Basic Skin Histology

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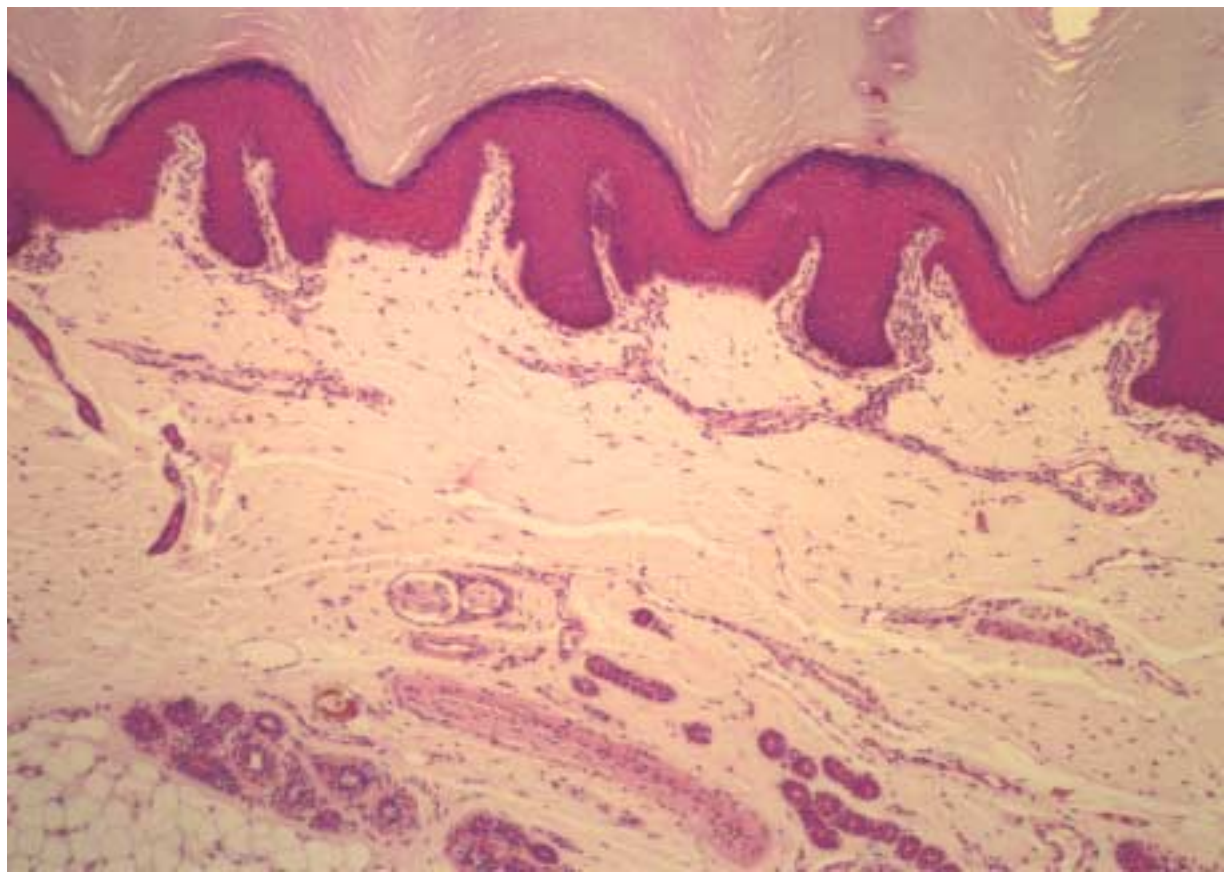


Protection ***Sensation*** ***Thermoregulation*** ***Metabolism***

Layers of Skin

1) Epidermis

➡ stratified squamous epithelium

➡ epidermal ridges

2) Dermis

a) papillary layer

small blood vessels, lymph & nerves

fine collagen & elastic fibers

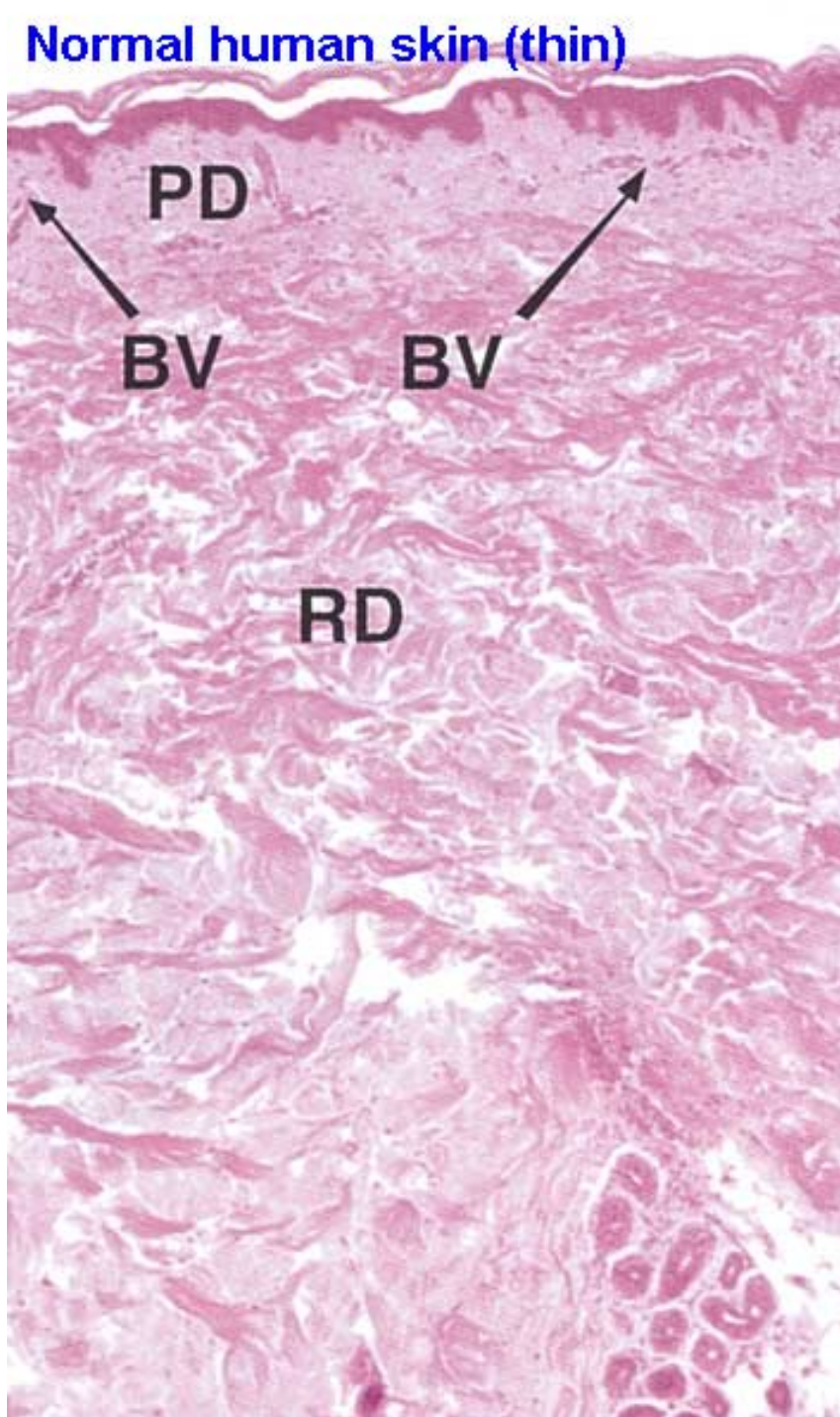
b) reticular layer

vascular plexus, lymph, nerves & appendages

compact collagen fibers & thick elastic fibers

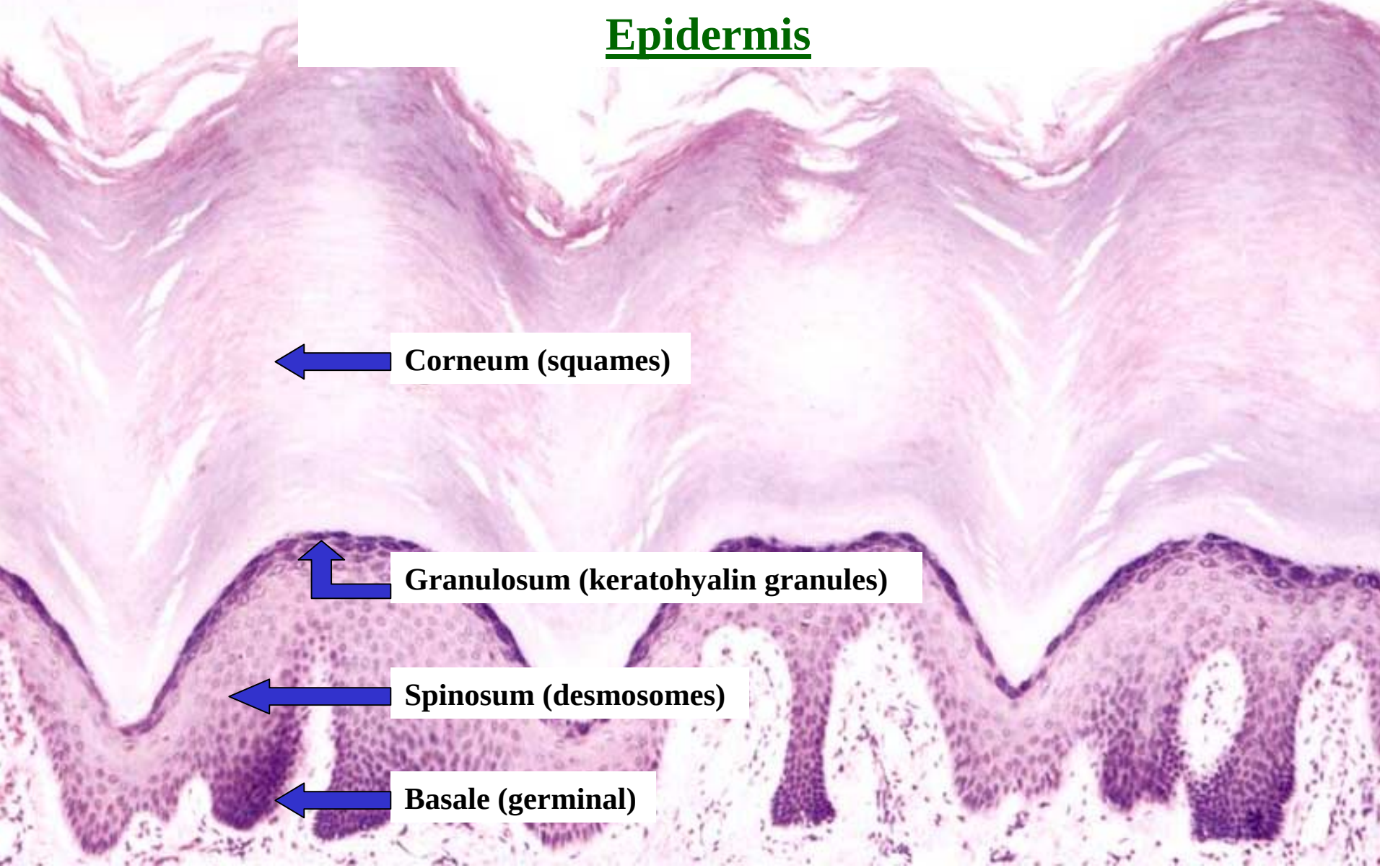
3) Hypodermis (subcutaneous)

