

Structure/function and dysfunction

- Barrier function
- Disorders of cornification

Functions of Skin

- Indicator of general health and disease

Enclosing Barrier

- **#1 PREVENT WATER LOSS**
- **Prevent loss of ELECTROLYTES**
- **Prevent loss of Cells**
- **PROTECT from environmental insults**
 - Microbial
 - Thermal
 - Chemical

Keep Pathogens OUT

Keep Moisture and Nutrients IN

Protect from Environmental Insults

- **Photoprotection**

- Pigmentation
(melanocytes)
- Hair



Barrier Function

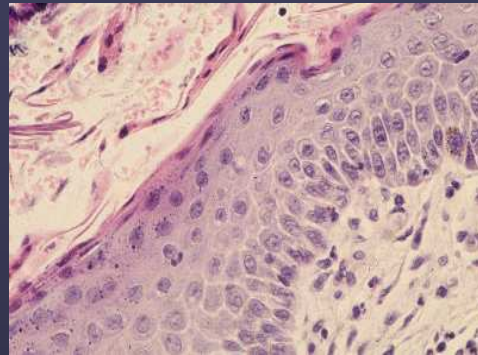
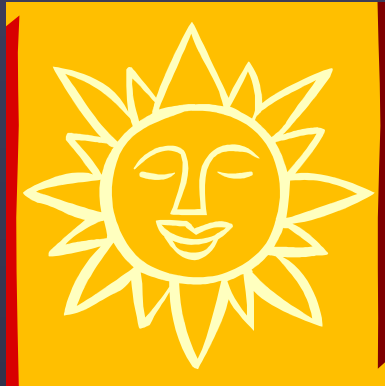
- Continuous desquamation
 - Structural integrity
 - Skin Immune System
 - Keratinocytes
 - Langerhans cells
 - dermal dendritic cells + lymphocytes
- constant immunosurveillance

Functions of Skin

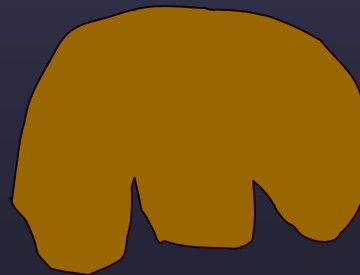
- **Sensory Organ**
 - touch, heat, pain, cold, itch
- **Temperature regulation**
 - Equine Anhidrosis
- **Storage of electrolytes, fat, protein**



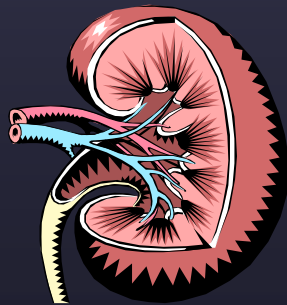
Produce Vitamin D



**Epidermis converts
proVitD3 into VitD3**



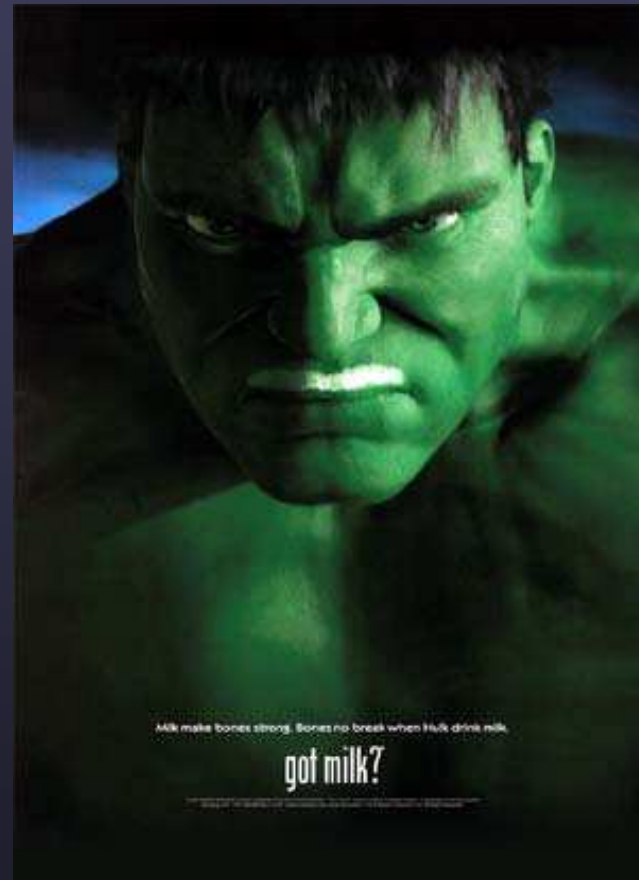
**Vit D3 hydroxylated
in Liver to 25, Vit D3**



