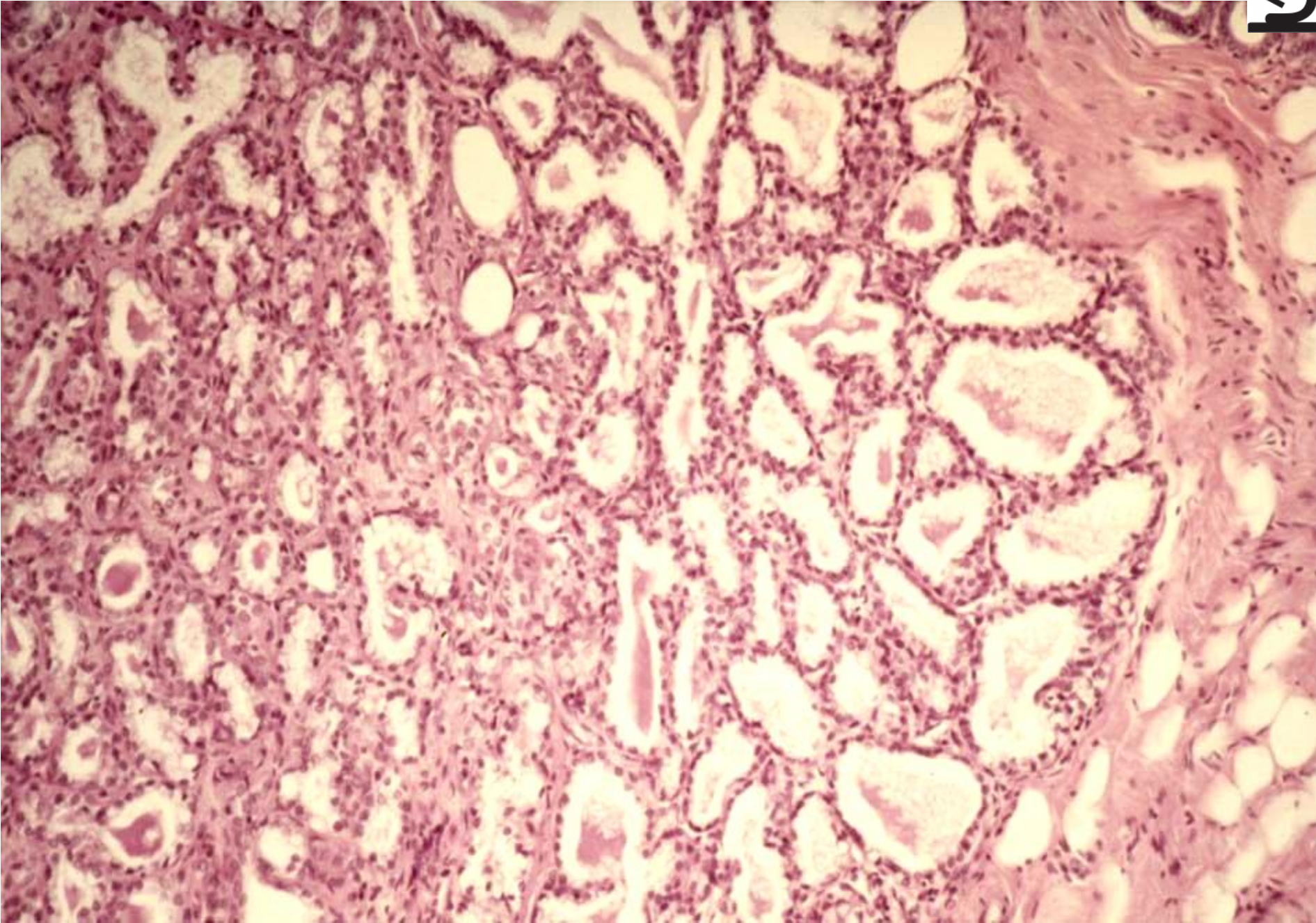


Mamma non lactans (HE)





Mamma lactans (HE)