➡ mainy adipose tissue



Wheater's Functional Histology

Epidermis



4 distinct cell types: 1) Keratinocyte, 2) Melanocyte, 3) Langerhans cell, 4) Merkel cell

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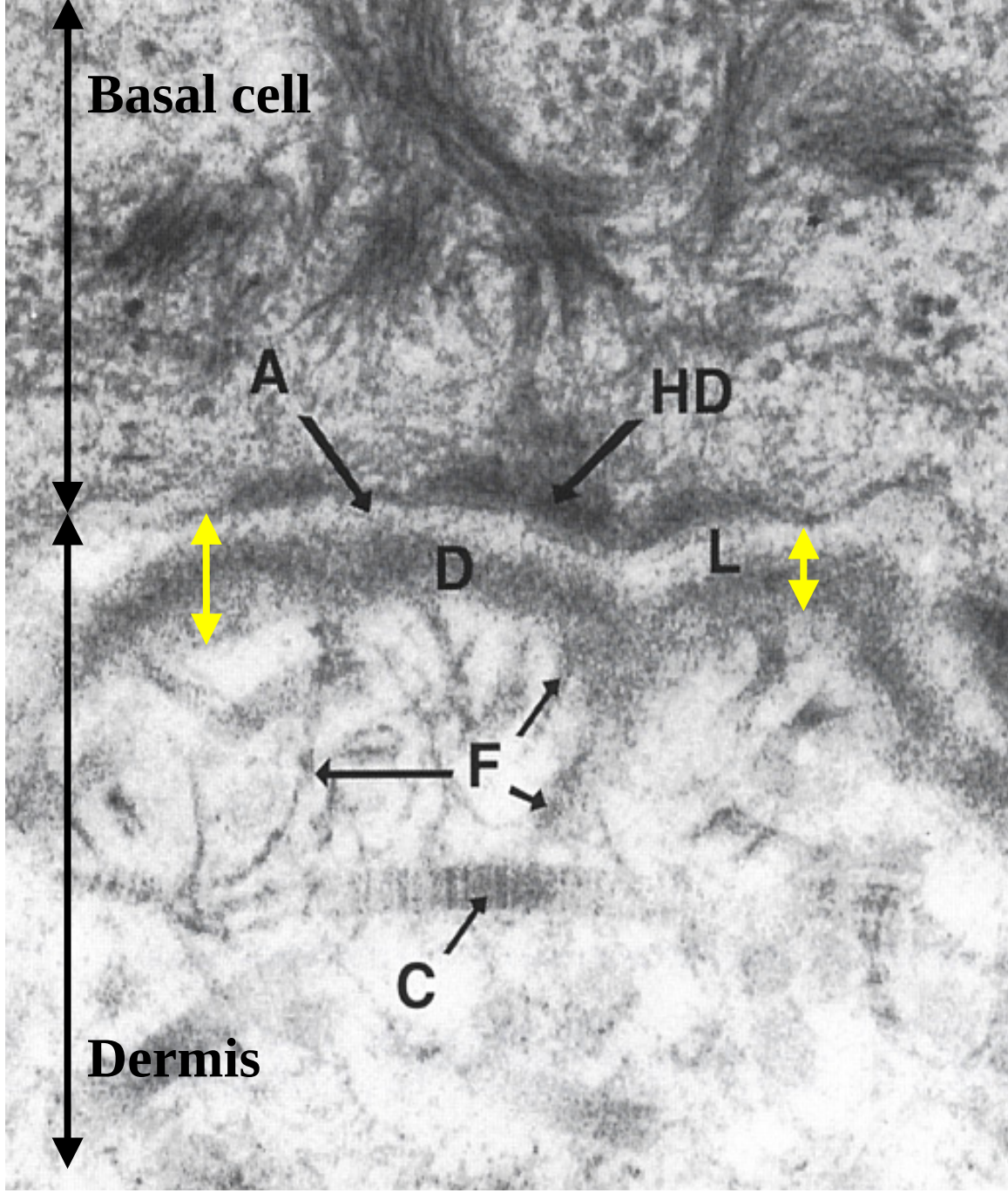
Dermo-epidermal Junction

1) Hemidesmosome
   a) germinal cell
      -keratin filaments
      -cytoplasmic plaque
      -plasma membrane
      -transmembrane linkers
2) Basal lamina
   a) lamina lucida
      -anchoring proteins
   b) lamina densa
      -crosslinking fibrils
3) Subjacent connective tissue
   a) collagen fibers
   b) elastic fibers



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Melanocyte: neural crest origin; no desomosomal attachments

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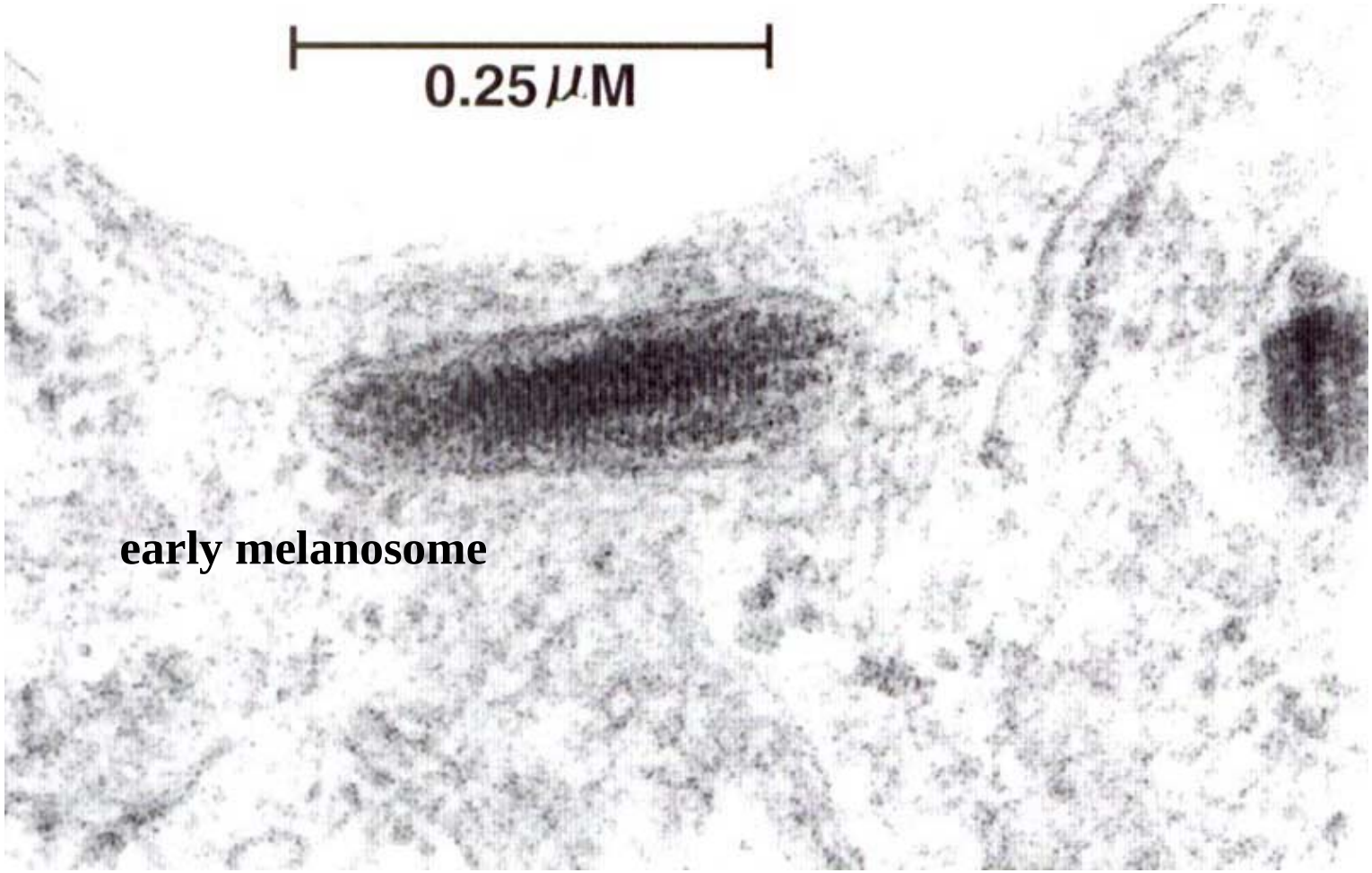