**Converted to active form
1,25 Vit D3**

Vitamin D3 and the Skin

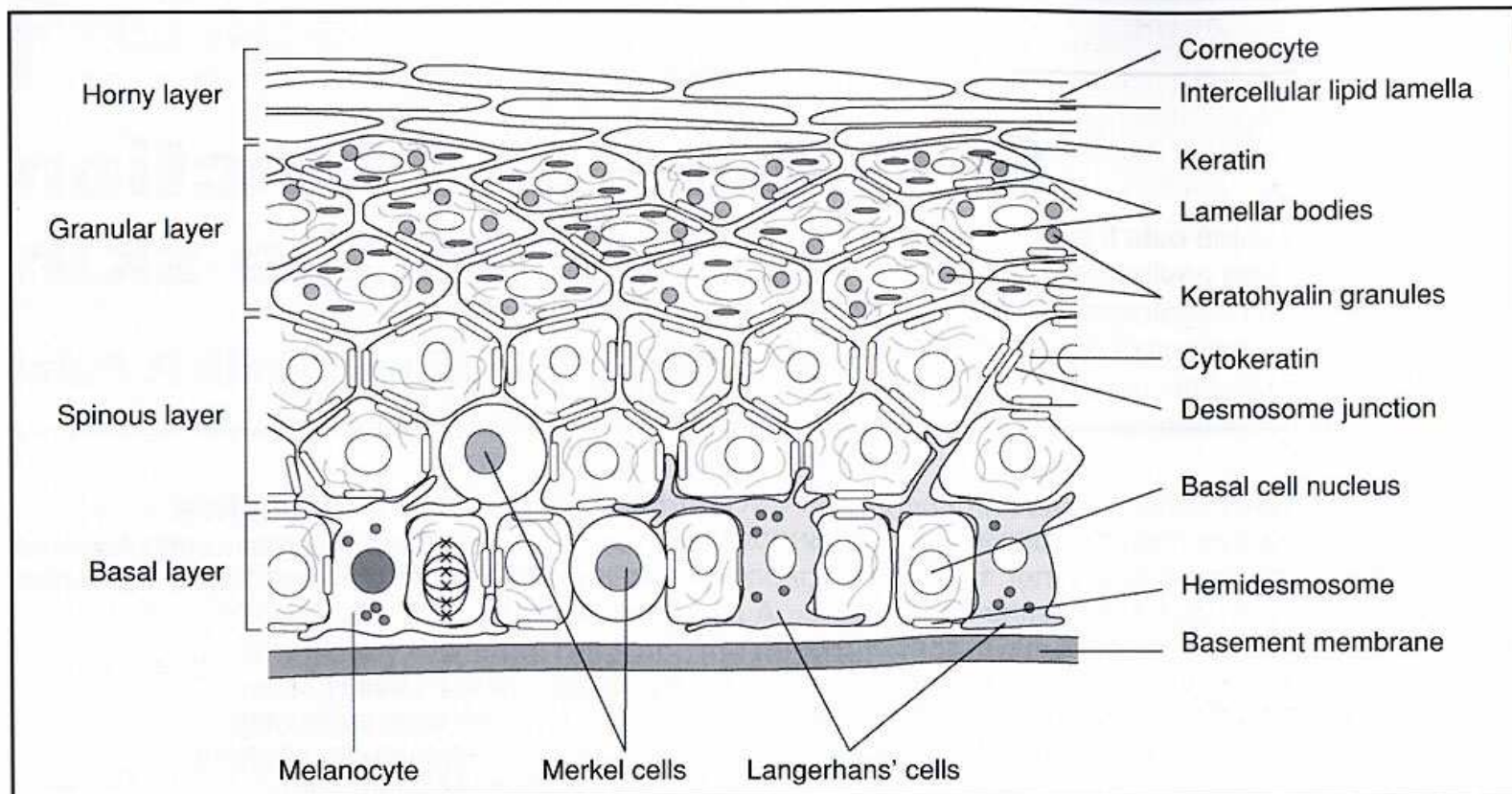
- Regulating epidermal differentiation
- Epidermal proliferation
- *Topical Vit D synthetic analogs for treatment of psoriasis*



Components of the Skin

- **Epidermis**
- **Basement membrane zone**
- **Dermis**
- **Adnexal structures**
 - hair follicles, apocrine glands (epitrichial), eccrine glands (atrichial), sebaceous glands, arrector pili muscles
- **Subcutis (hypodermis)**
 - No subcutis in some areas (cheek, eyelid, anus, external ear)

Chapter 1 Structure and function of the skin



1.2

Diagrammatic representation of the epidermis, illustrating the organization of the cells and their maturation into fully cornified cells. © Anita Patel.