# Skin from axilla with hair (HE) – hair follicles



sebaceous glands

apocrine glands



# Hair (HEŠ)



ORS

IRS

*m. arrector pili*



# Hair – bulbus pili with melanocytes (HE)

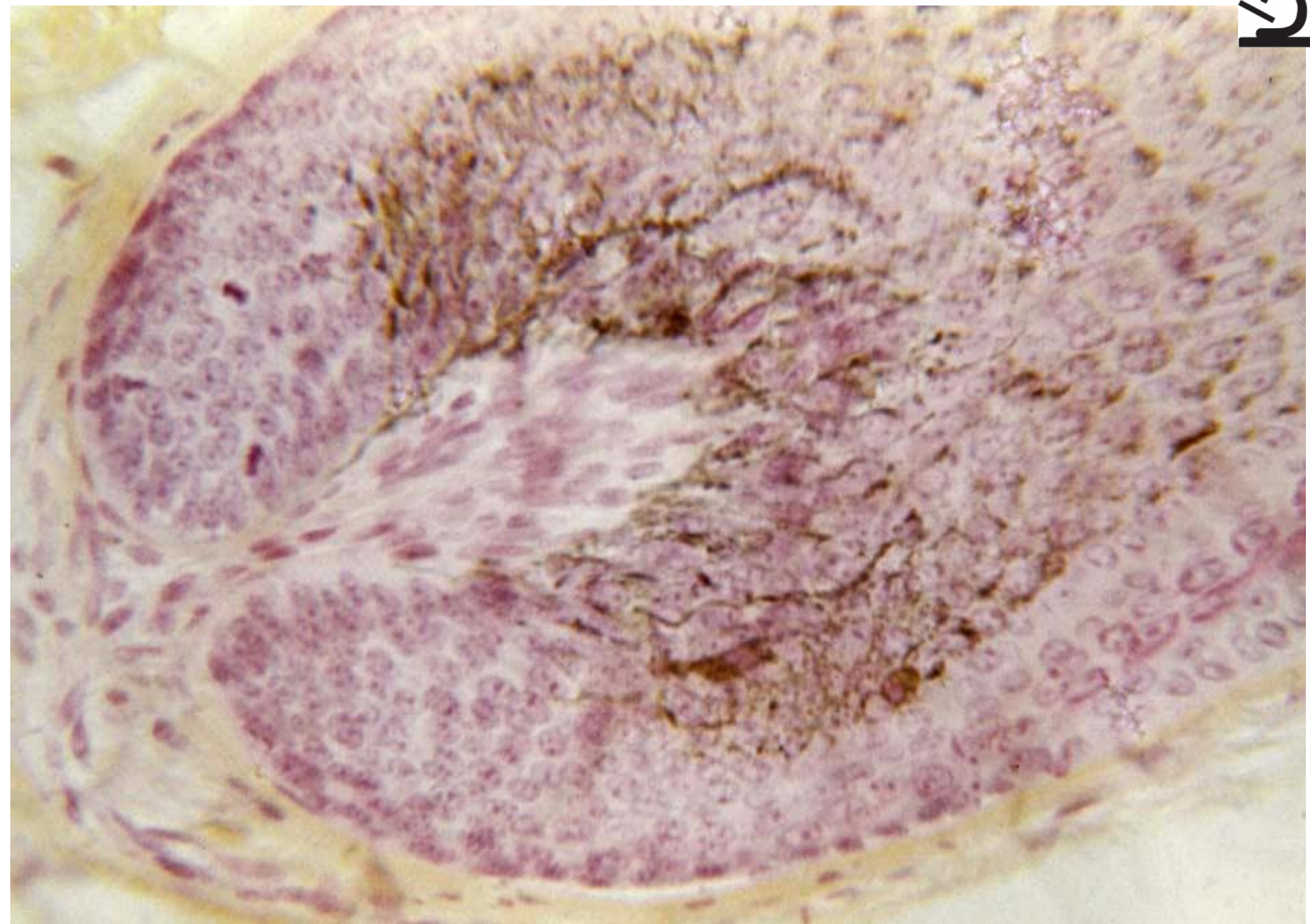


papilla pili



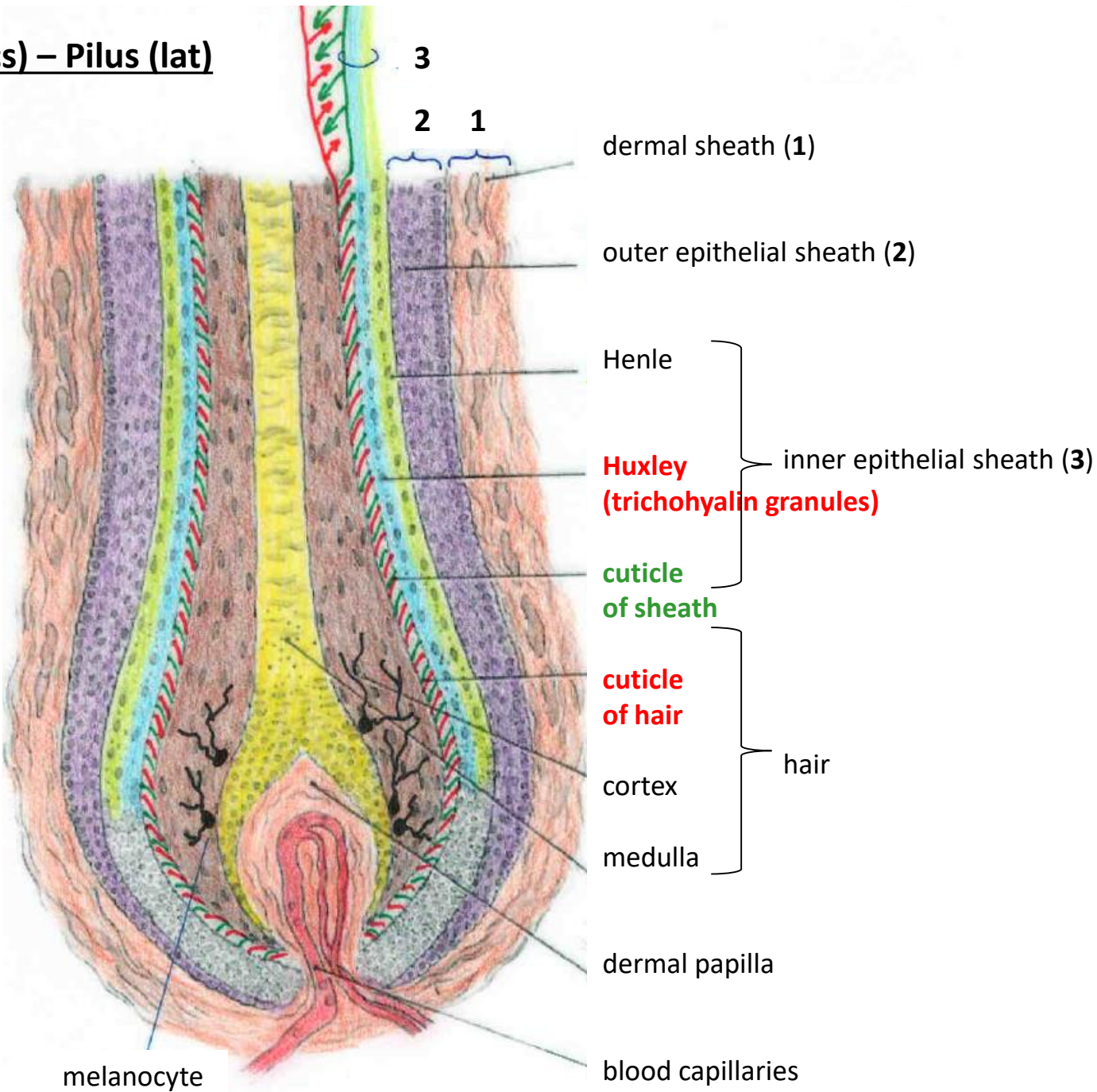


