

# Integumentary System

Apparently there is no chapter/section for this in the book?

## Integument

- the skin and all accessory structure (hair, feathers, scales)

## Skin

- The largest vertebrate organ
- major part of the integument system

## Vertebrate integument and derivatives

### Functions

- Protection from abrasion
- protects against water loss
- barrier to disease causing pathogens
- protection from UV light
- temperature regulation
- contains sensory receptors
- excretion (limited)

## Vertebrate Integument

- skin and all other accessories

- skin is the largest organ o vertebrates
- skin consists of 2 layers
  - epidermis
  - dermis

## Epidermis

- outer layer
- nutrients diffuse into the epidermis form the dermis
- stratified squamous epithelial cells

## Cell types

- langerhans cells
  - defensive cells
- Melanocytes
  - produce pigment melanin
  - skin coloration
  - protect form UV light
- Merkel cells
  - touch receptors
- Keratinocytes
  - primary cell type
  - produce insoluble protein Keratin
  - amount of keratin increases from the inside to outside
  - keratin fill cytoplasm and impairs nutrient diffusion, cell dies

## Dermis

- Inner layer of skin
  - thinner than dermis
- highly vascularized
- contains:
  - sensory structures
  - vessels
  - nerves
  - glands
- Origin of hair/scales/feathers in vertebrates
- Sensory structures
  - Meissner's corpuscles
    - light touch
  - Pacinian corpuscles
    - deep vibrations

# Sweat Glands

- temperature regulation
- produce sweat (primarily water)
  - evaporating cooling
  - release of waste ions
- 2.5 million on the body
- release of heat

# Sebaceous Glands

- all over body, except palms and soles
- large on face, neck, and upper chest
- produce sebum
  - lubricates and soften hair and skin
  - water proofing in aquatic mammals

# Hypodermis

- subcutaneous layer
  - below the dermis
- not a layer of the skin
- contains much adipose (fat) tissue
- females have thicker layer of adipose tissue than males

# Function

- body contour
- insulation
- support the skin

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