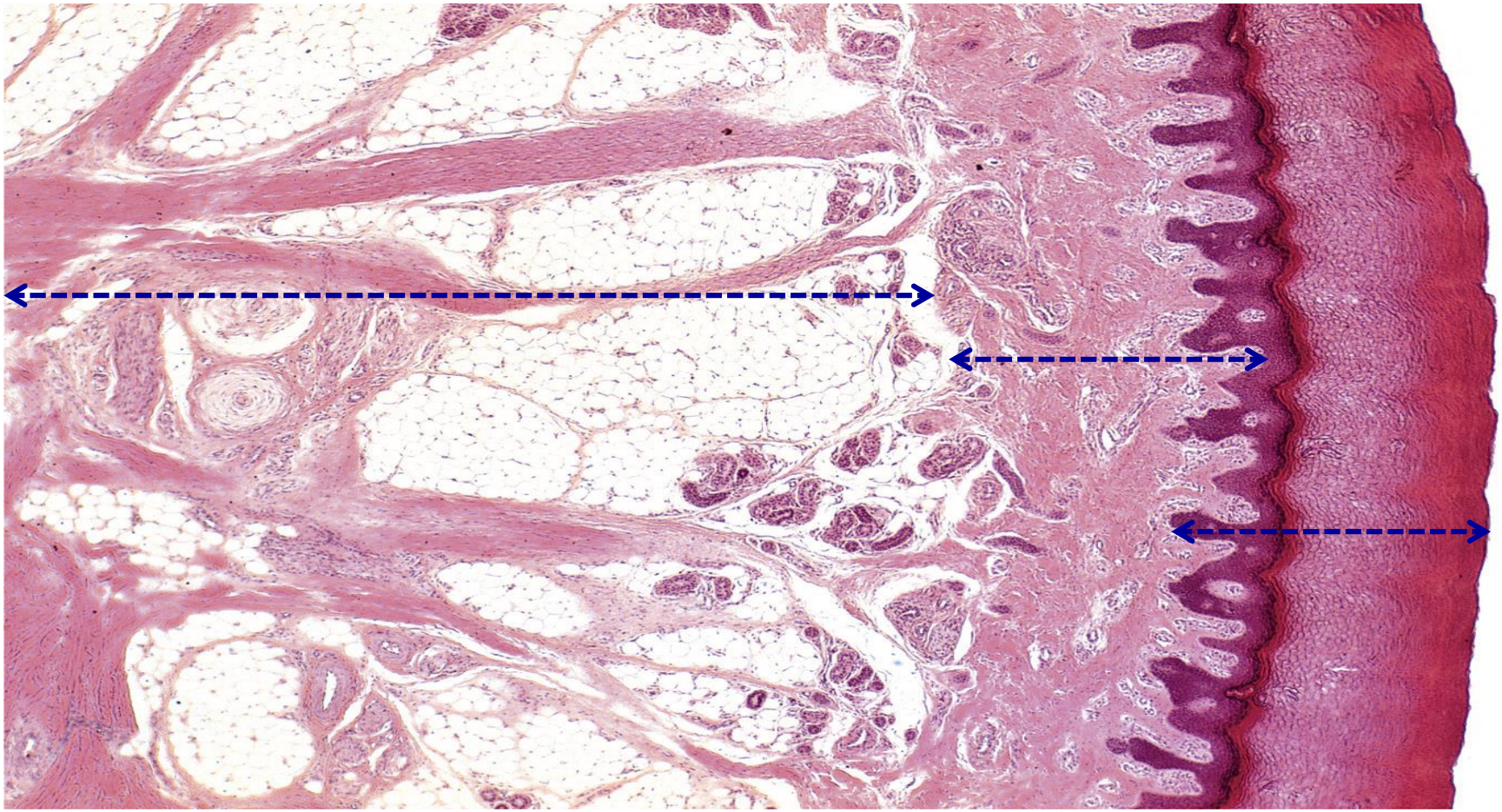
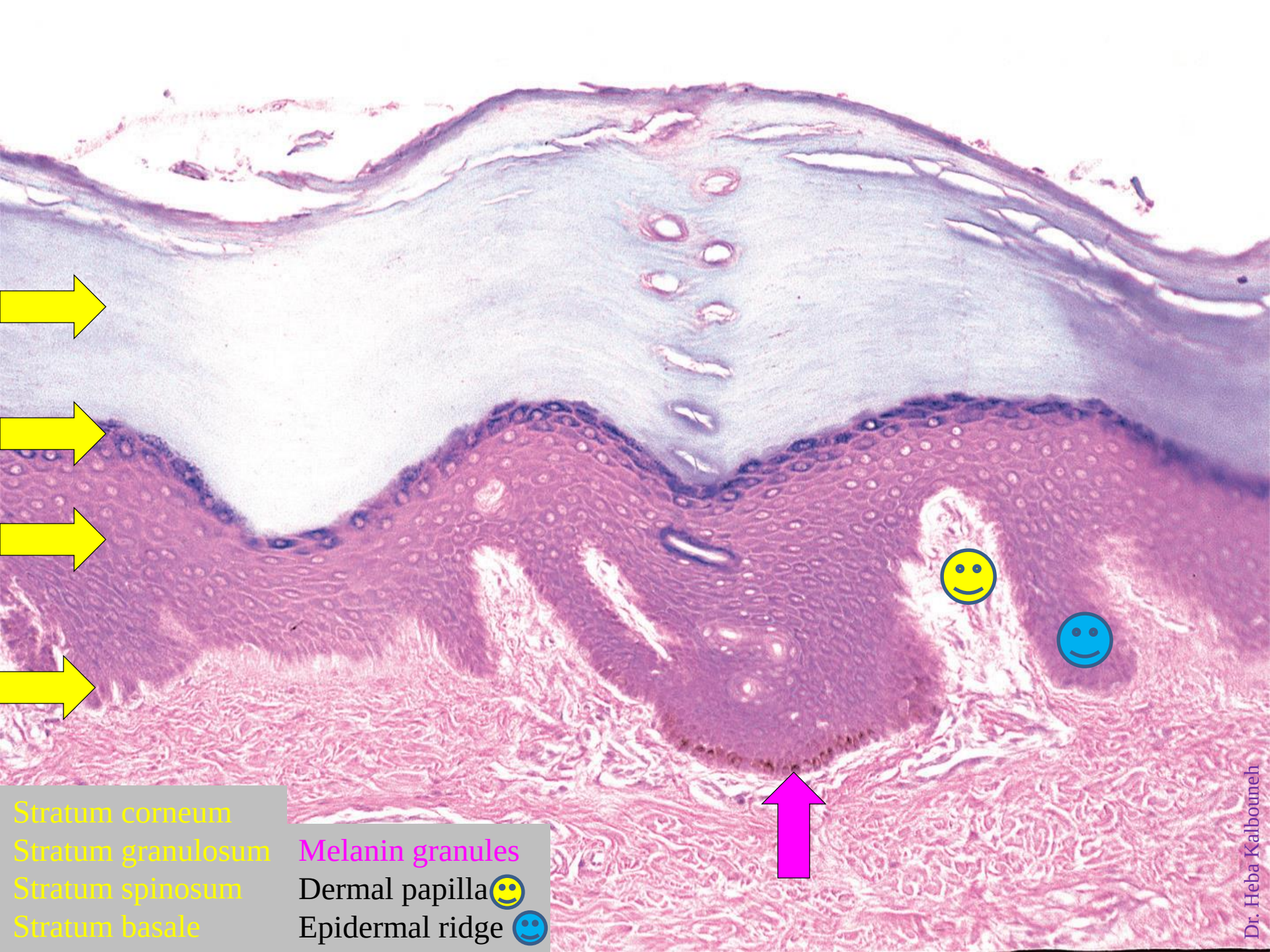
Skin

Practical part

Dr. Heba Kalbouneh
DDS, MSc, DMD/PhD
Professor of Anatomy, Histology and Embryology

The skin is composed of two layers: the outer epidermis and the deeper dermis, both of which rest on the hypodermis




Stratum corneum
Stratum granulosum
Stratum spinosum
Stratum basale
Melanin granules
Dermal papilla
Epidermal ridge
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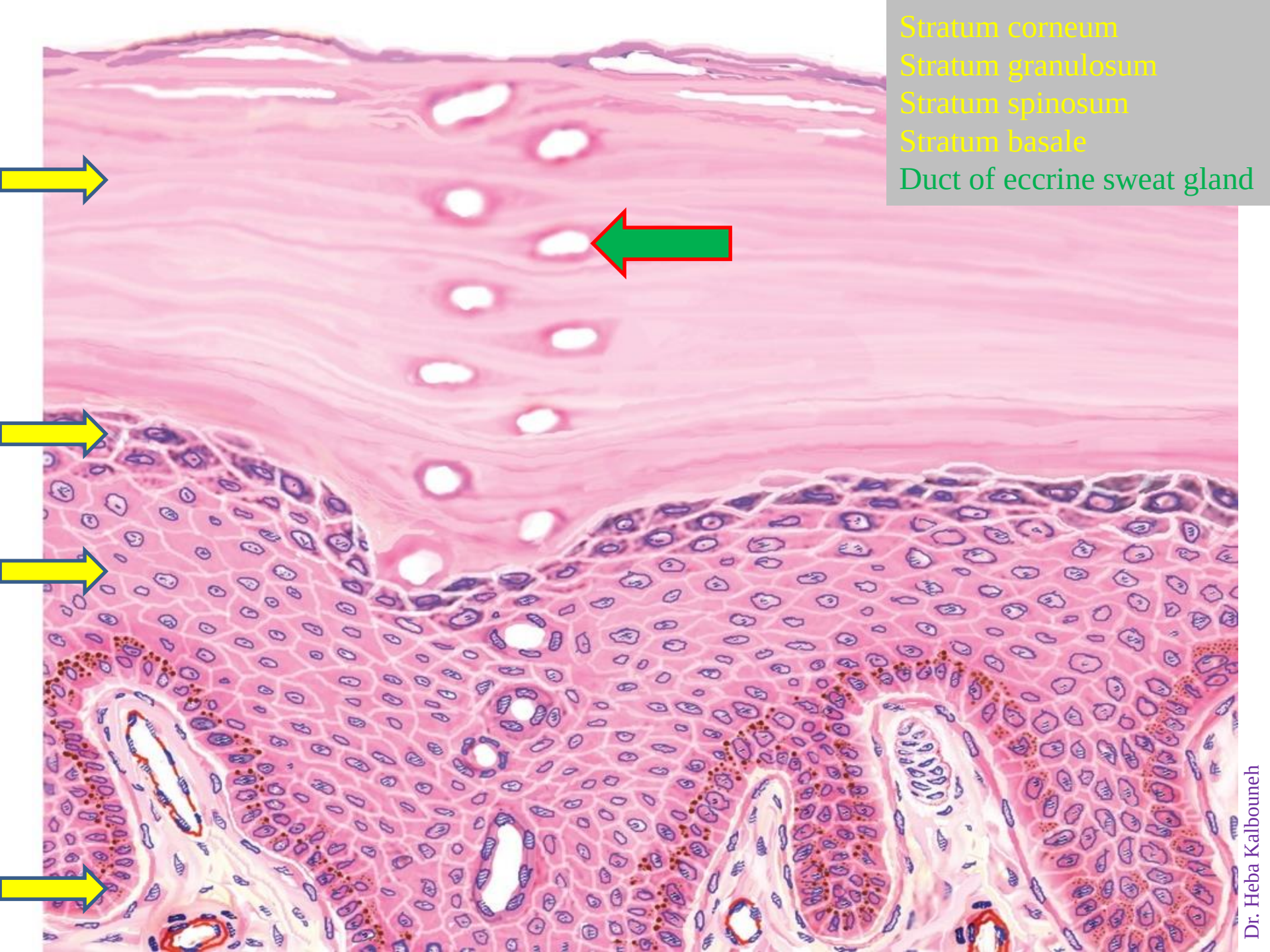