**Hair – bulbus pili with melanocytes, papilla pili (HES)**



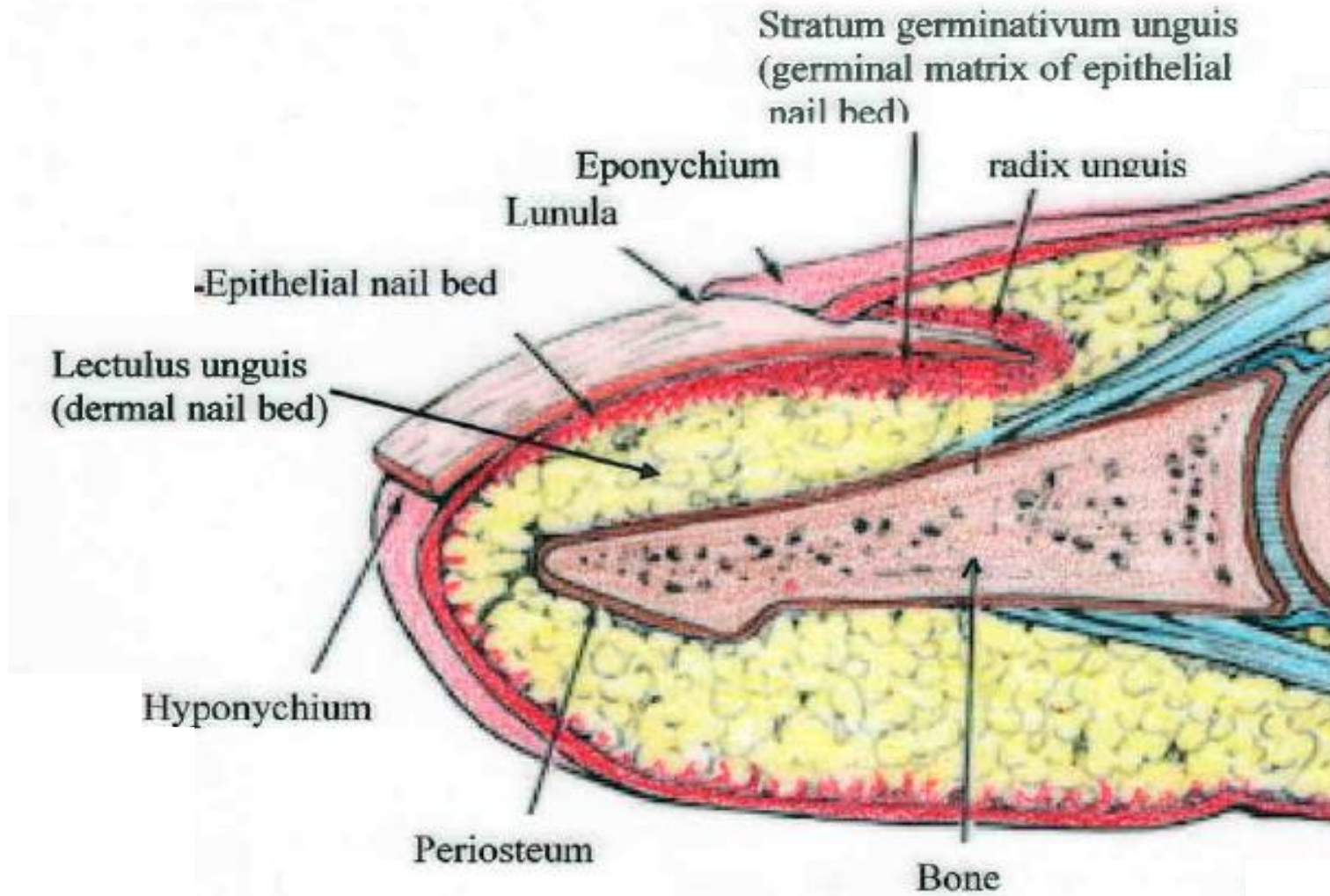


Hair (eng) – Vlas (cs) – Pilus (lat)





