The integumentary system (skin)

Roles:

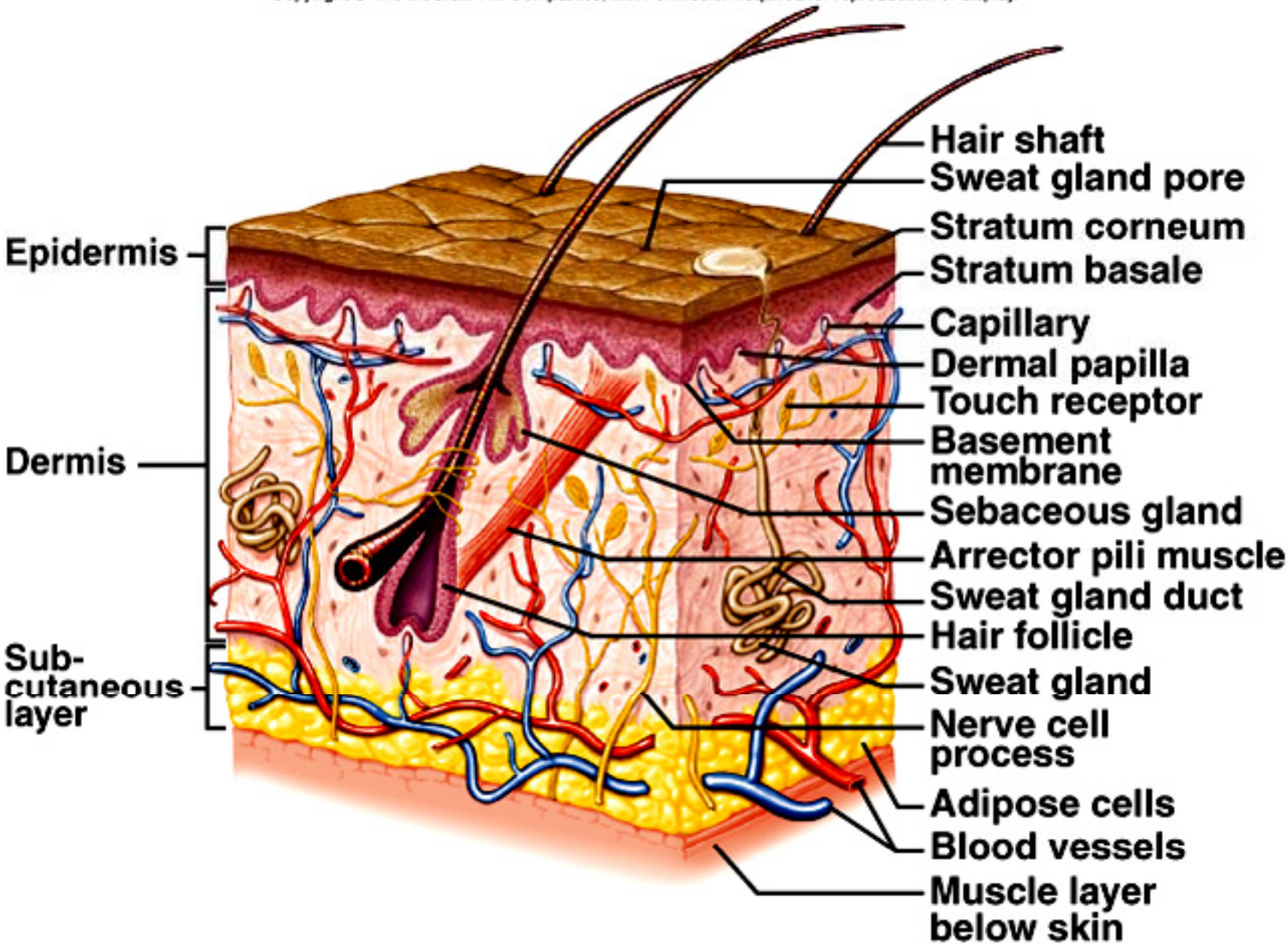
- protection
- maintenance of normal body temperature
- storage (of fat)
- synthesis (of vitamin D)
- excretion (of salts, water and wastes in sweat)
- sensory perception

Tissues of the skin

- **epidermis- straitified squamous epithelium**
  - **basement membrane**

- **dermis- largely connective tissue; many nerves and blood vessels; smooth muscle**