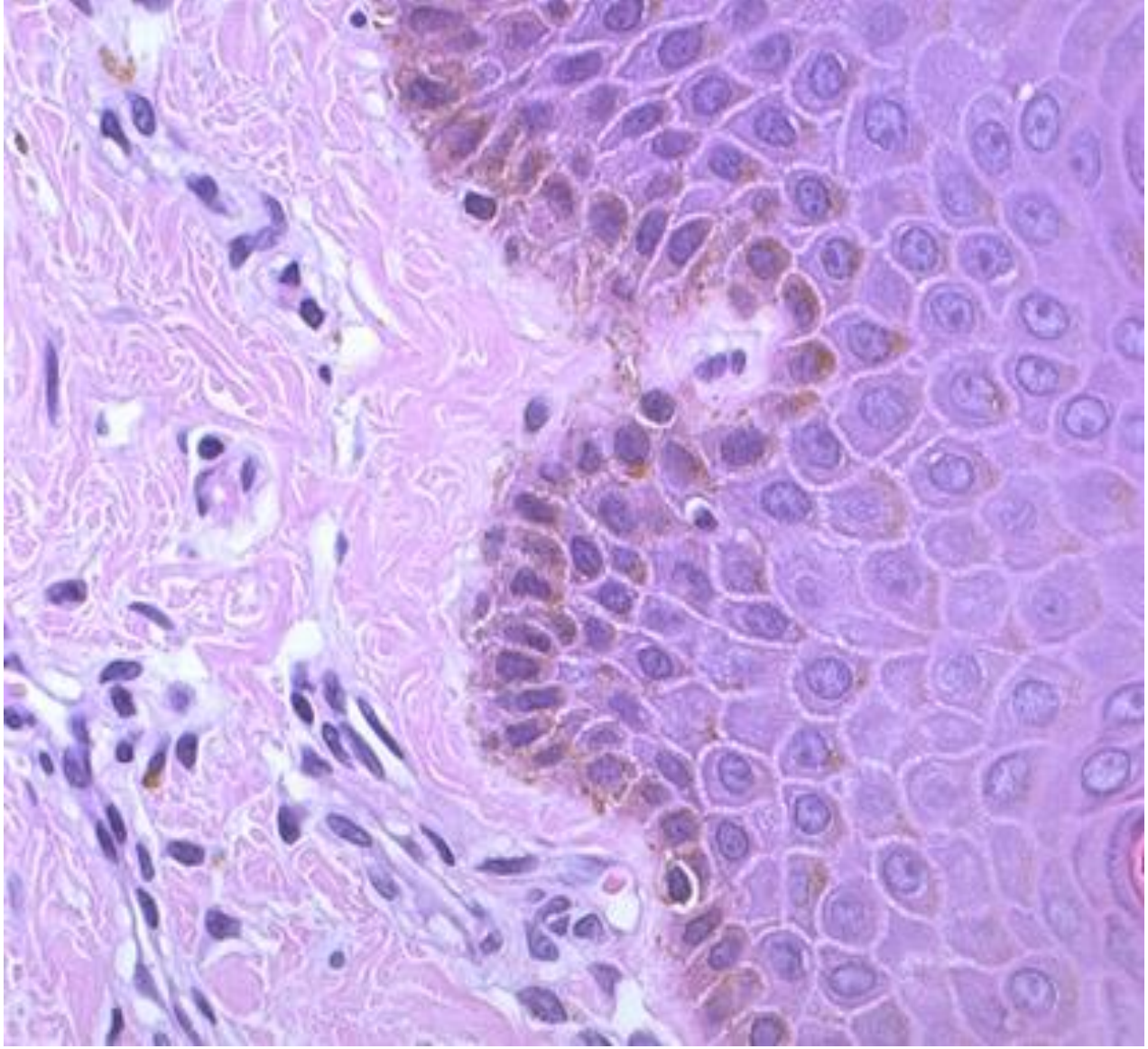

Stratum basale
Stratum spinosum

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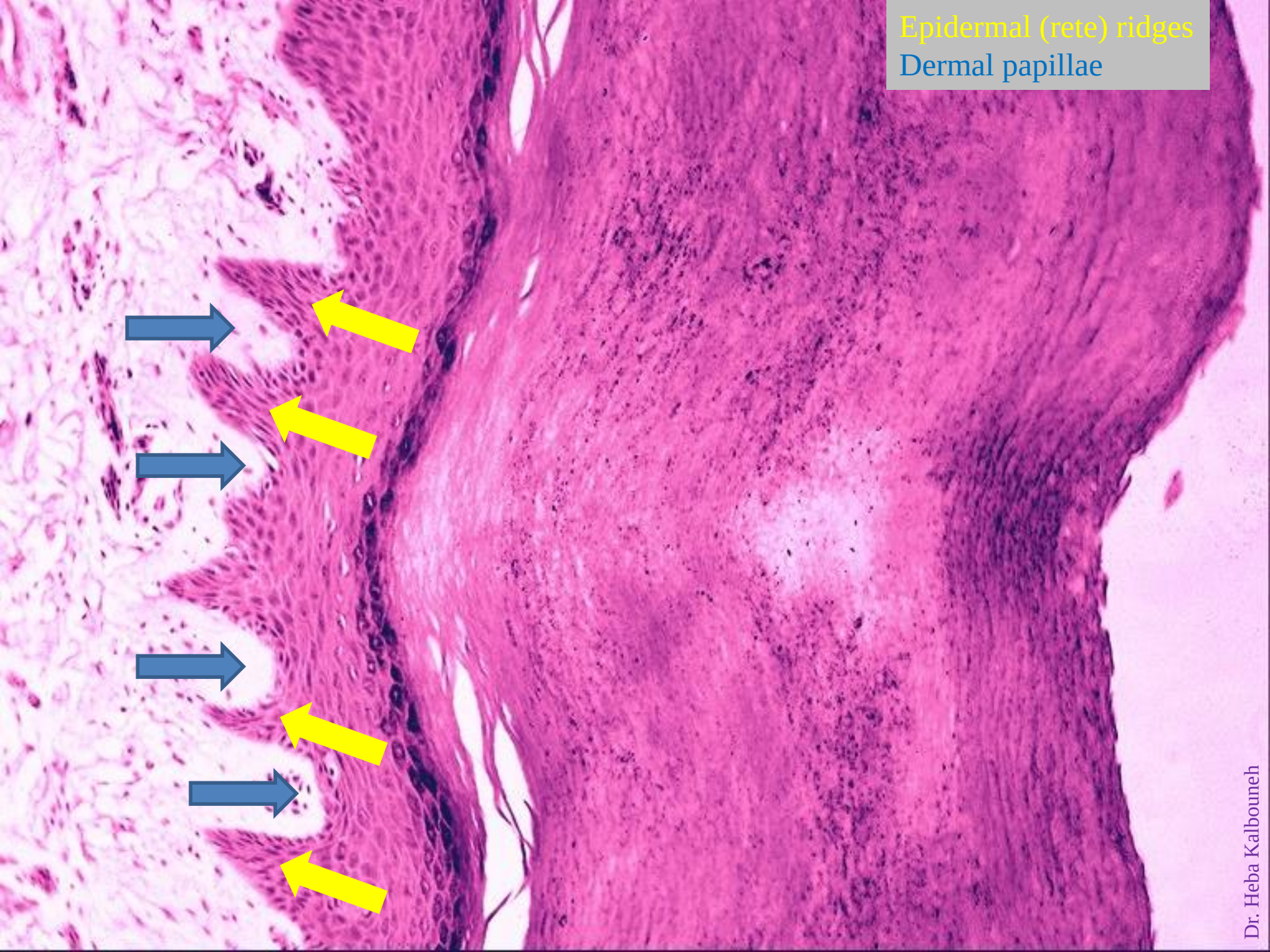

Thin or Thick Skin?

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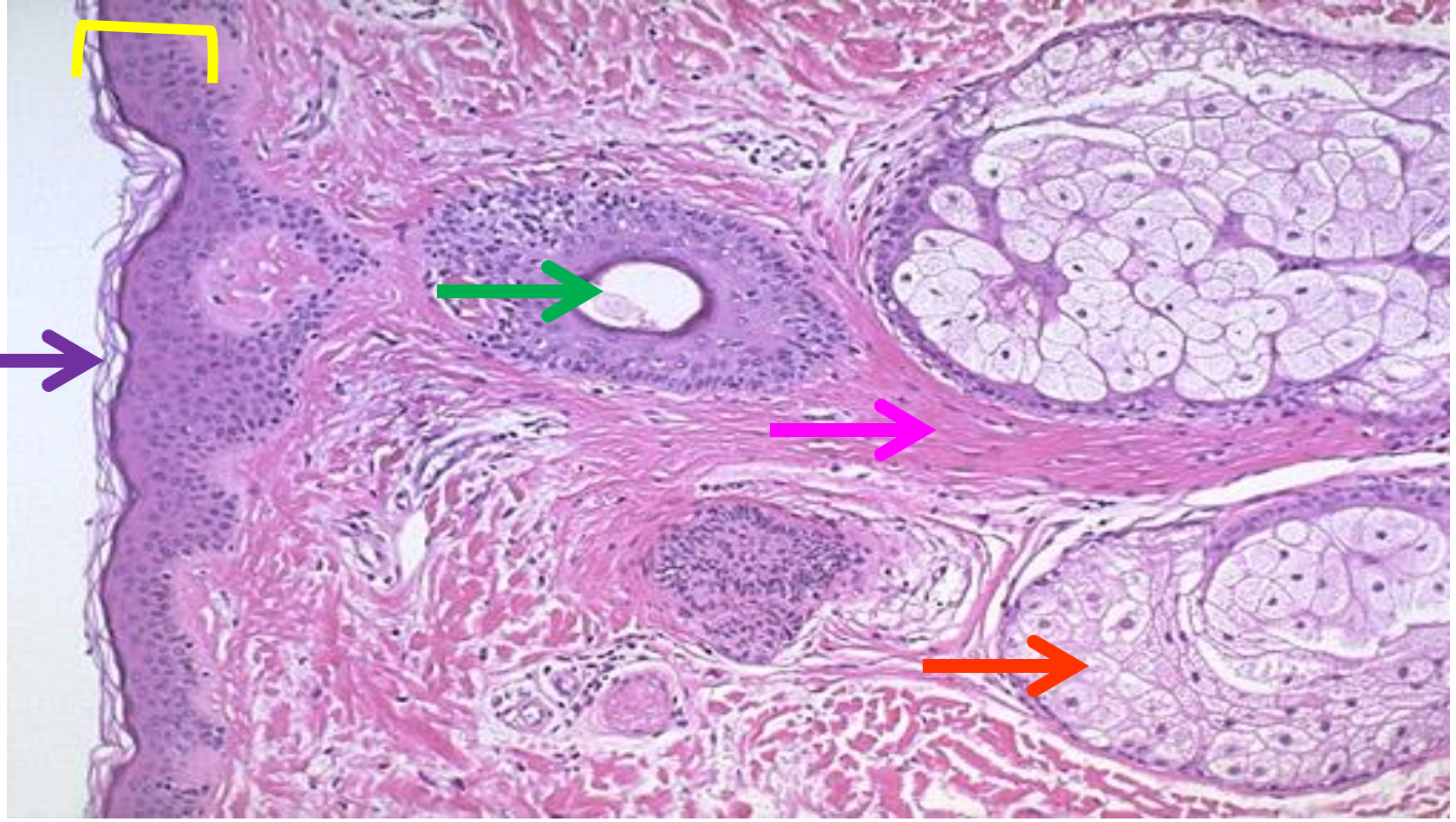
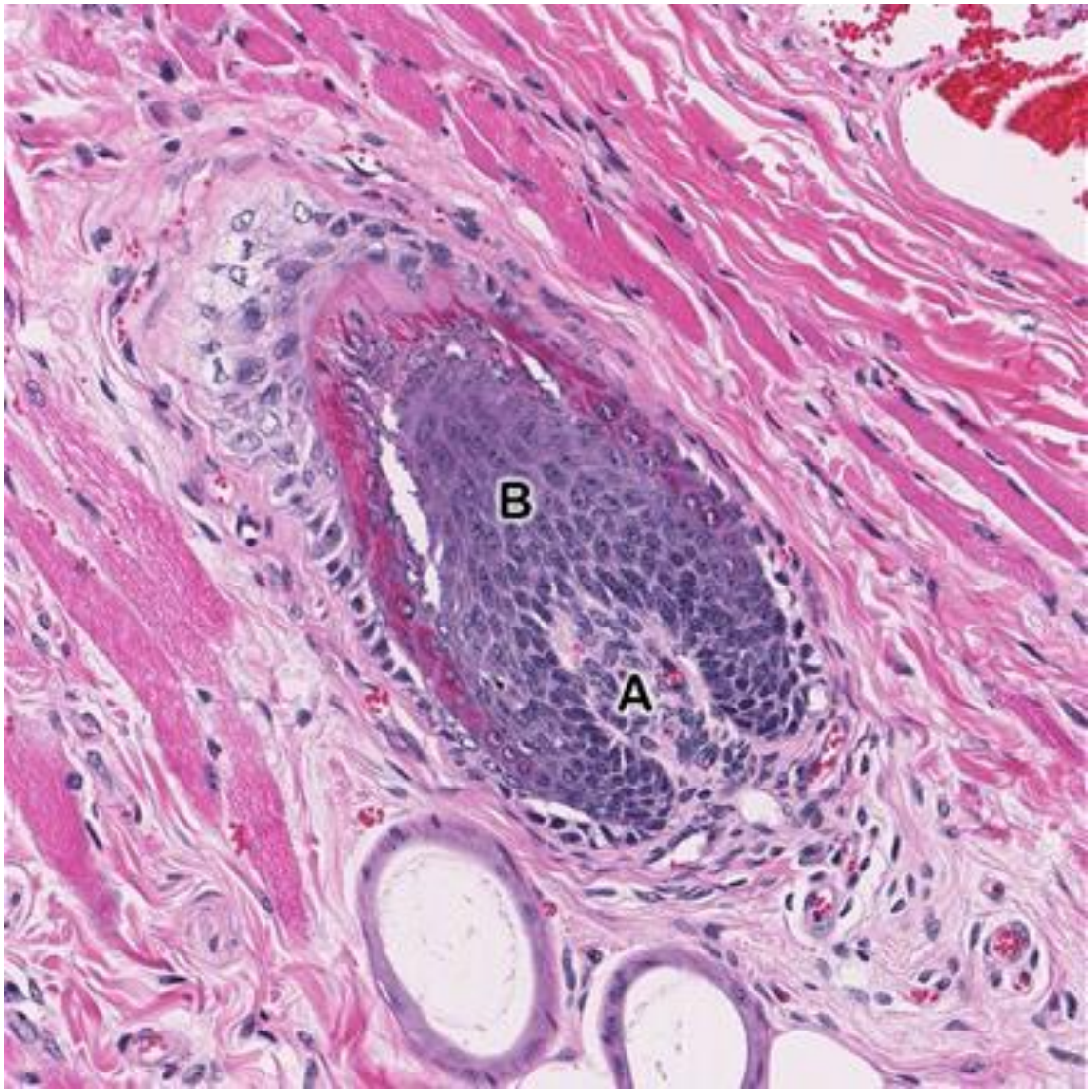
Thin or Thick Skin?



The normal histologic appearance of the skin is shown here. At the top is the epidermis. A thin layer of keratin overlies the epidermis. This layer of keratinization is thicker on the palms and soles and in areas where skin is rubbed or irritated. Beneath the epidermis is the dermis containing connective tissue with collagen and elastic fibers. At the center can be seen **a hair follicle** with surrounding sebaceous glands. Associated with the hair follicle is a small bundle of smooth muscle known as the arrector pili that can cause the hair to "stand on end" and dimple the skin to form "goose bumps".