Nail (eng) – Nehet (cs) – Unguis (lat) – Onyx (gr)





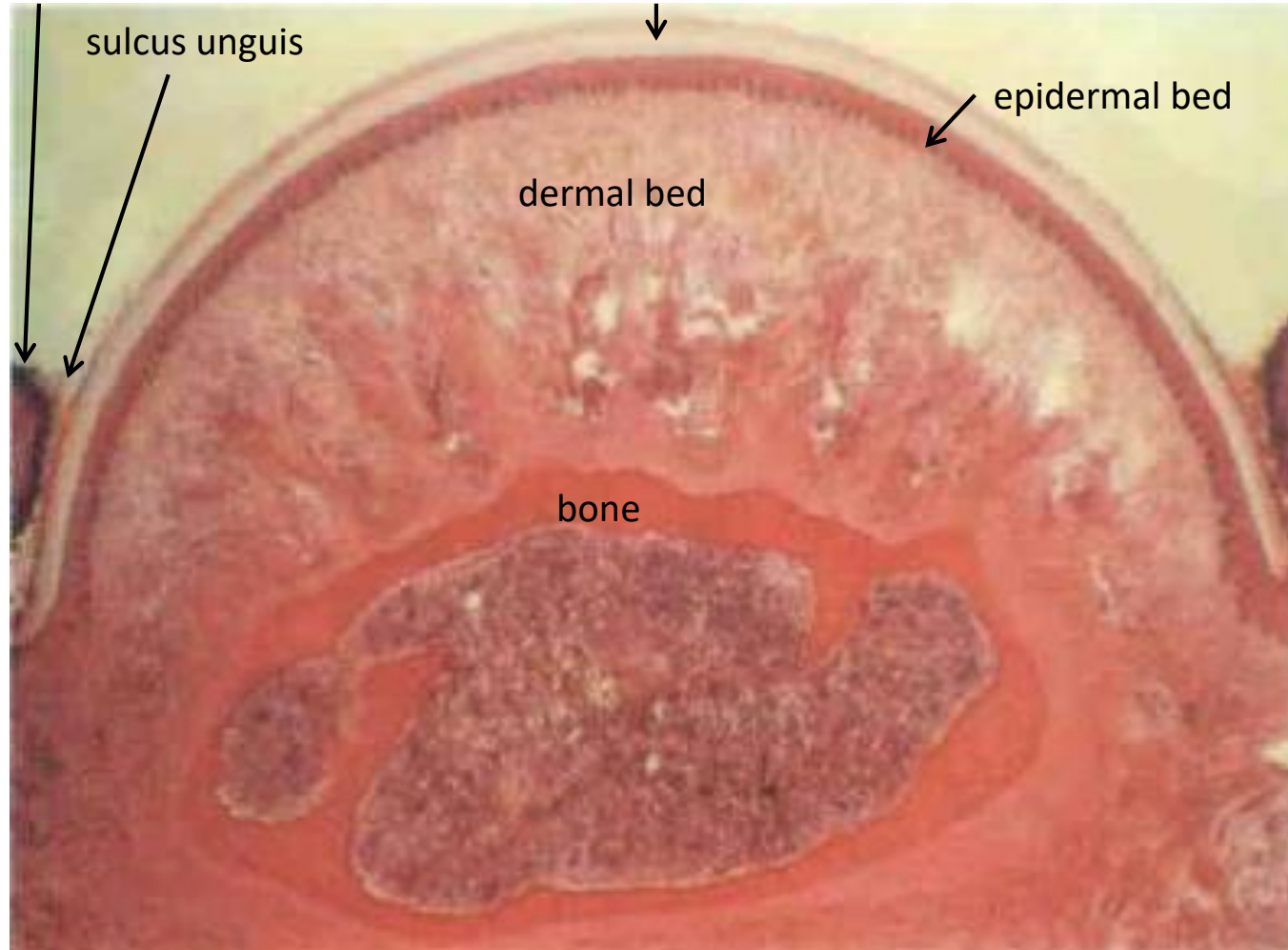
Nail (eng) – Nehet (cs) – Unguis (lat) – Onyx (gr)



