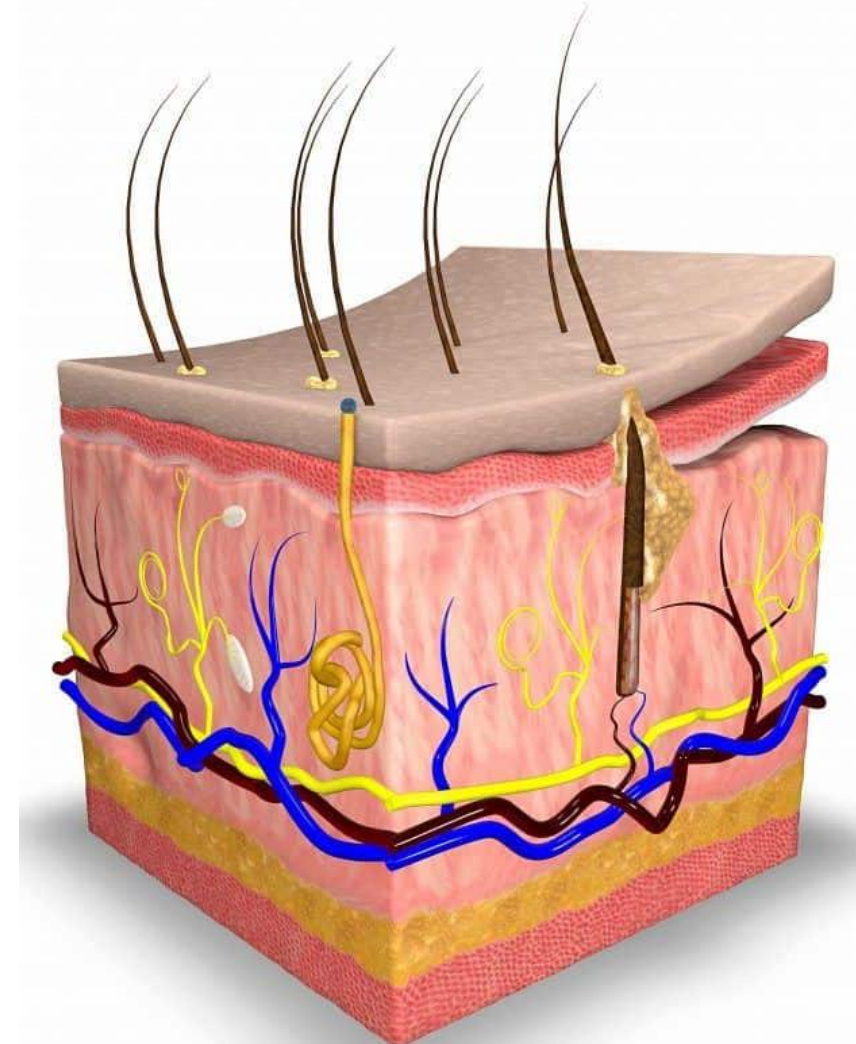
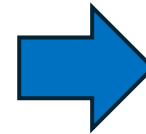


MD532 109 Skin and Related Connective Tissues

Lab: Organ structure & functions



Lectured by

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Department of Anatomy, Faculty of Medicine,
Khon Kaen University

Objectives

After studying of this topic, the students should

- identify the structure of skin including epidermis & dermis
- classify the differences between thin and thick skins
- identify the sweat gland and sebaceous gland
- identify the Pacinian and Meissner's corpuscle
- identify the structure of hair shaft and hair follicle
- identify the gross and histological structure of nail

Integumentary system

Skin and skin appendage

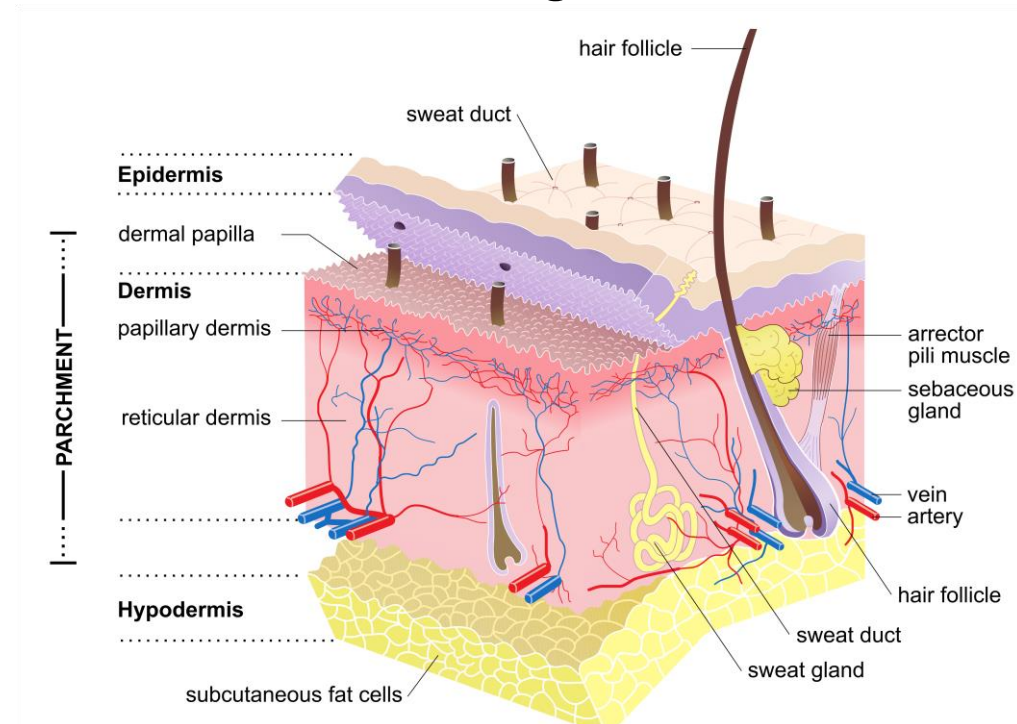
1. Skin (thick and thin skin)

Epidermis

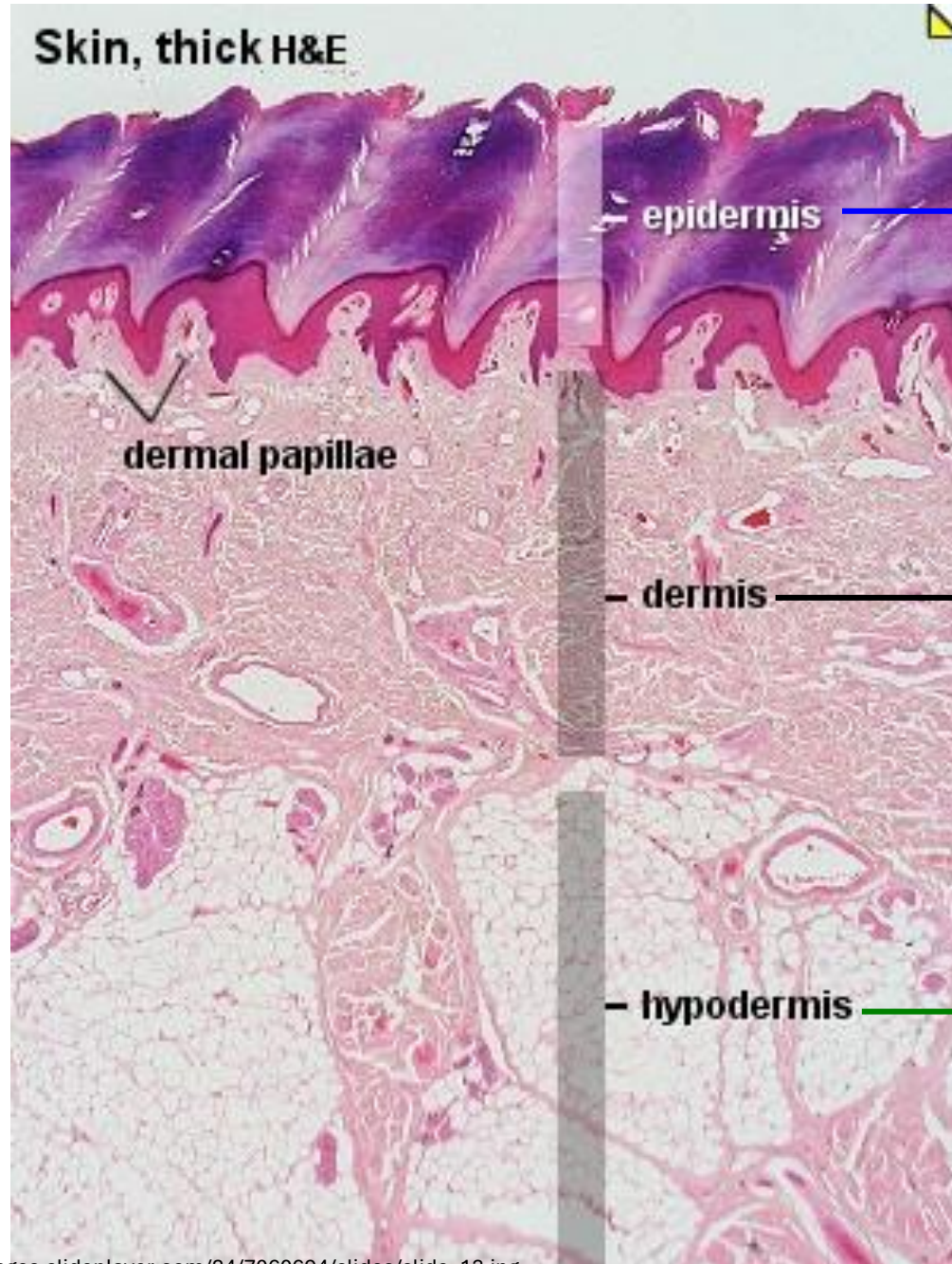
Dermis

2. Skin appendages:

nails, hair, sweat glands, and sebaceous glands

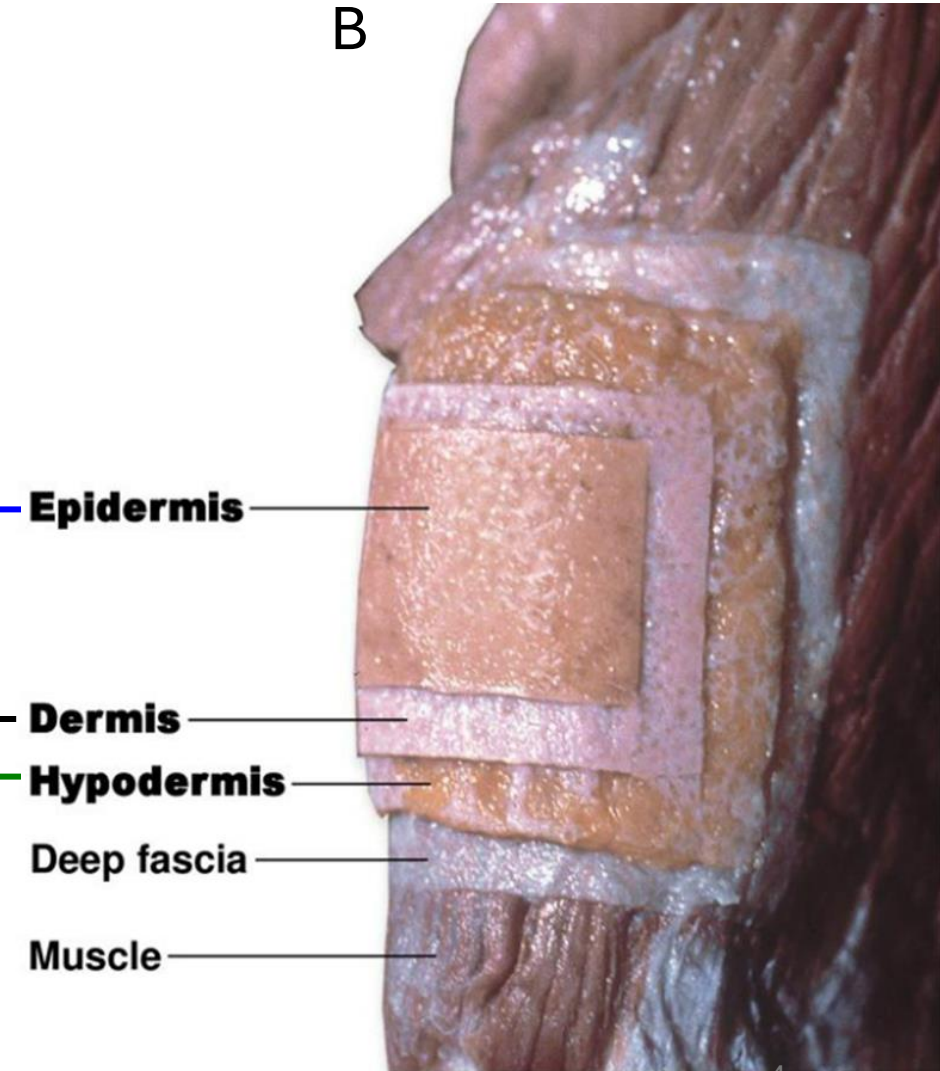


A



Skin

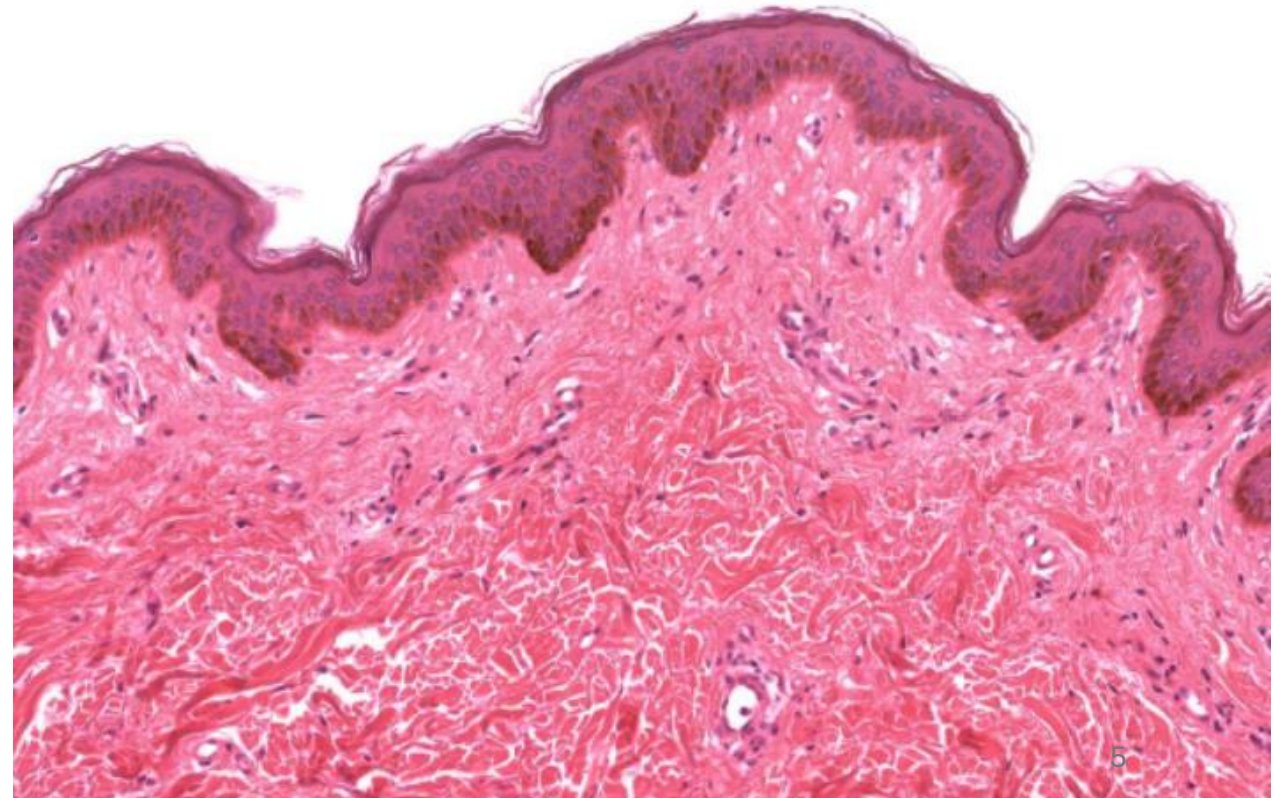
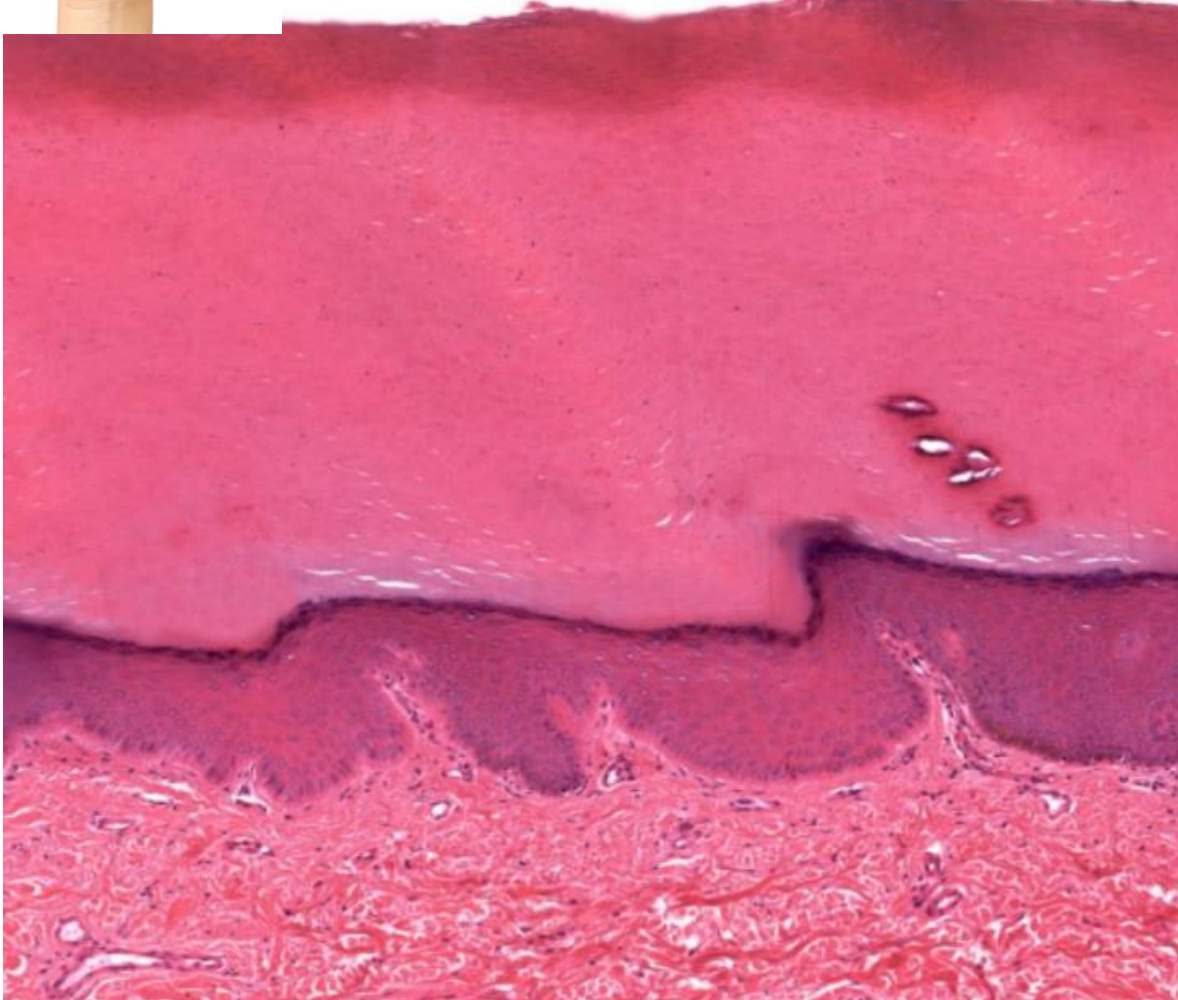
B