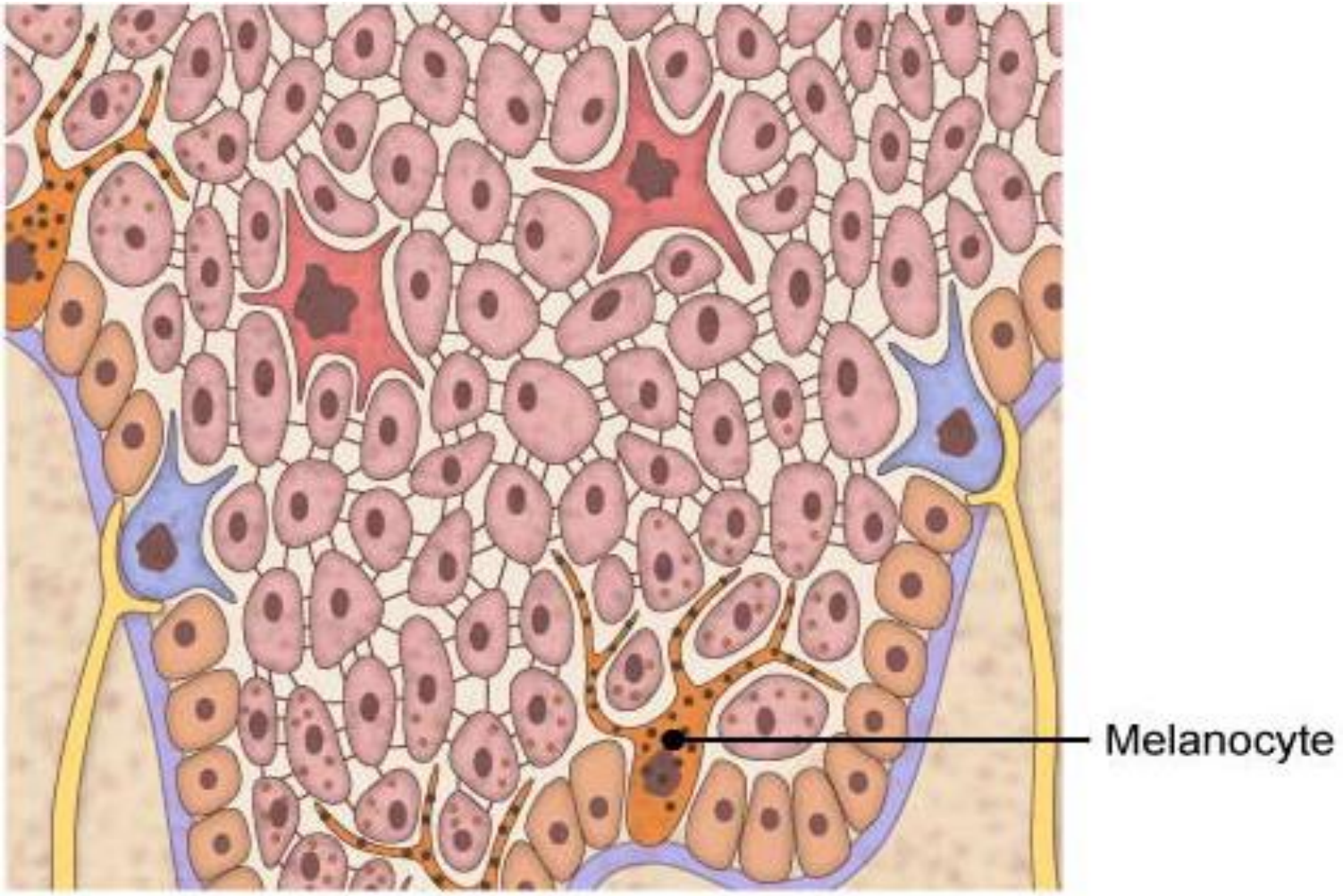


A: Dermal papilla
B: Hair matrix

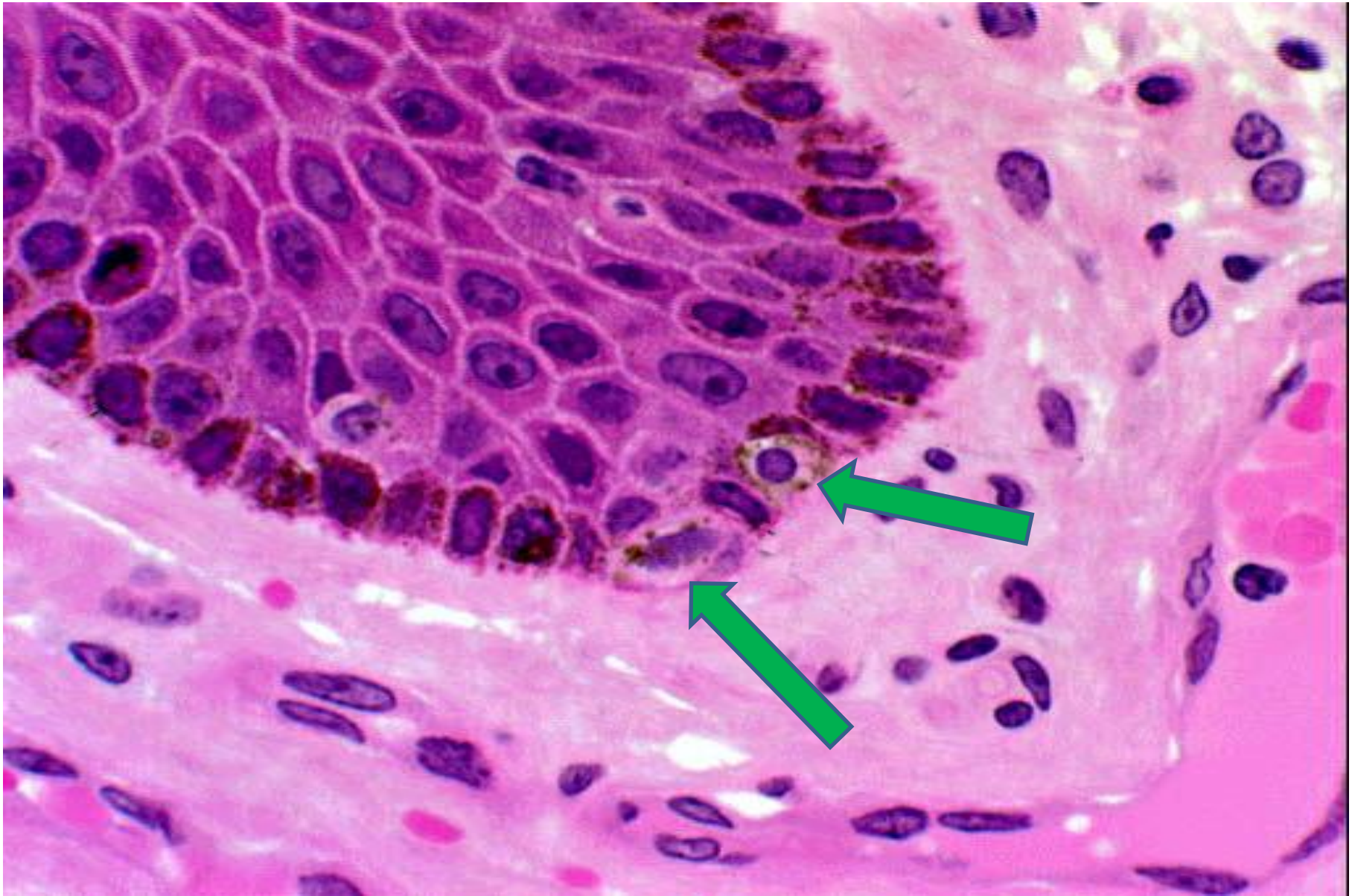
Melanocytes:

- Attached to basal lamina by hemidesmoses
- Not attached to neighboring keratinocytes
- Lightly stained cytoplasm

1 melanocyte for every 10 basal keratinocytes



Melanocyte



Freckles are clusters of concentrated melaninized cells

Freckles do not have an increased number of the melanin-producing cells, or melanocytes, but instead have melanocytes that overproduce melanosomes changing the coloration of keratinocytes

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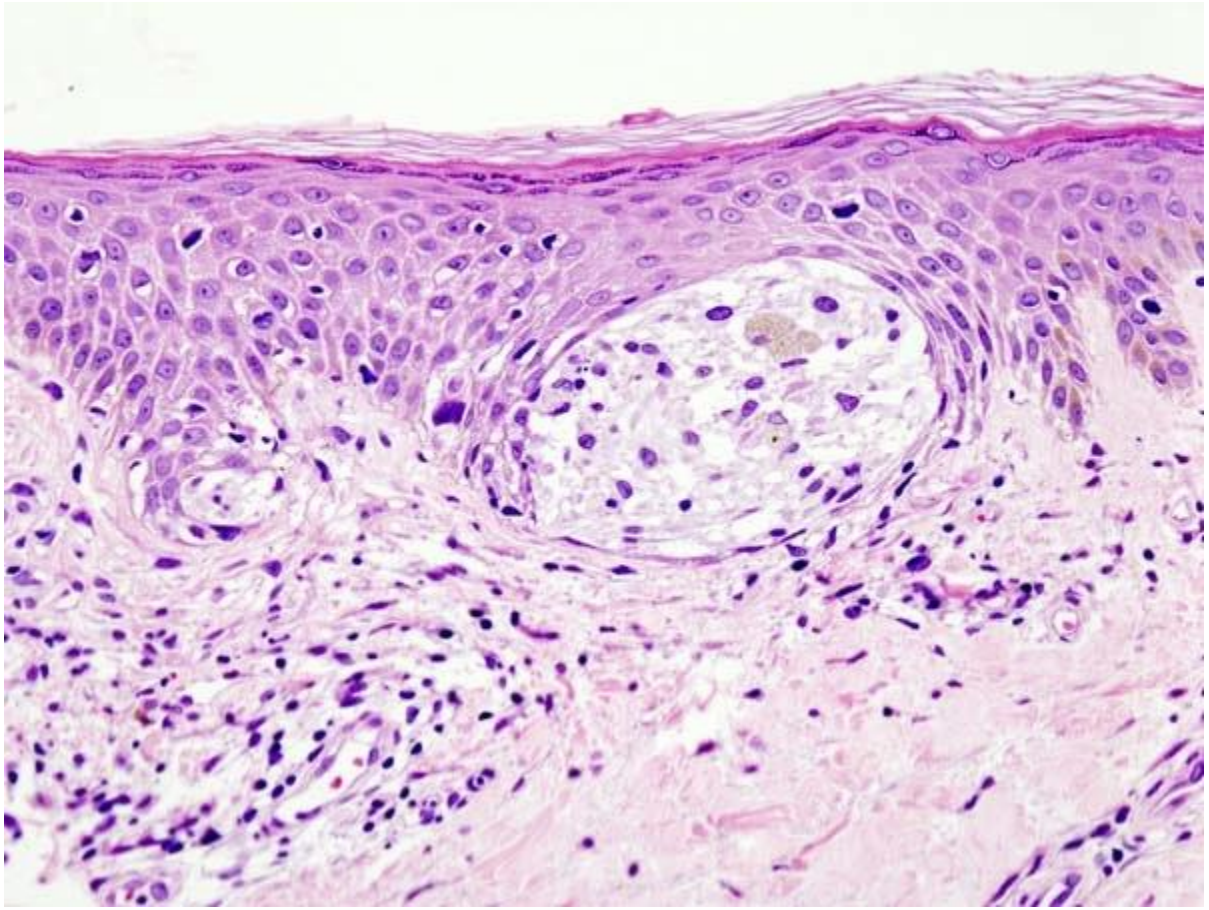
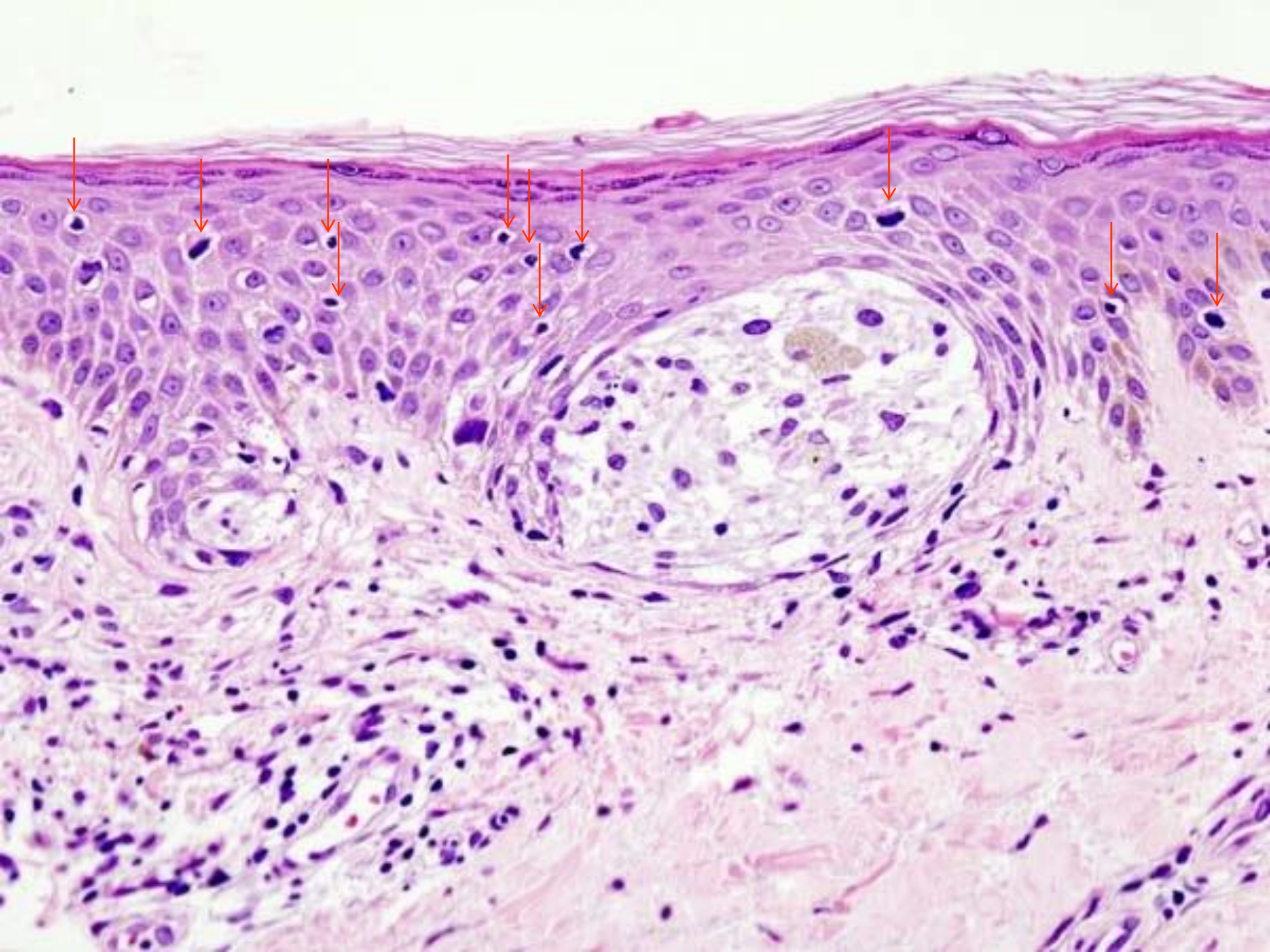
Is there anything abnormal in the epidermis? If so, what might it indicate.

Other pigments!!!