*longitudinal section*

vallum unguis

nail plate



sulcus unguis

epidermal bed

dermal bed

bone

*cross section*





# INTEGUMENTARY SYSTEM

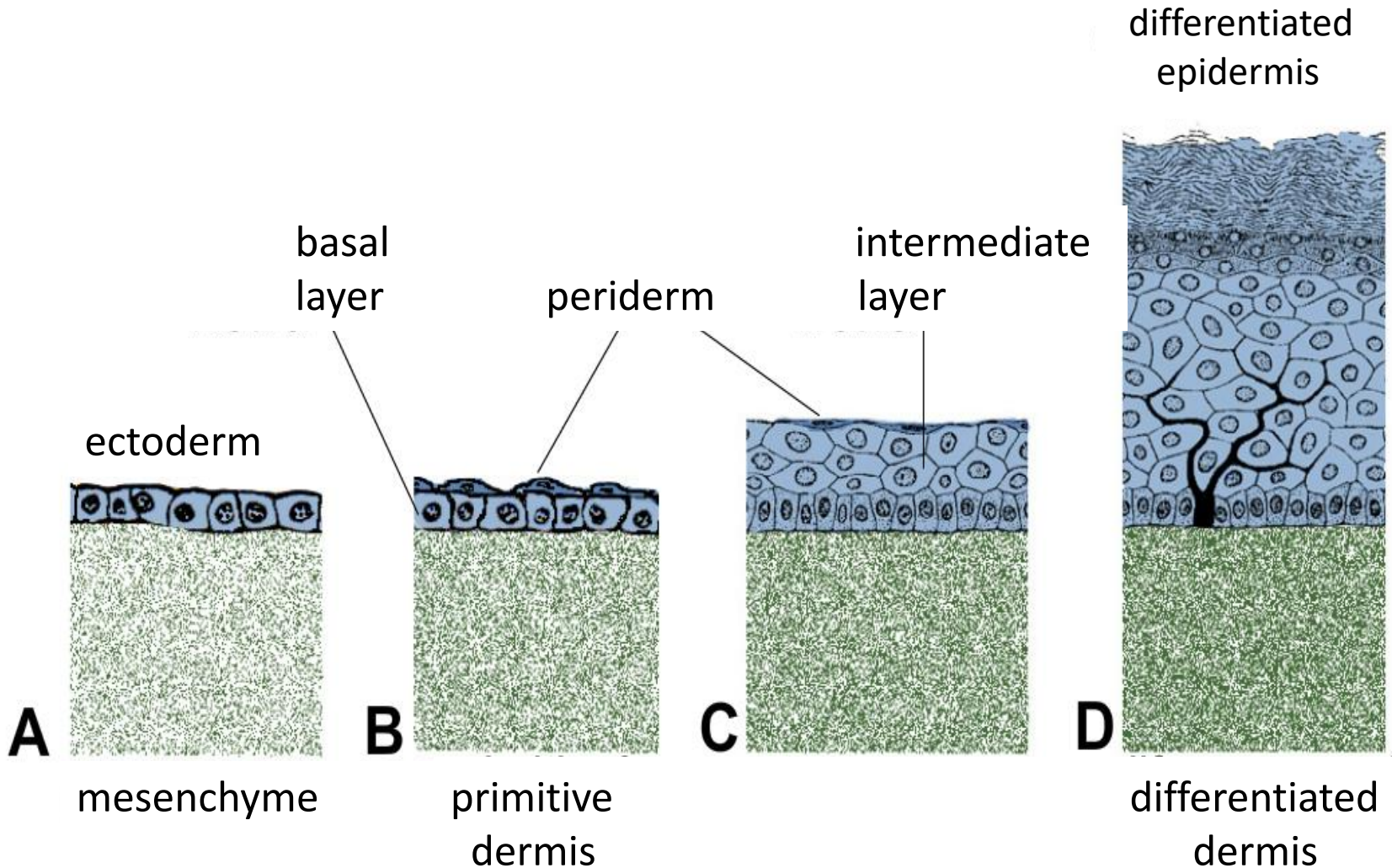


## Slides:

- 69. Skin from tip of finger
- 70. Skin from axilla
- 71. Skin with hair
- 72. Nail
- 73. Mamma non-lactans
- 74. Mamma lactans