tyrosine → 3,4-dihydroxyphenylalanine (DOPA) → melanin

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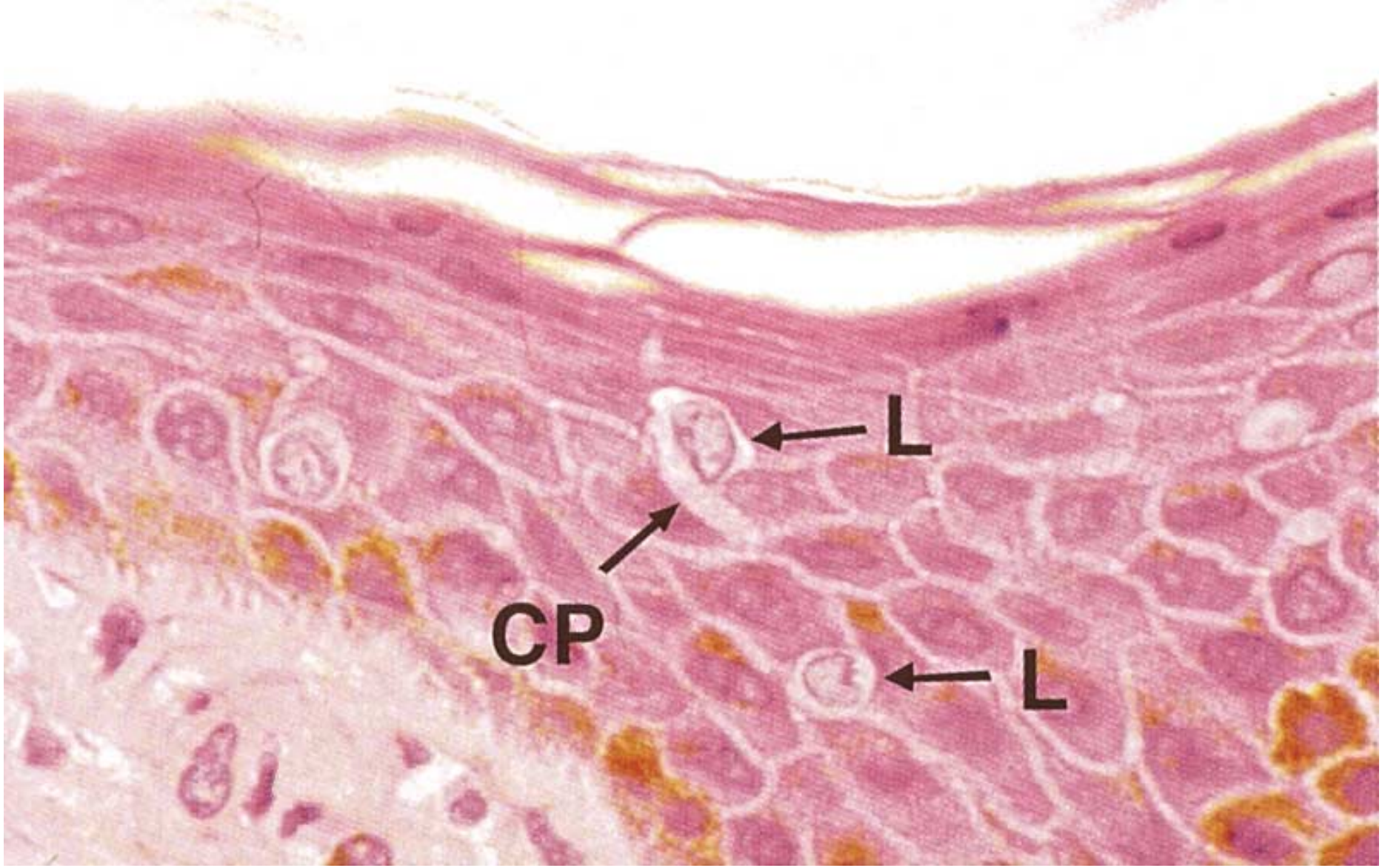

Langerhans cell: dendritic processes; antigen presentation

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Desmosomes: false intercellular bridges

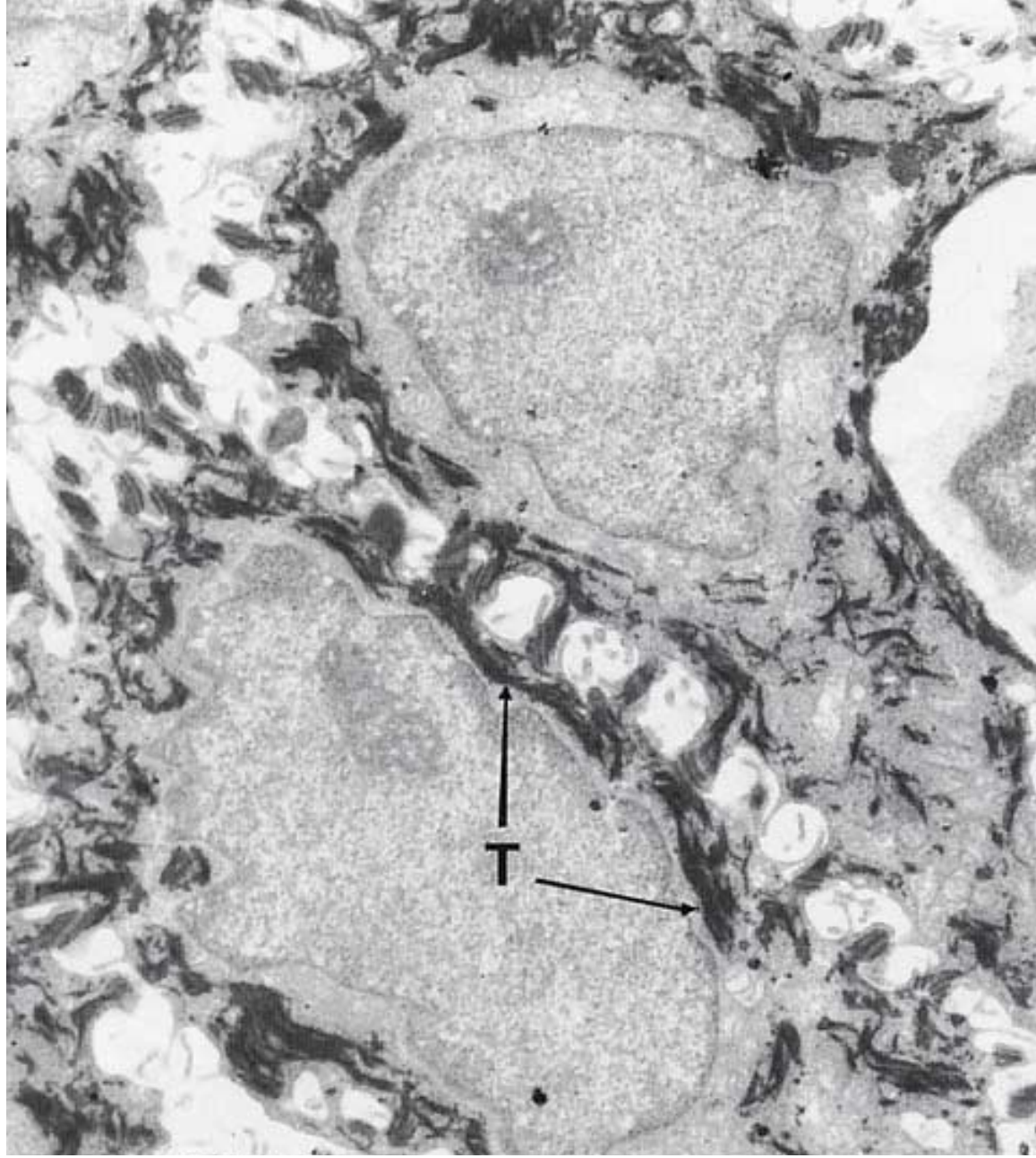
Keratin Filaments

-dense cytoplasmic bundles

-crosslinked by filaggrin to form large aggregates

-concentrated at cell periphery in projections that terminate at desomosomal junctions