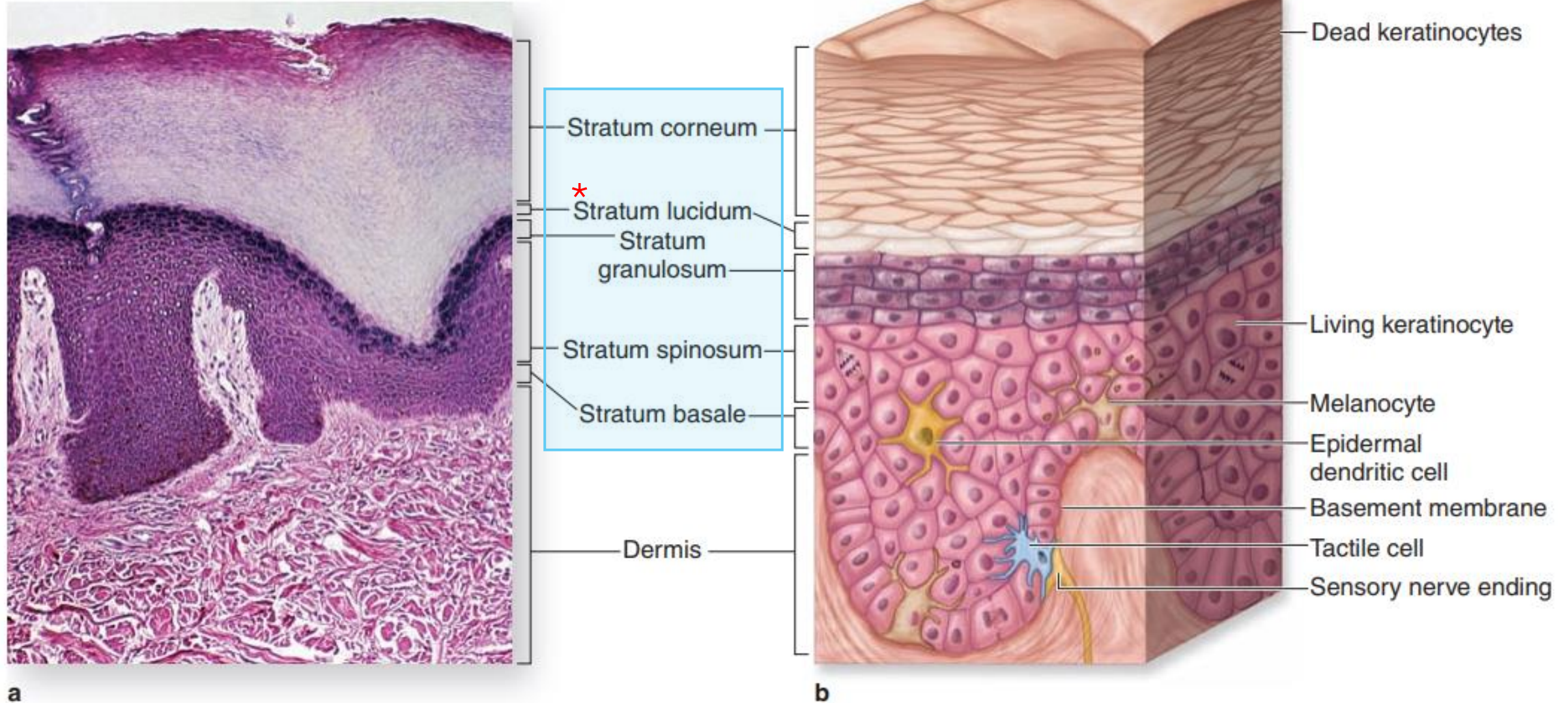
Thick and thin skins



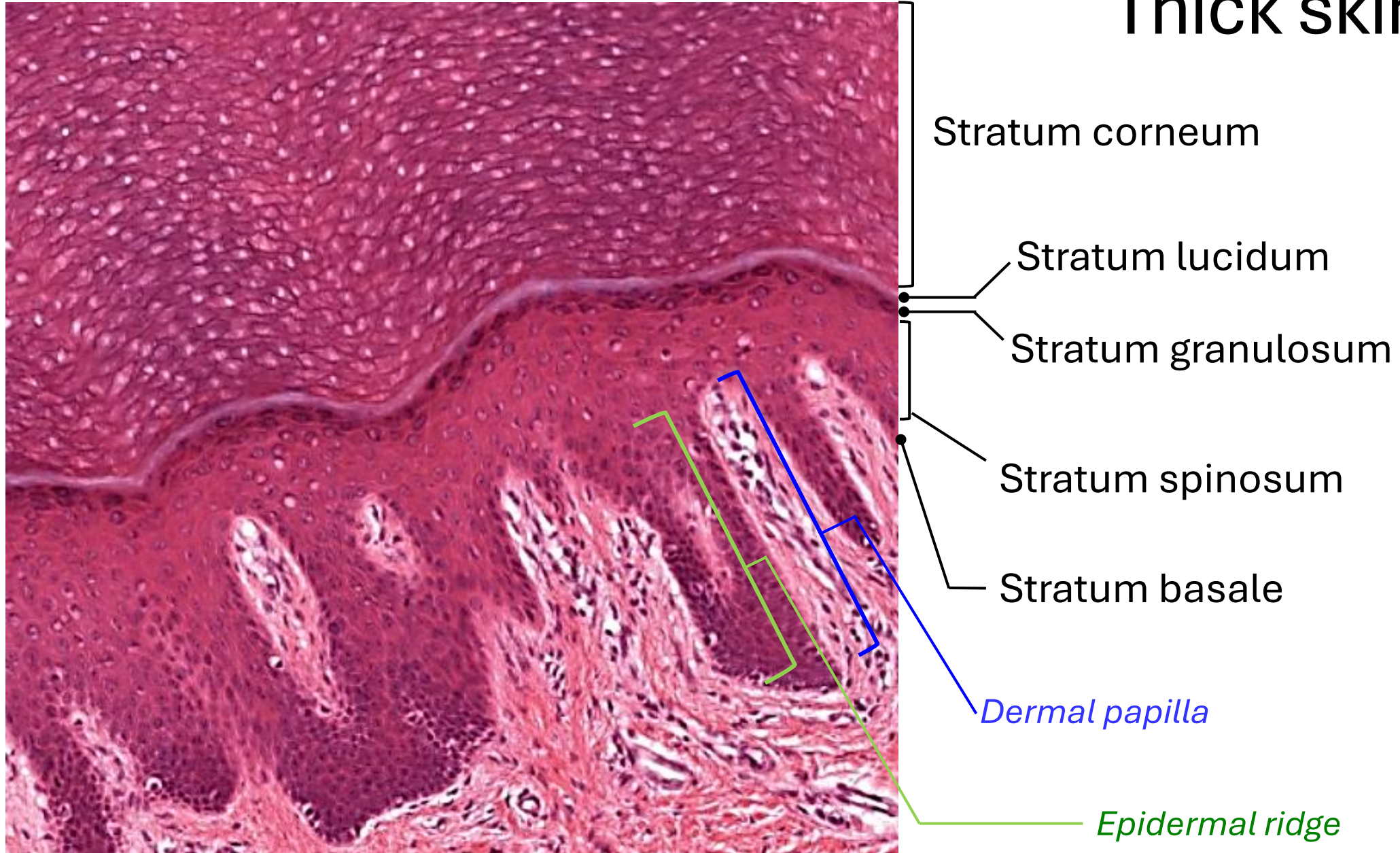
stratified squamous keratinized epithelium



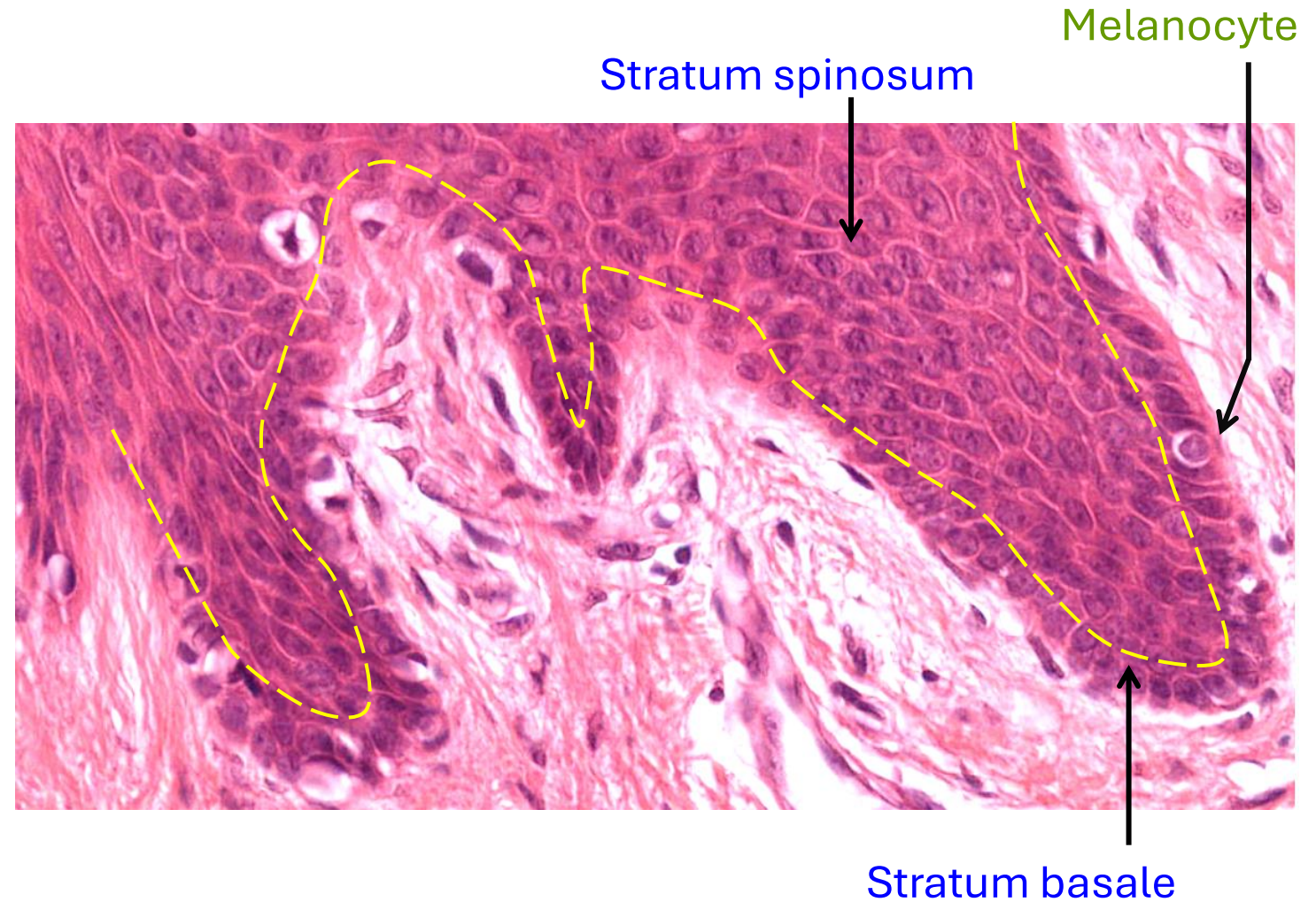
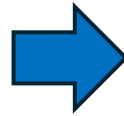
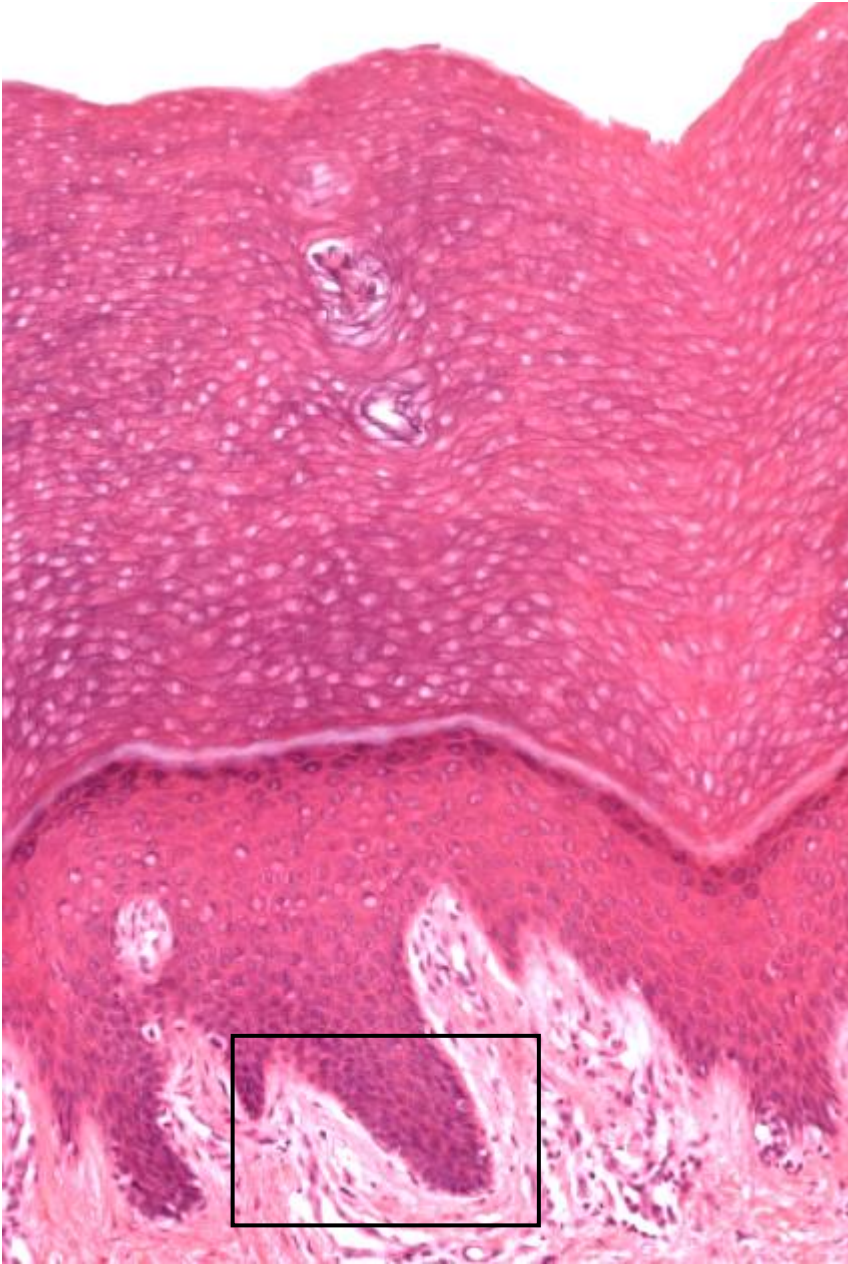
Epidermis



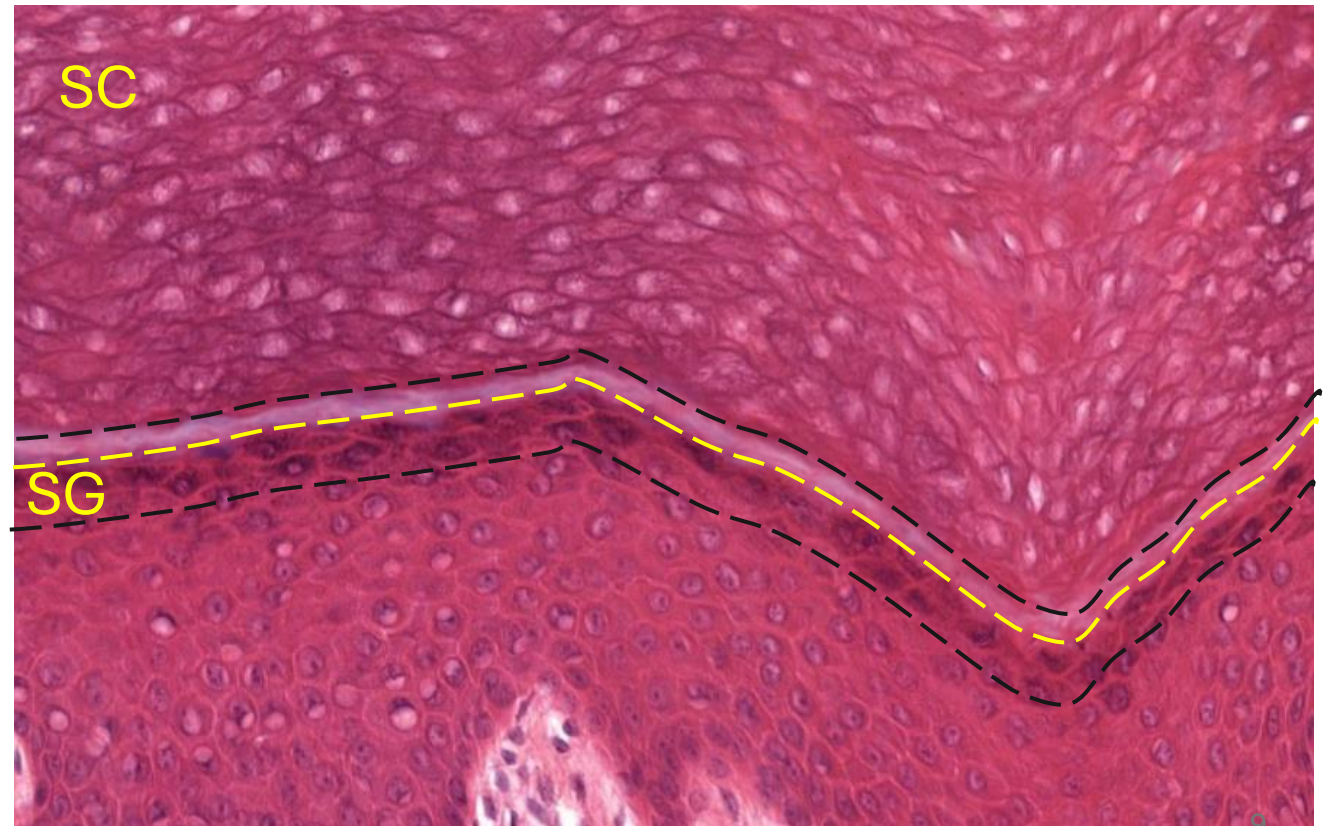
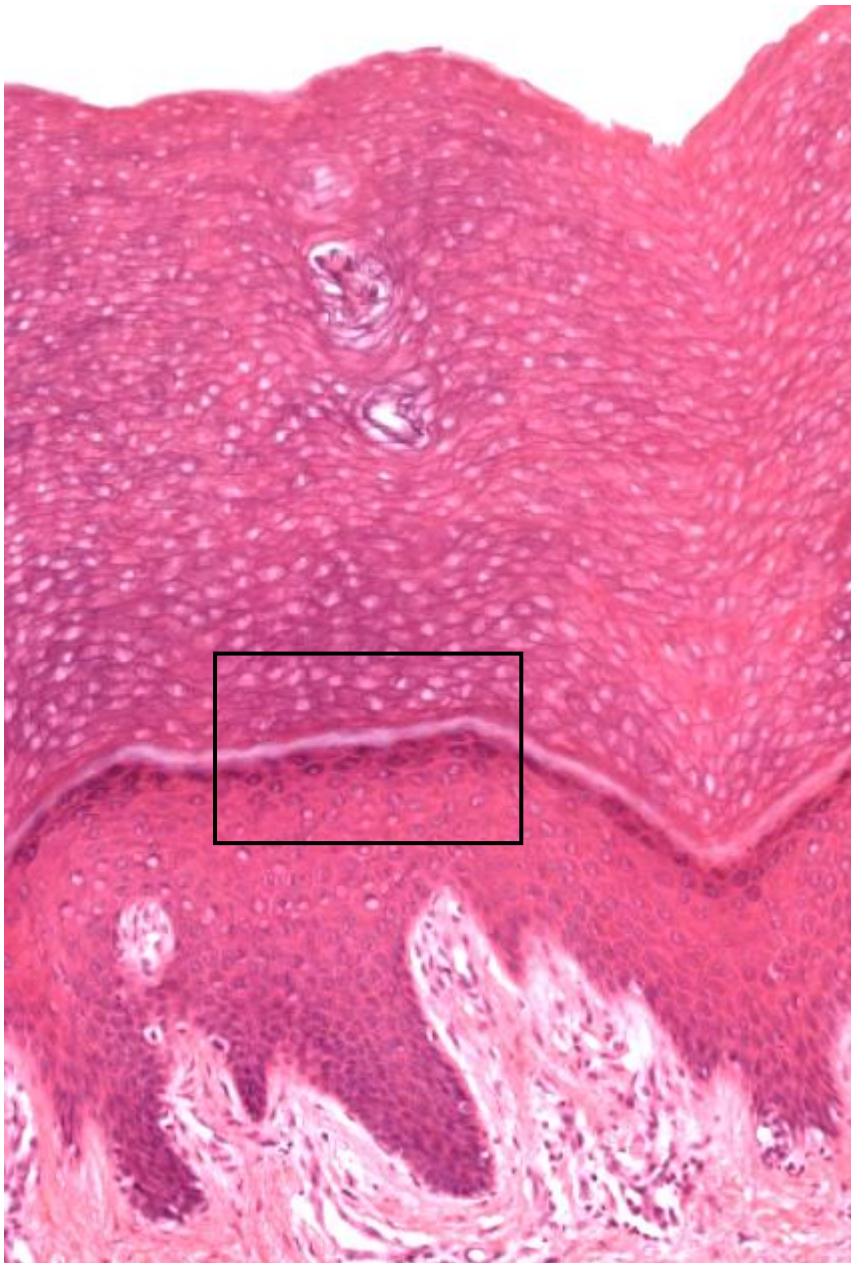
Thick skin



