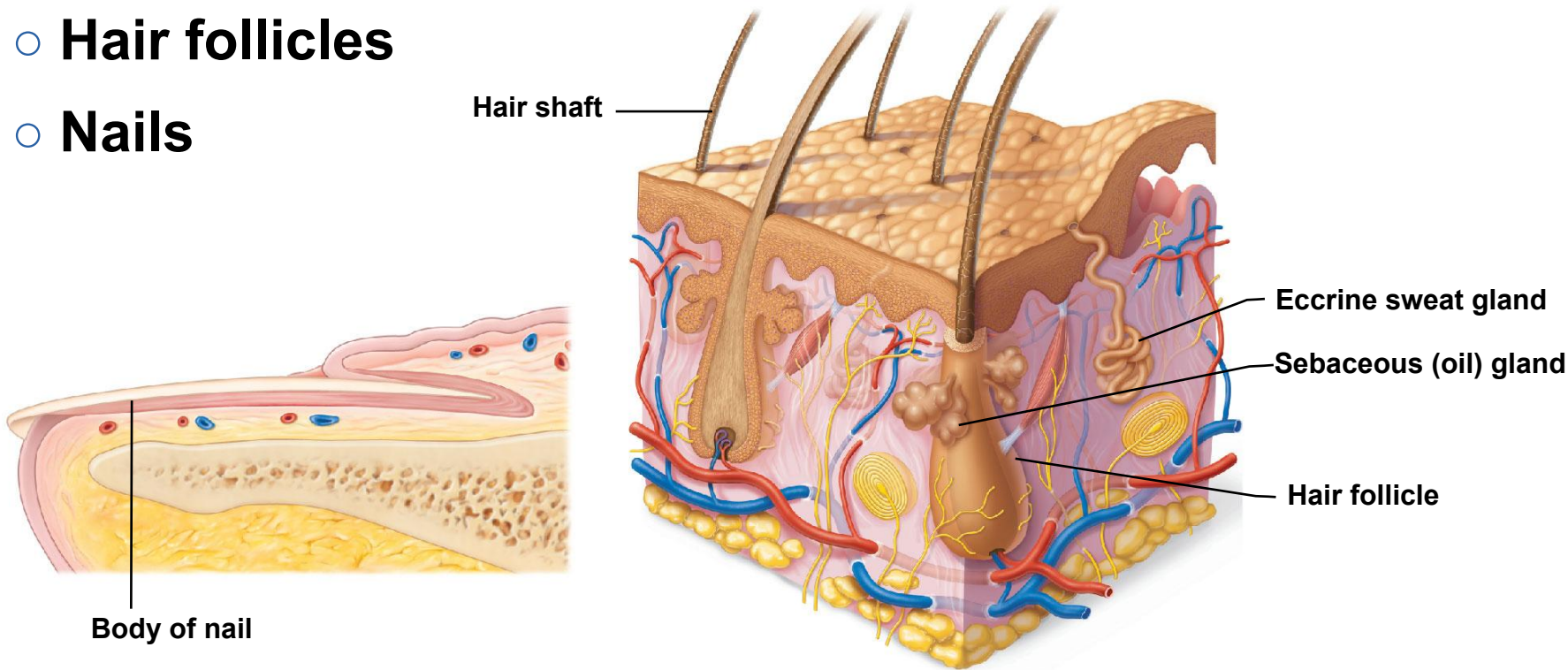


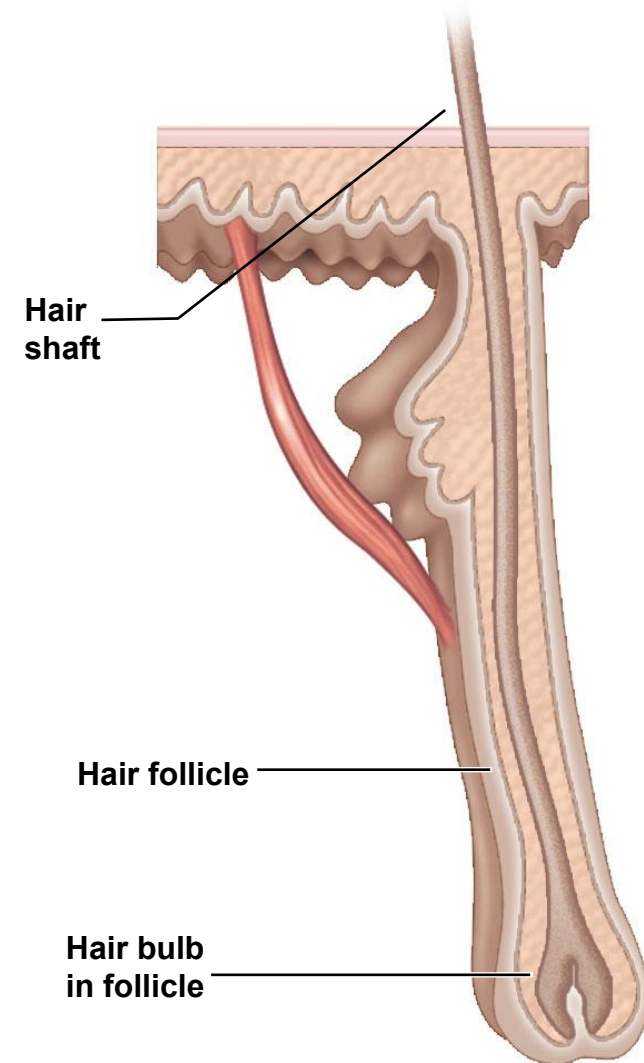
Appendages of the Skin

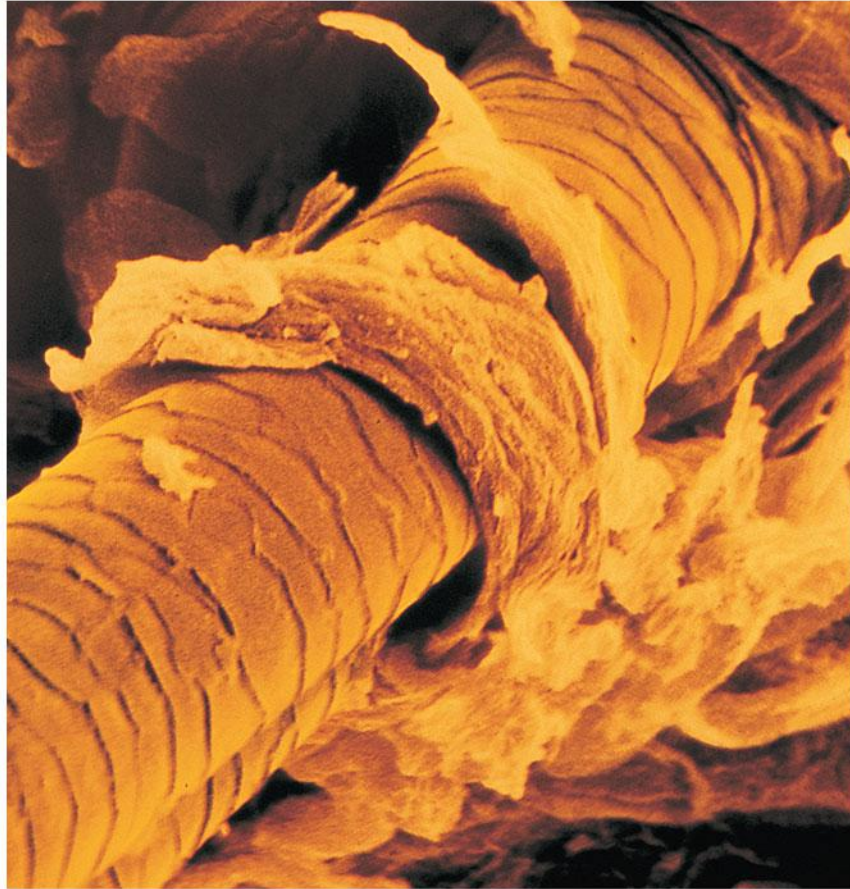
- The skin contains appendages that arise from the **epidermis** and play unique role in maintaining body **homeostasis**:
 - **Hair**
 - **Hair follicles**
 - **Nails**



