

# The Integumentary System

## Part 1

EQ: How does the structure of the skin allow it to perform its function?

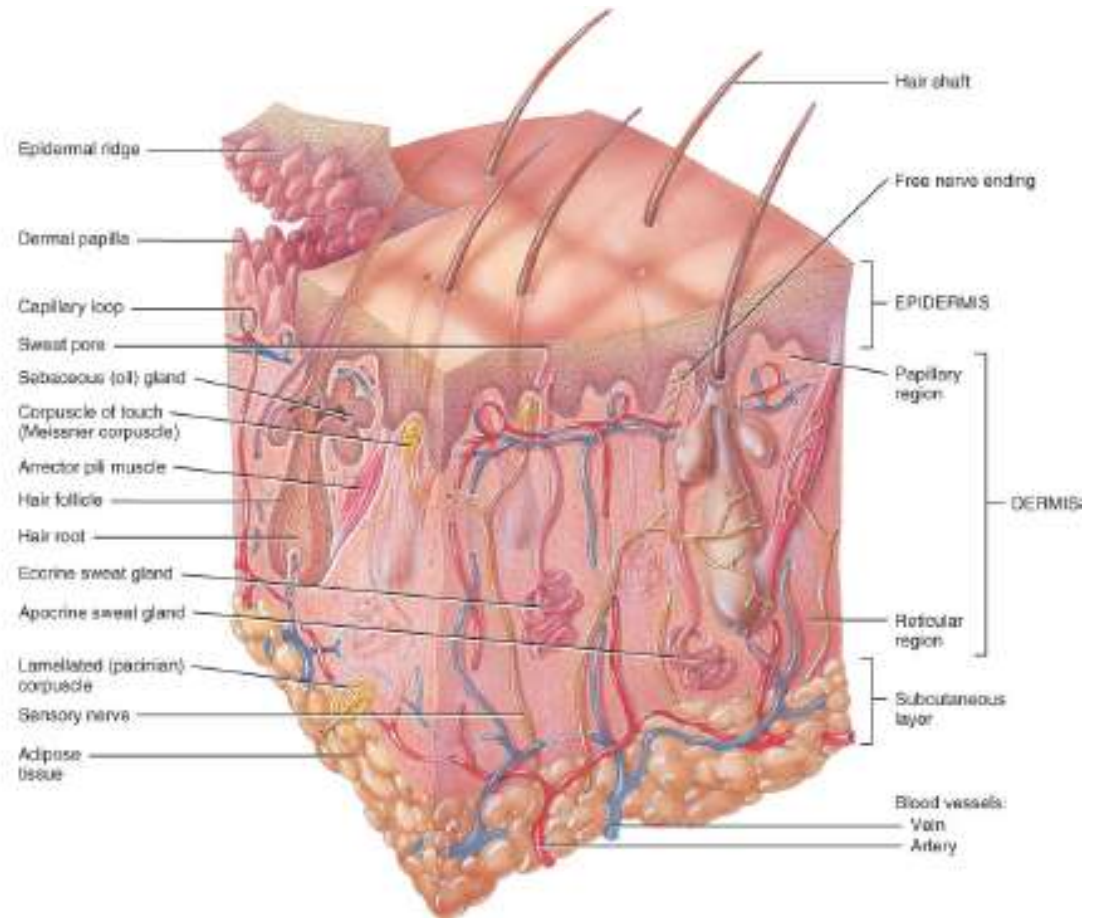
# Functions of the Integumentary System

1. Protection
2. Cushions the body from mechanical, chemical, and thermal damage
3. Thermal Regulation

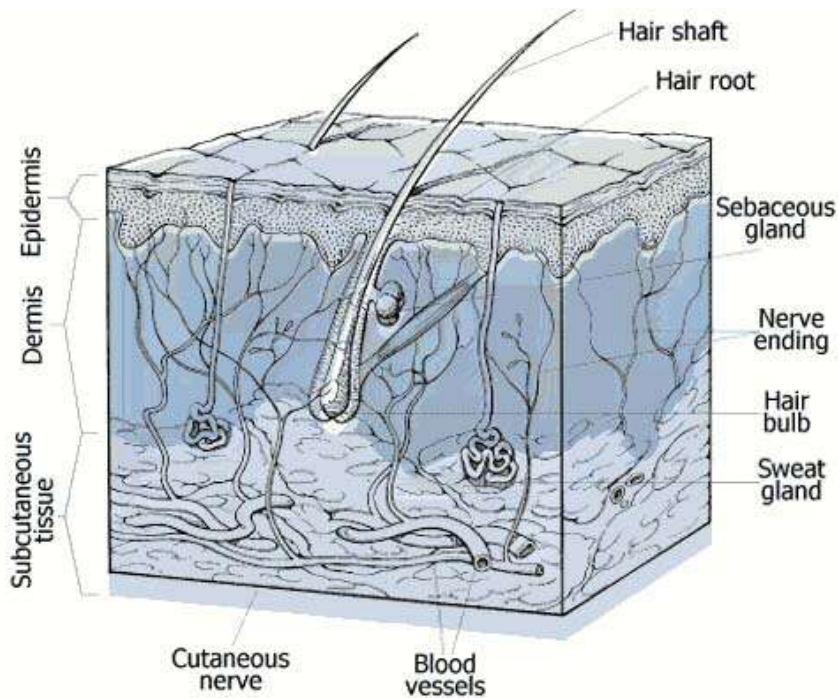


# The Skin

- Largest organ in the body contains all tissue types
- 22 square feet
- 1-2 mm thick
- 10lbs of body weight