Stratum basale and stratum spinosum

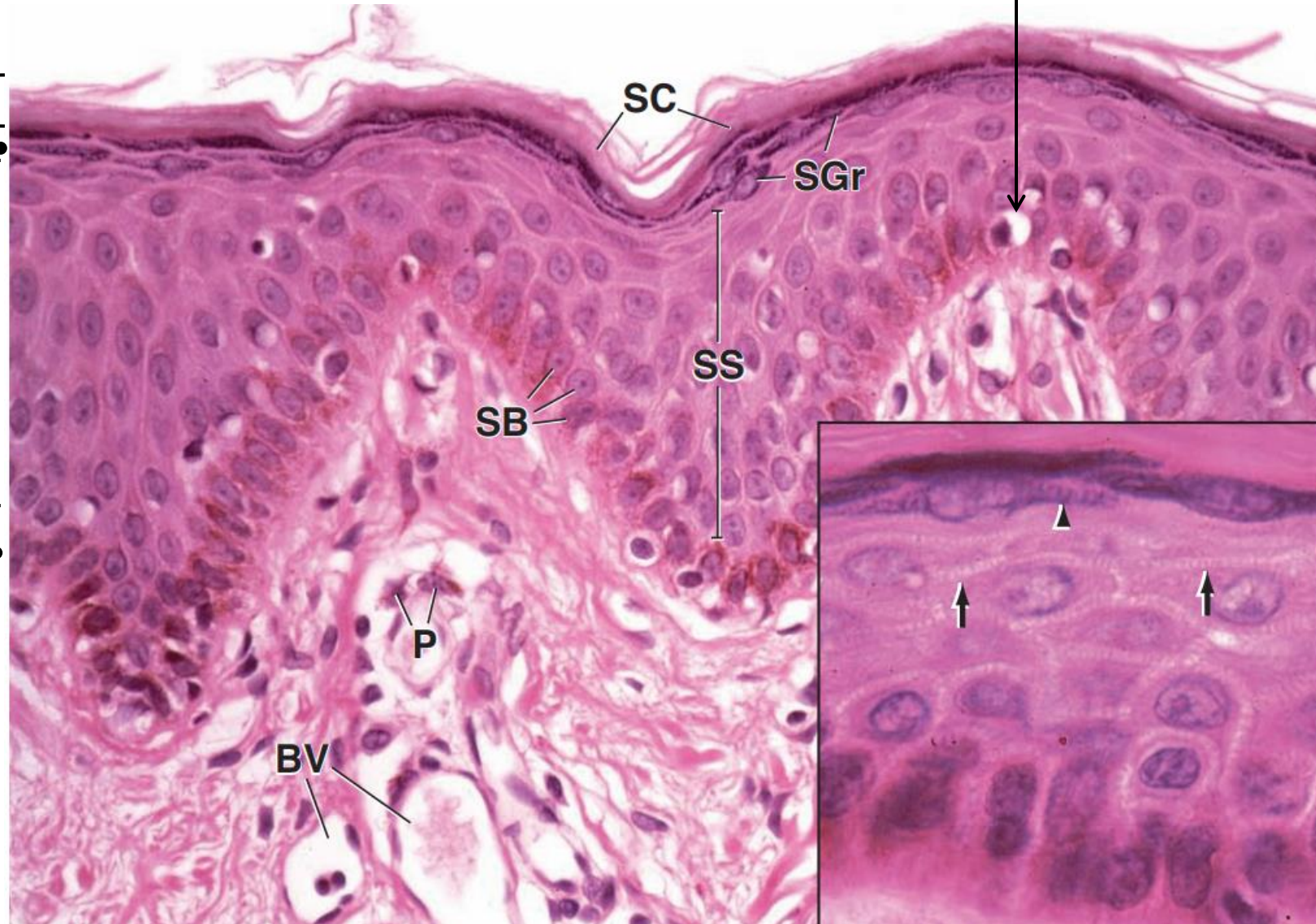
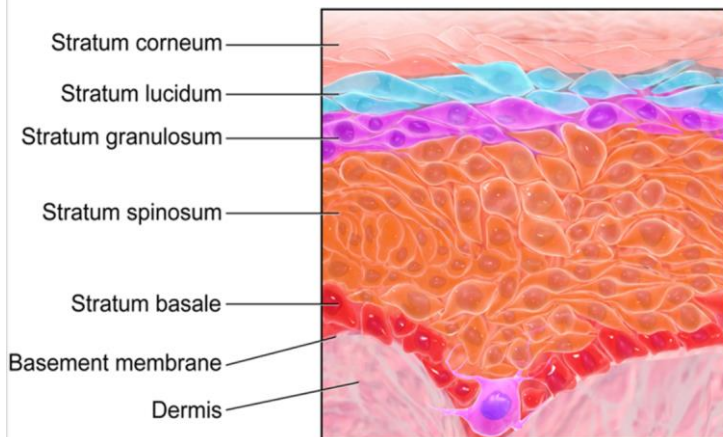


Stratum granulosum, stratum lucidum & stratum corneum



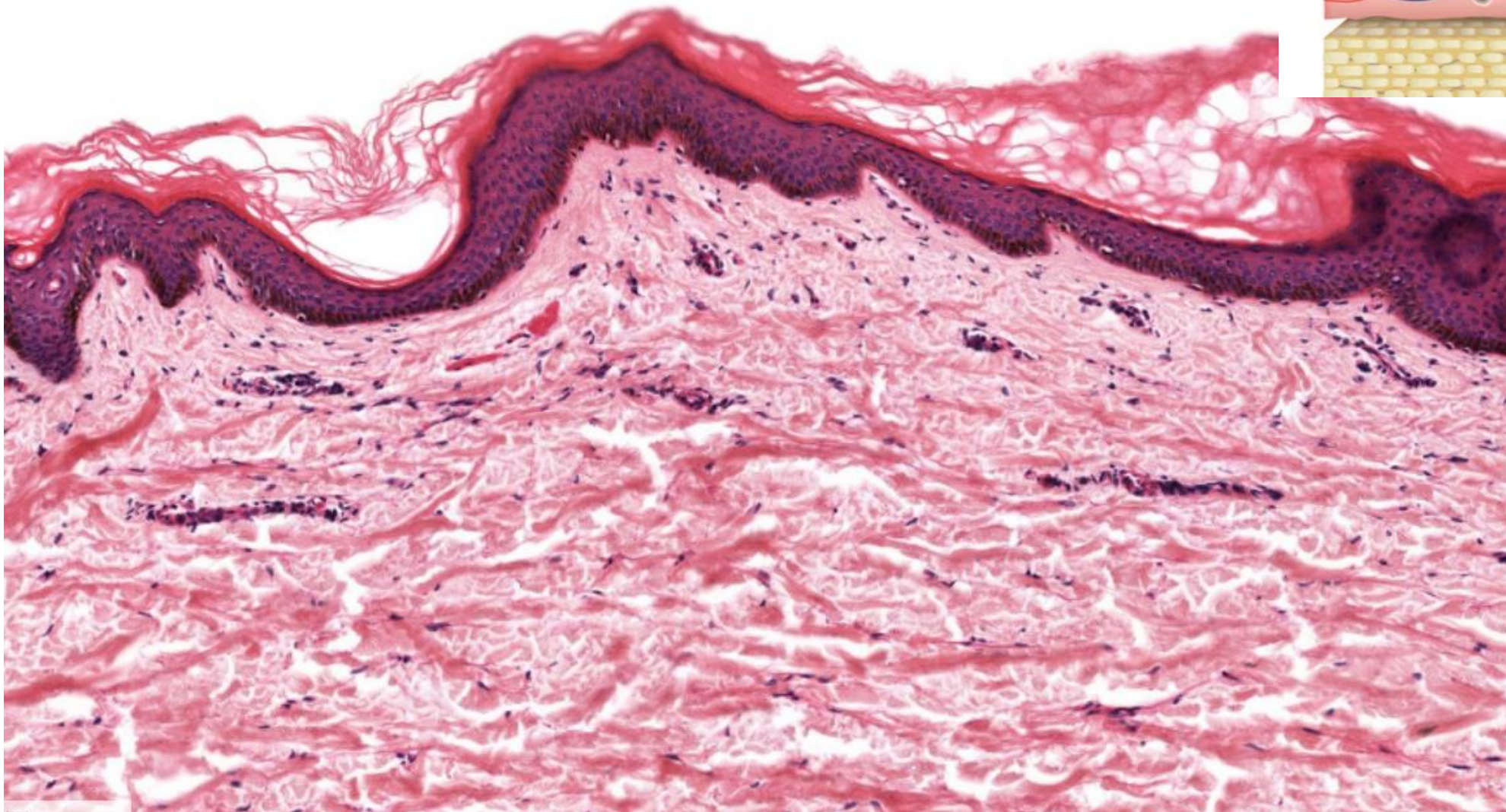
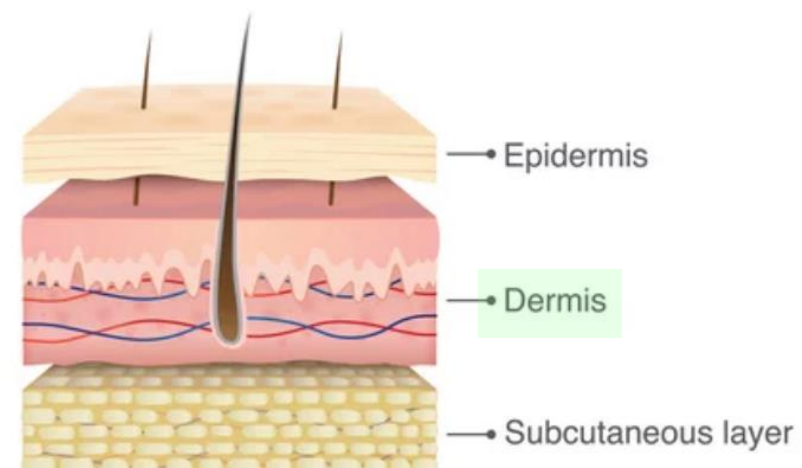
Thin skin

Stratum corneum
Stratum granulosum
Stratum spinosum
Stratum basale



(Ross and Pawlina, 2016)

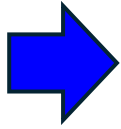
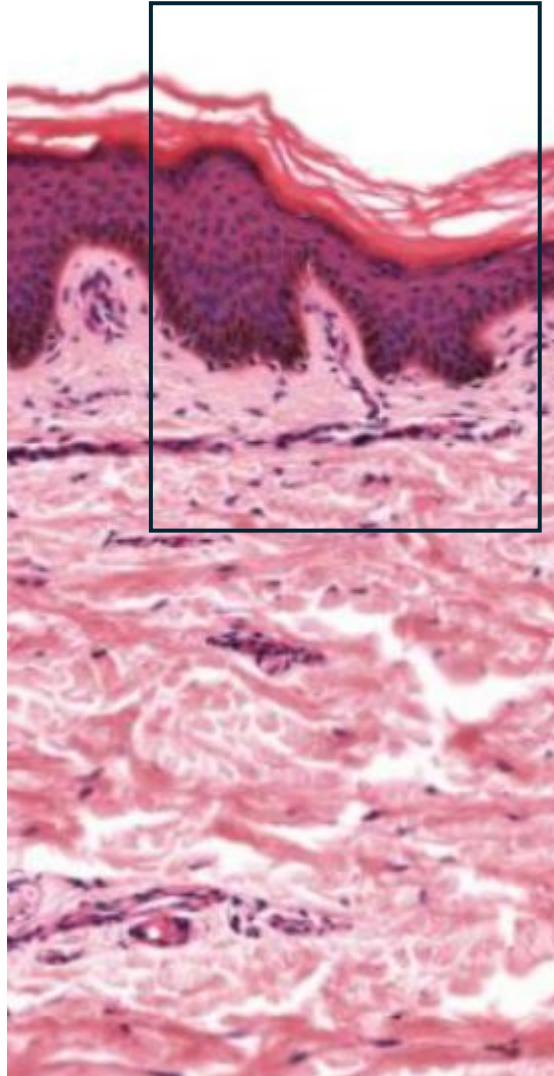
Dermis



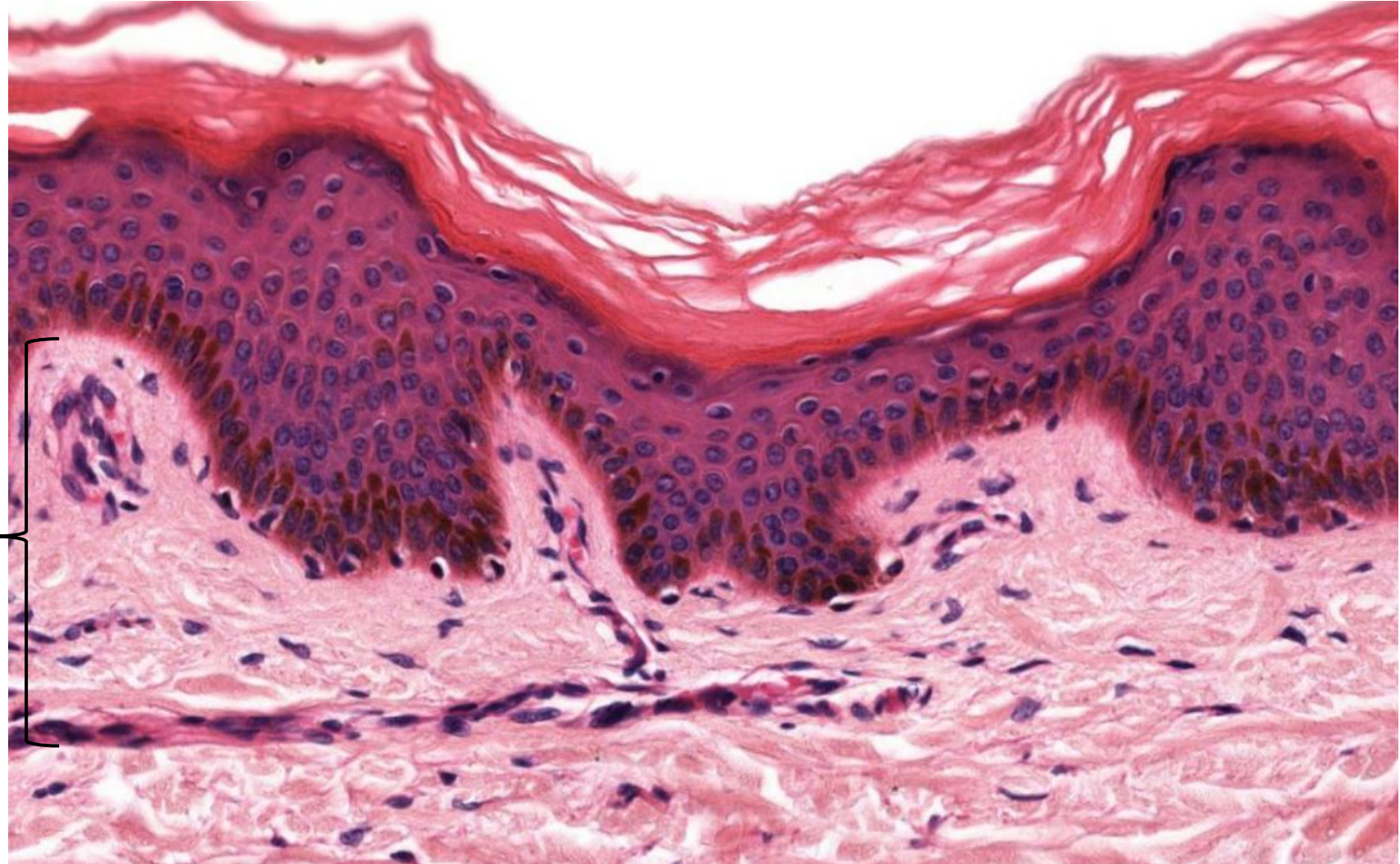
Papillary layer

Reticular layer

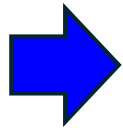
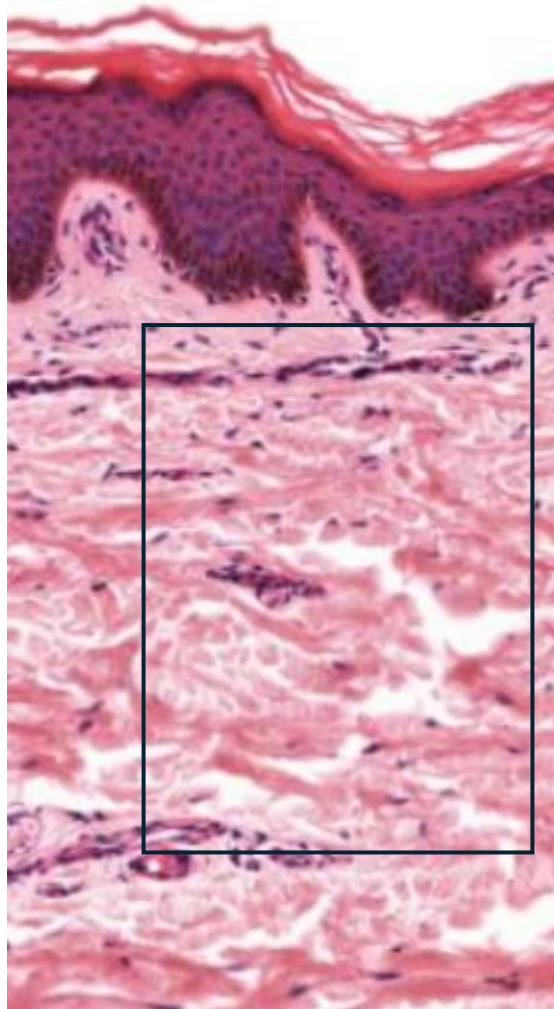
Papillary layer