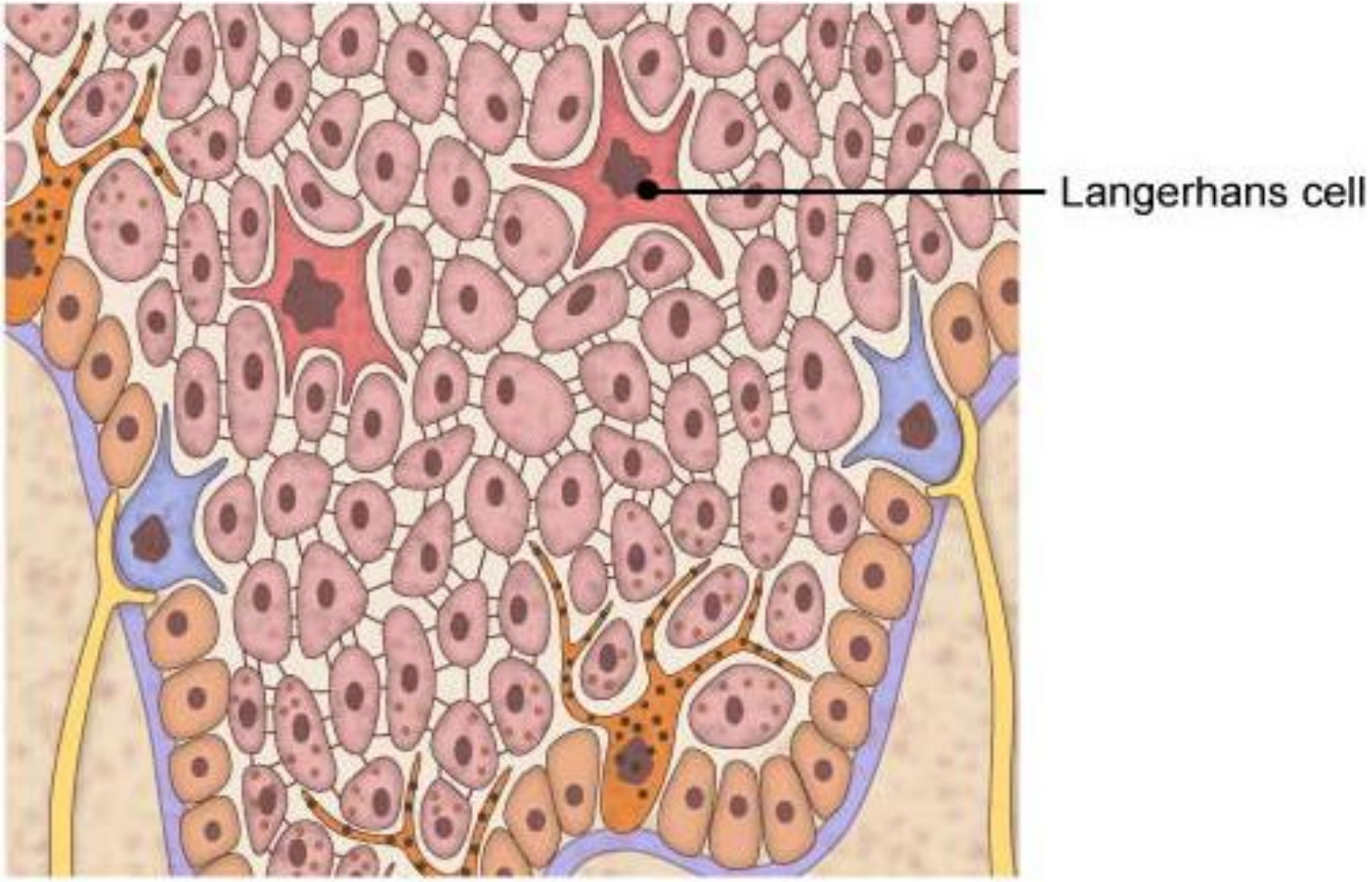


Look for cells with pale cytoplasm in the epidermis. These cells are melanocytes and the large number of melanocytes in upper layers of epidermis is abnormal. In normal skin, melanocytes are found only in the basal layer of the epidermis. The condition suggests the early stages in the development of melanoma.

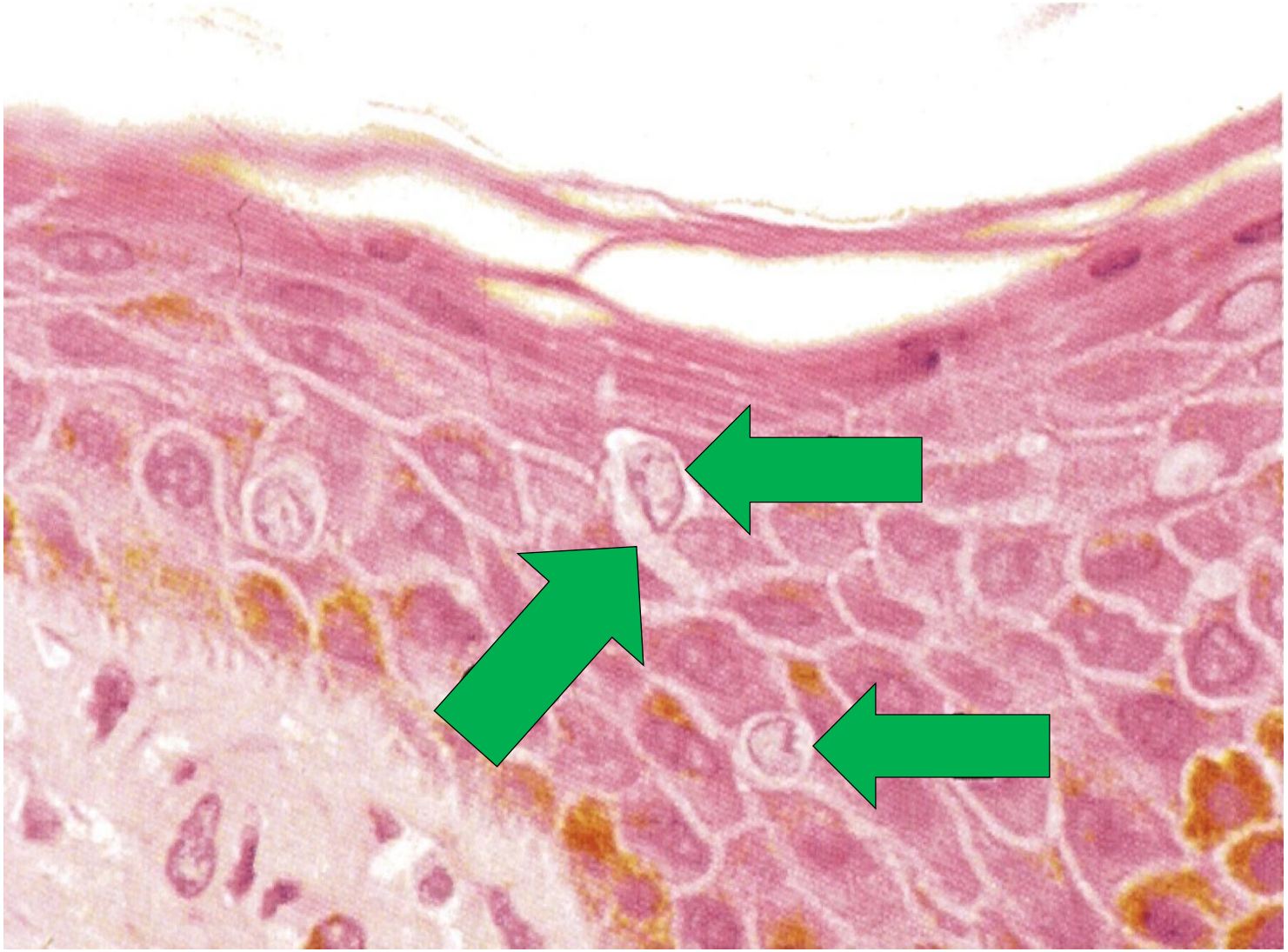


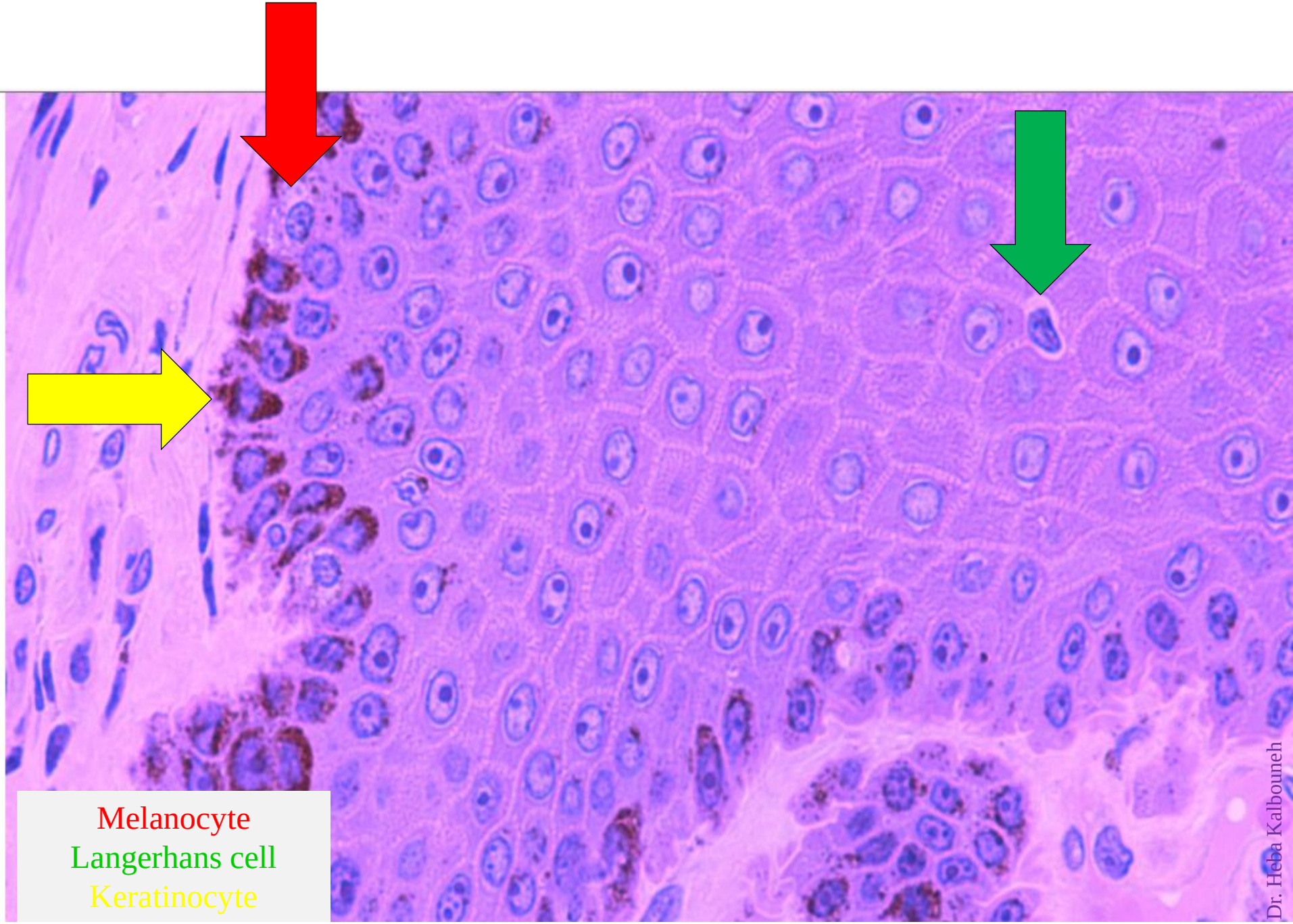
Langerhans cells:

- Originate from bone marrow (monocytes)
- Mainly in the stratum spinosum
- Langerhans cells recognize, phagocytose, and process foreign antigens

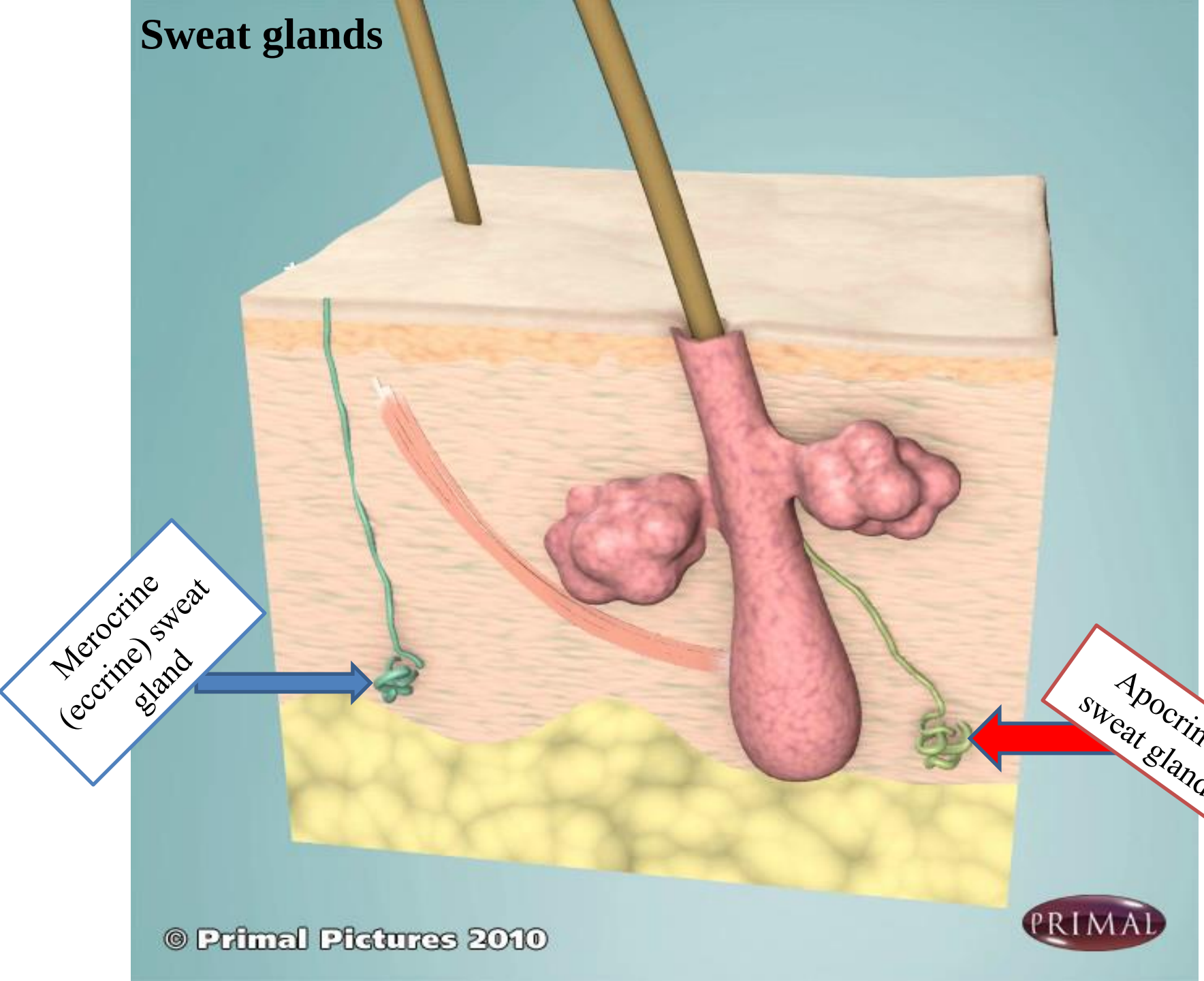


Langerhans cells





Sweat glands



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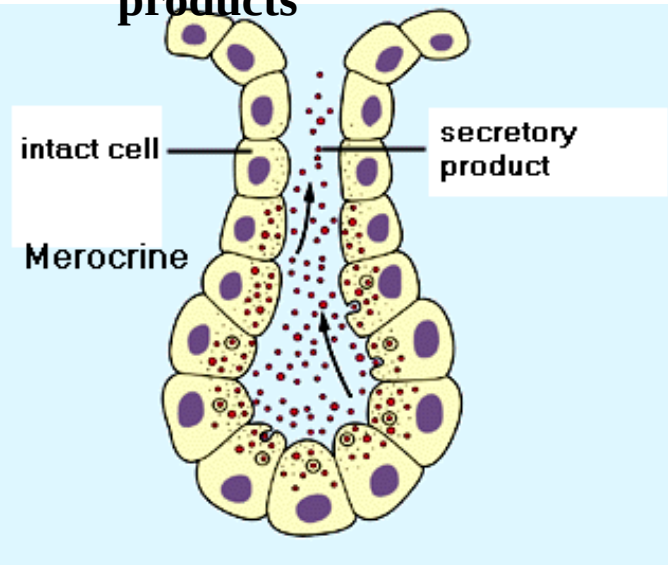
Sweat Glands