-crucial for structural integrity, stability, and continuity of the epithelium



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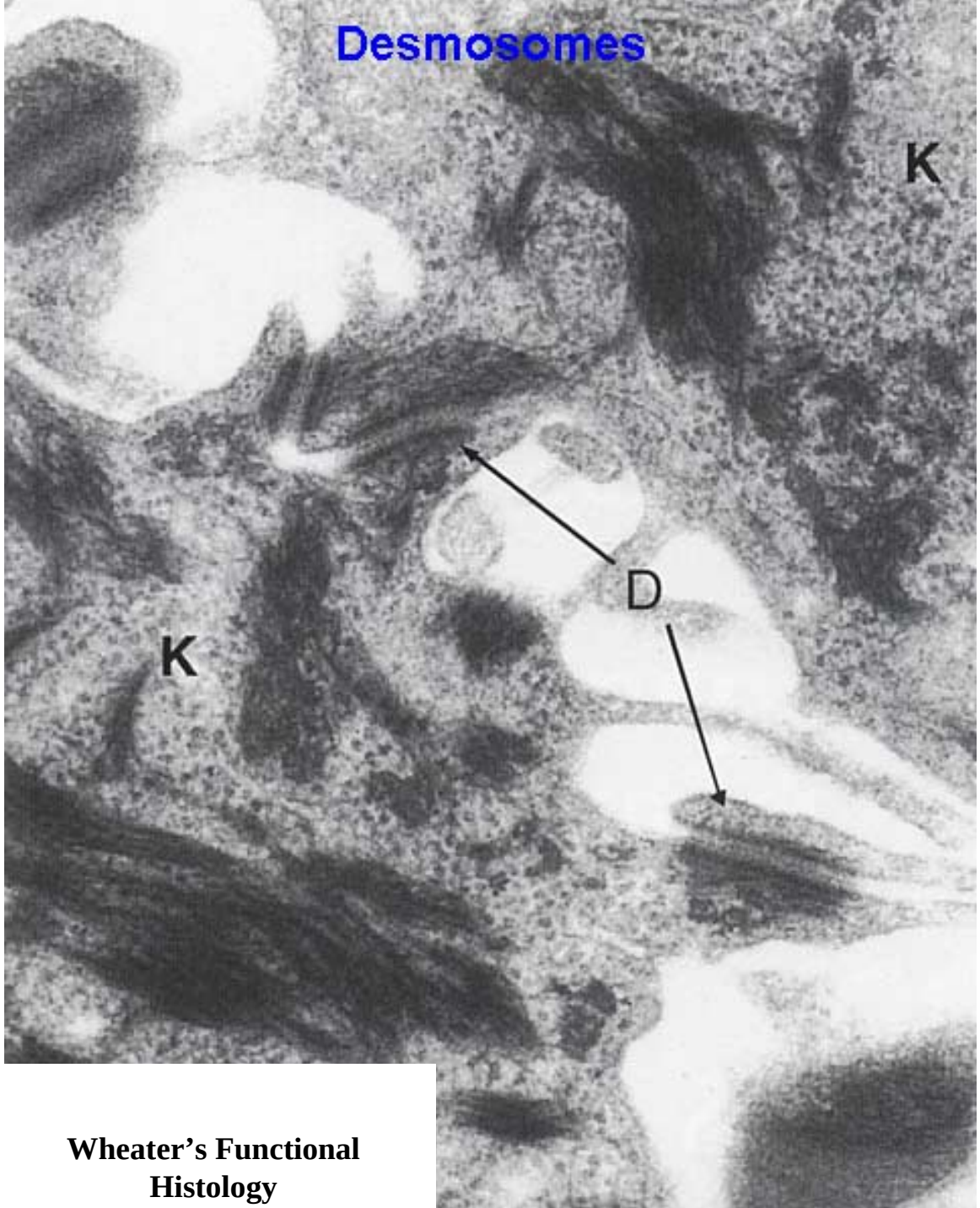

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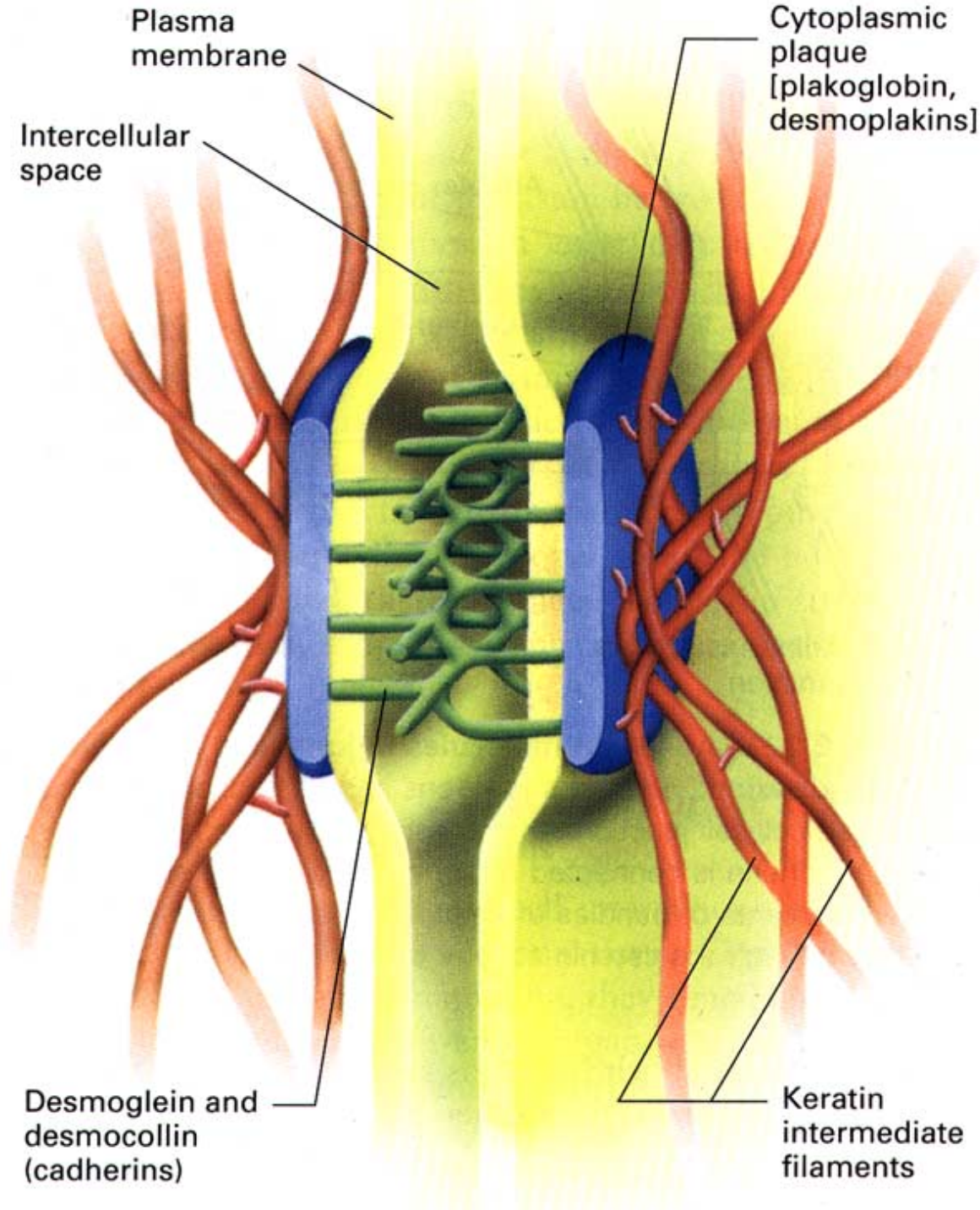


Desomosome Structure

1) adaptor proteins (e.g. plakoglobin) attach keratin filaments to the cytoplasmic plaque

2) transmembrane linkers (e.g. desmoglein) connect adjacent cells

a) cytoplasmic domain binds the adaptor

b) extracellular domain associates with linker on apposing cell (via homophilic interaction)