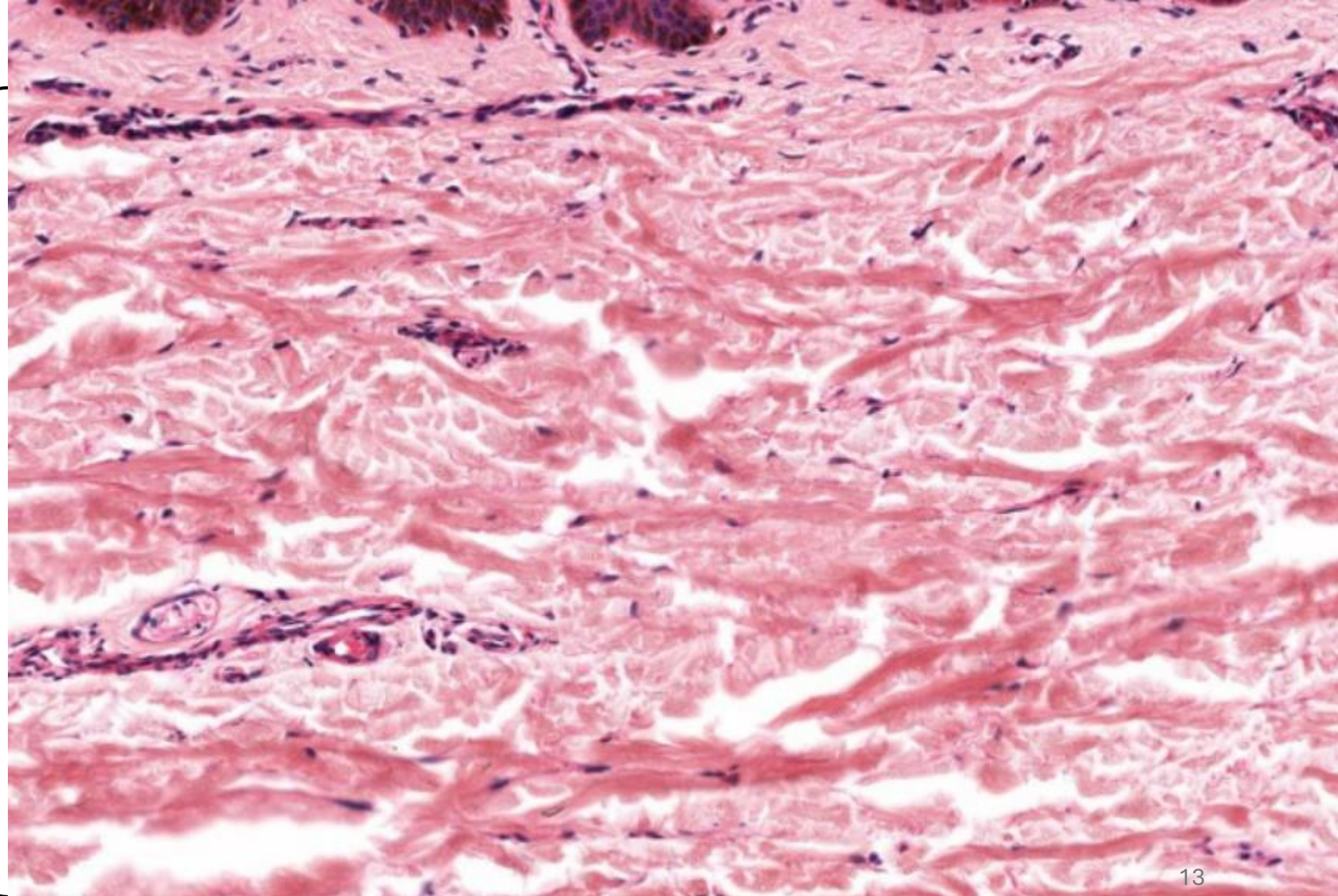
Papillary layer



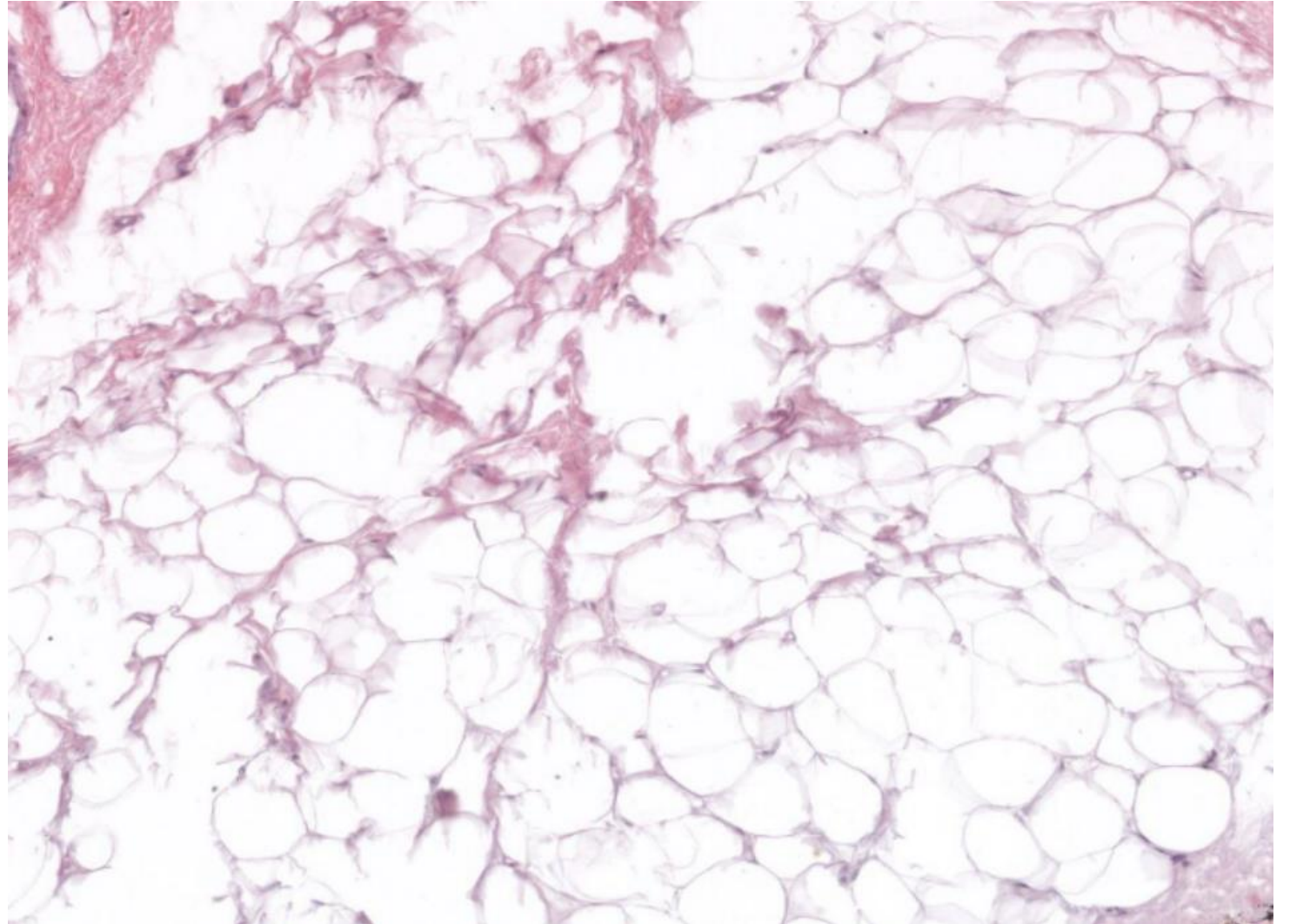
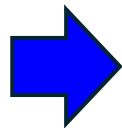
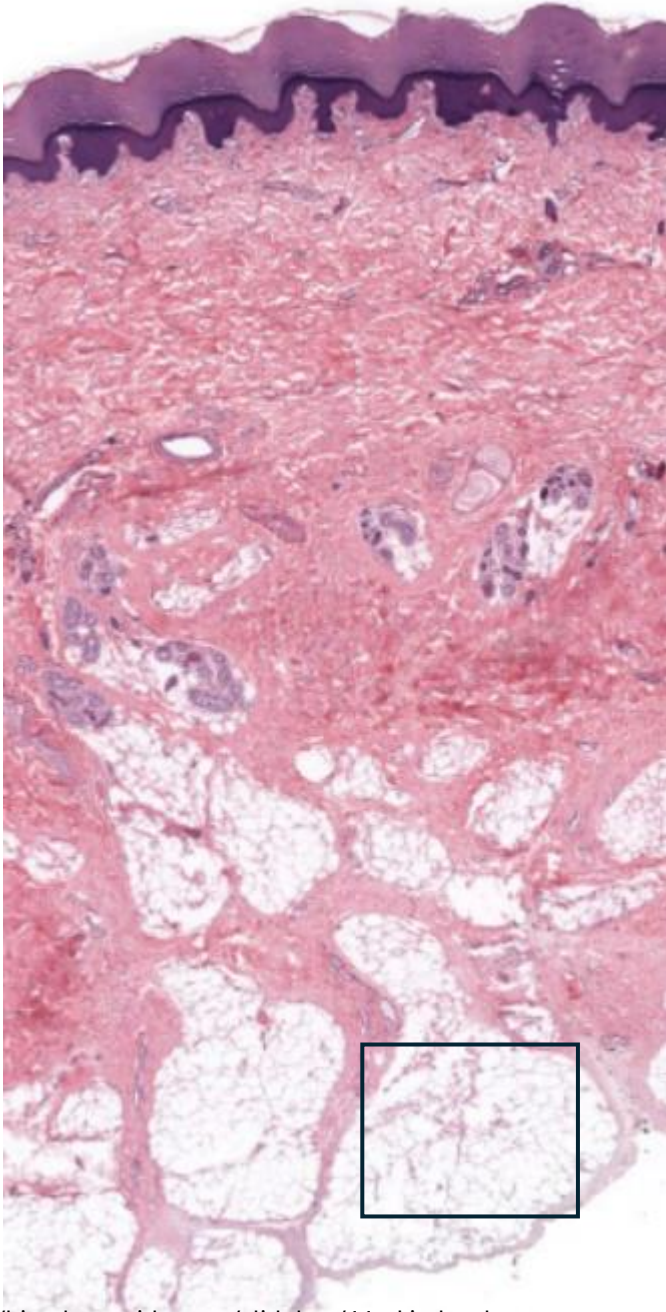
Reticular layer



Reticular layer



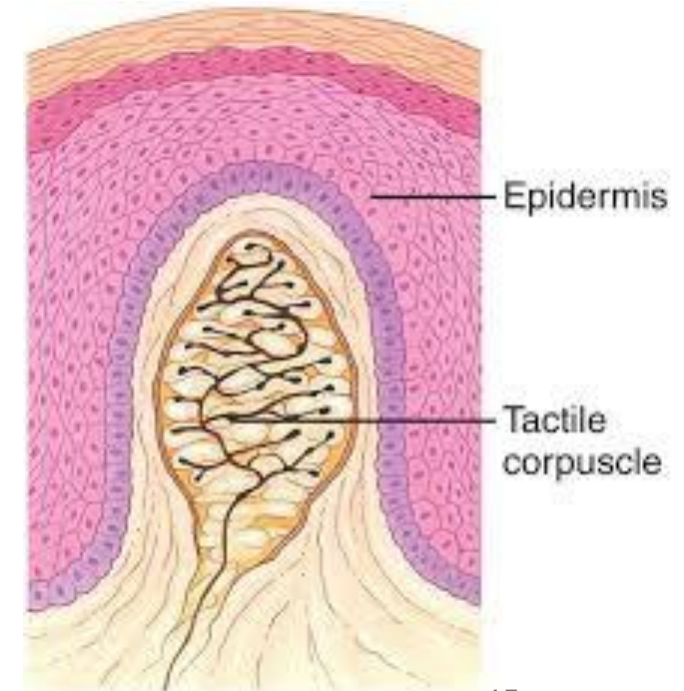
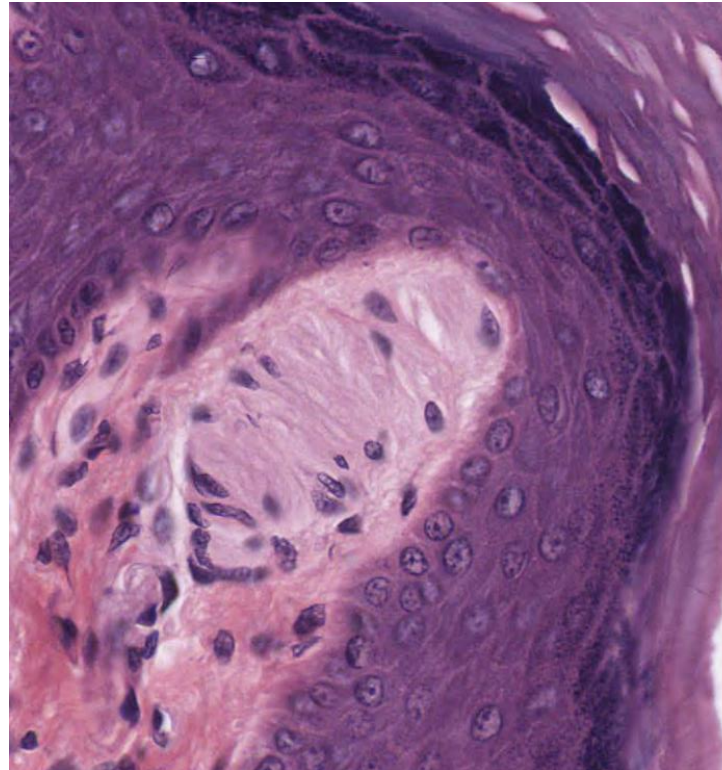
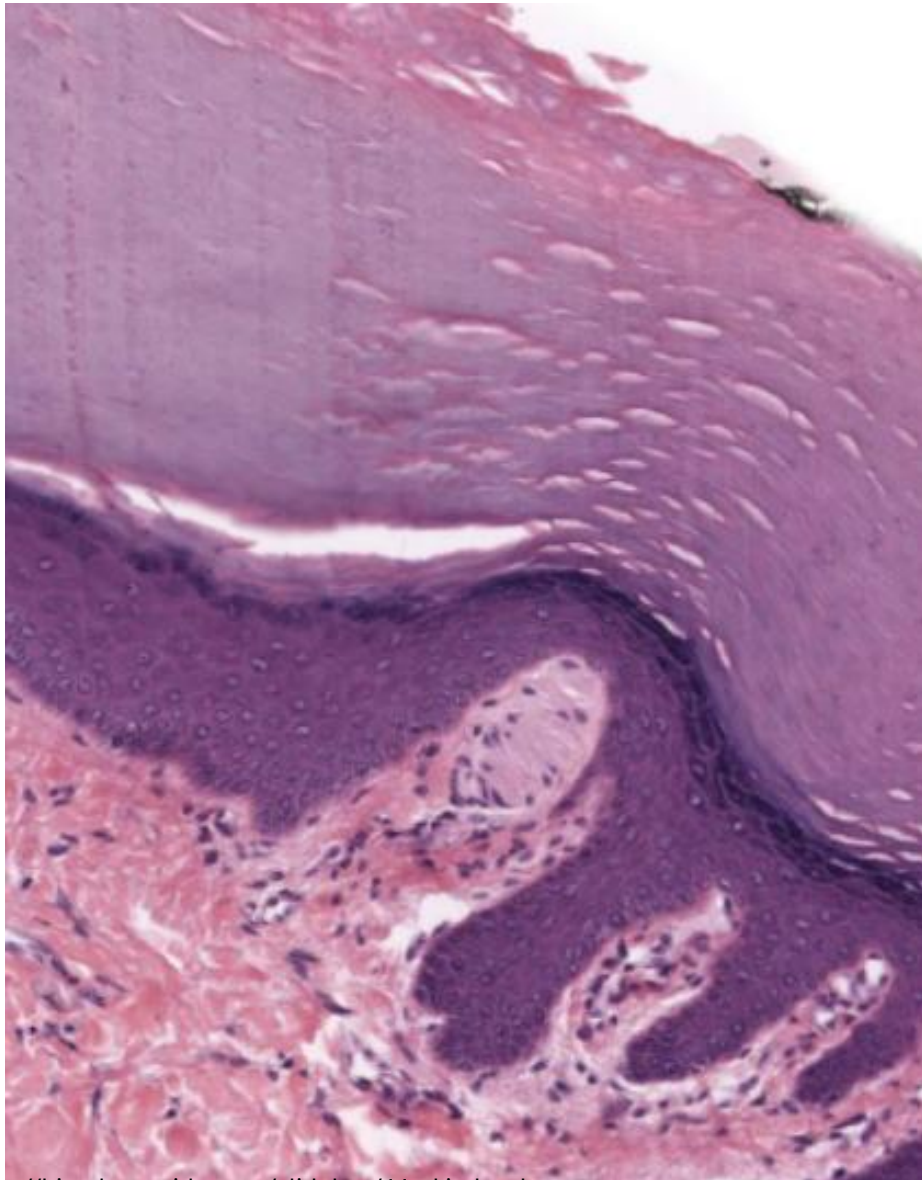
Hypodermis

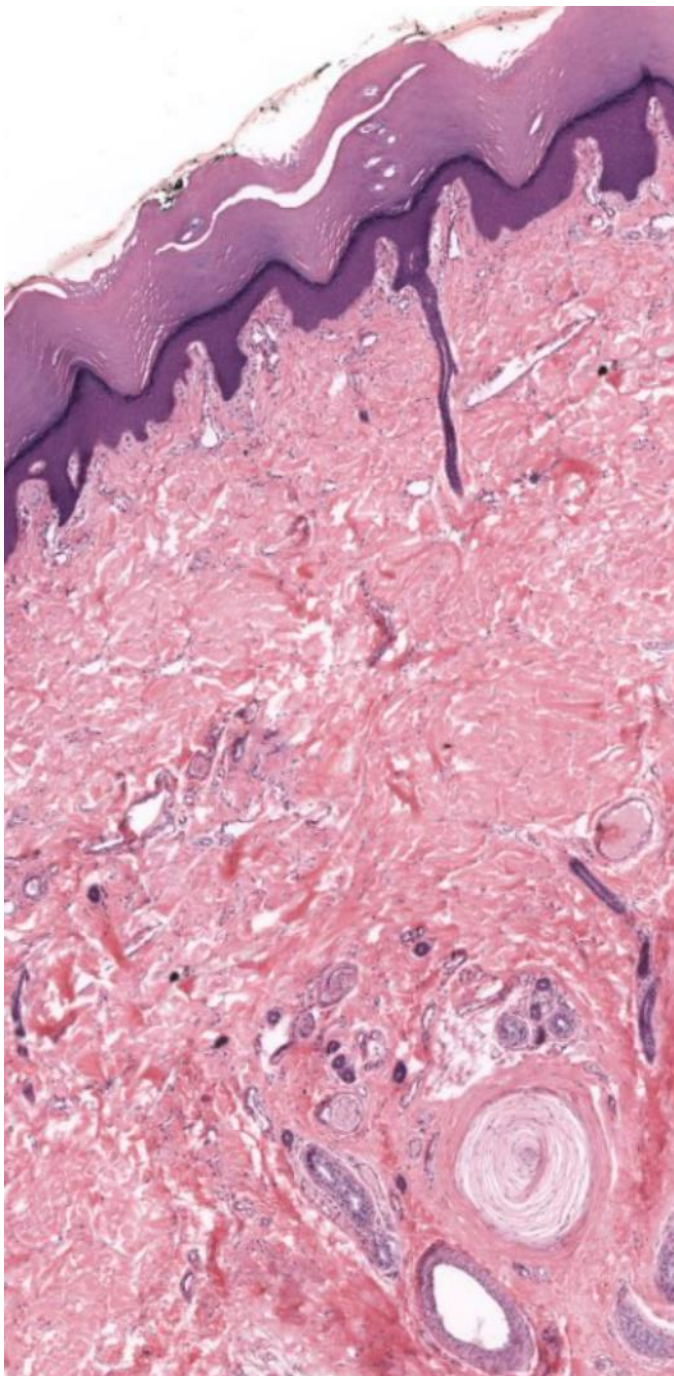


Receptor: Meissner's corpuscles

Responsible for sensitivity to light touch

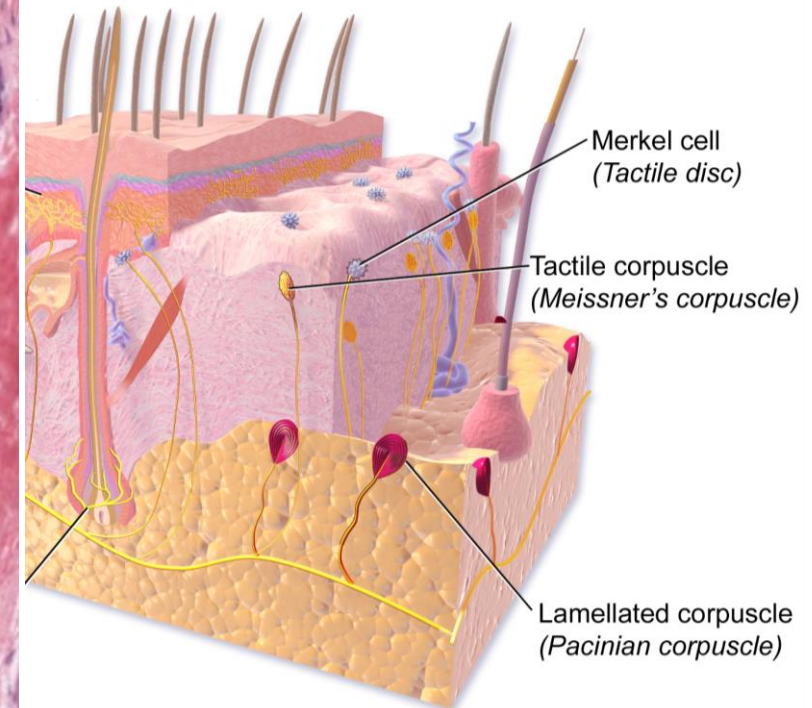
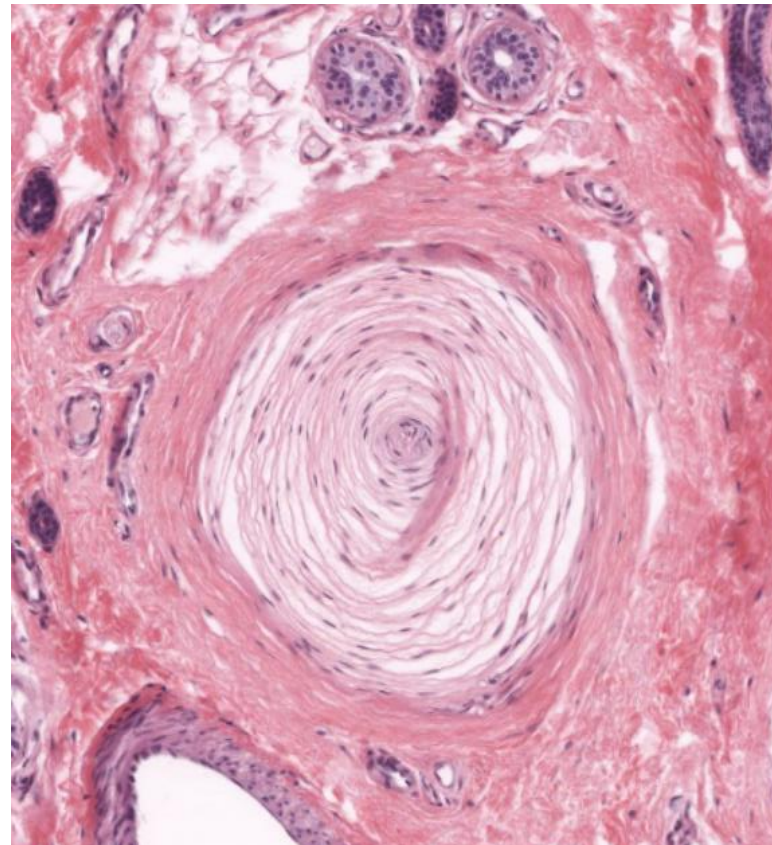
Located in dermal papillae