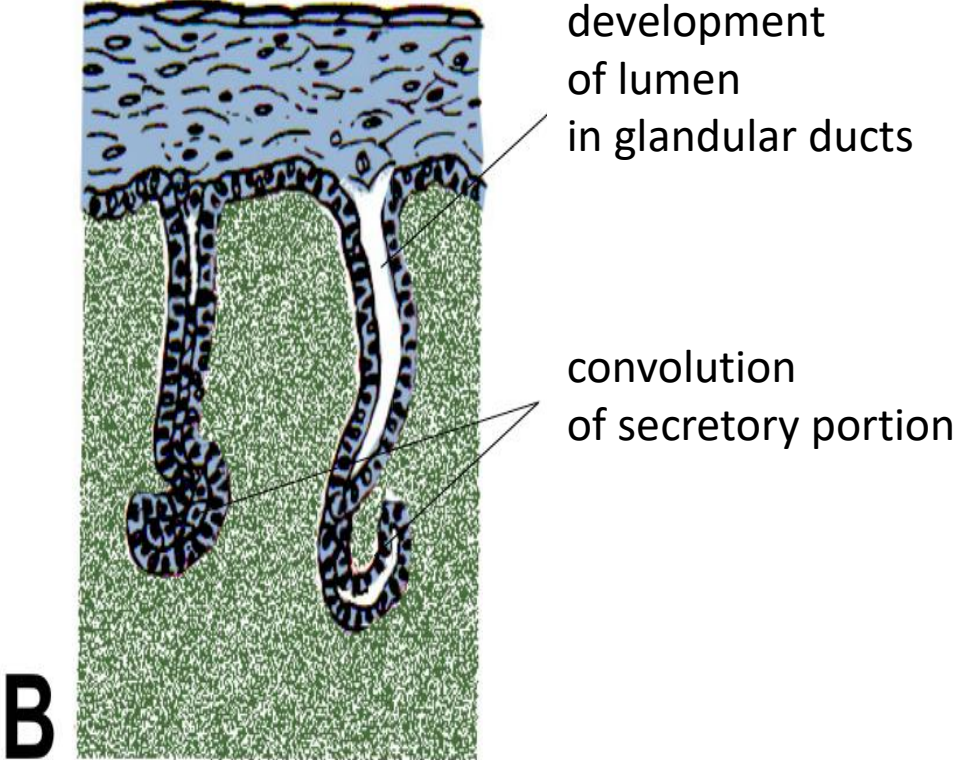
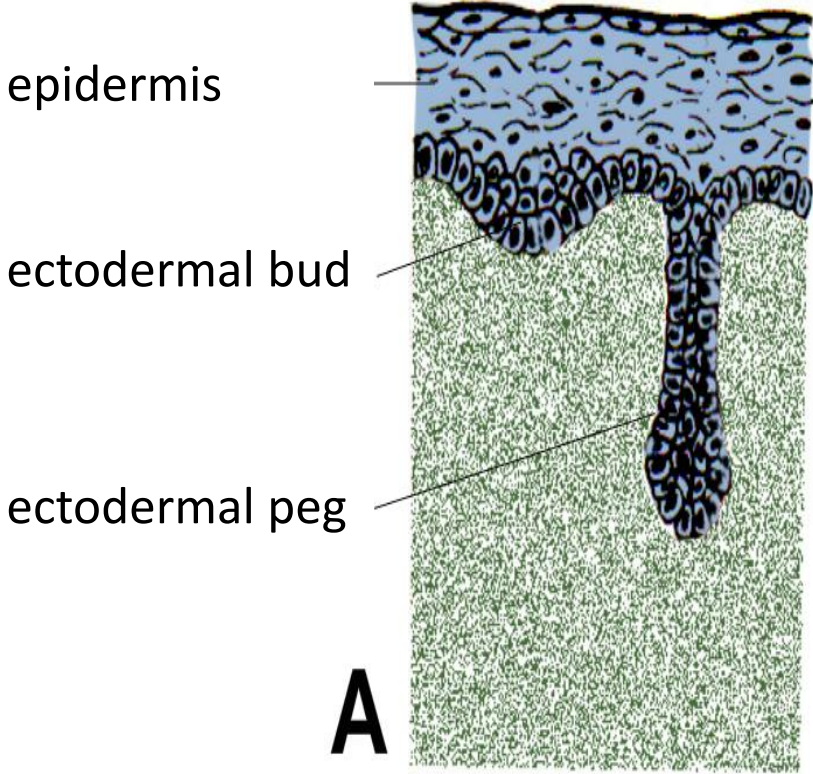