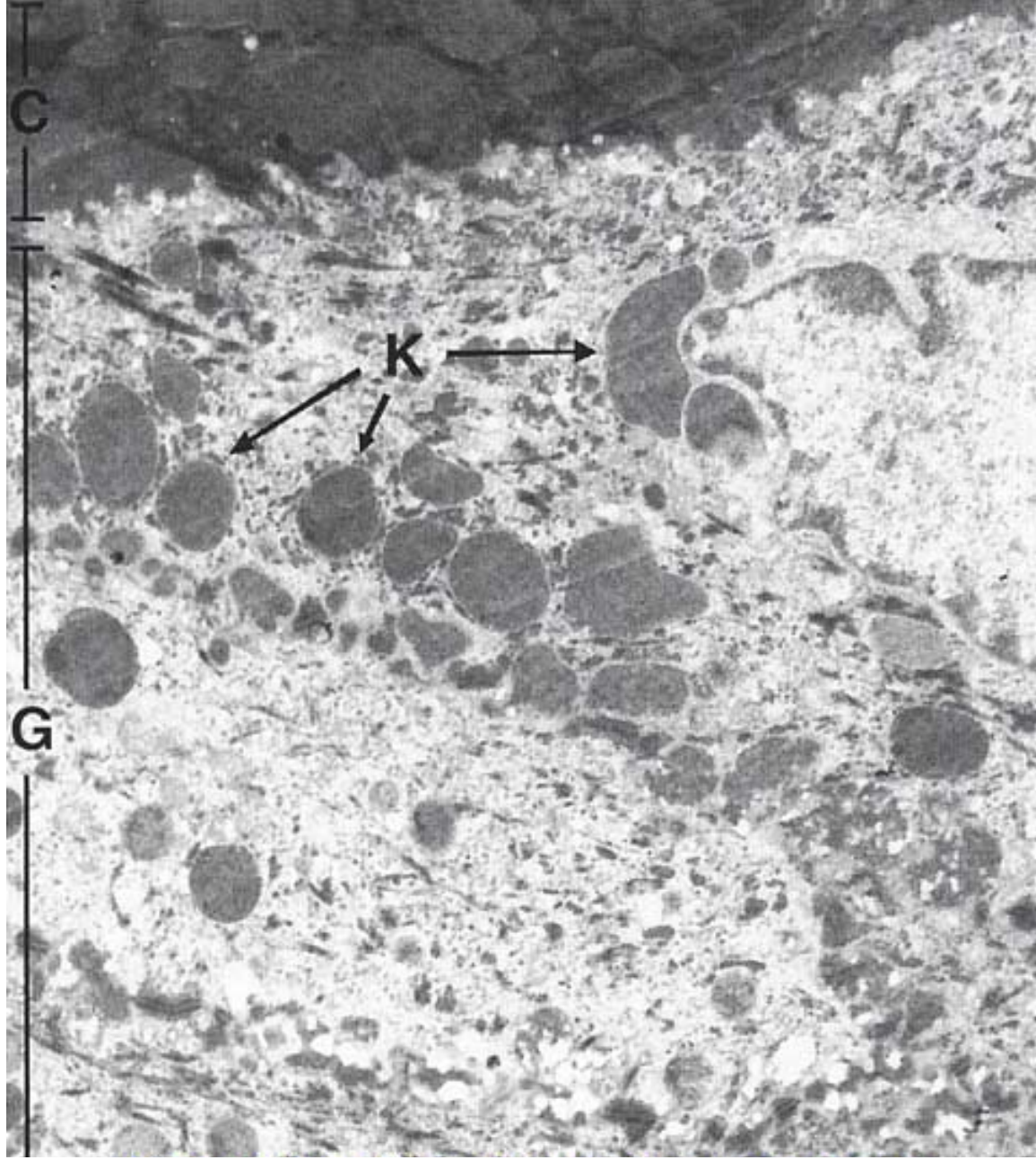
From Molecular Cell Biology

Keratohyaline Granules

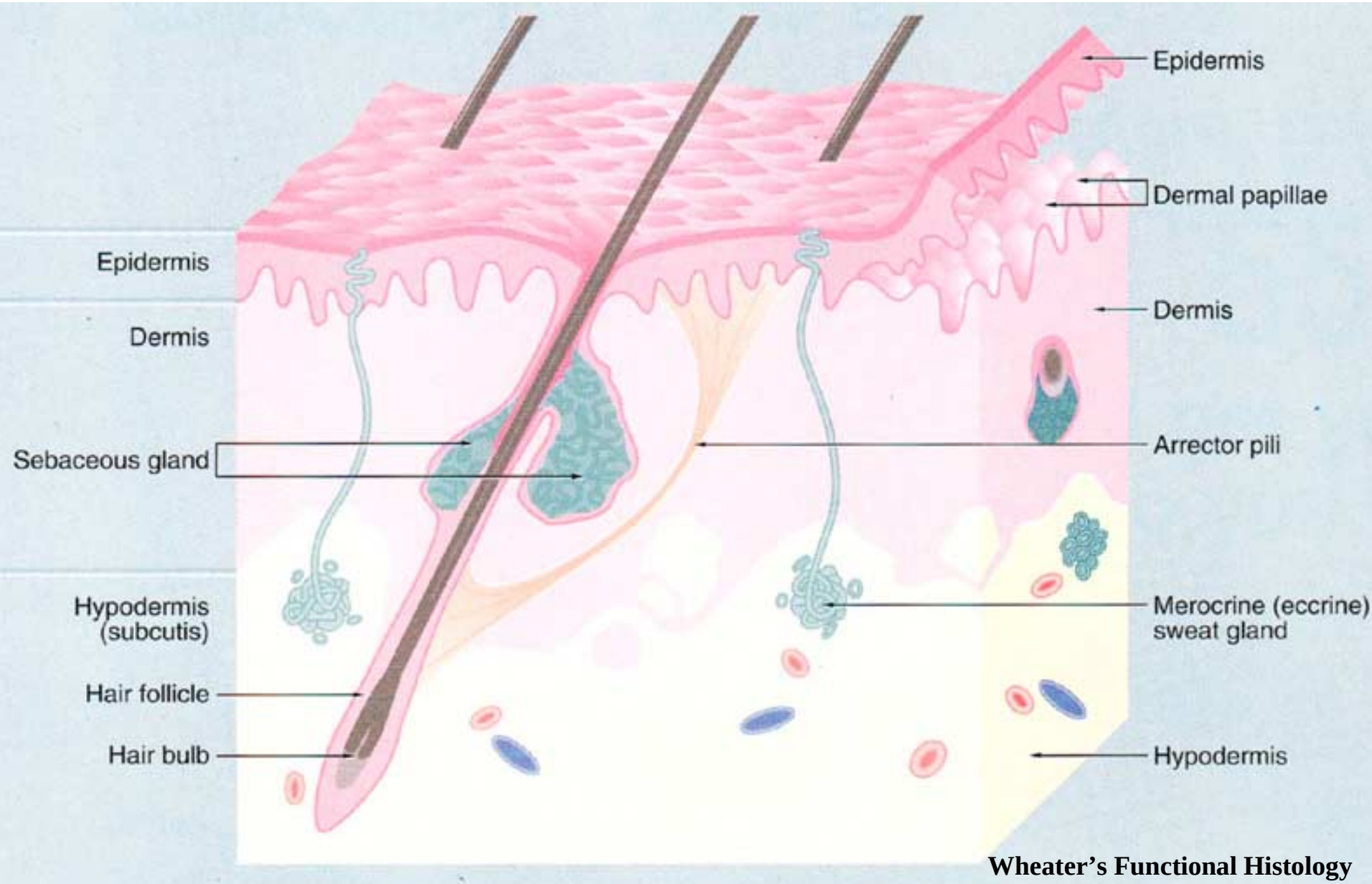
-rich in sulfated amino acids (cysteine)

-contain membranous lamellar bodies consisting of glycolipids (acylglucosylceramide)

-eventually secreted and deposited between keratinocytes



Skin Appendages



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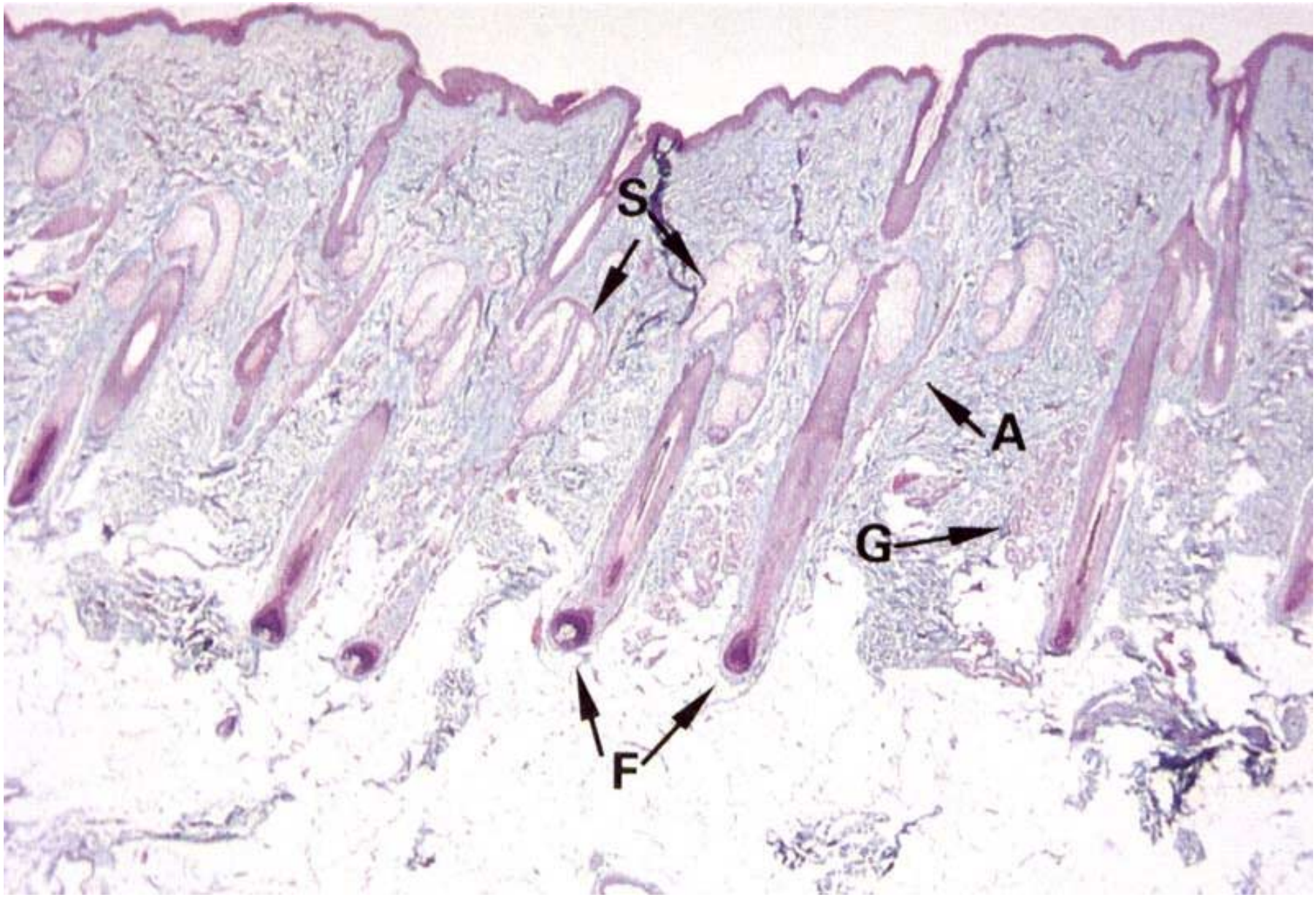