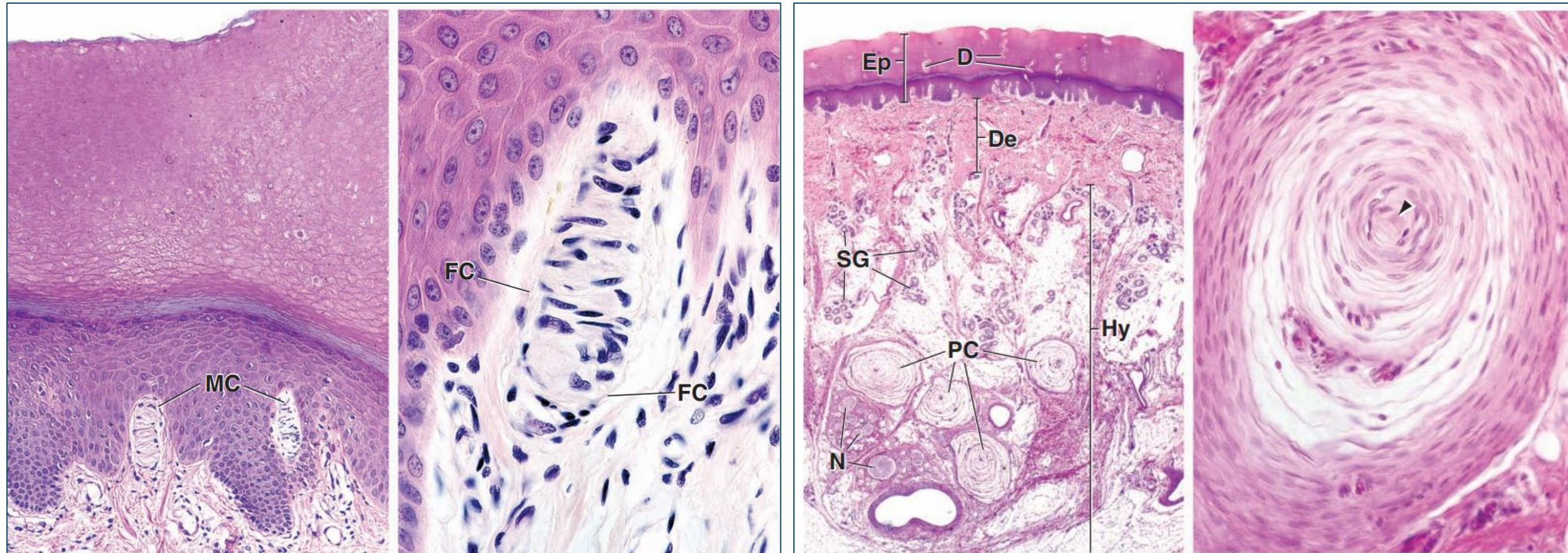


Receptor: Pacinian Corpuscle

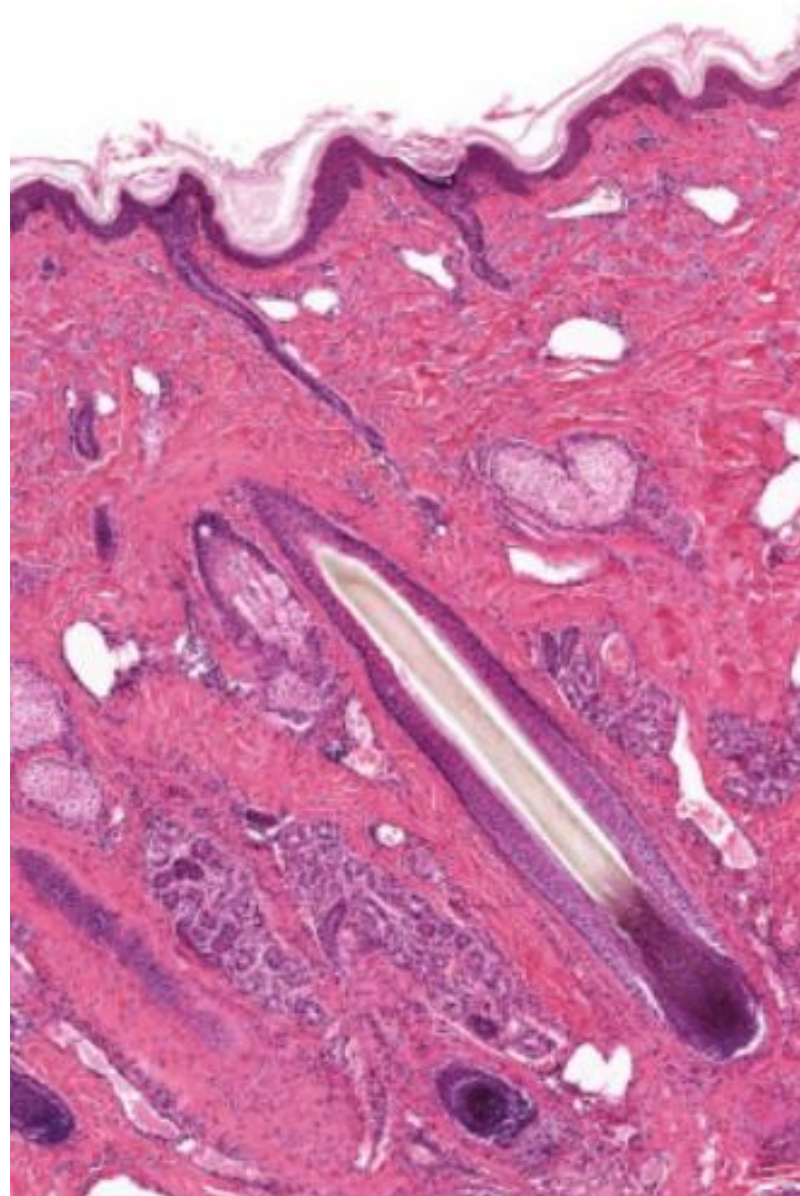
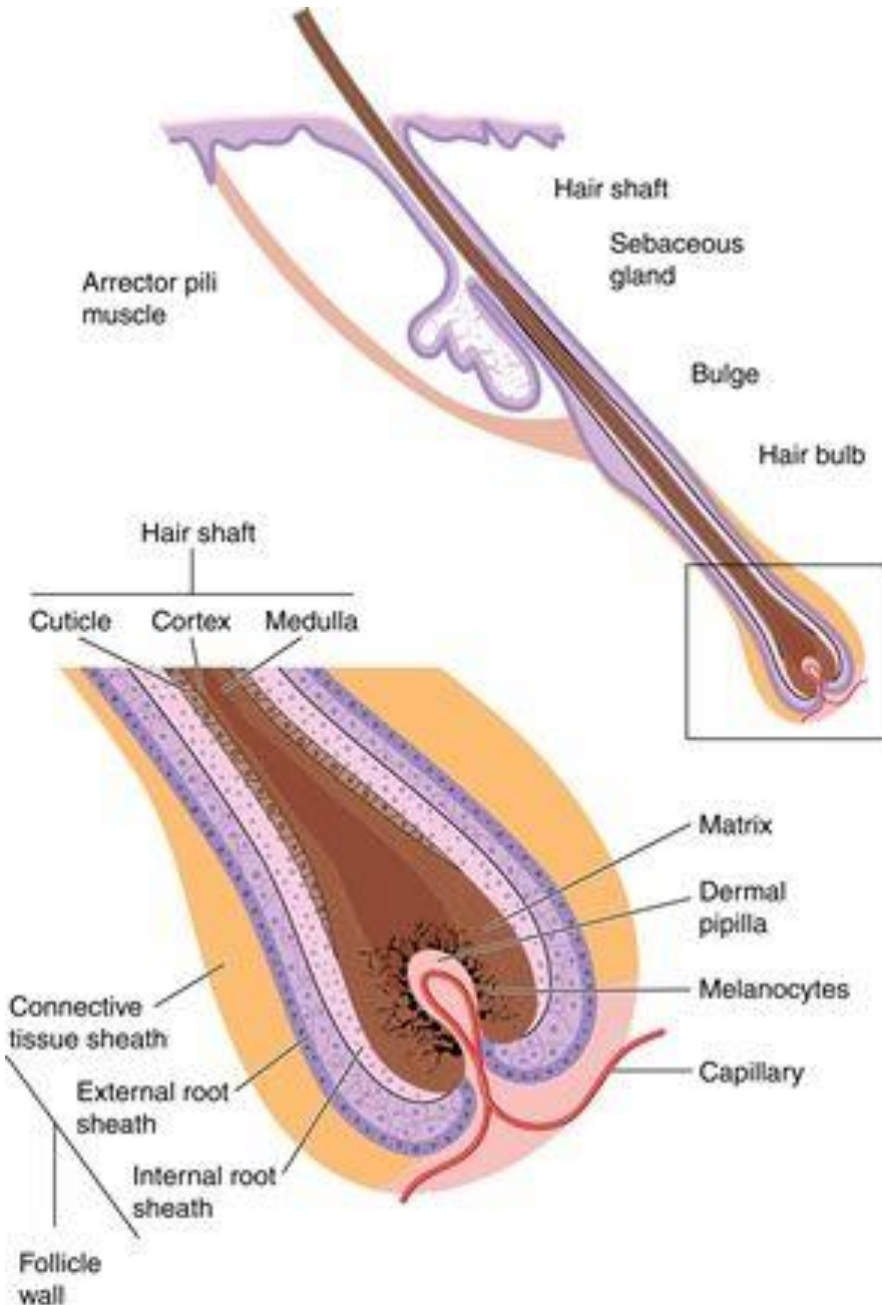
- Responsible for sensitivity to vibration and pressure
- Large oval or spherical structures of 20 to 60 concentric lamellae
- Located in the dense irregular connective tissue (dermis)



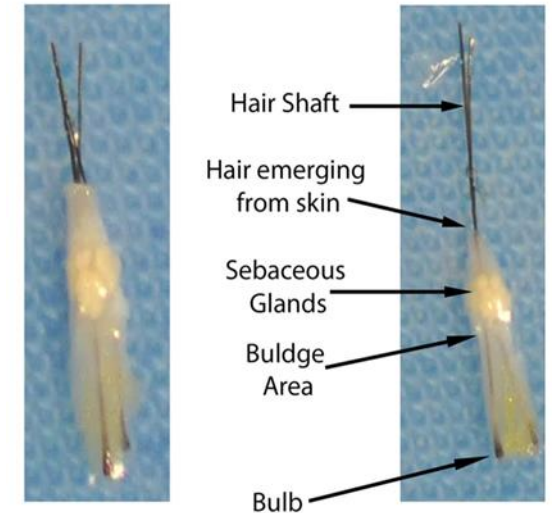
Meissner and Pacinian Corpuscles



Hair

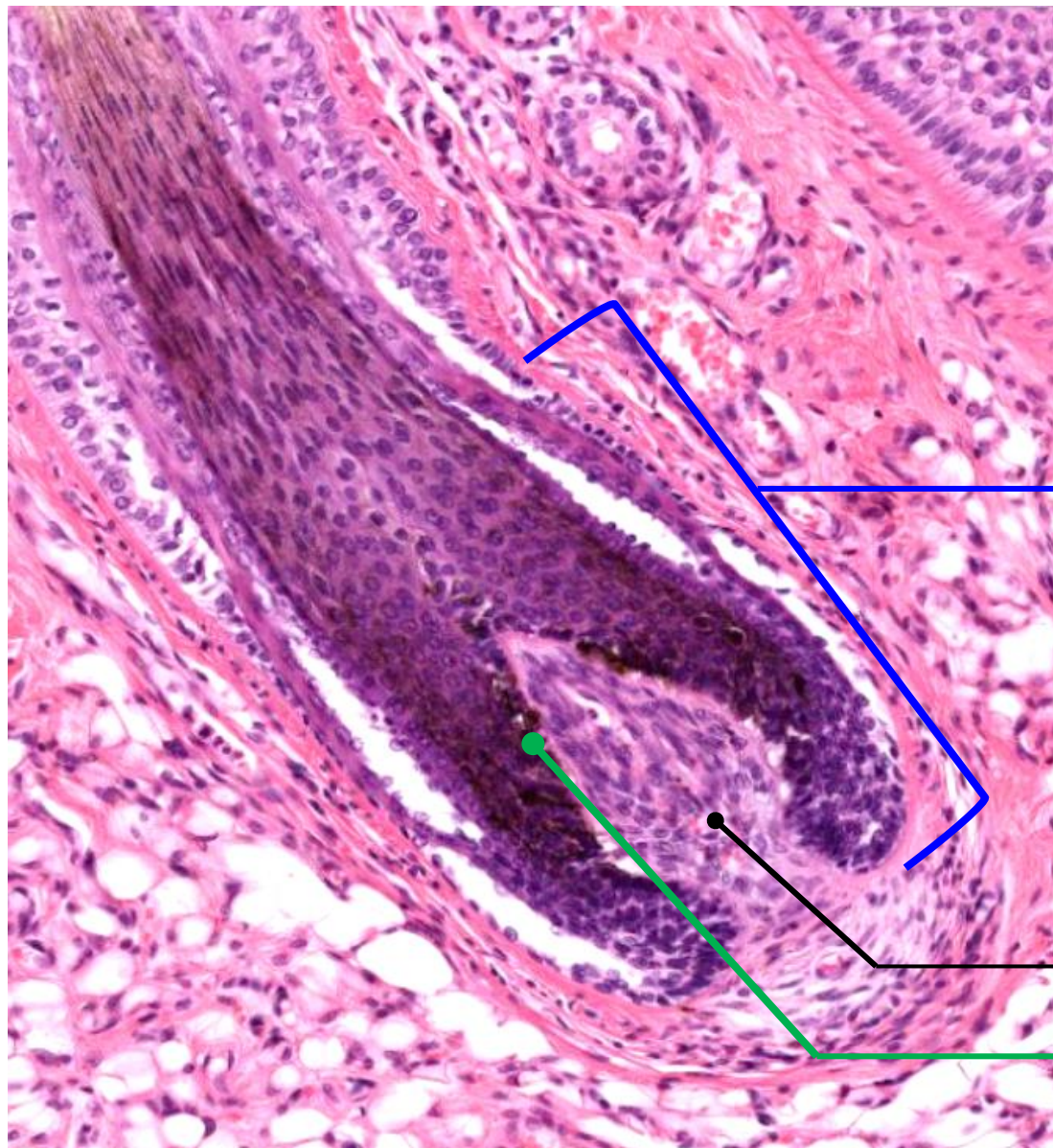


Anatomy of a Hair Follicle



GABEL
CENTER FOR RESTORATION

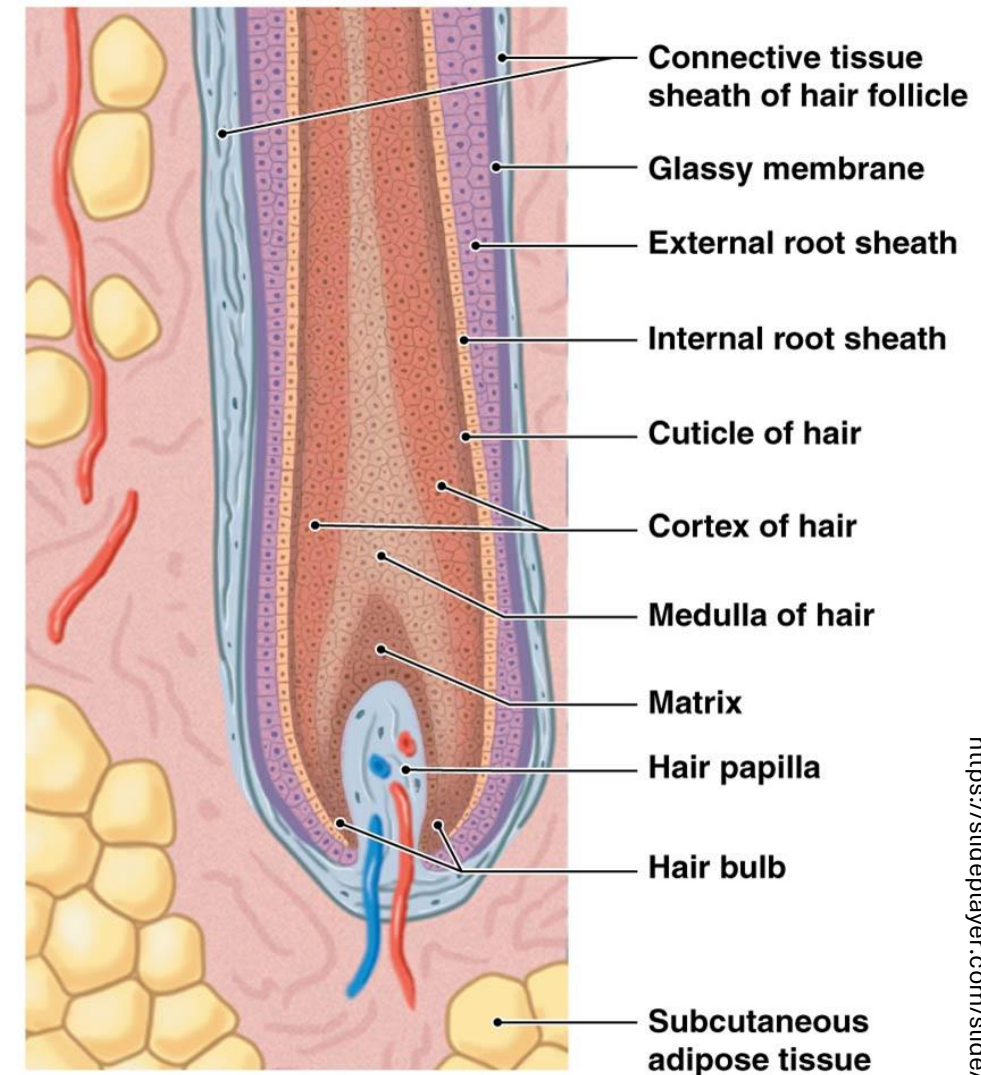
Hair follicle (longitudinal section)



Hair bulb

Hair papilla

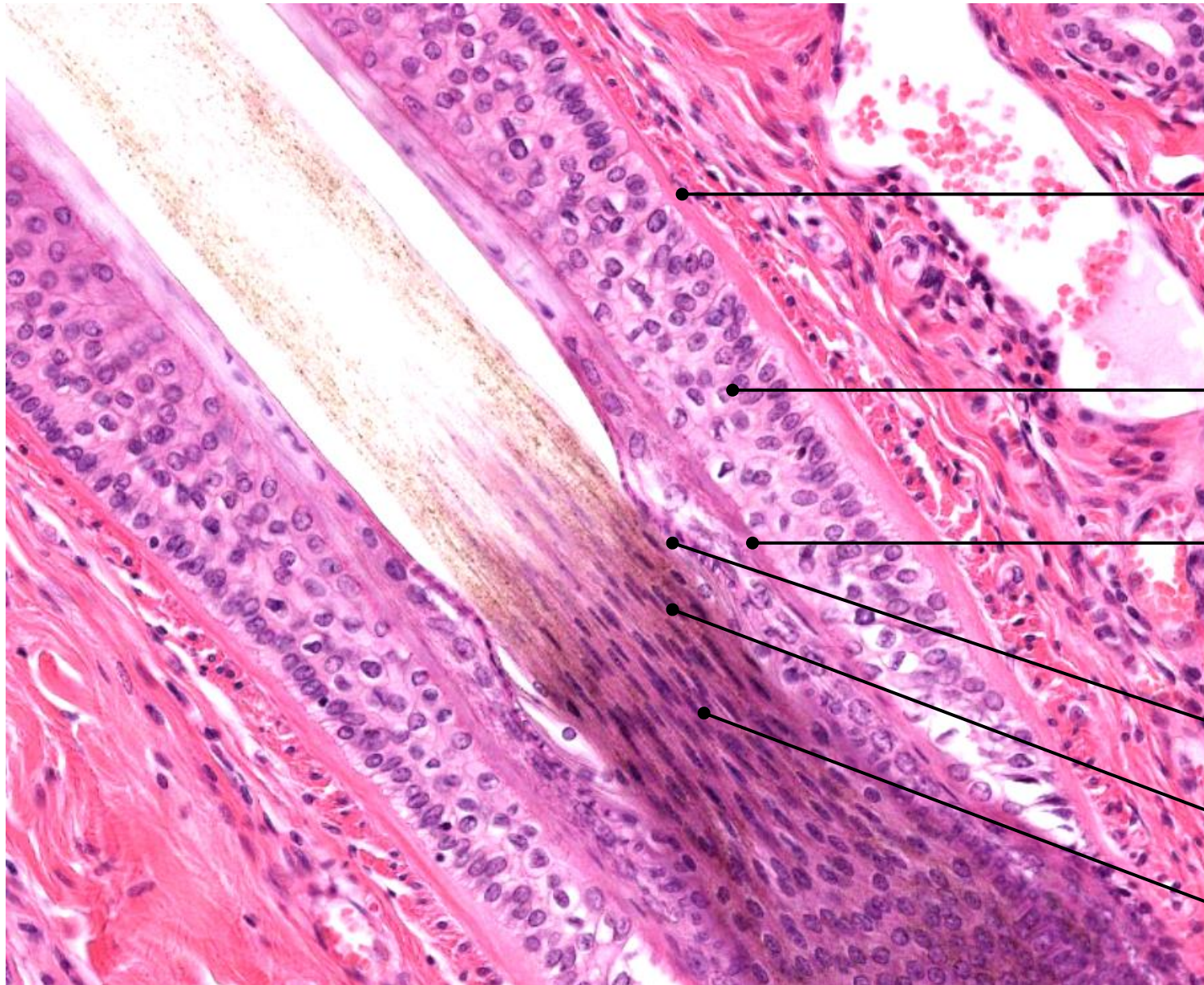
Hair matrix



d Diagrammatic view of the base of a hair follicle

© 2015 Pearson Education, Inc.