Eccrine sweat gland

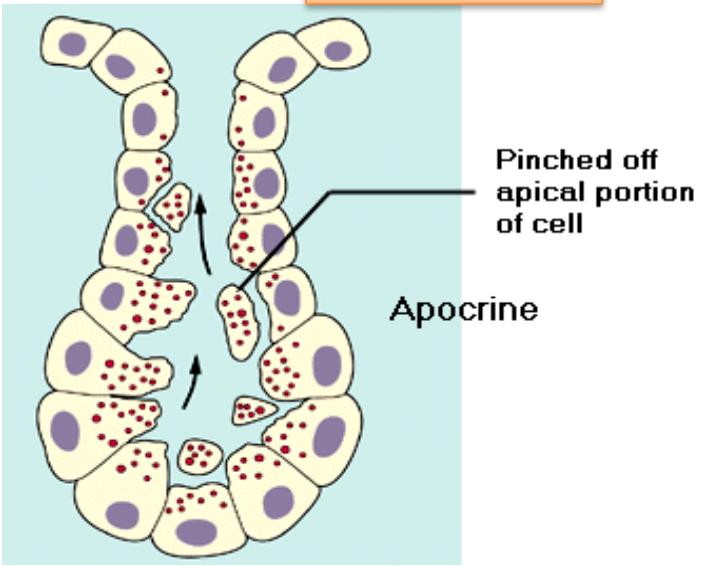
- Merocrine secretion
- Empty directly onto skin surface
- Location: most all over body (esp. abundant on palms & soles: ~ 500/cm^2)
- Clear, watery secretion (99% H_2O; rest NaCl + some waste products



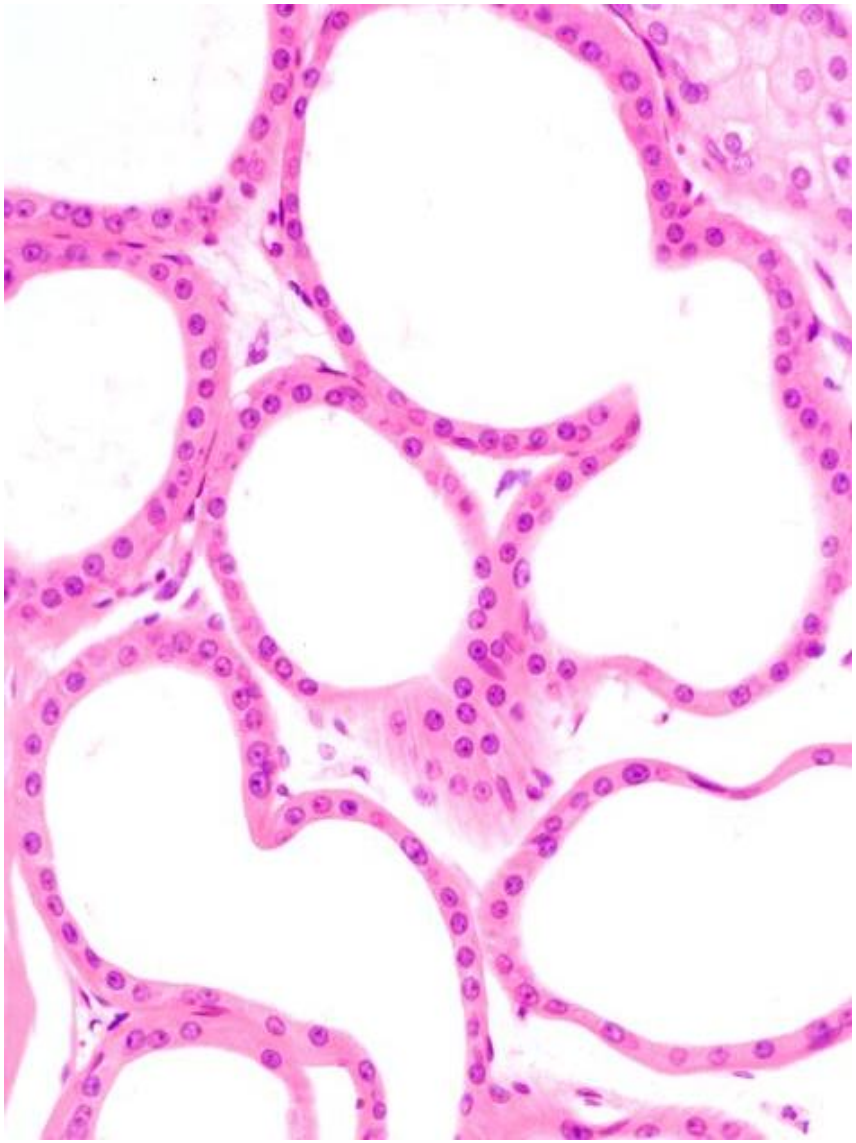
Apocrine sweat gland

- Empty into hair follicle
- Location: armpits, groin, nipples
- Viscous, cloudy secretion → good nutrient source for bacteria (odor !!)
- Secretion may contain Pheromones
- Secretion begins at puberty and is stimulated during emotional distress