Scalp

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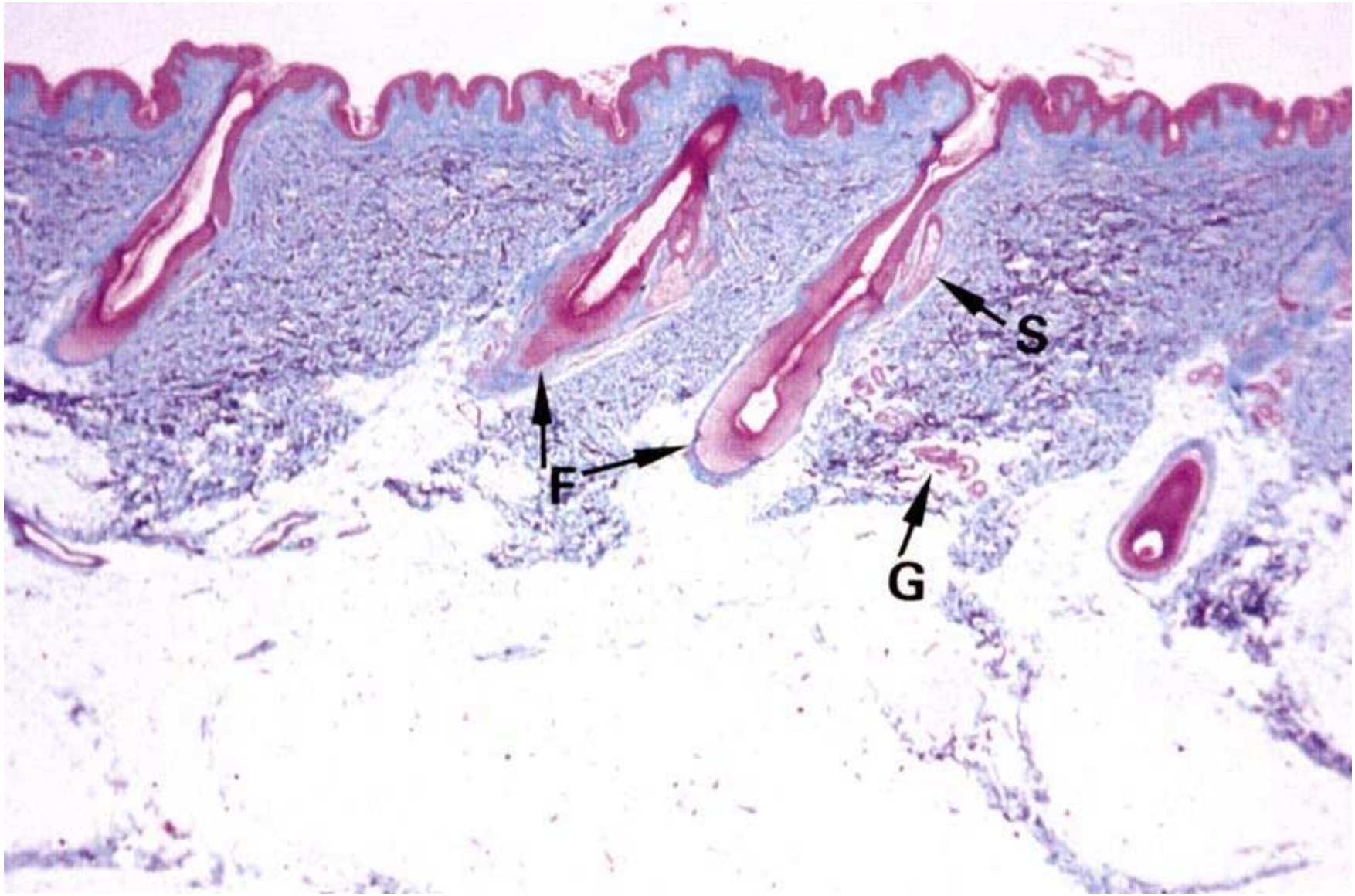

Abdomen

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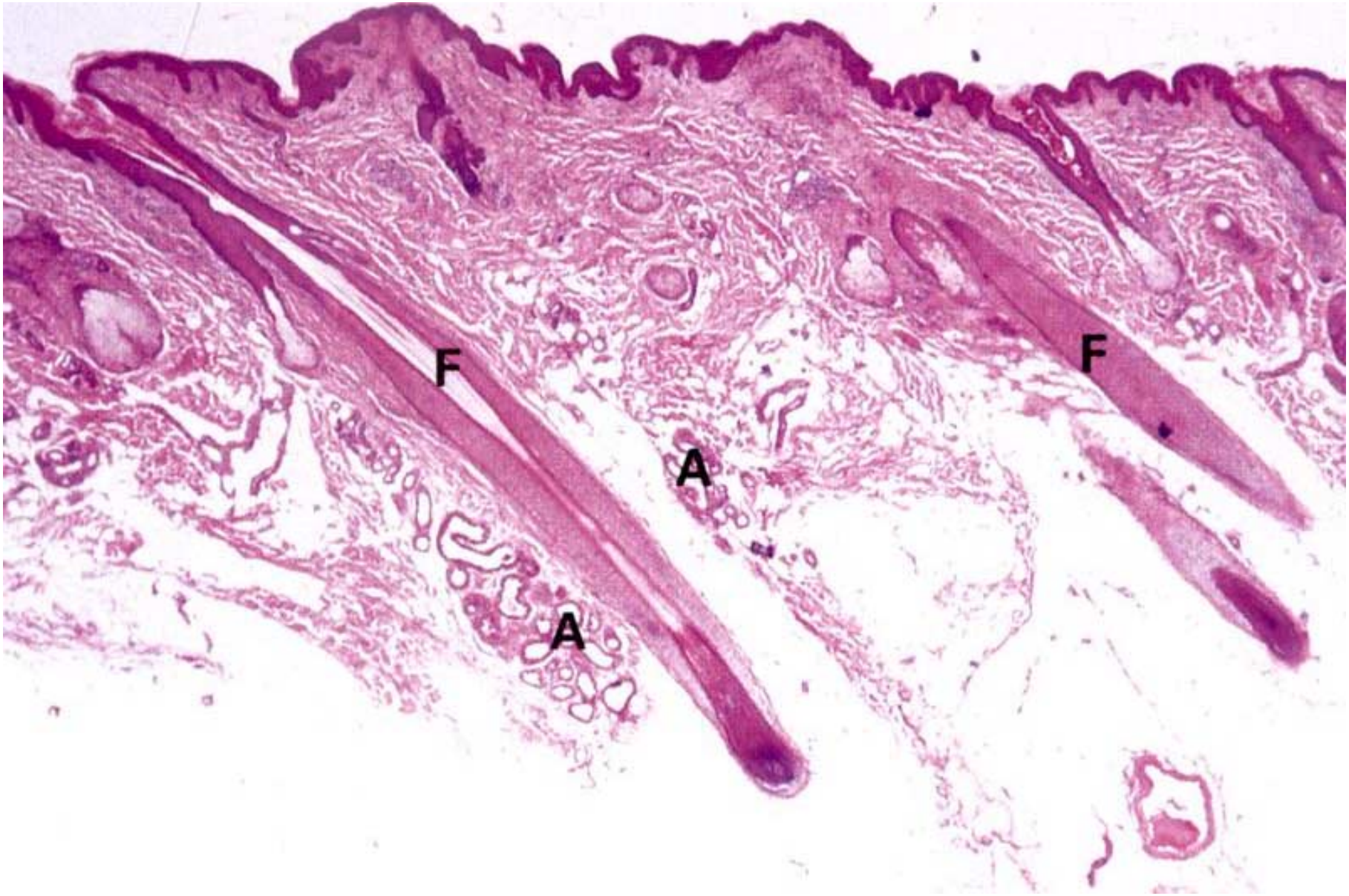

Pubic

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Hair Follicle

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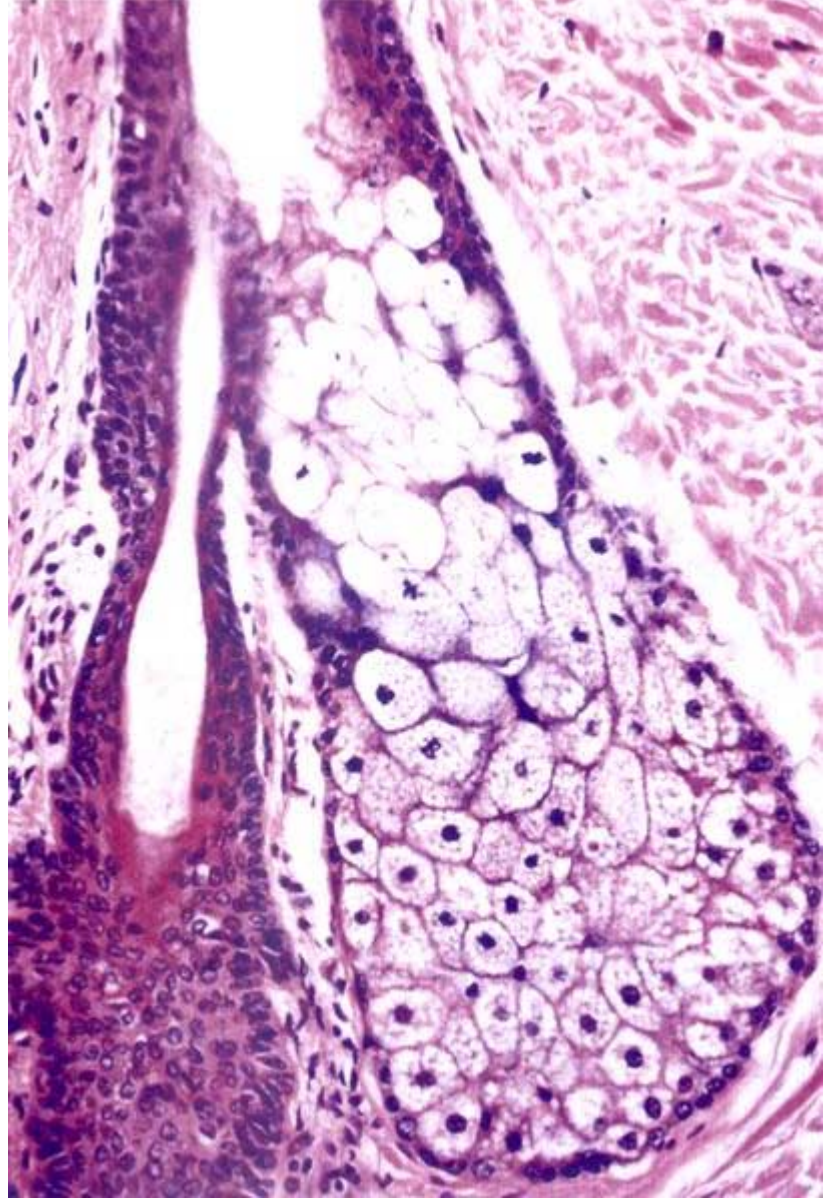