# Development of epidermis and corium



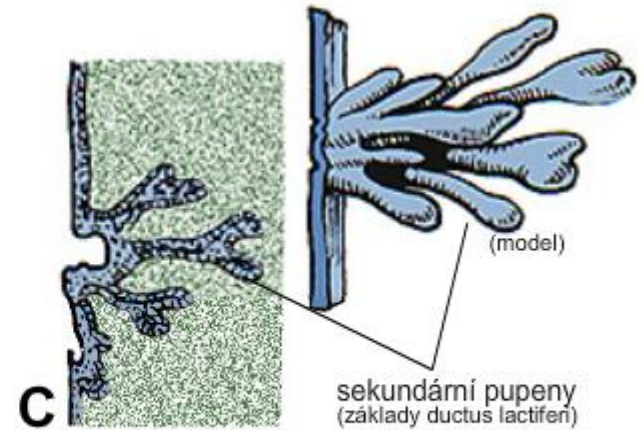
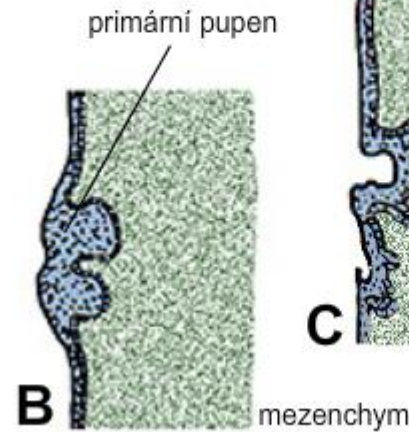
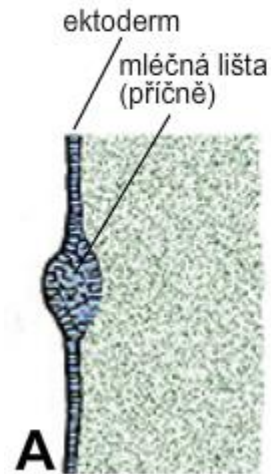
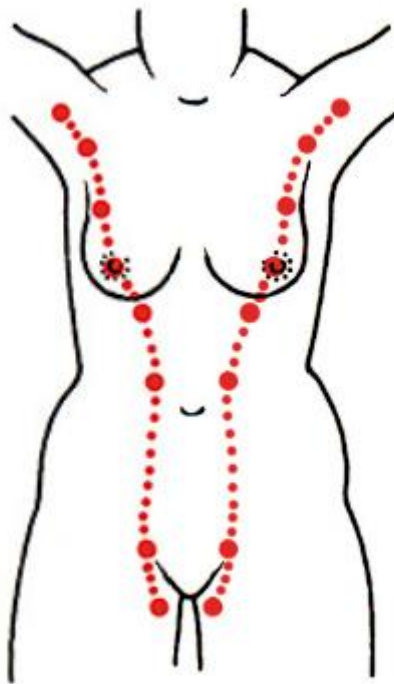


# Development of sweat glands





# Development of mammary line and gland



B, C: primary and secondary ectodermal buds ingrowth into mesenchyme

# Development of hair and sebaceous gland