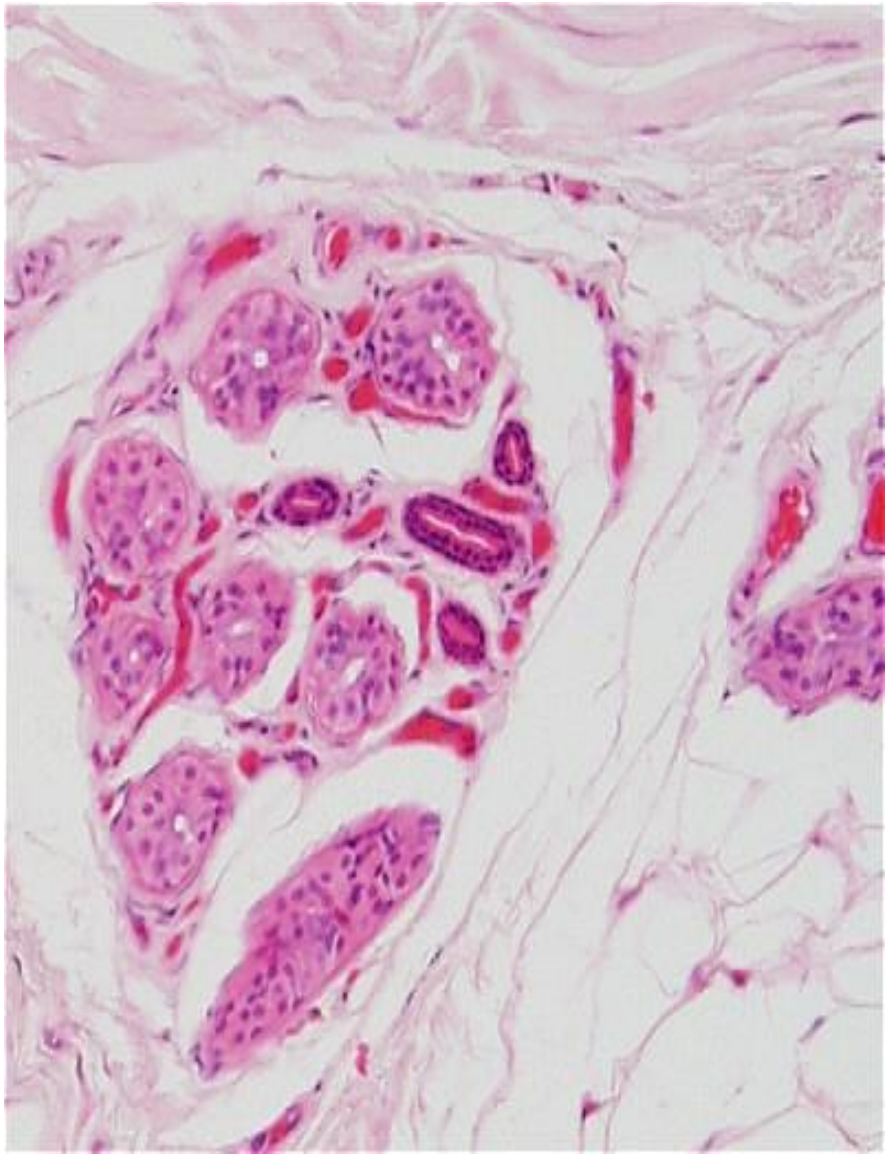
Scent glands

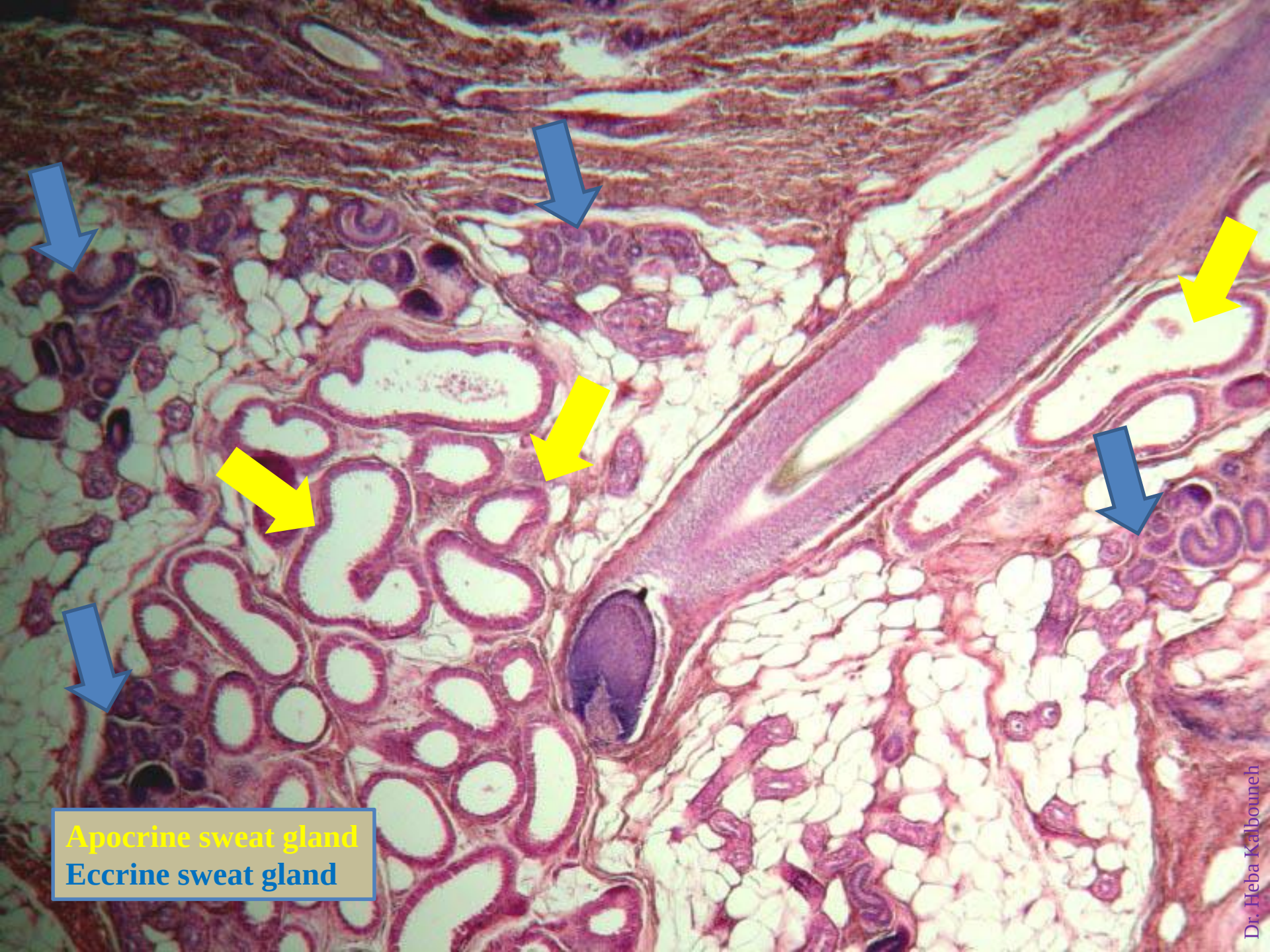


Apocrine sweat glands

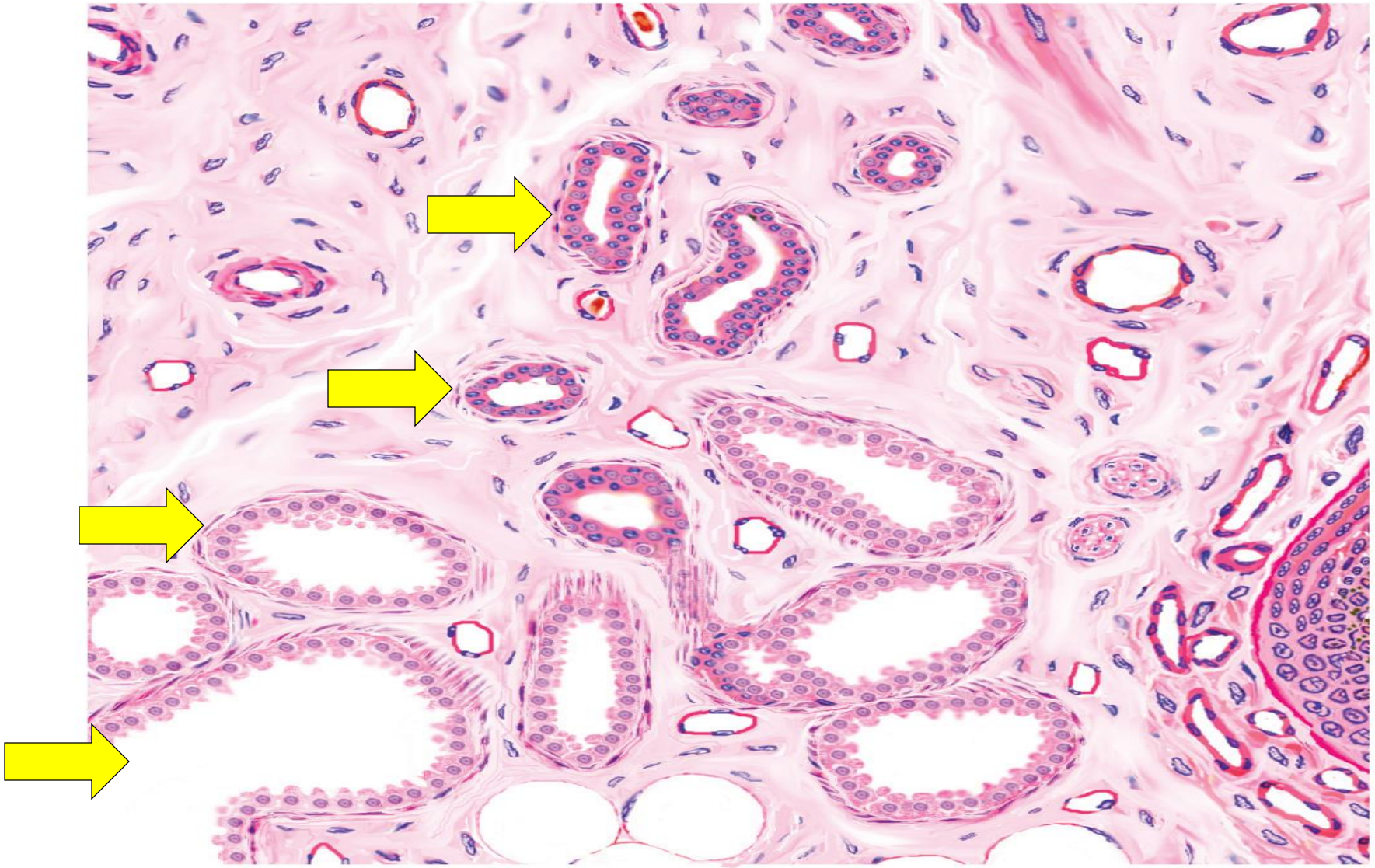


Eccrine (merocrine) sweat glands

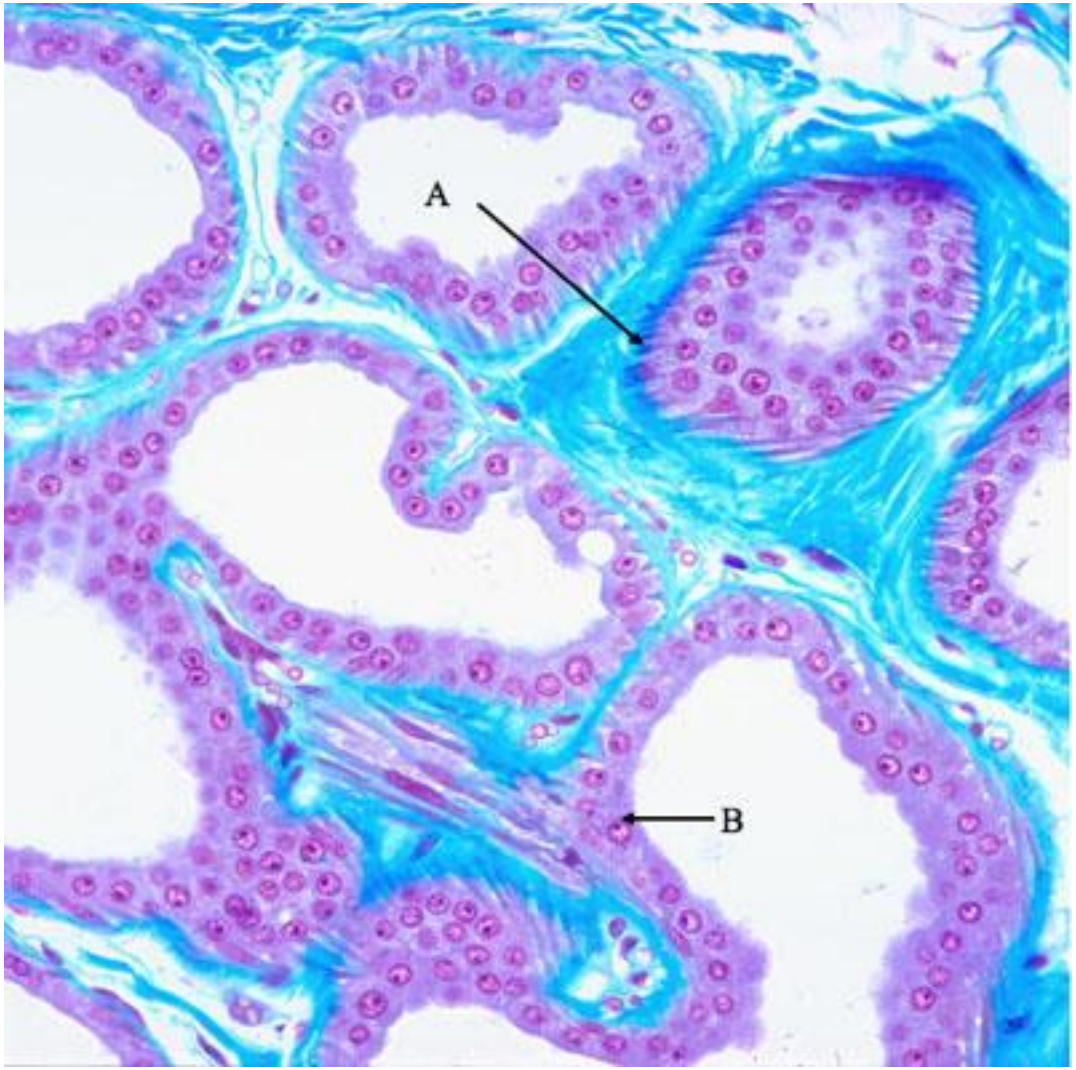




Apocrine or eccrine sweat glands????

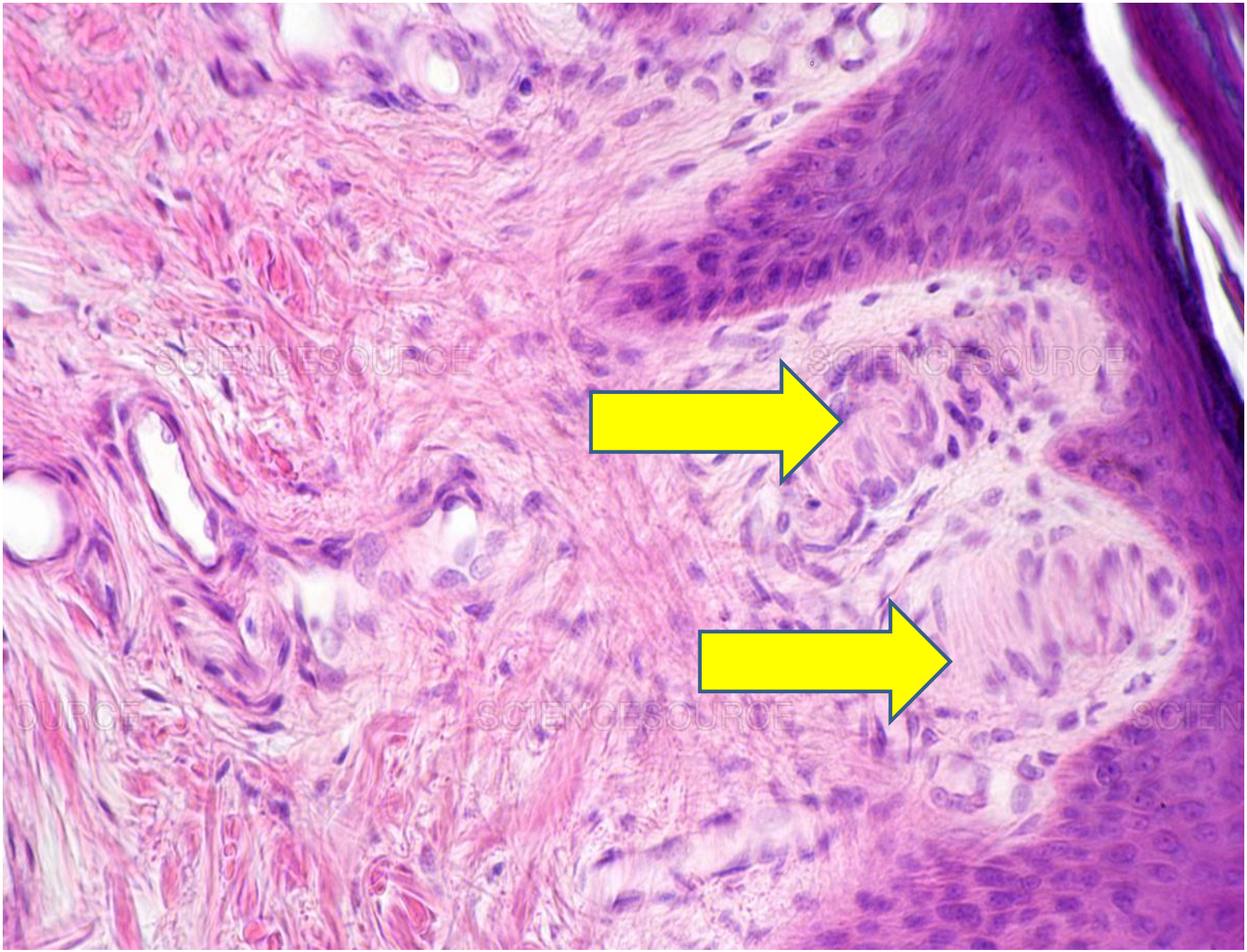


Apocrine or eccrine sweat glands????



A: Duct
B: secretory portion

Meissner's corpuscles localize in the dermis between epidermal ridges.
Meissner's corpuscles are touch receptors and enriched in fingers and toes