Sebaceous Glands

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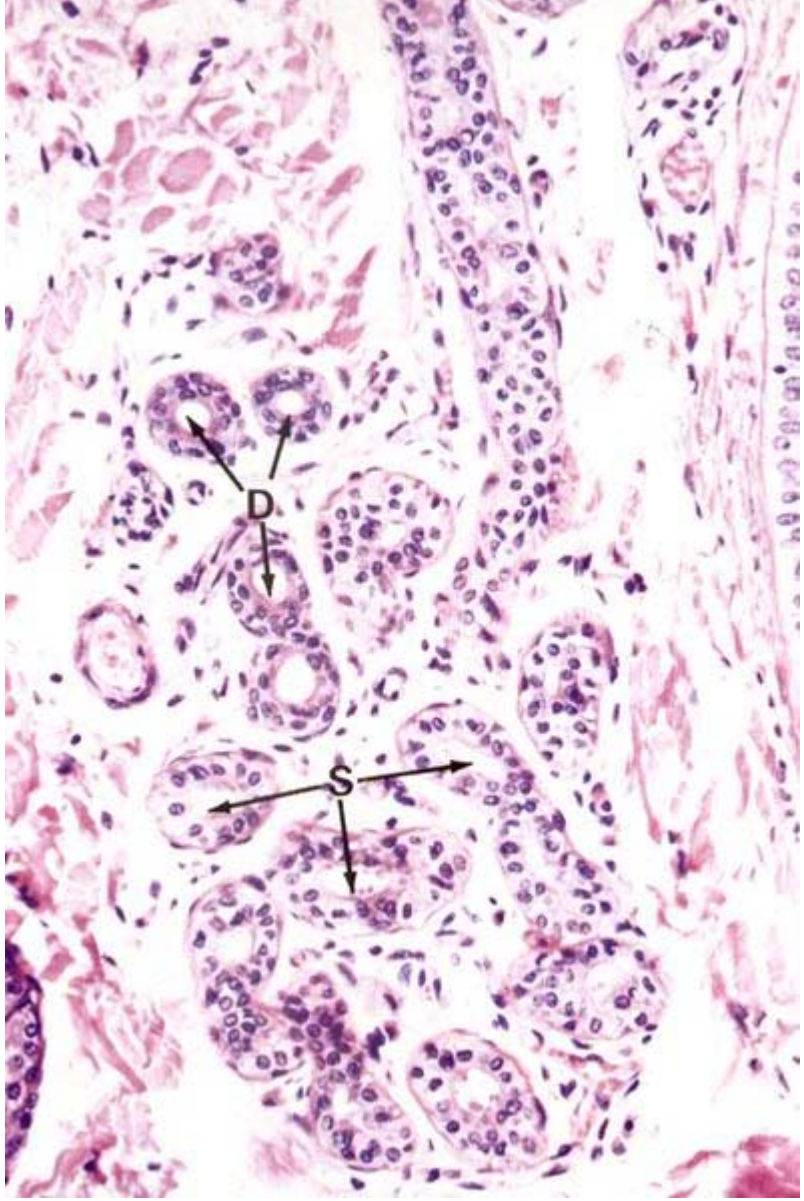

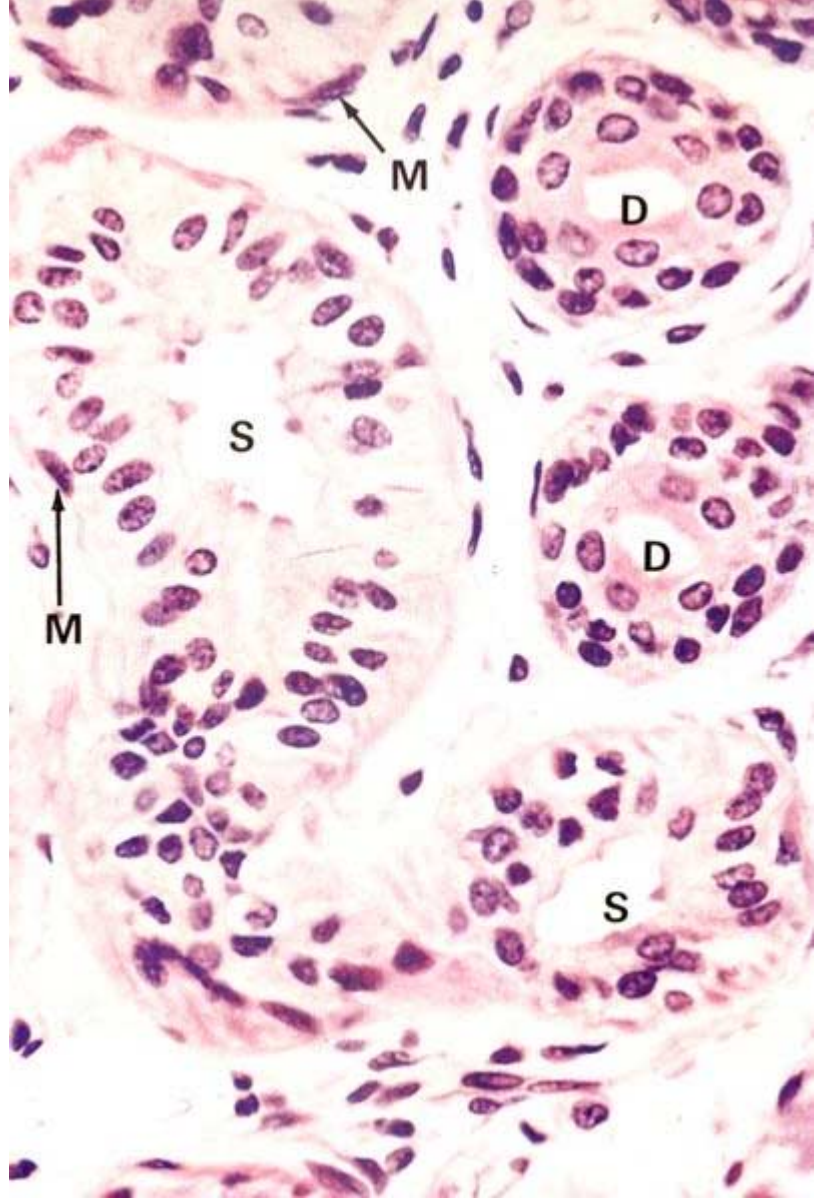

Merocrine (eccrine) Sweat Glands

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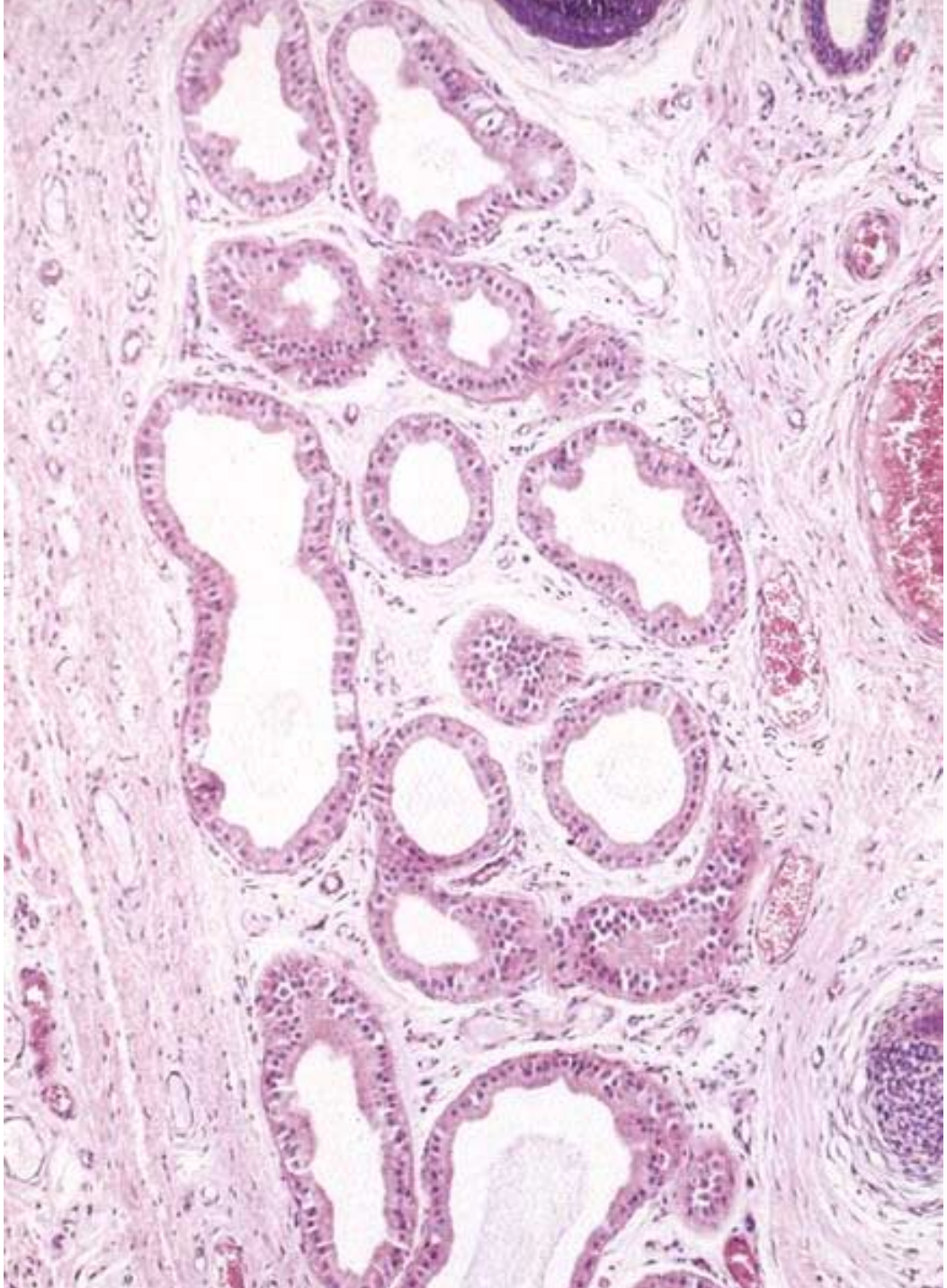