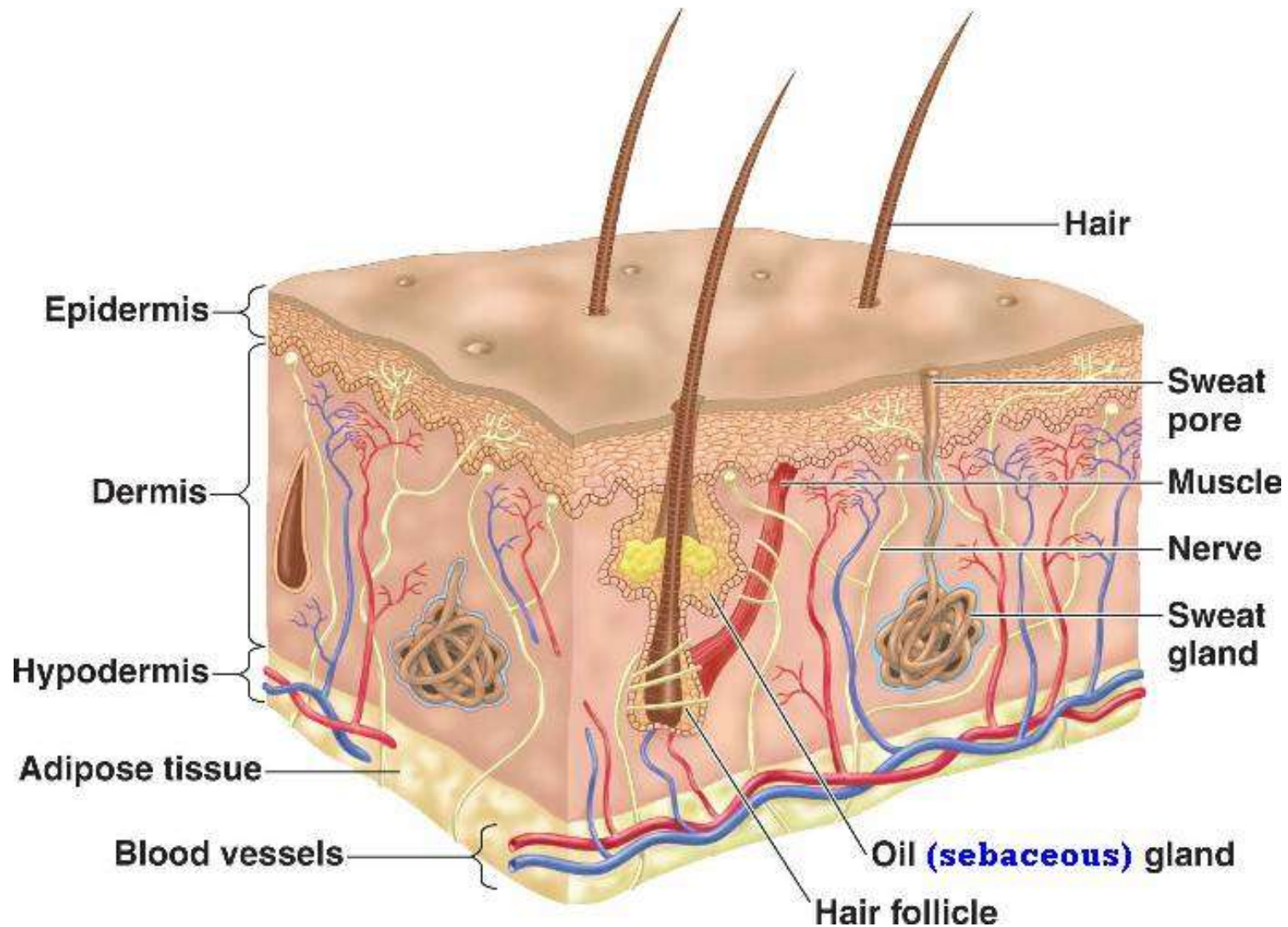


# Skin Structure



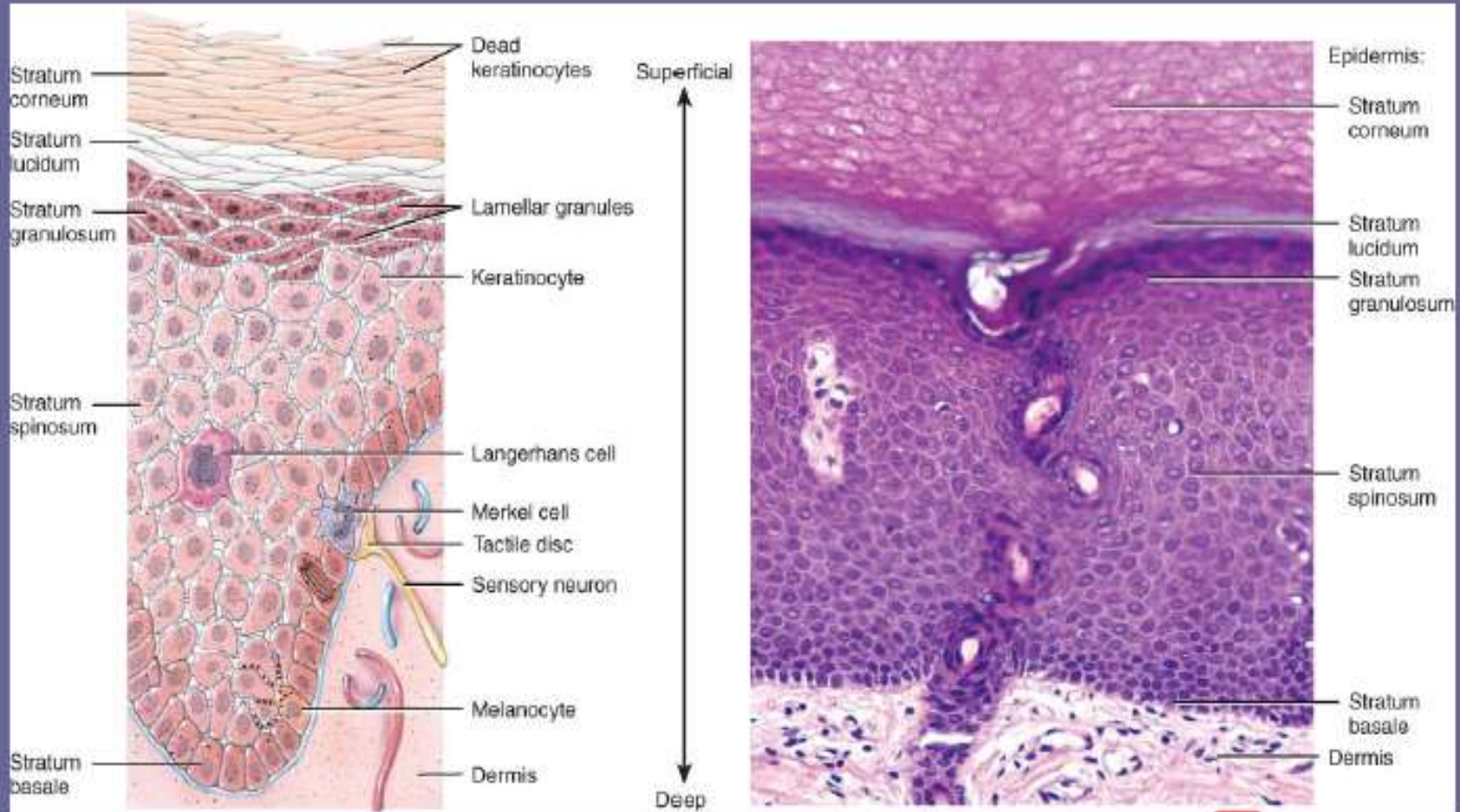
- Epidermis
  - Outermost portion of the skin
  - All epi tissue
- Dermis
  - Deepest layer of skin
  - Mostly CT
- Hypodermis or Subcutaneous Layer
  - Areolar & adipose CT
  - Blood vessels & nerves

# Structure of the Skin





# Overview of Epidermis



- Stratified squamous epithelium
  - avascular (contains no blood vessels)
  - 4 types of cells
  - 5 distinct strata (layers) of cells

# Four Principle Cells of the Epidermis

- *keratinocytes*
  - produce the protein keratin, which helps protect the skin and underlying tissue from heat, microbes, and chemicals, and lamellar granules, which release a waterproof sealant
- *melanocytes*
  - produce the pigment melanin which contributes to skin color and absorbs damaging ultraviolet (UV) light
- *Langerhans cells*
  - derived from bone marrow
  - participate in immune response
- *Merkel cells*
  - contact a sensory structure called a tactile (Merkel) disc and function in the sensation of touch