- **hypodermis- adipose tissue and more loose connective tissue**



Epithelium

- deepest layer (stratum germinativum, or stratum basale)- rapidly dividing cells
  - stem cells present
- outermost layer- stratum corneum
  - dead, keratinized cells

Melanocytes in stratum basale- produce pigment

- absorbs UV radiation; surround nucleus

Cells vary in amount of melanin they produce

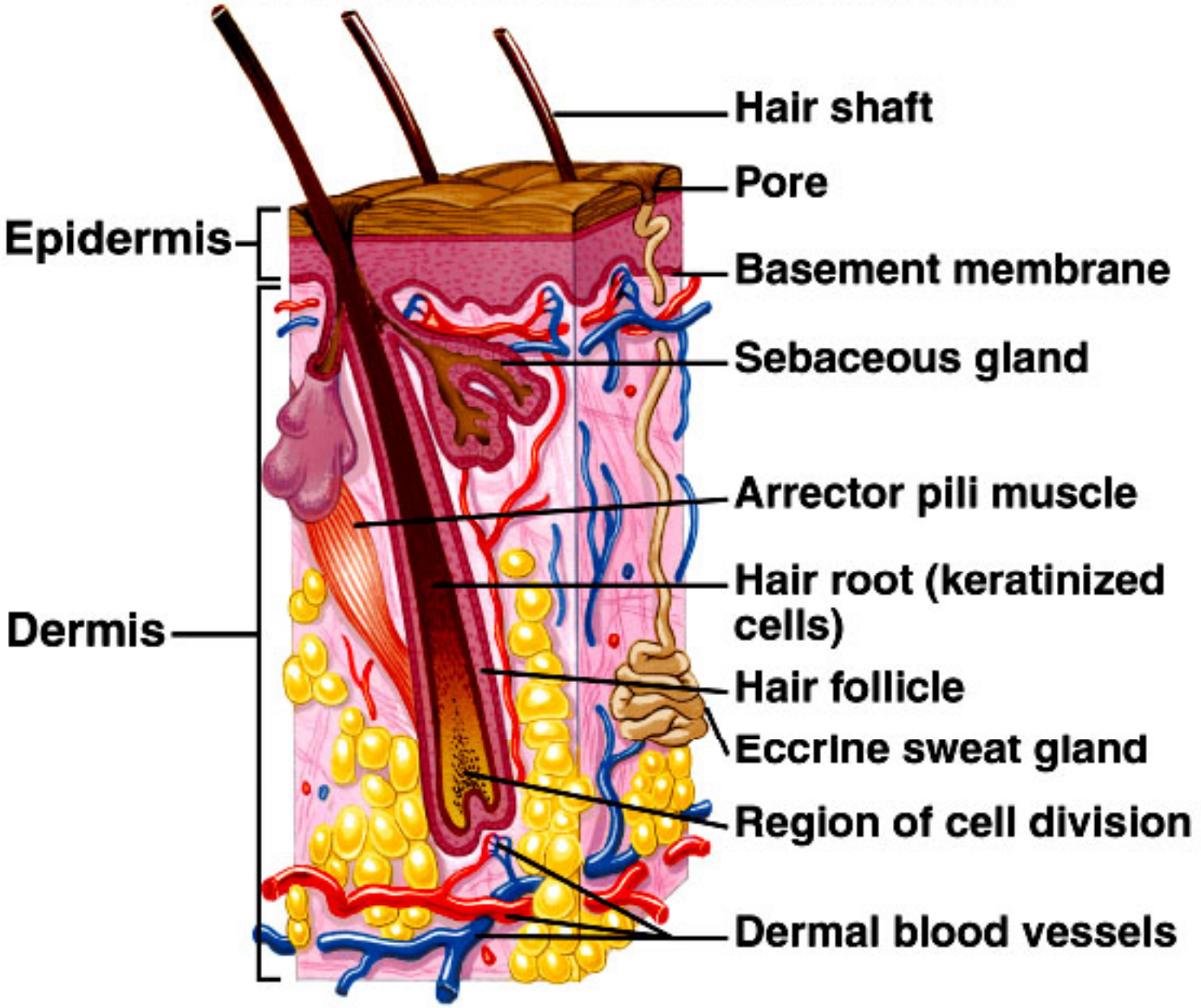
Epidermal cells make a precursor form of vitamin D