Apocrine Sweat Glands

-associated with
hair follicles

-store secretory products
in lumen

-straight duct,
non-resorptive

-inactive until puberty

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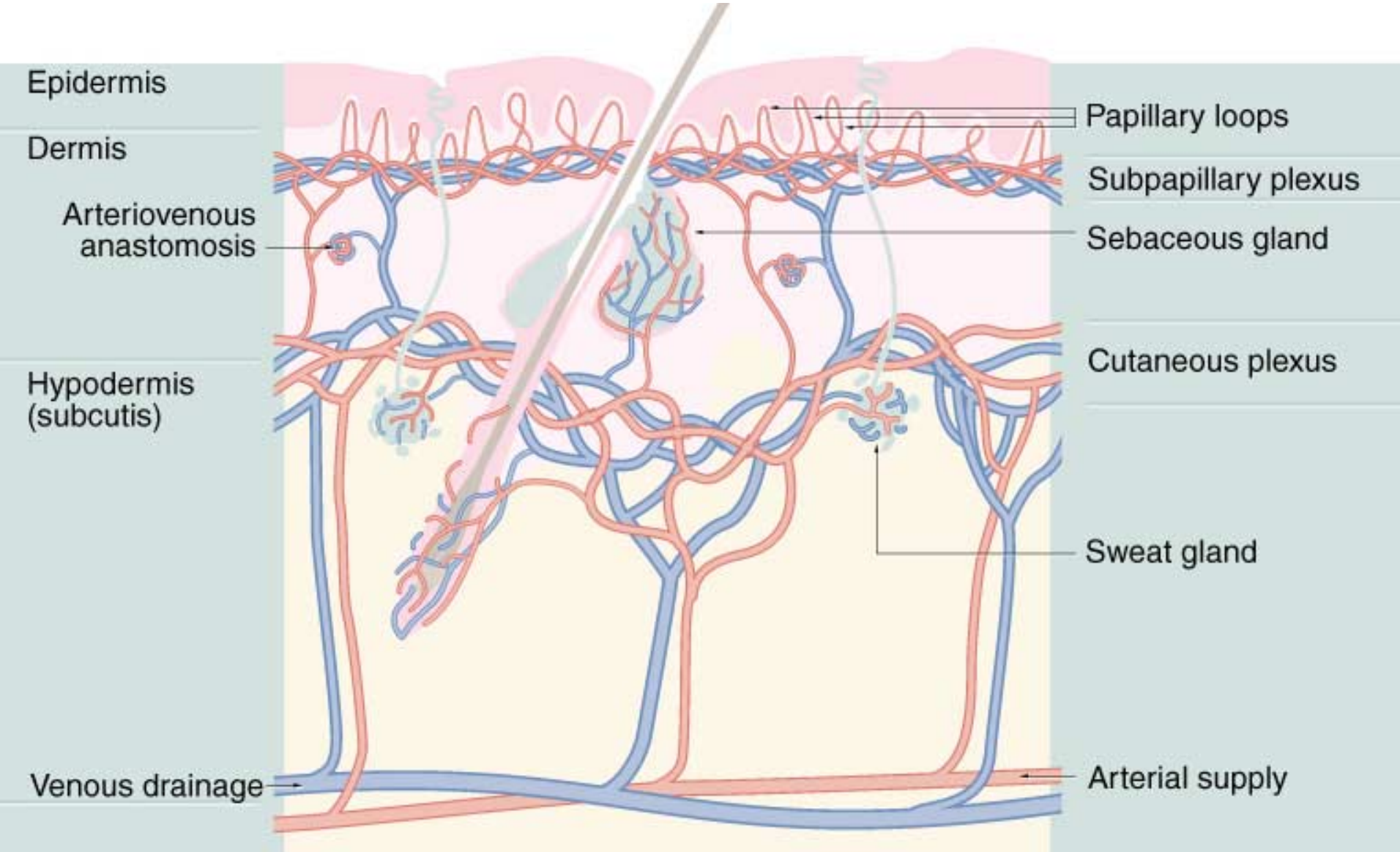
Circulation



The Normal Wound Healing Response

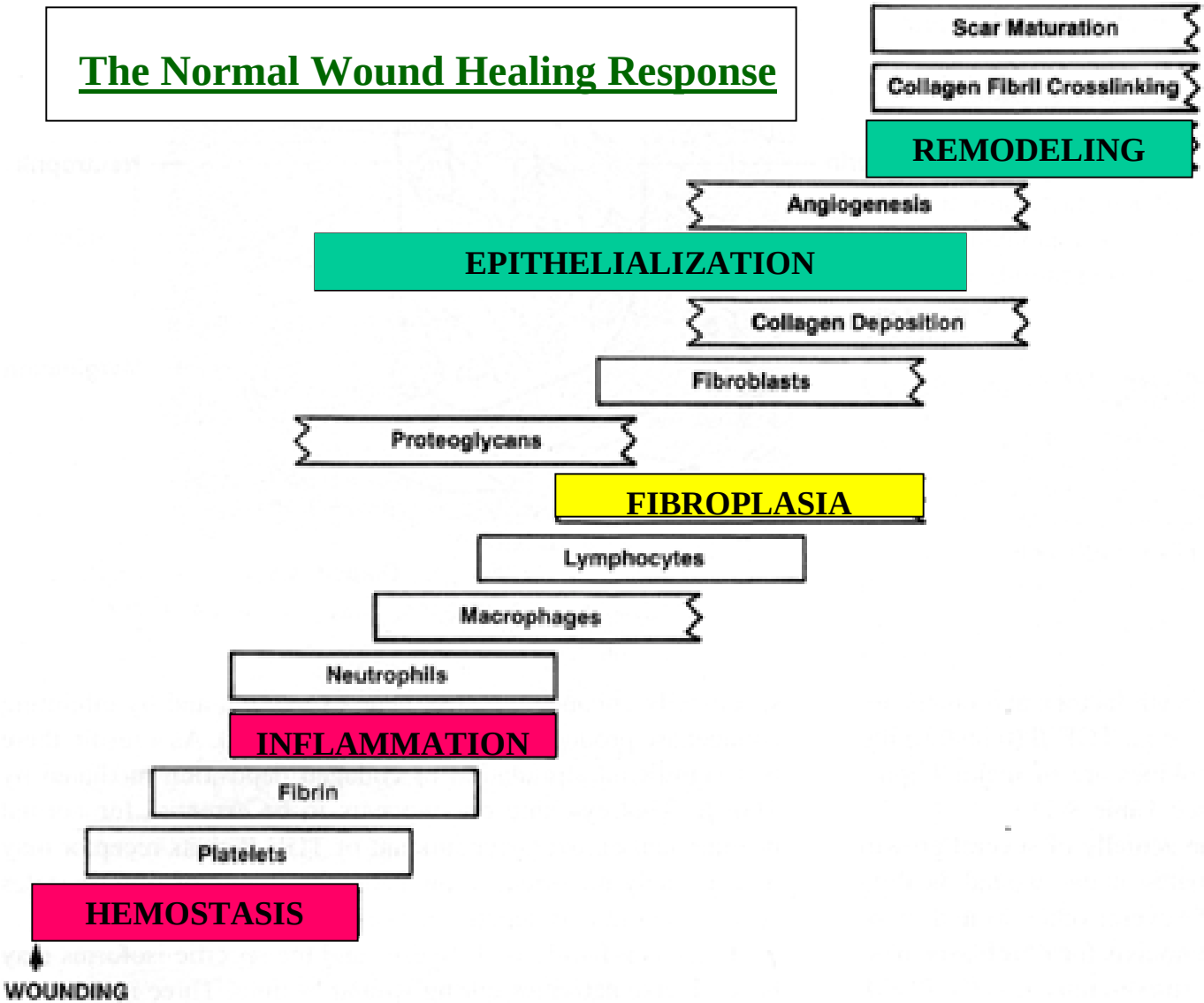


FIG. 8-9. *Sequence of events in wound healing. (Modified from: Mast BA: The skin, in Cohen IK, Diegelmann RF, Lindblad WJ (eds): Wound Healing: Biochemical and Clinical Aspects, chap 22. Philadelphia, WB Saunders, 1992, with permission.)*

Skin Scar from Biopsy

- fibroelastic tissue forms scar
- no skin appendages
- progressive reduction in cellularity
- progressive loss of capillaries
- contraction of scar

Basic Histopathology Fig. 2.11

REFERENCES

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