Hair

- A hair is a flexible **epithelial** structure
 - Forms by division of well-nourished **stratum basale epithelial cells**
 - ✓ Grows in the **matrix of the hair bulb** at the deep end of the **hair follicle**
 - Daughter cells become **keratinized and die** and get **pushed farther away** from the growing region
 - ✓ Hair shaft is **dead cells**
 - ✓ Hair projects from the surface of the scalp or skin





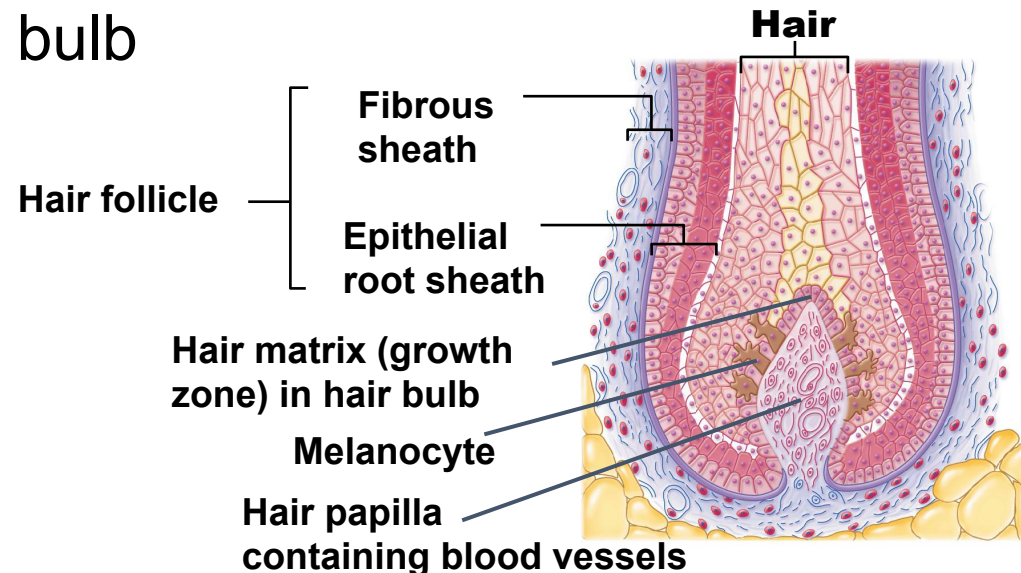
**(c) Scanning electron micrograph
of hair shaft emerging from
follicle (435 \times)**

Hair

- Hair pigment is made by **melanocytes in the hair bulb**
 - Melanocytes produce varying amounts of different types of **melanin** (yellow, rust, brown, and black)
 - Combine to produce all varieties of hair color from **pale blonde to red to pitch black**
- **Shape** of the hair shaft **determines hair texture**
 - **Oval** = smooth, silky, and wavy
 - **Flat/Ribbonlike** = curly or kinky
 - **Perfectly round** = straight and coarse