Modified in liver and kidney

Required for bone formation

“Protection” includes immune protection

- Langerhans (dendritic) cells
- keratinocytes
- specialized T cells

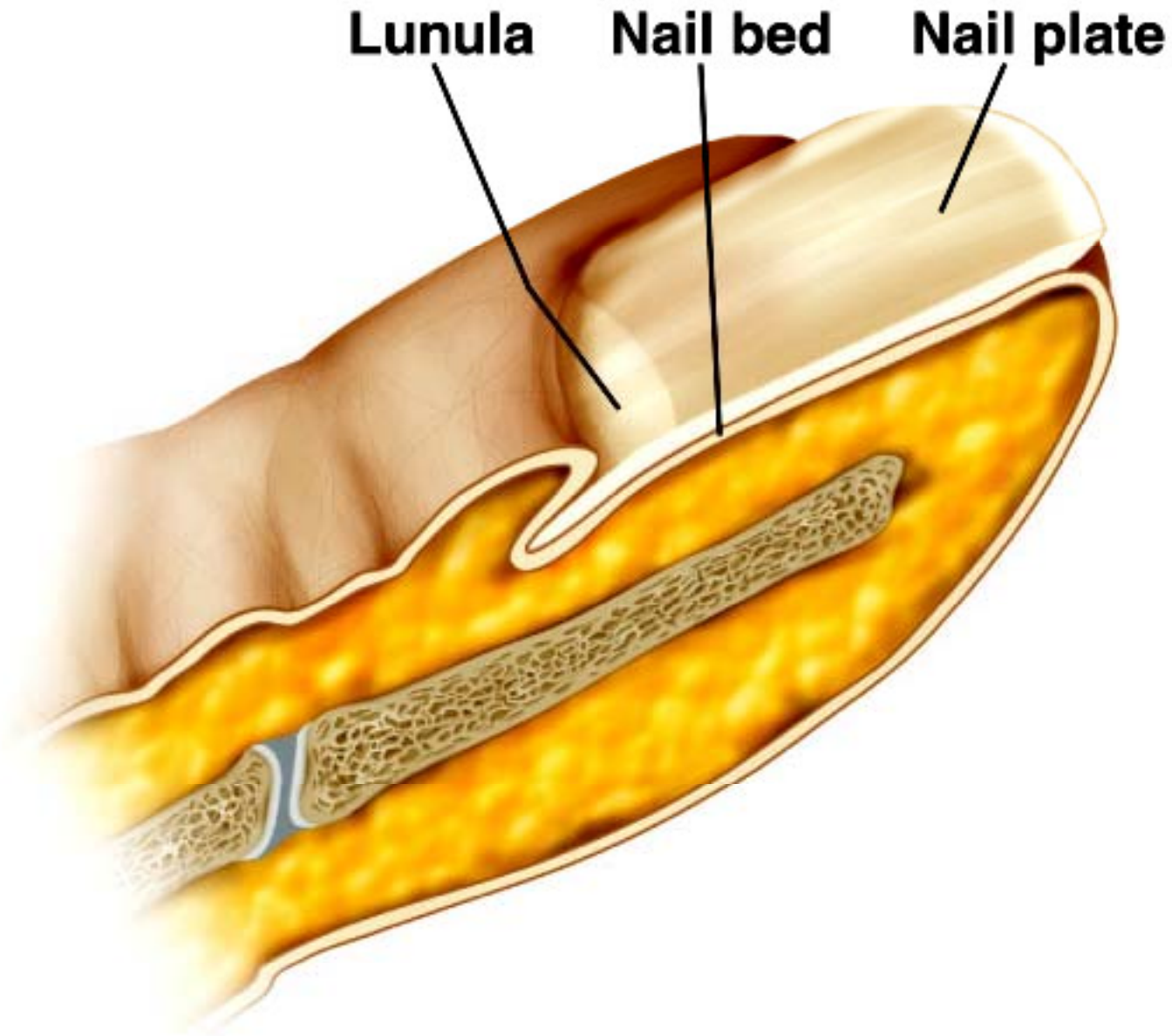


Nails

Nail bed overlaid by nail plate

Nail growth originates from root; cells become keratinized

Cuticle is formed from stratum corneum



Two types of exocrine glands

Sebaceous- sebum (oil, wax)

associated with hair follicles

helps maintain pliability of skin

Sweat glands

apocrine (armpits, groin)

merocrine (eccrine)- widely distributed

important for maintaining body temperature