Hair root (within hair follicle)



Glassy Membrane
(thick basement membrane that separates the hair follicle from the dermis)

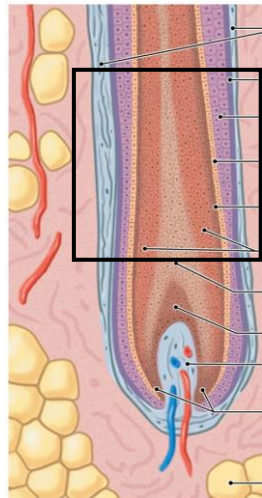
External Root Sheath
(layers of cells continuous with the epidermis)

Internal Root Sheath
(only extends from the hair bulb to the level of sebaceous glands)

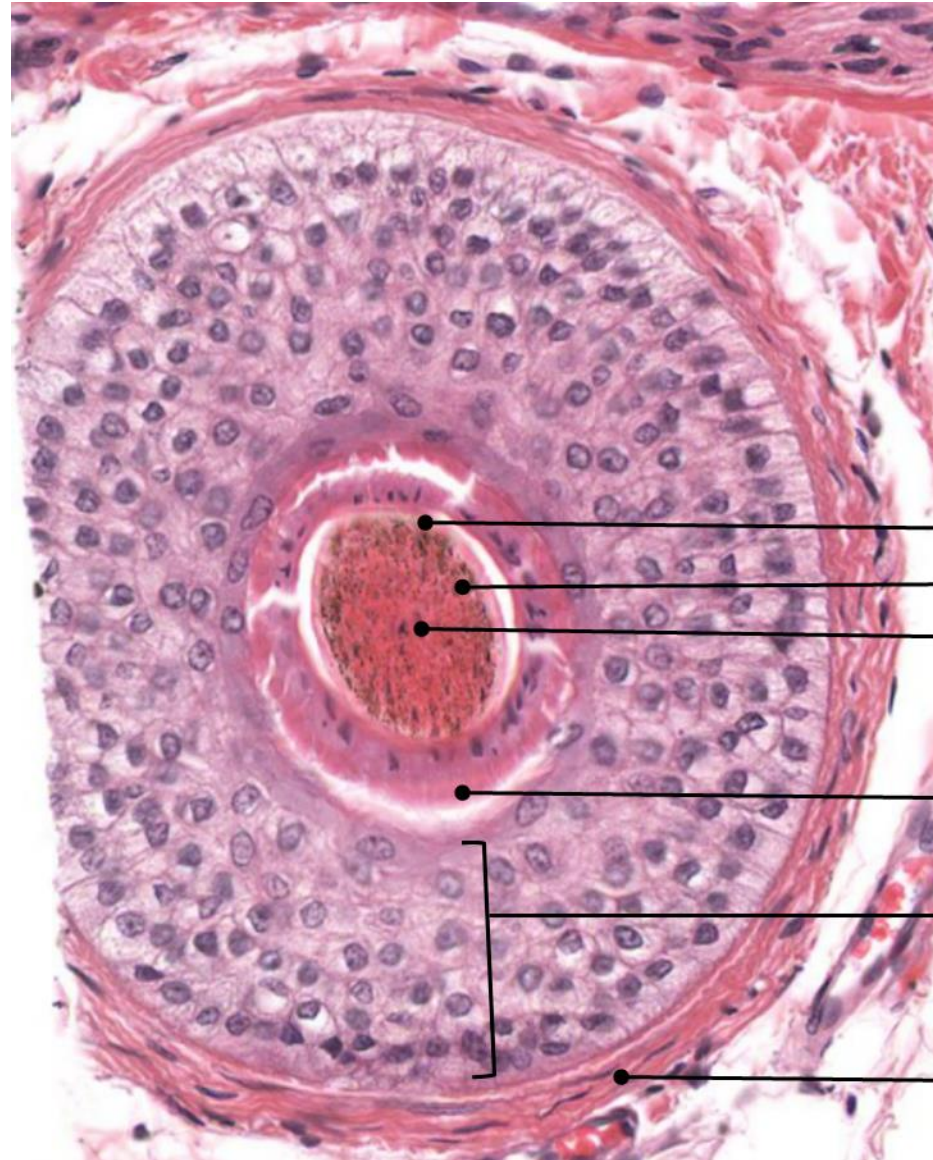
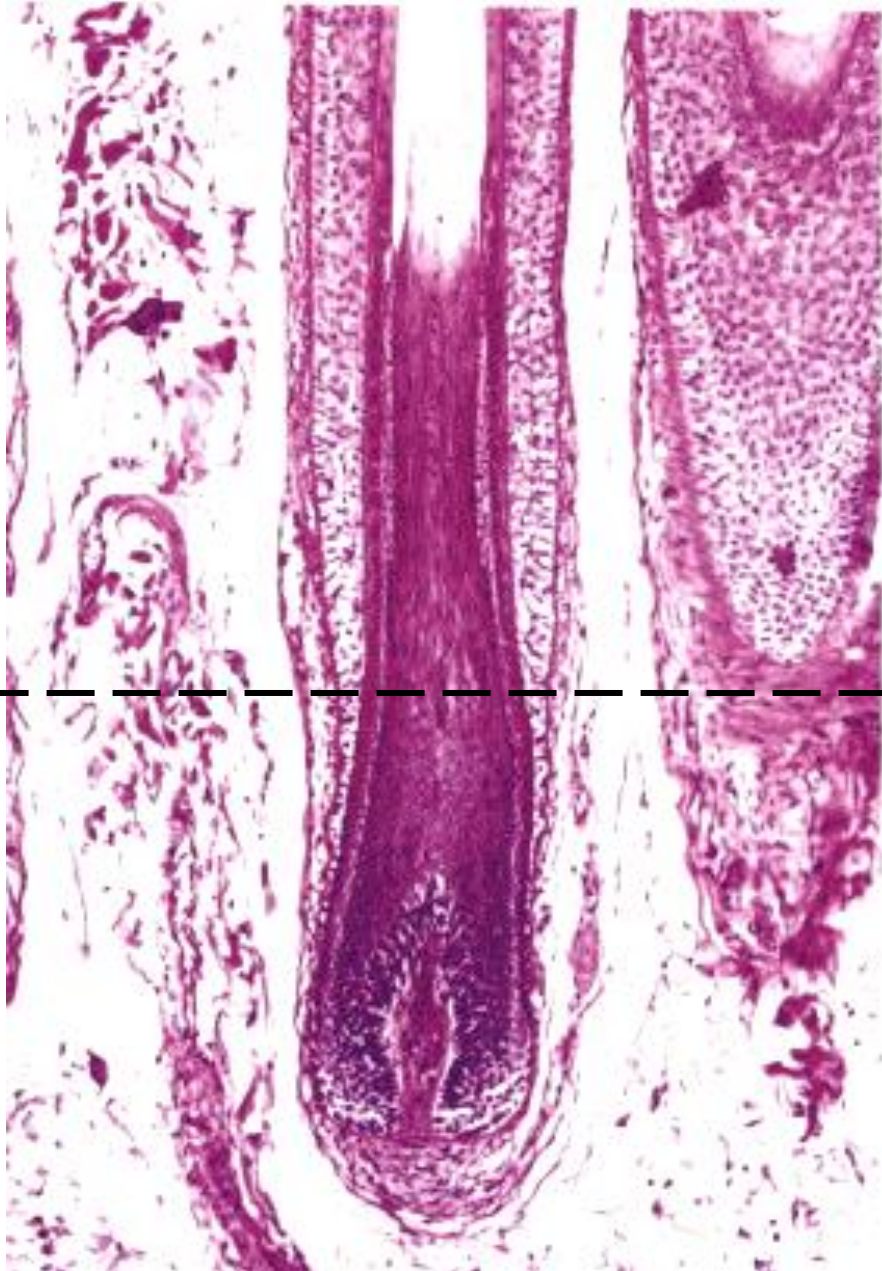
Cuticle
(squamous cells form the outermost layer of hair)

Cortex

Medulla



Hair follicle



Hair Shafts

Cuticle

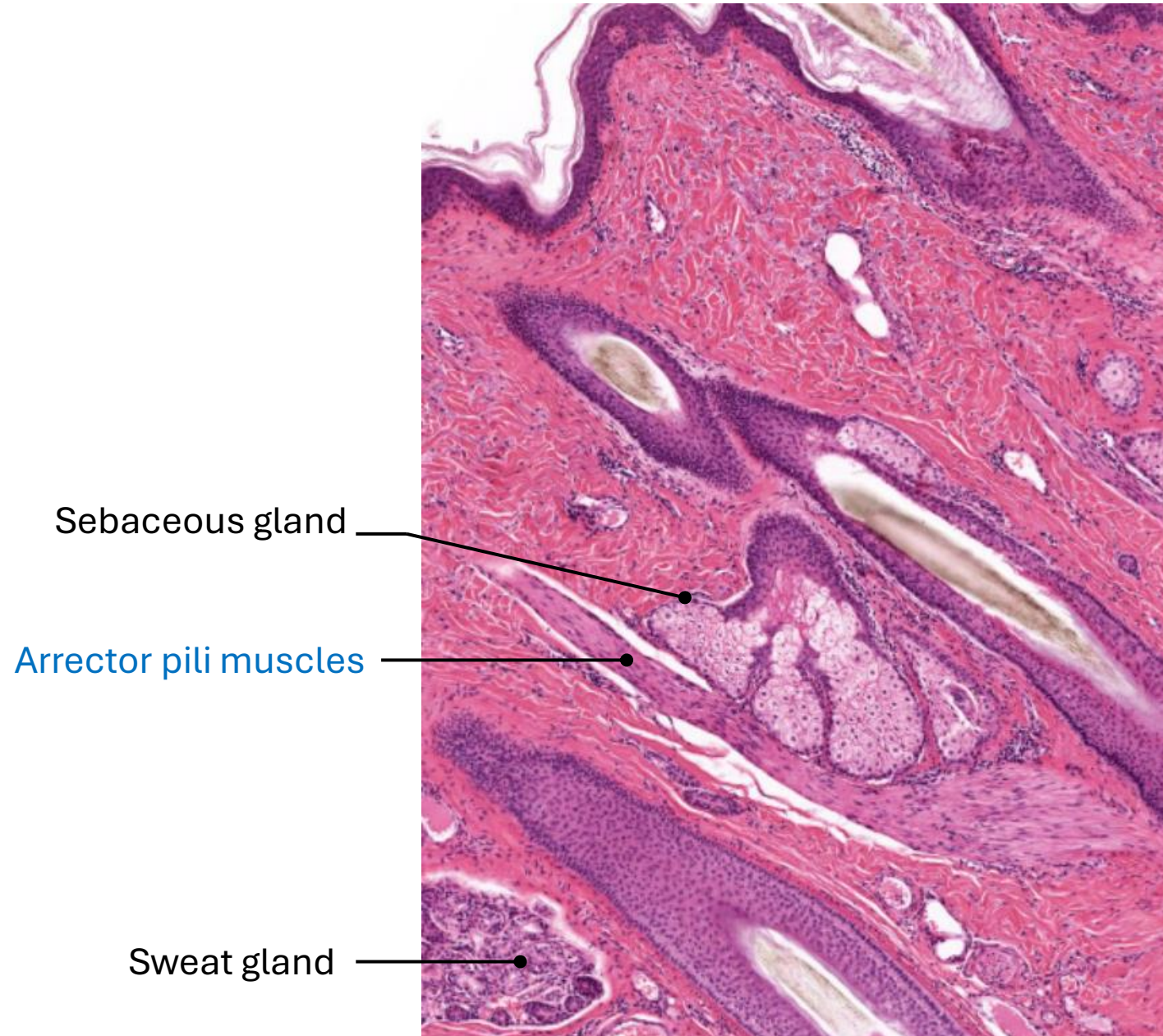
Cortex

Medulla

Internal Root Sheath

External Root Sheath

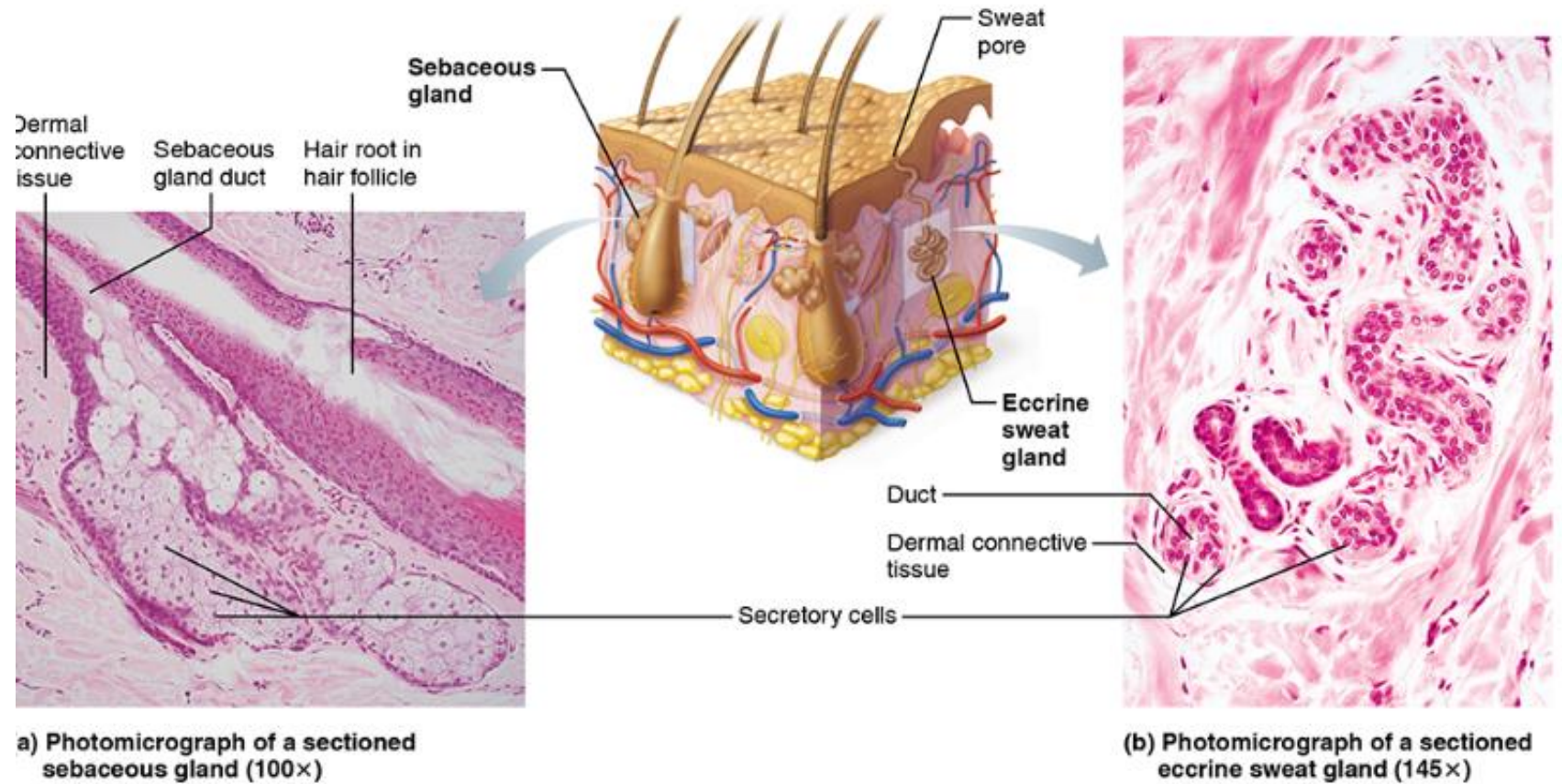
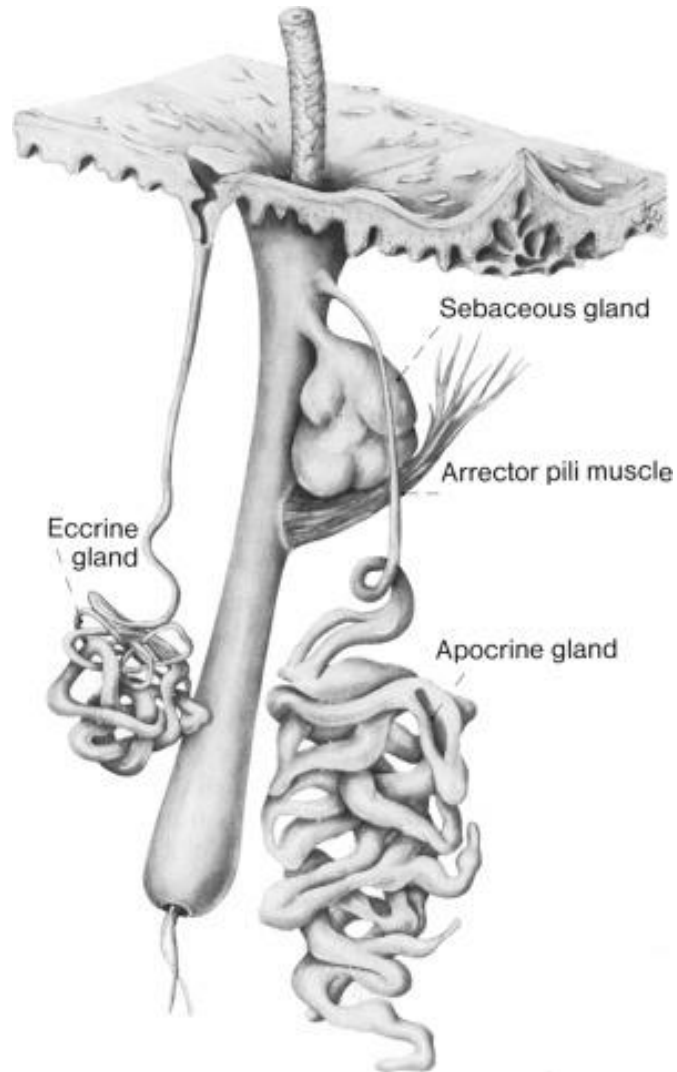
Glassy membrane



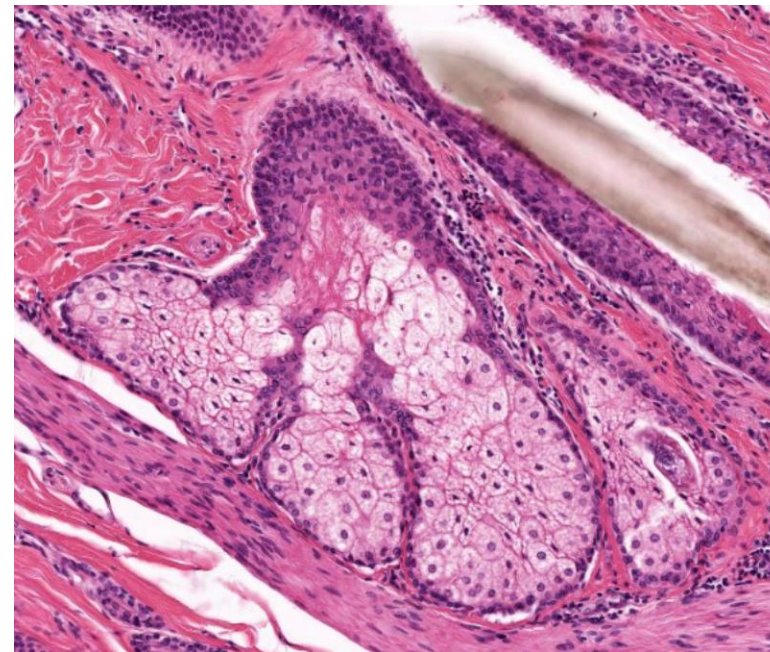
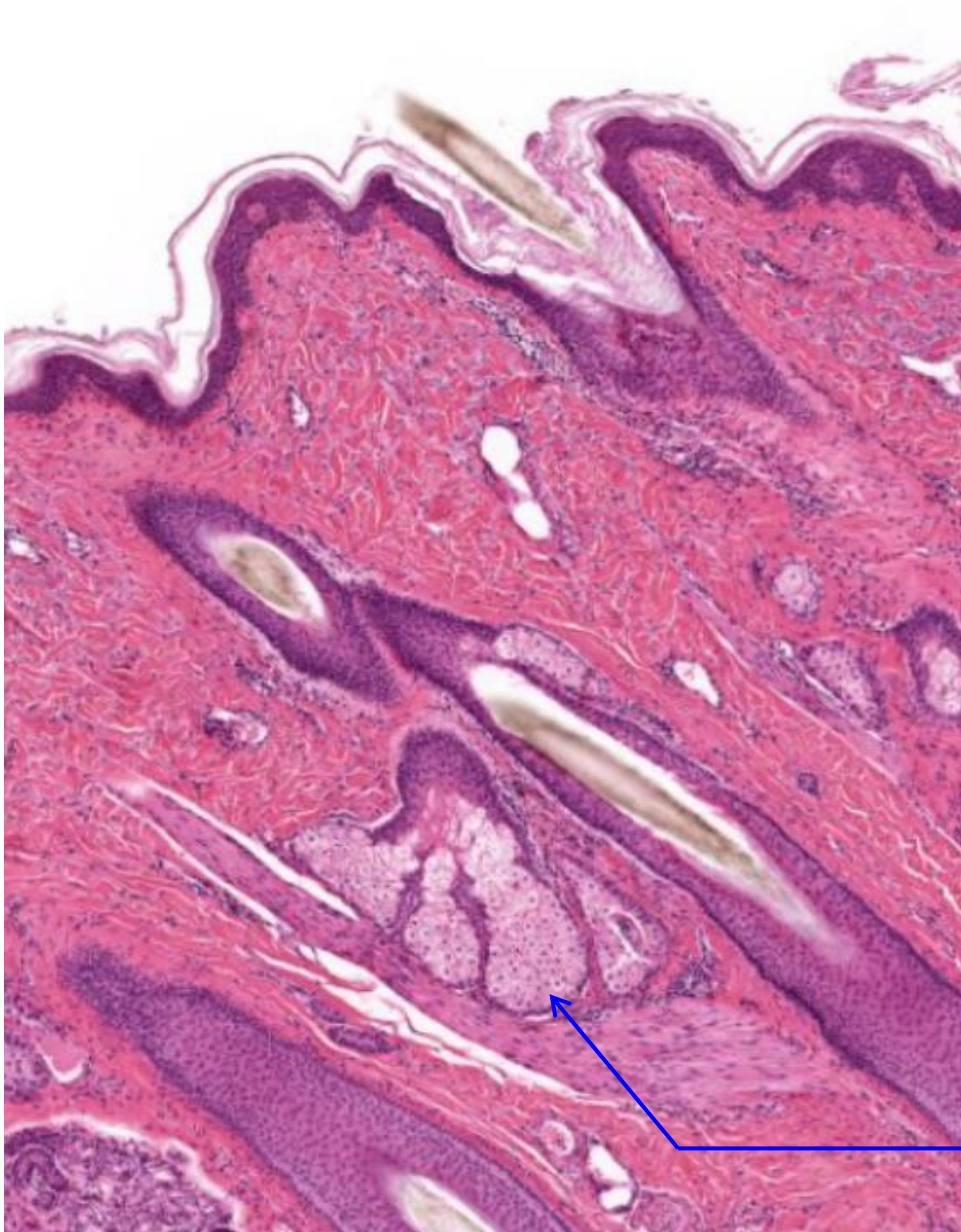
Hair shaft