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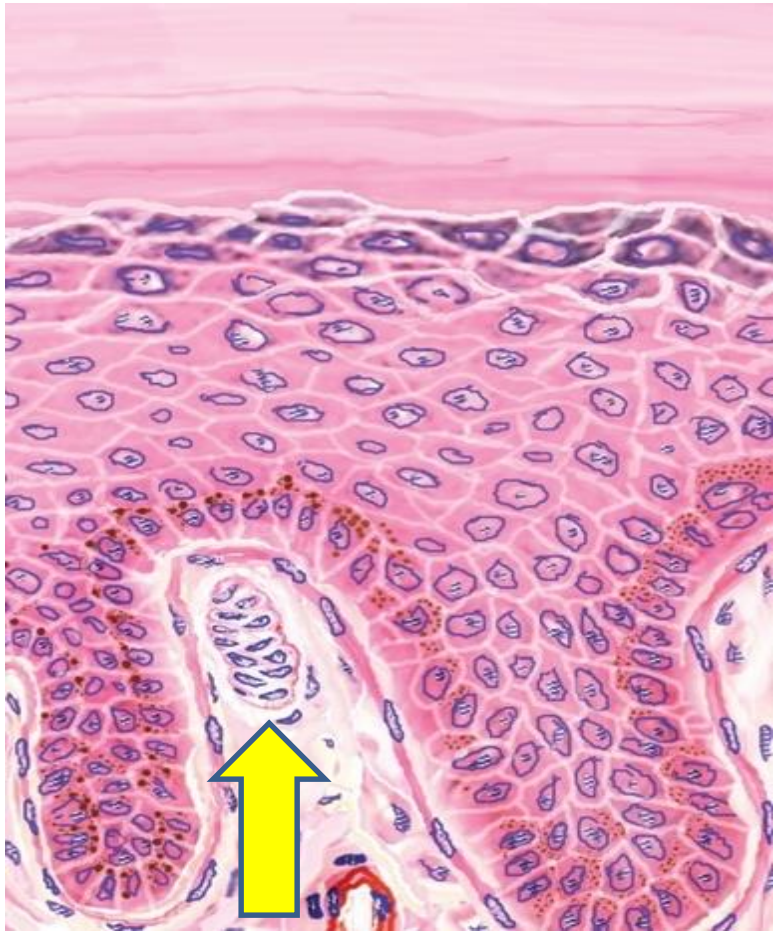
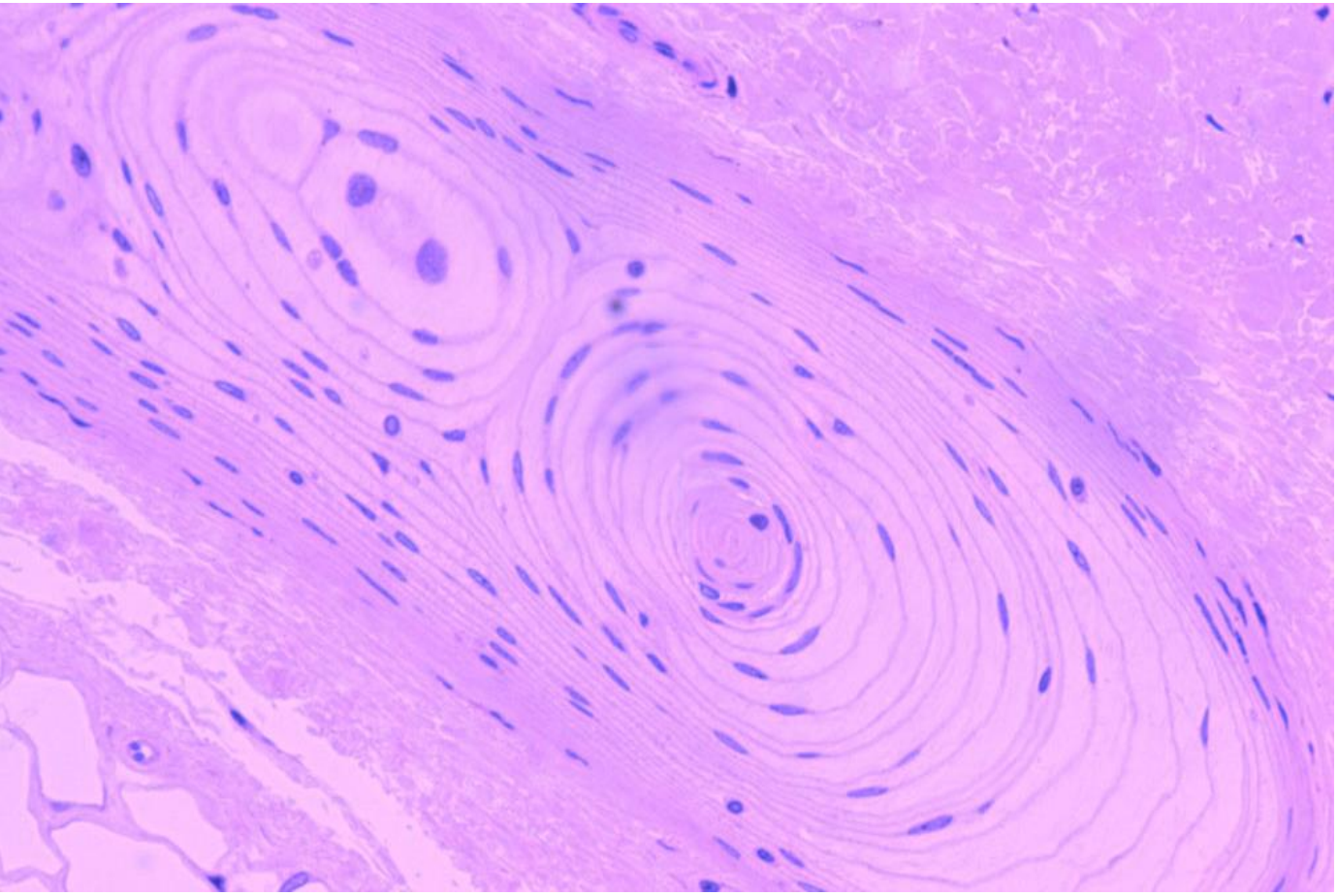
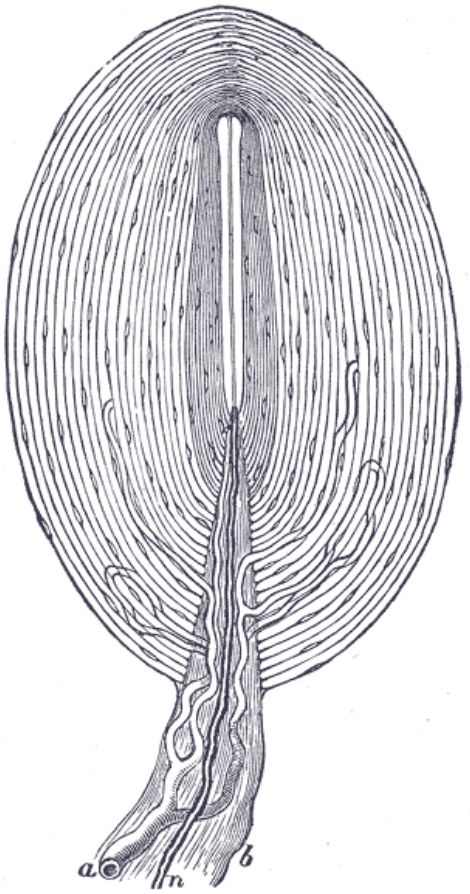




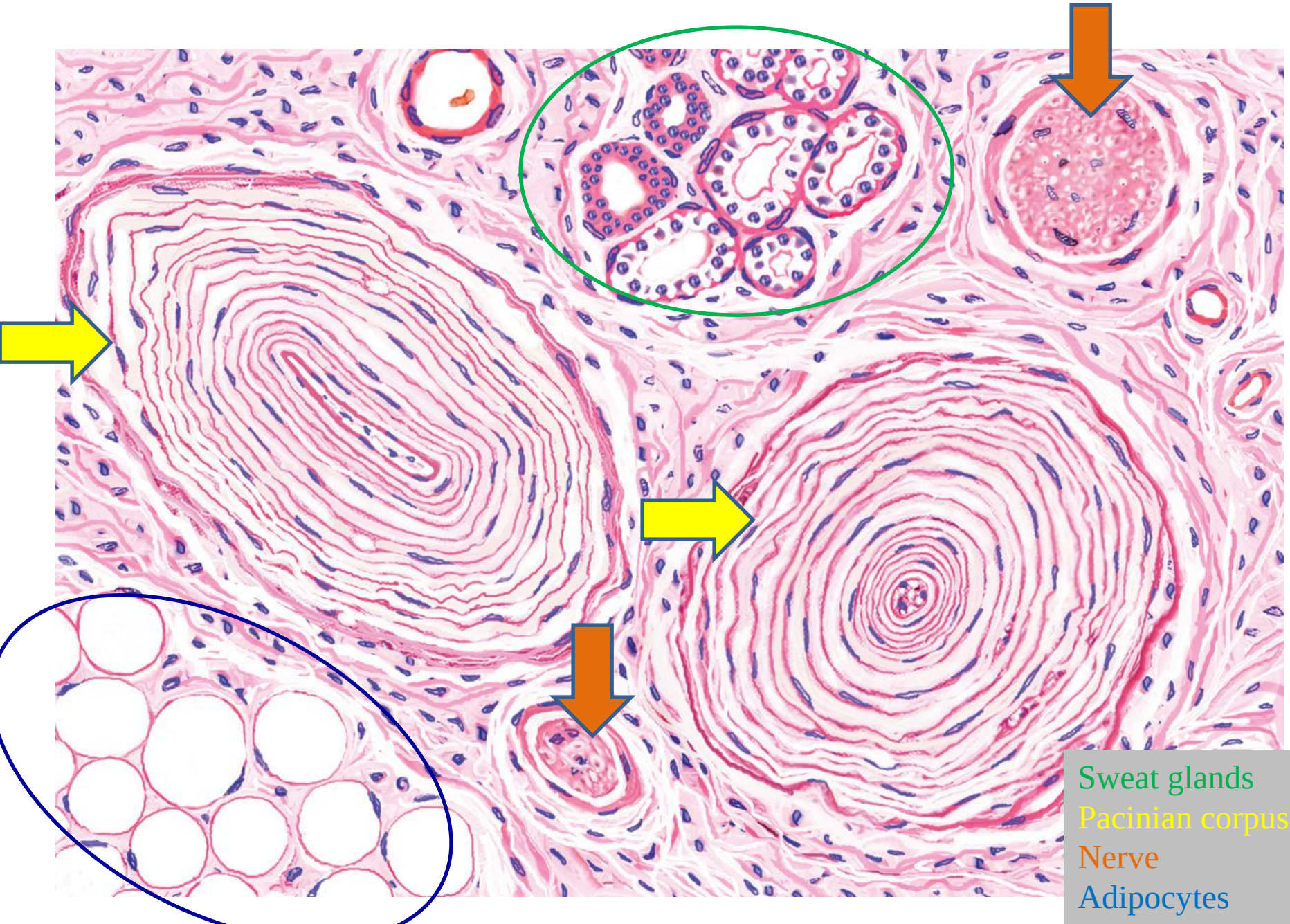


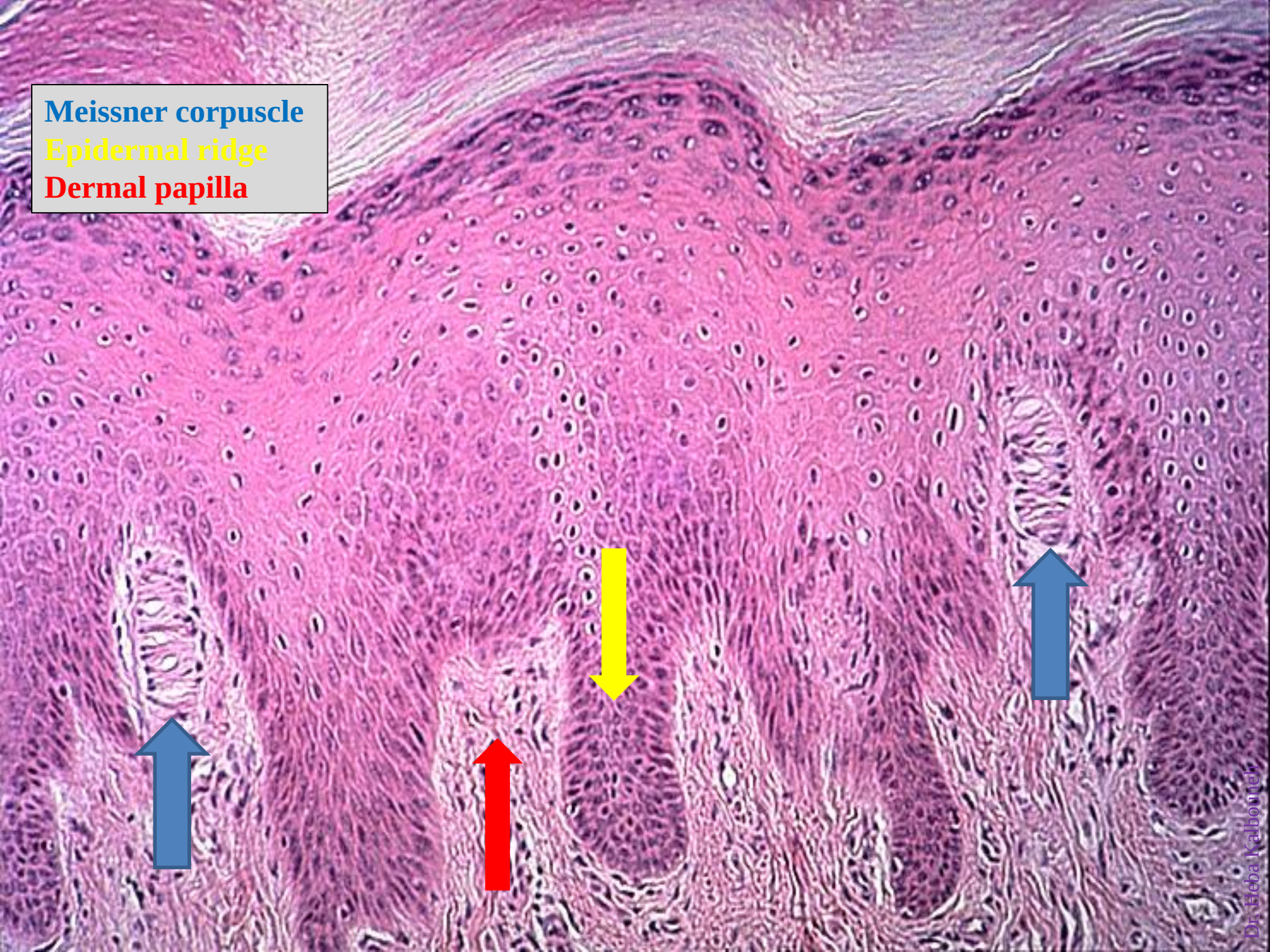
Pacinian Corpuscle

Pacinian corpuscles are large (~ 1 mm), onion-like structures in the dermis and hypodermis.

Pacinian corpuscles contain a myelinated nerve ending in the central core of the structure.

Pacinian corpuscles are sensitive to mechanical and vibratory pressure, rapidly changing pressure