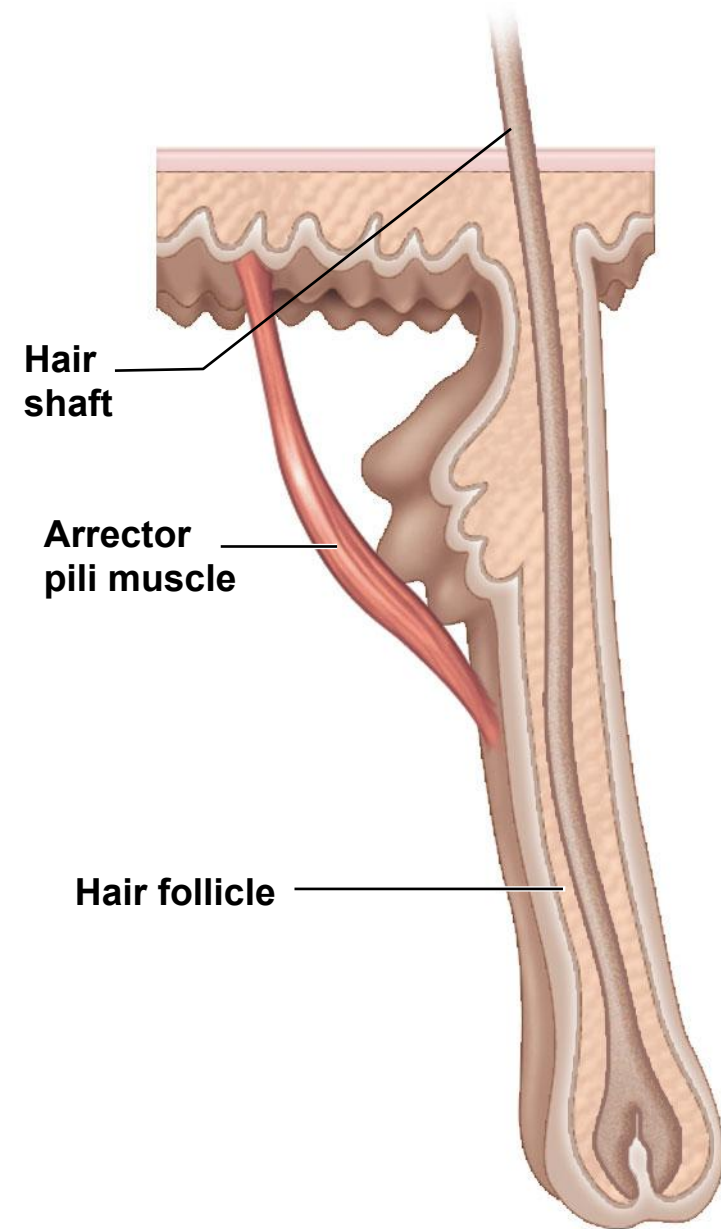
Hair Follicle

- Hair follicles are compound structures
 - Composed of an **inner epithelial root sheath**
 - ✓ **Epithelial tissue**
 - ✓ **Cells form the hair**
 - Composed of an **outer fibrous sheath**
 - ✓ **Dermal connective tissue**
 - ✓ **Provides a blood supply** to the hair matrix (growth zone) in hair bulb