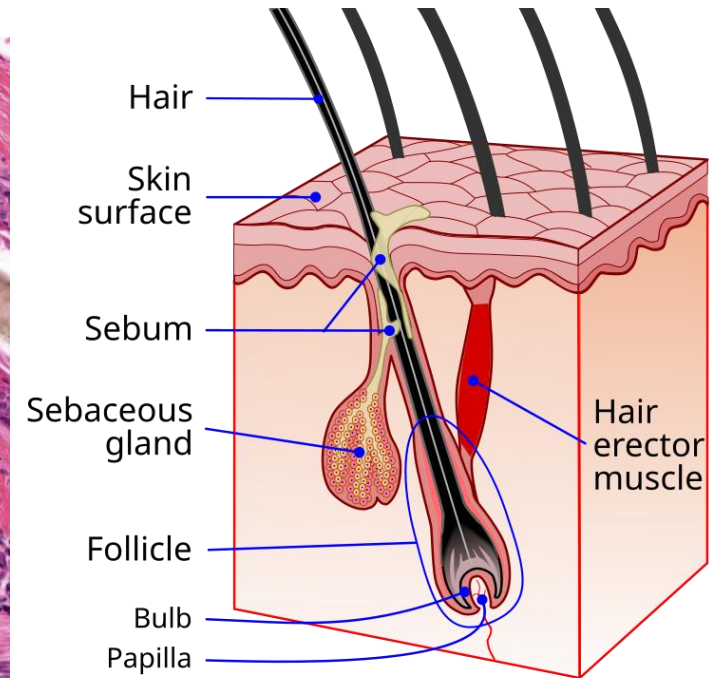
Sebaceous gland and sweat gland



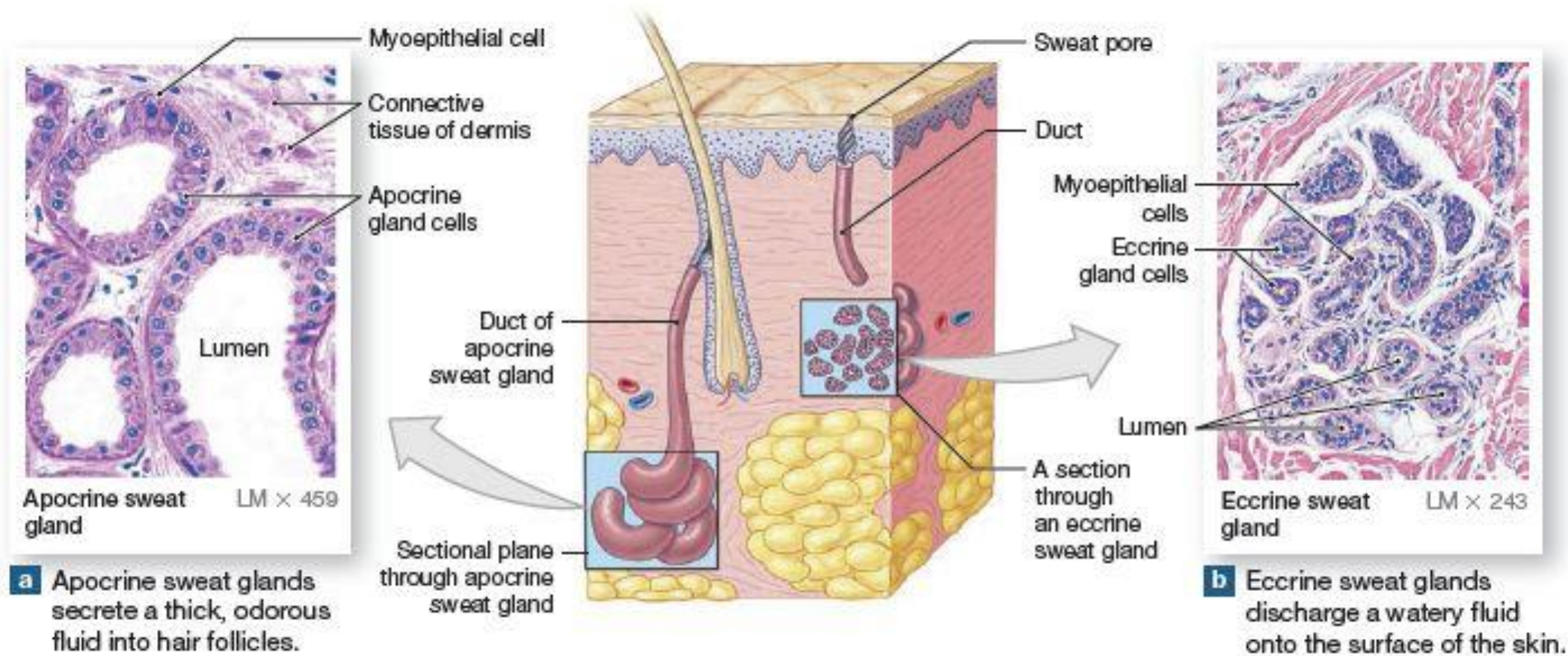
Sebaceous gland



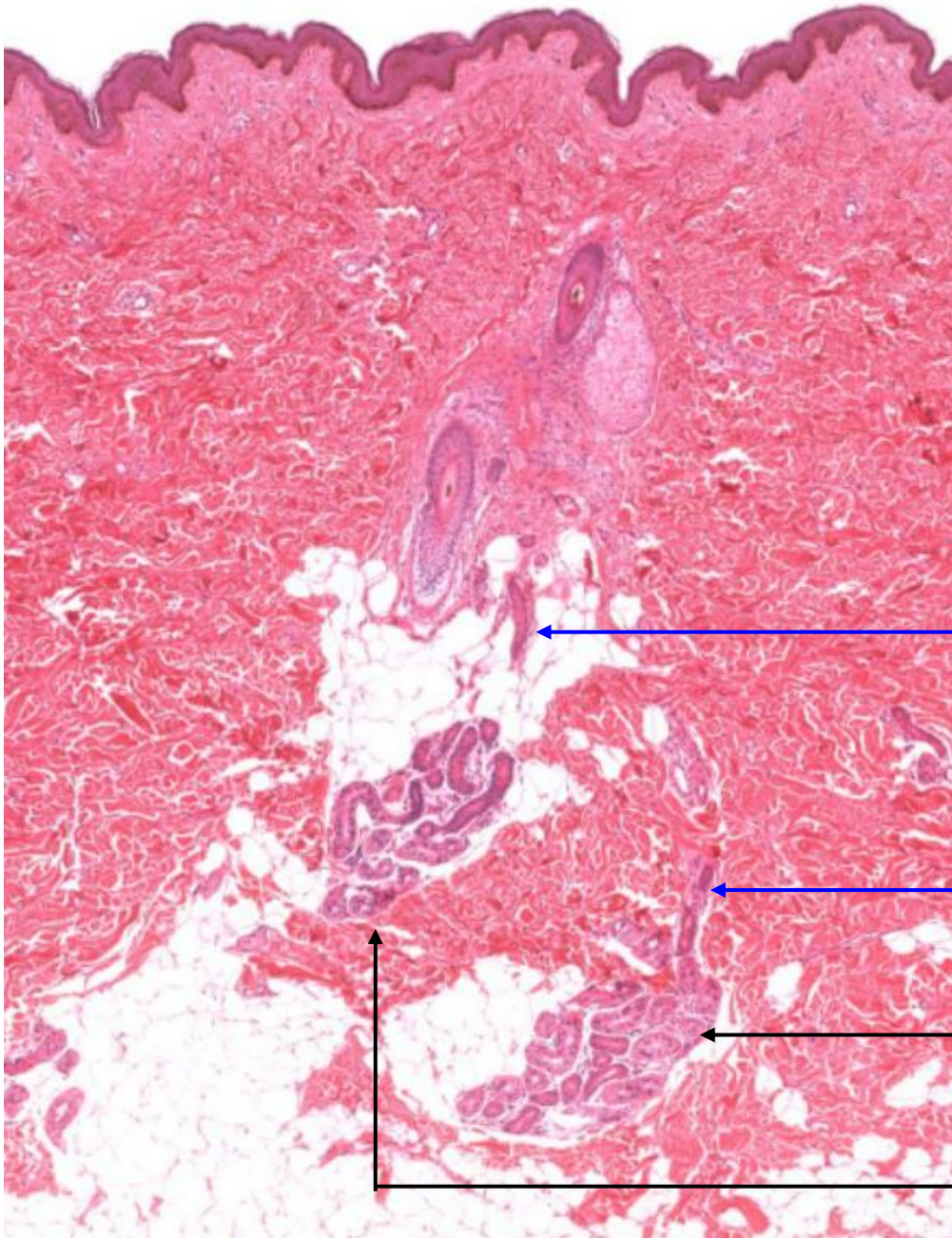
Sebaceous gland



Eccrine and apocrine sweat glands

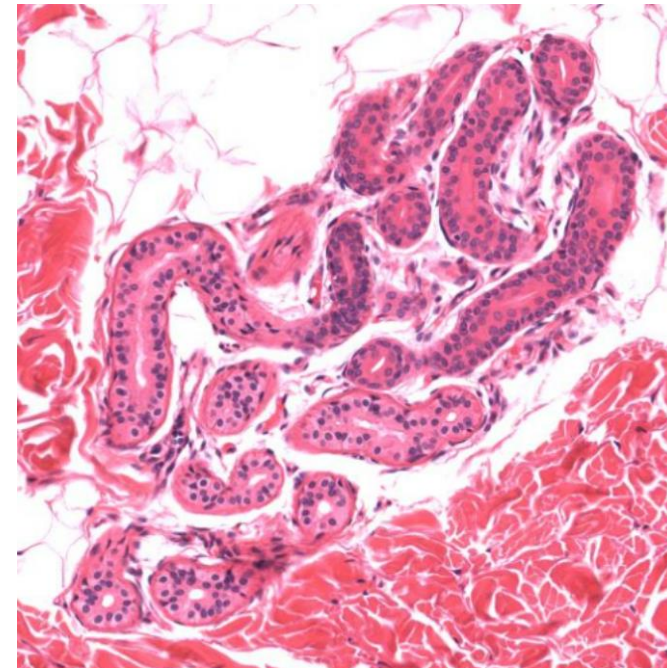
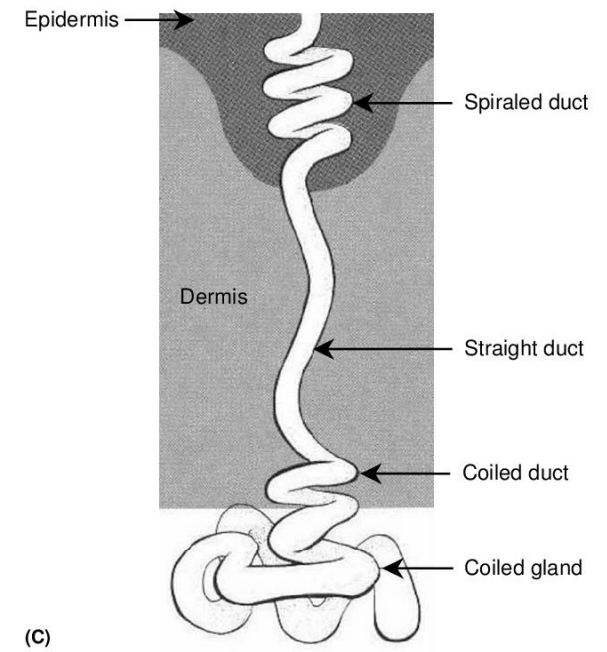