Meissner corpuscle
Epidermal ridge
Dermal papilla
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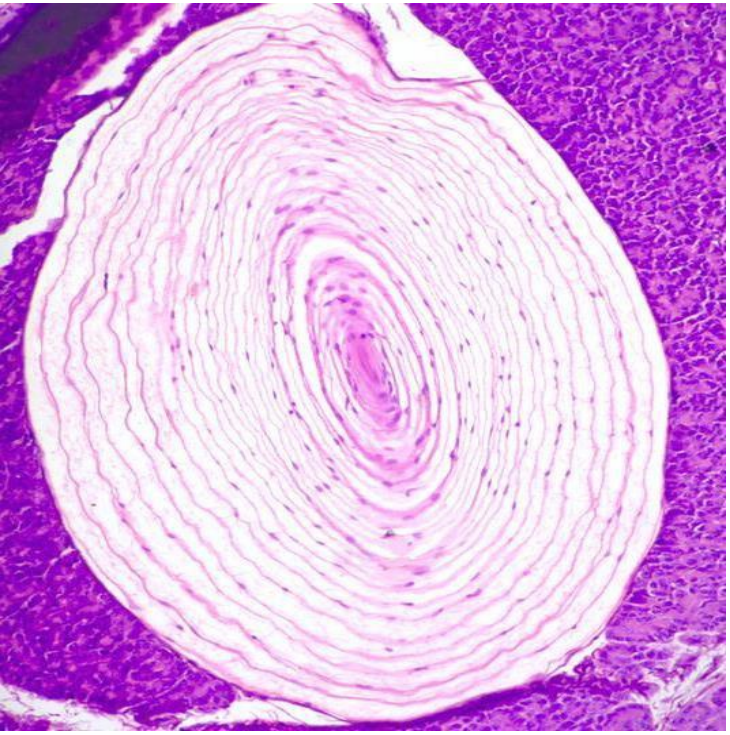
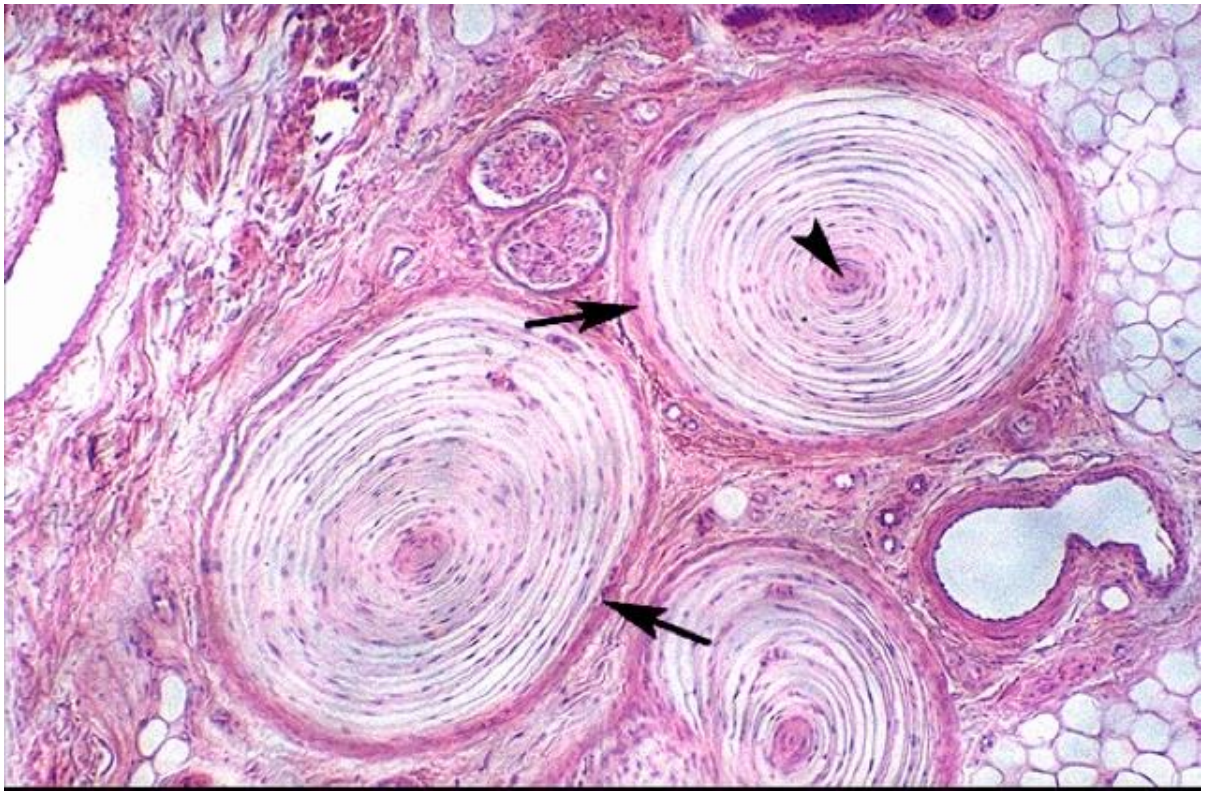
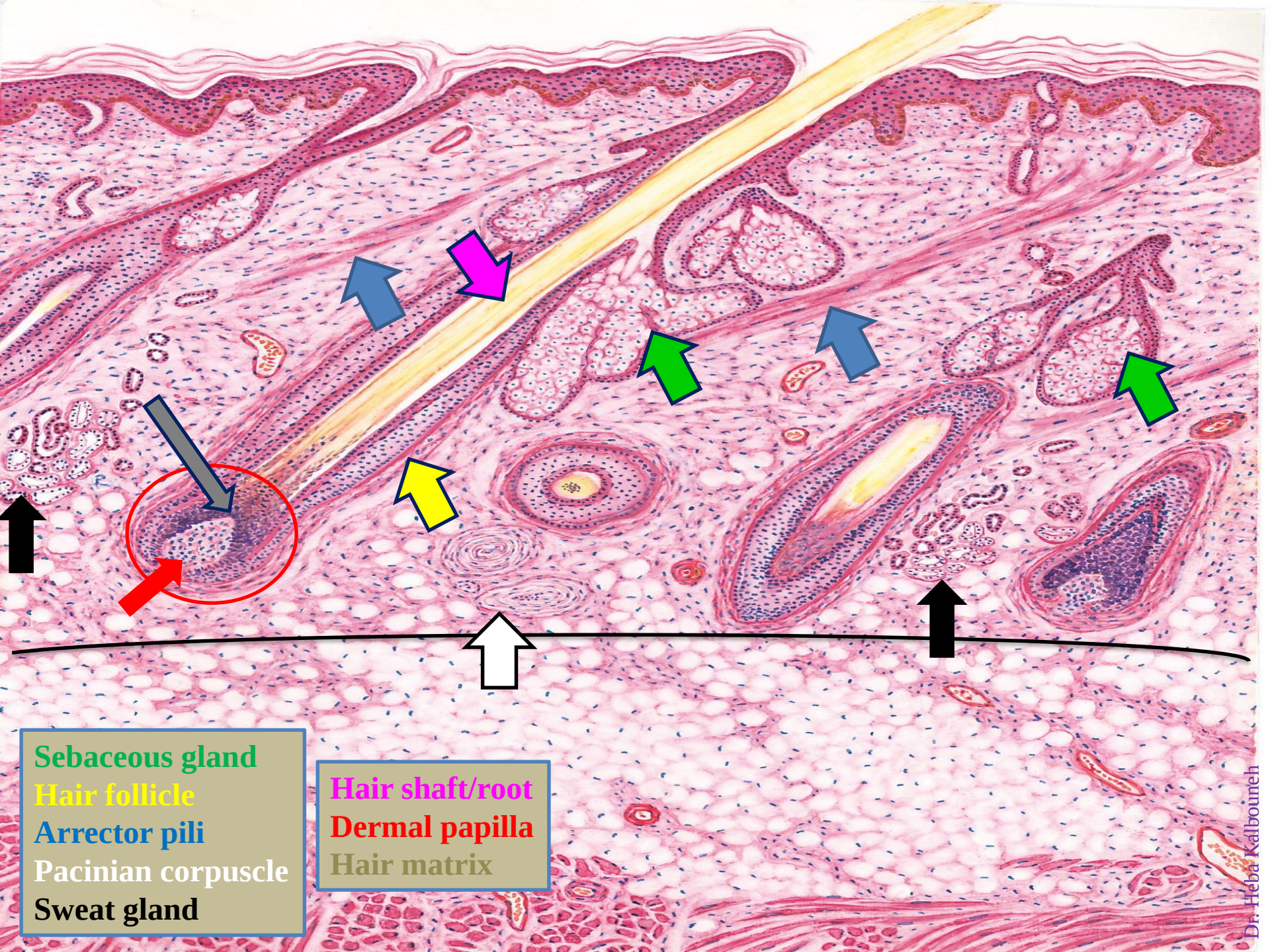


Pacinian corpuscles



Pacinian corpuscles


Sebaceous gland
Hair follicle
Arrector pili
Pacinian corpuscle
Sweat gland
Hair shaft/root
Dermal papilla
Hair matrix
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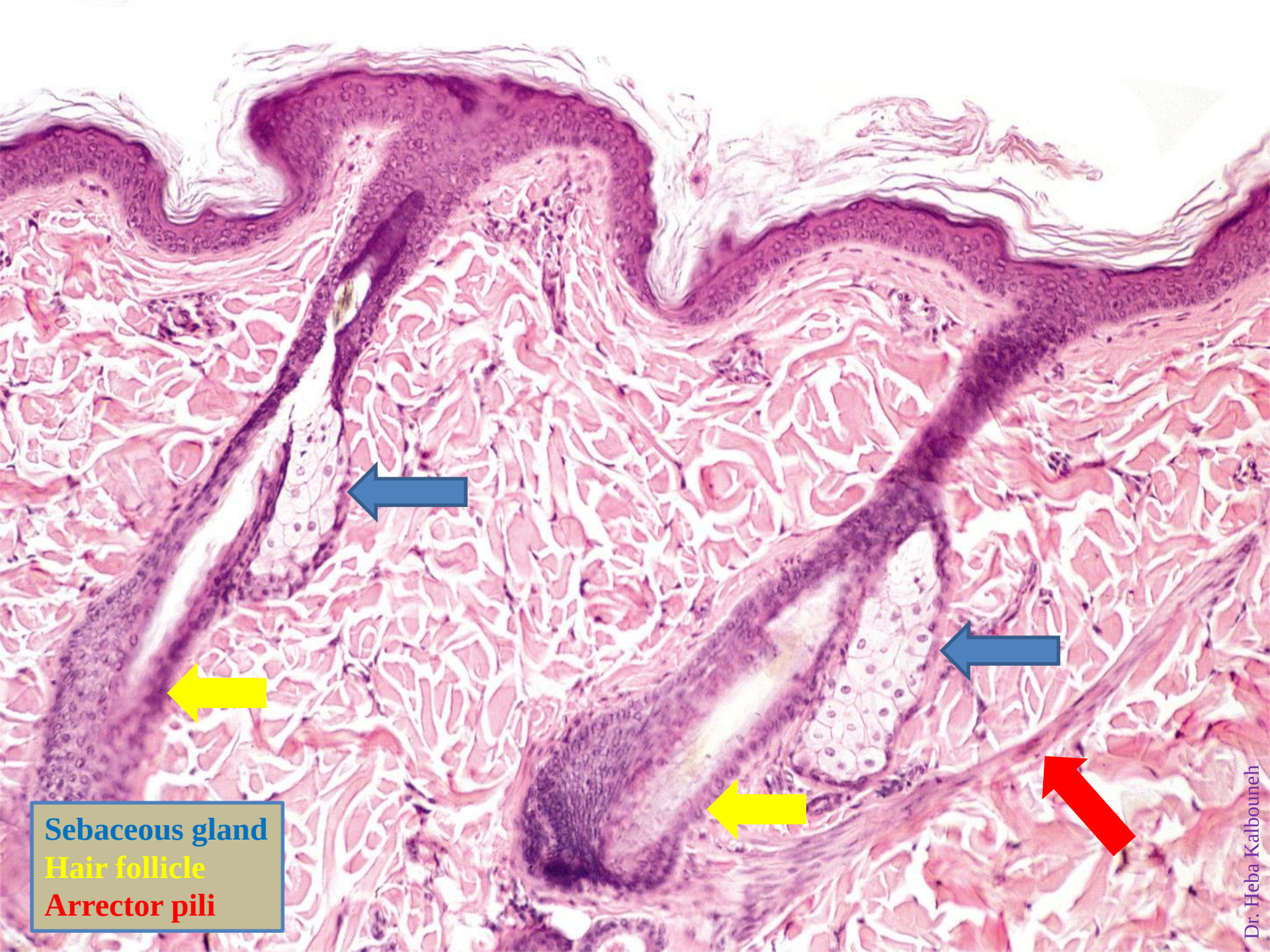
Sebaceous gland
Hair follicle
Arrector pili
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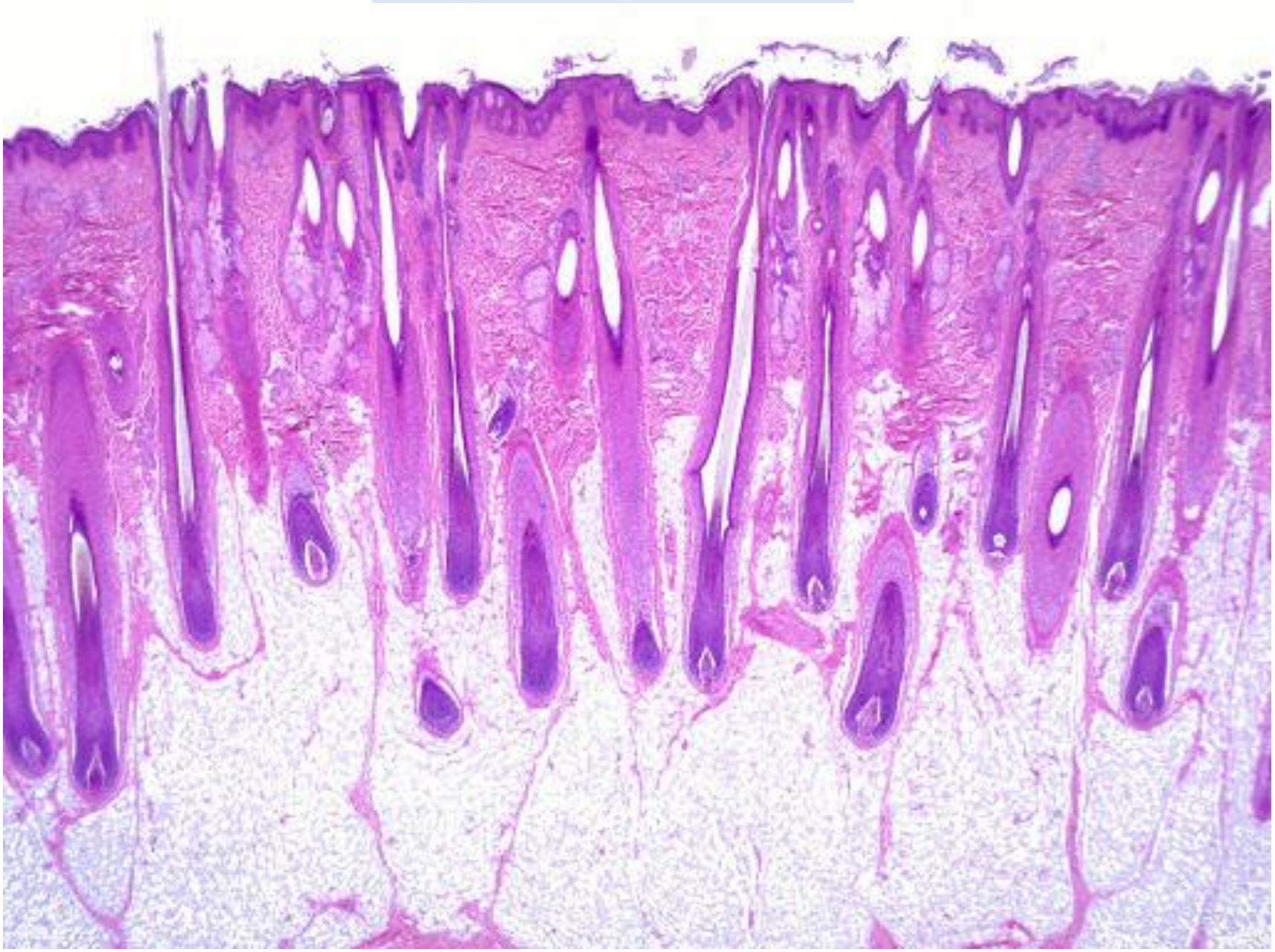
Thin or Thick Skin?



Thin or Thick Skin?