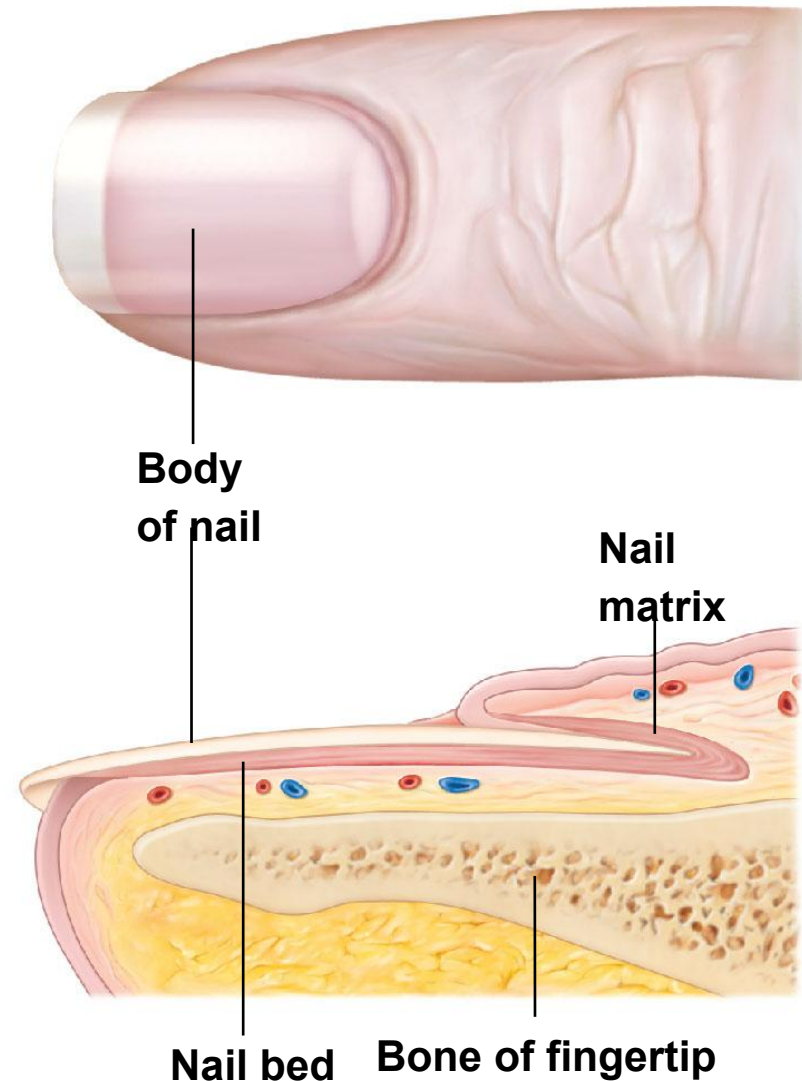
Hair Follicle

- **Arrector pili** muscle
 - Small bands of **smooth** muscle cells
 - Connects each side of the **hair follicle** to the **dermal tissue**
 - When muscle contracts, the hair is pulled upright
 - ✓ **“Goose bumps”**
 - ✓ Muscle stimulated when **cold or frightened**



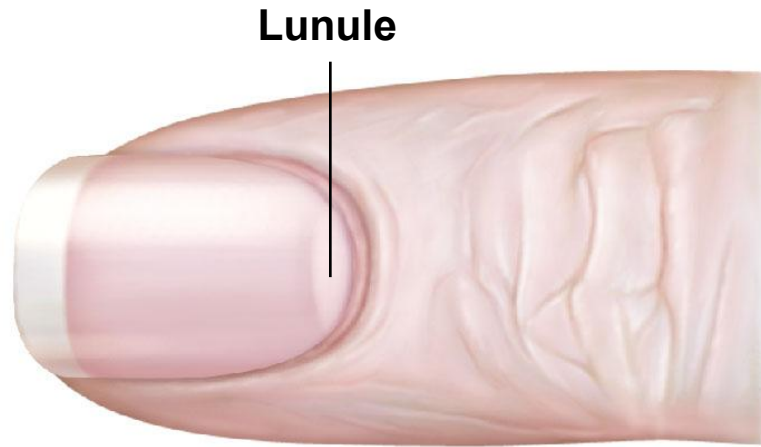
Nails

- A nail is a scalelike modification of the **epidermis**
 - **Stratum basale** of the epidermis extends beneath the nail as the **nail bed**
 - Thickened proximal area, called the **nail matrix**, is **responsible for nail growth**
 - Nail cells produced by the matrix **become heavily keratinized and die**



Nails

- **Lack of pigment** makes nails colorless and **transparent**
 - Appear pink because of the **rich blood supply** in the underlying epidermis
 - Exception is the region over the thickened nail matrix, called the **lunule**, that appears as a **white crescent**



Nails

What appendage of the skin is primarily dead/keratinized cells?



Students choose an option

Nails

What appendage of the skin is composed of a sheath formed of both epithelial and connective tissues?



Students choose an option

Nails

What layer of the epidermis is responsible for the growth of hair and nails?



Students choose an option

Nails

Why is having your hair cut painless?



Students, write your response!

Nails

When the supply of oxygen in the blood is low, what color will the nail beds be? What is the name of the condition?



Students, write your response!

Nails

Why do you think hair turns gray?



Students, write your response!