Eccrine sweat gland

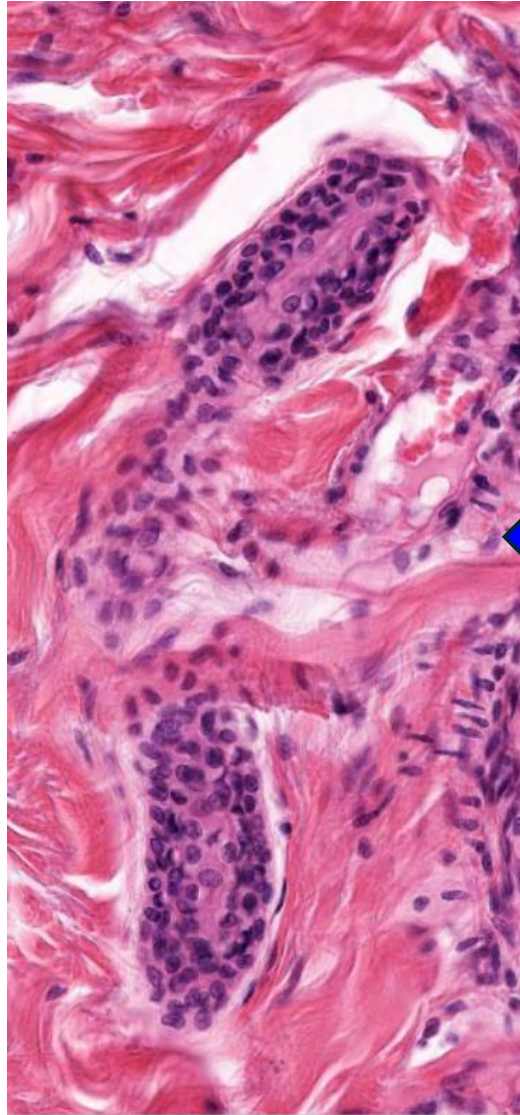


Sweat duct

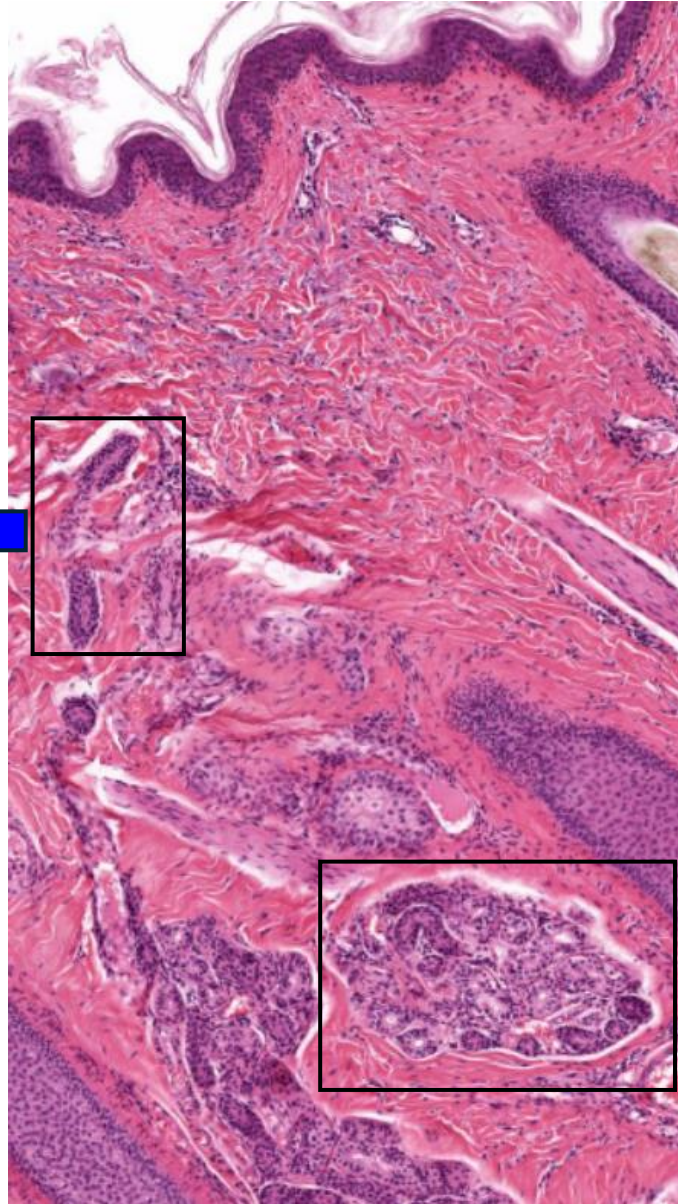
Sweat gland



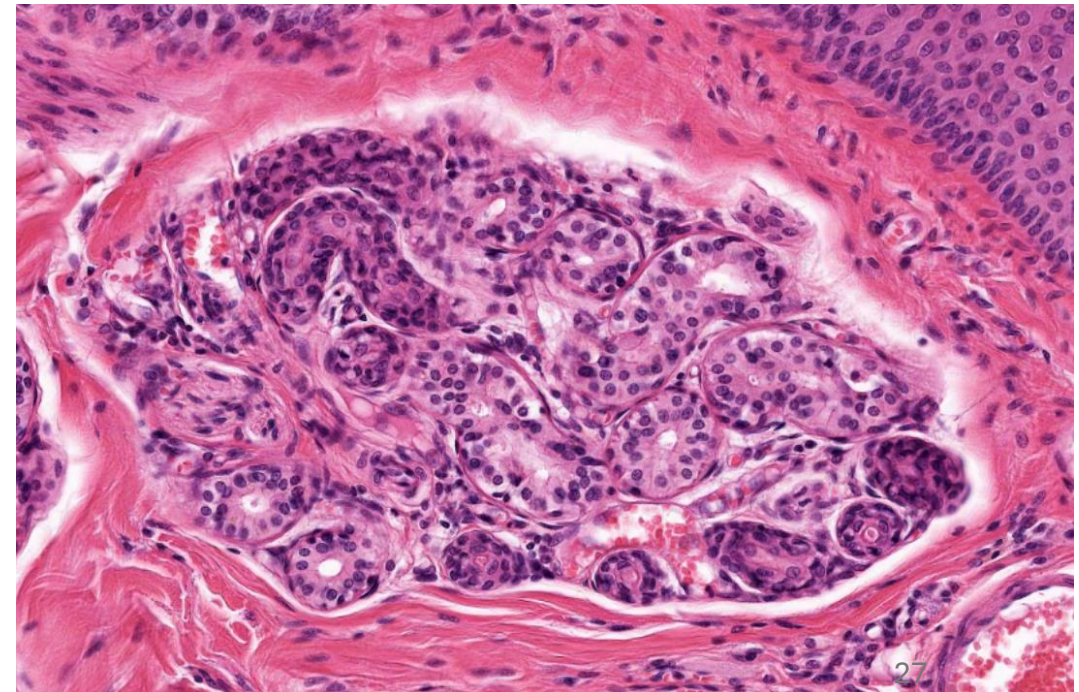
Eccrine sweat gland



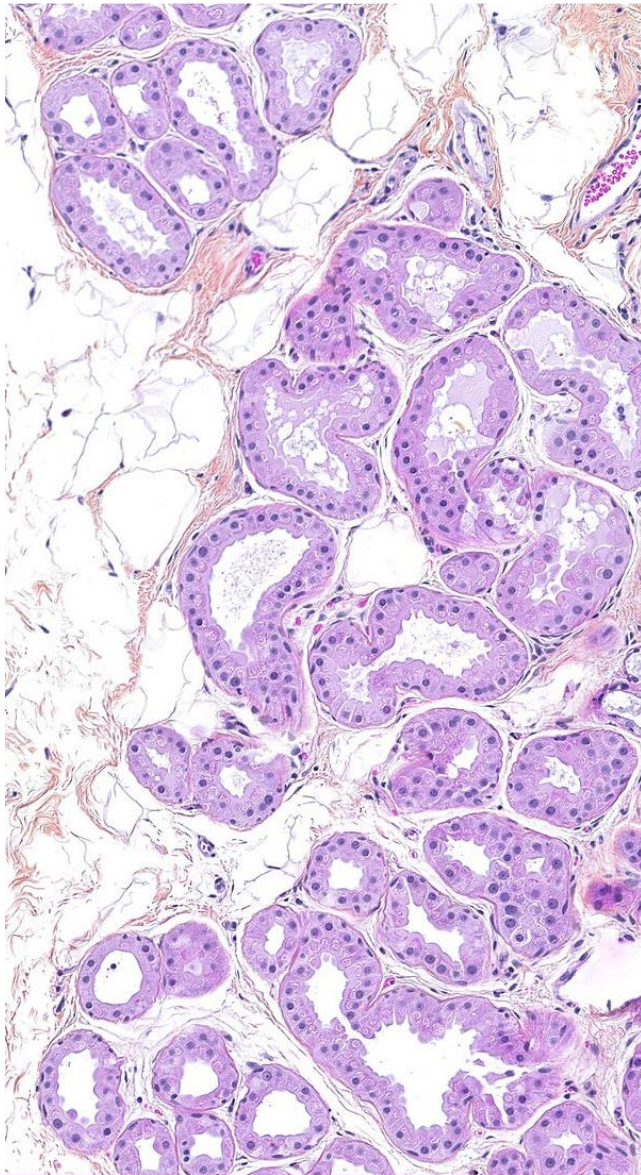
Sweat duct



Sweat gland

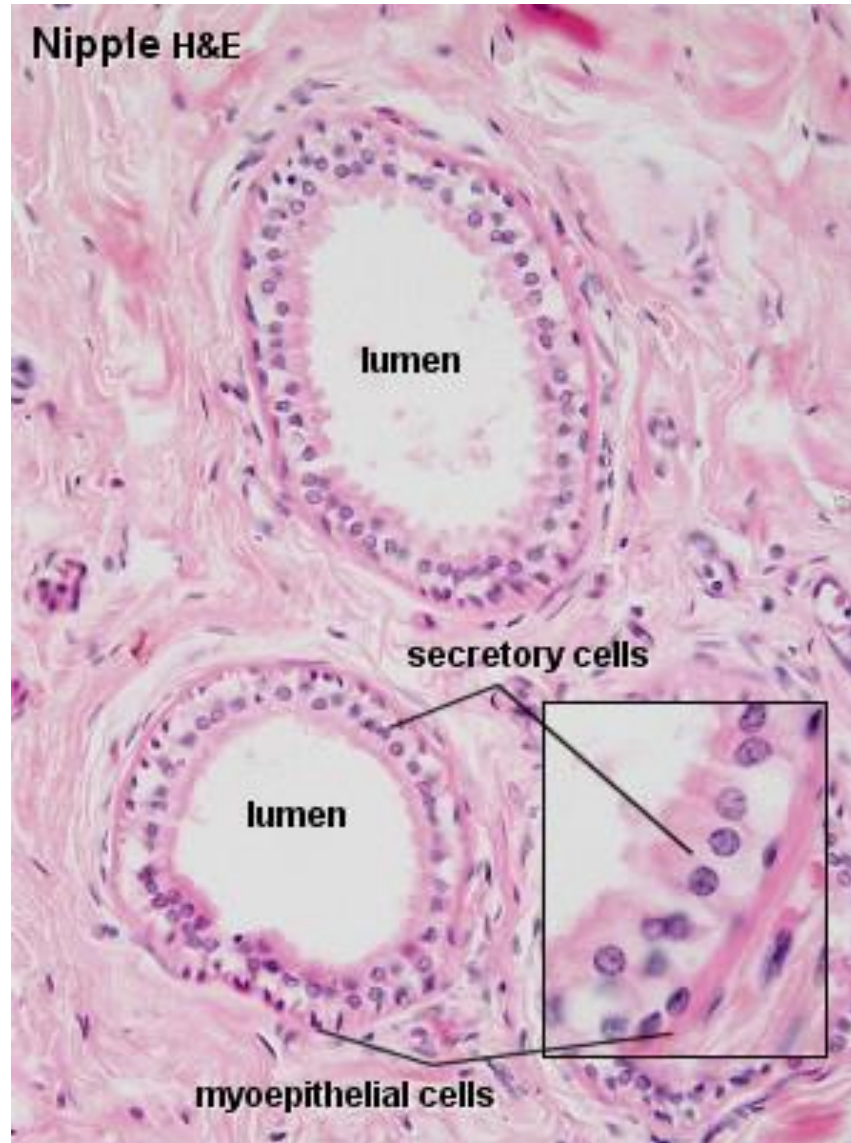


Apocrine sweat gland



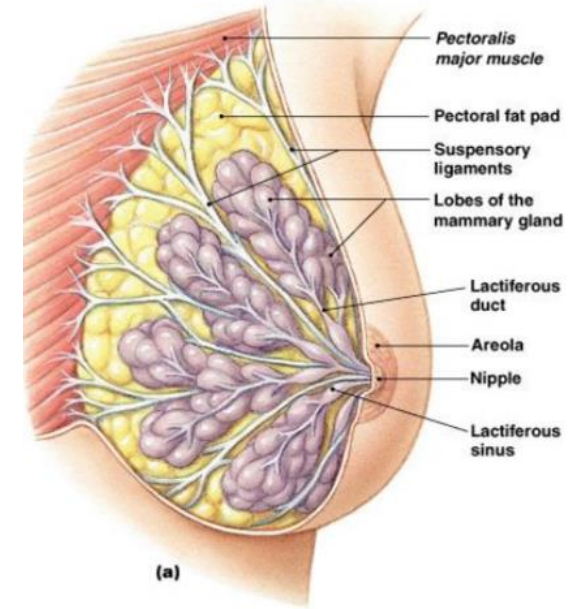
apocrine

https://commons.wikimedia.org/wiki/File:Apocrine_et_eccrine.jpg

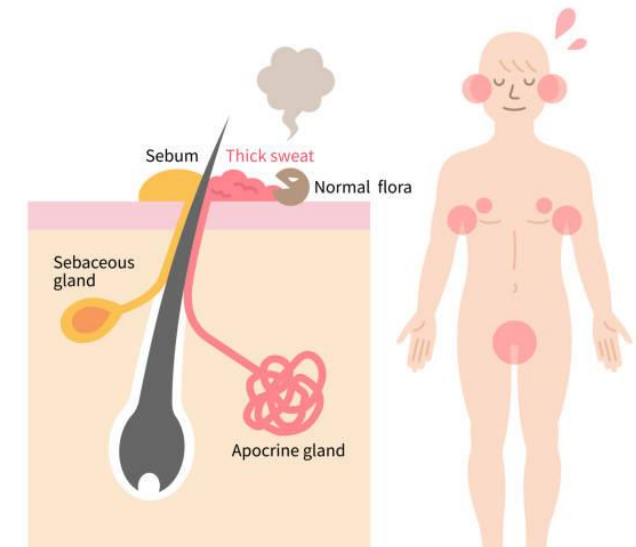


Nipple H&E

<http://lecanabiculteur.free.fr/SITES/UNIV%20W.AUSTRALIA/mb140/CorePages/Integumentary/Integum.htm#labaposweat>



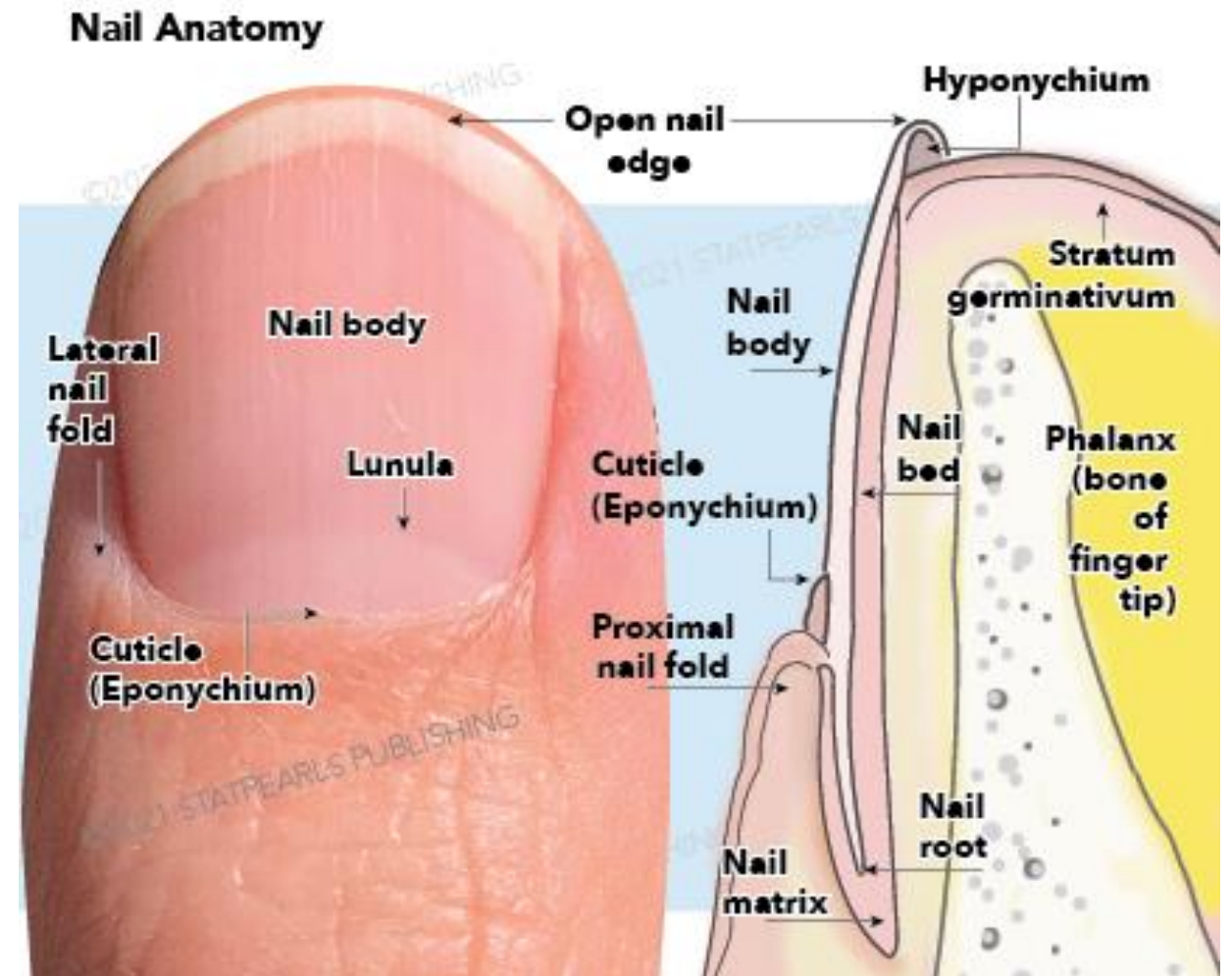
(a)

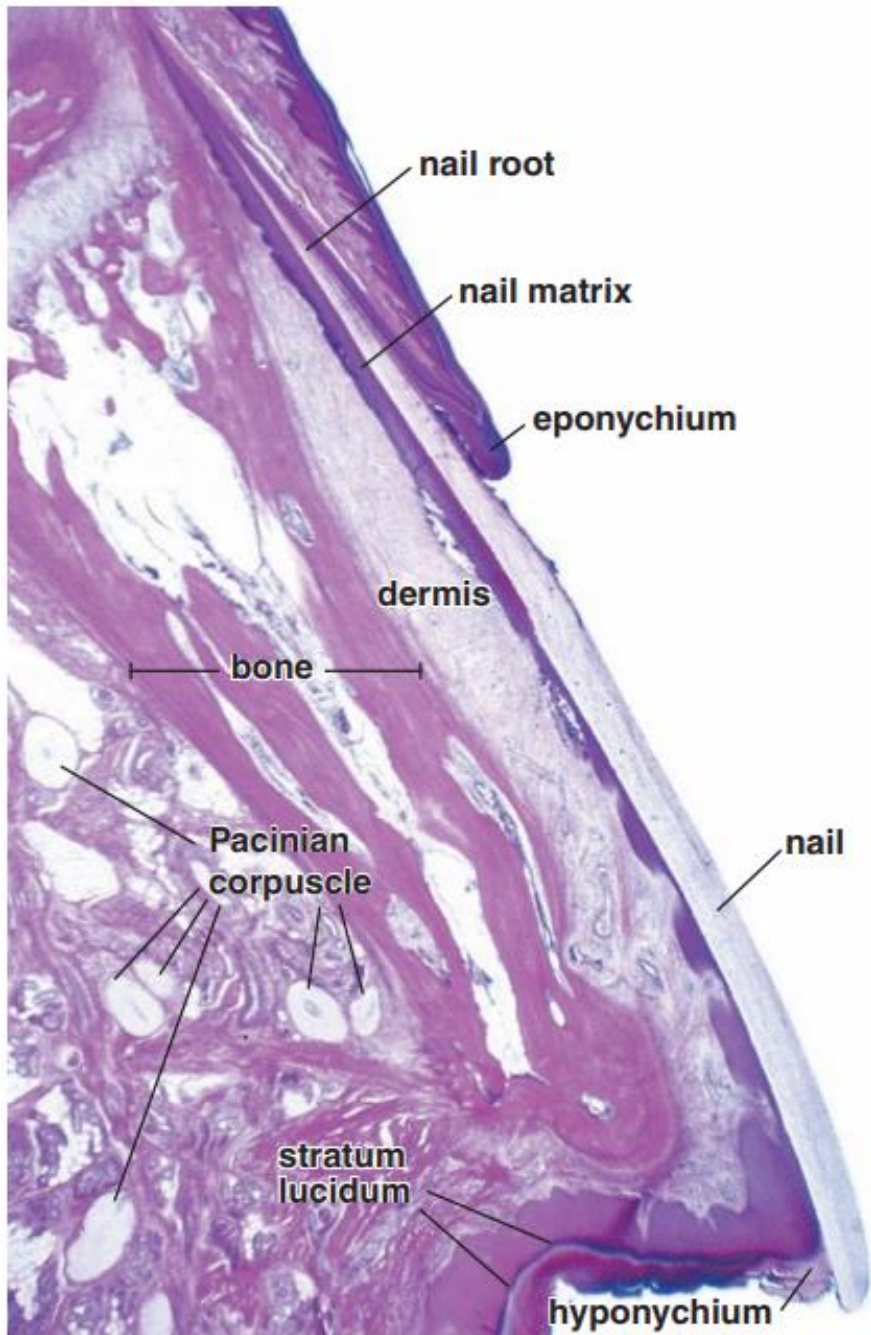


<https://depositphotos.com/ko/vector/eccrine-glands-located-all-human-body-bad-smell-develop-bacteria-329084626.html>

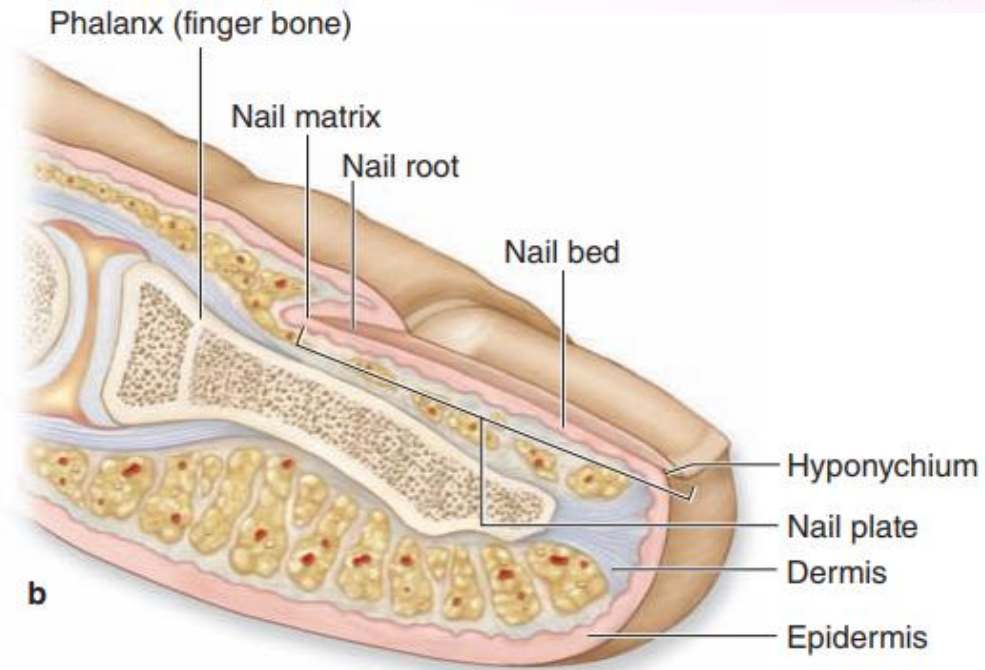
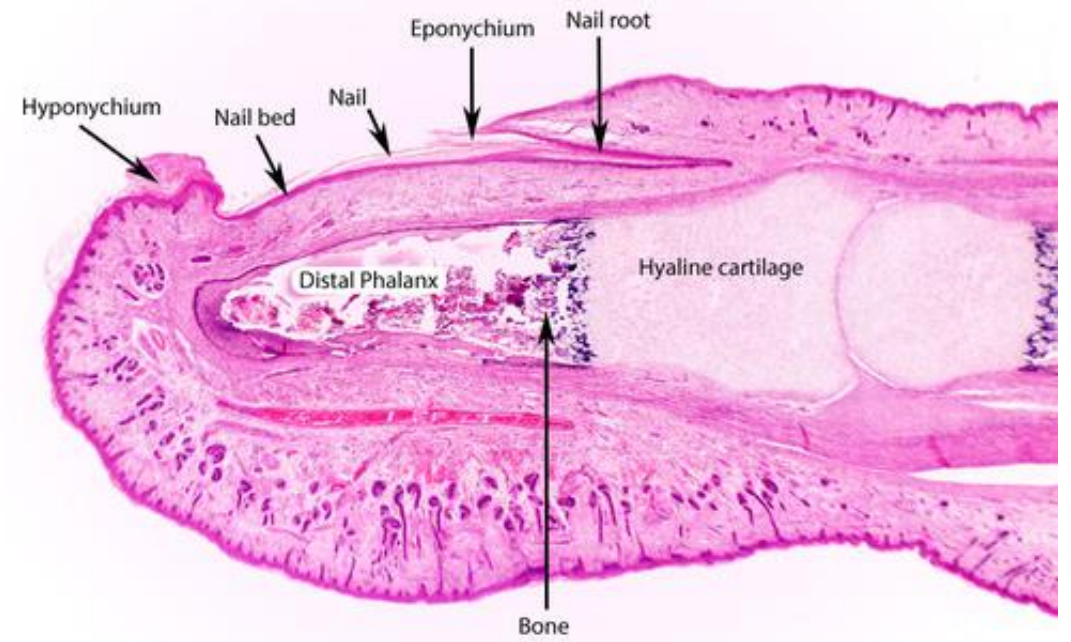
<https://quizlet.com/au/327213268/quadrants-of-the-breast-diagram/>

Nail





Nail



การศึกษาจากไฟล์ภาพใน computer ห้อง Lab 8

1. เปิด computer ใส่รหัส 1234
2. เปิด drive D
3. เลือก Folder scan slide สาขาวิชากายวิภาคศาสตร์
4. Folder skin

Checklist

Skin

Epidermis

- ☐ Stratum basale
- ☐ Stratum spinosum
- ☐ Stratum granulosum
- ☐ Stratum lucidum
- ☐ Stratum corneum
- ☐ melanocyte

Dermis

- ☐ Papillary layer
- ☐ Reticular layer

Hair

- ☐ Medulla
- ☐ Cortex
- ☐ Cuticle
- ☐ Internal root sheath
- ☐ External root sheath
- ☐ Glassy membrane
- ☐ Arrector pili muscle
- ☐ Dermal (hair) papilla

Nail

- ☐ Nail plate
- ☐ Nail bed
- ☐ Eponychium
- ☐ Hyponychium
- ☐ Nail matrix
- ☐ Nail root
- ☐ Lunula

Receptor

- ☐ Pacinian corpuscle
- ☐ Meissner's corpuscle

Gland

- ☐ Sebaceous gland
- ☐ Sweat gland

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วินิดา บัณฑิต. editor. **Histology 2: organ-systems**. 3rd ed: ภาควิชากายวิภาคศาสตร์ คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย. 2545.

Thank you and good luck

