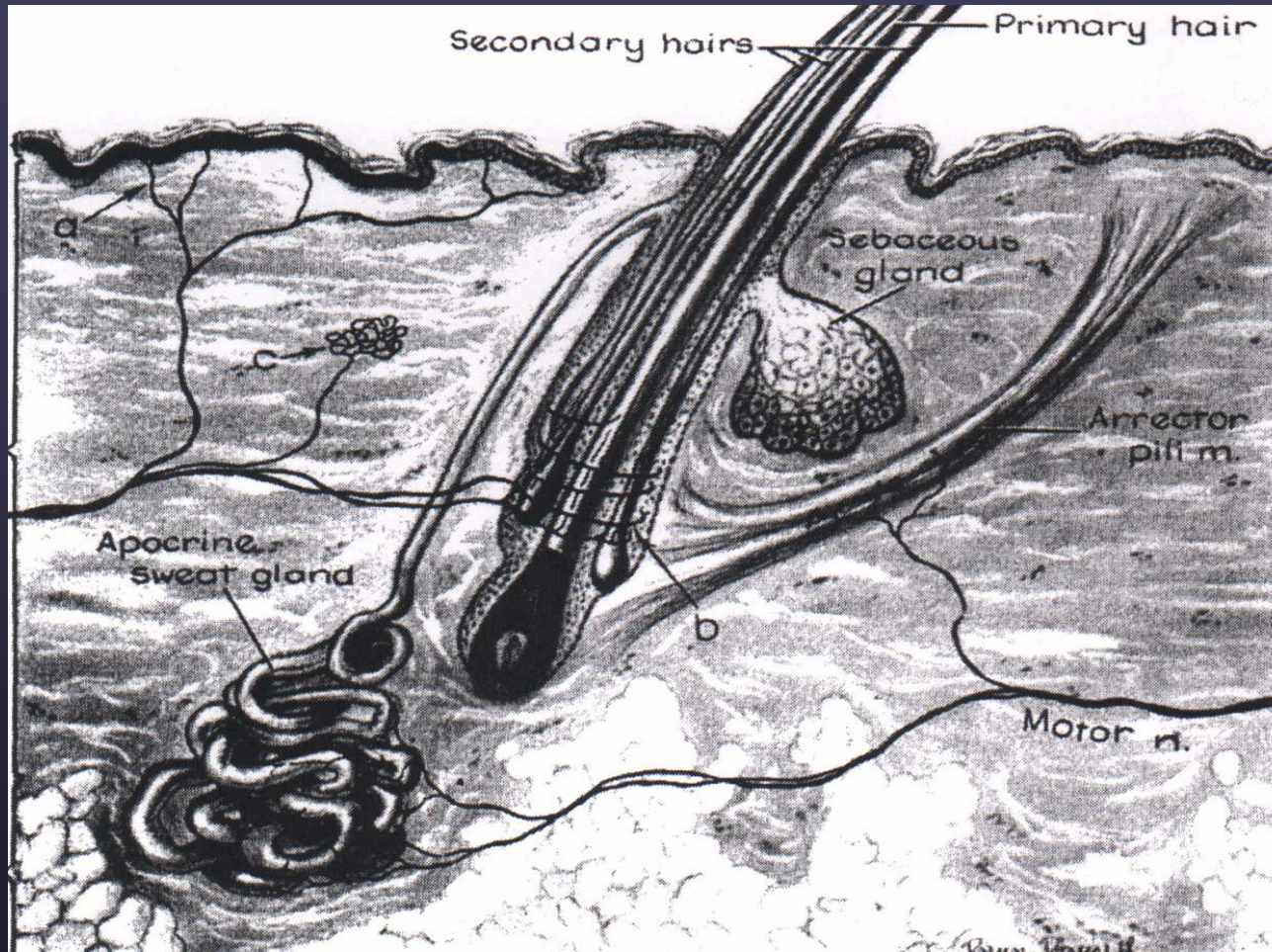
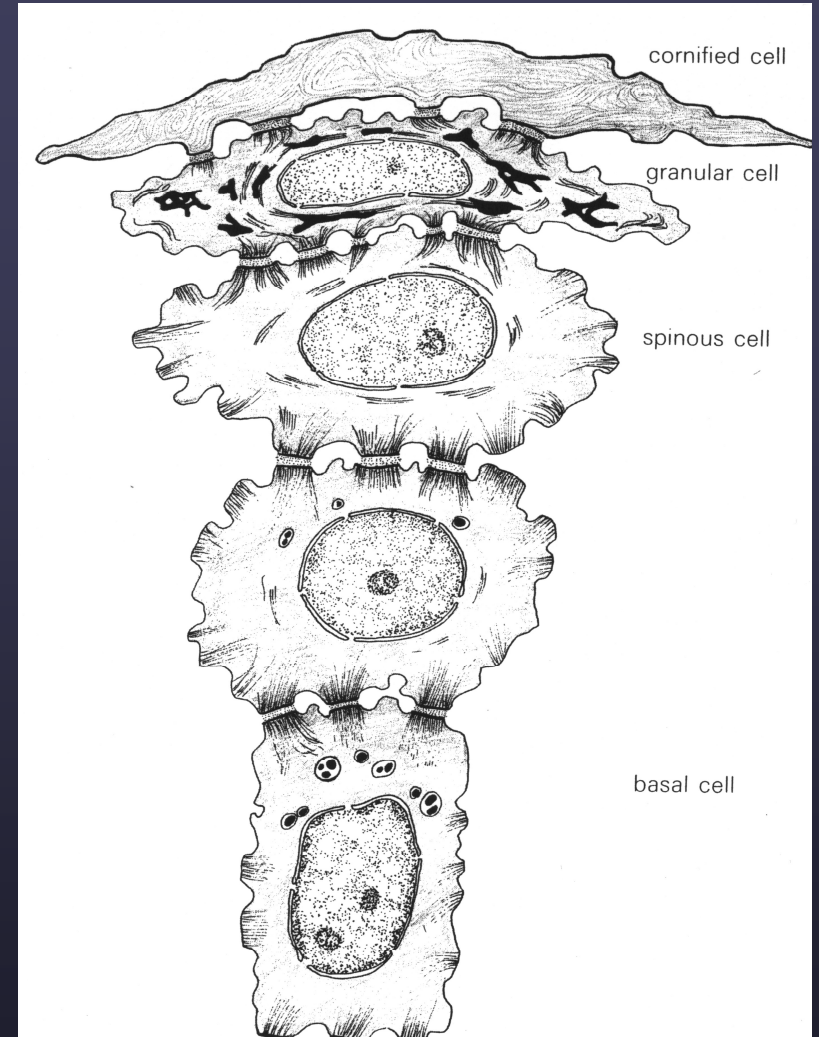
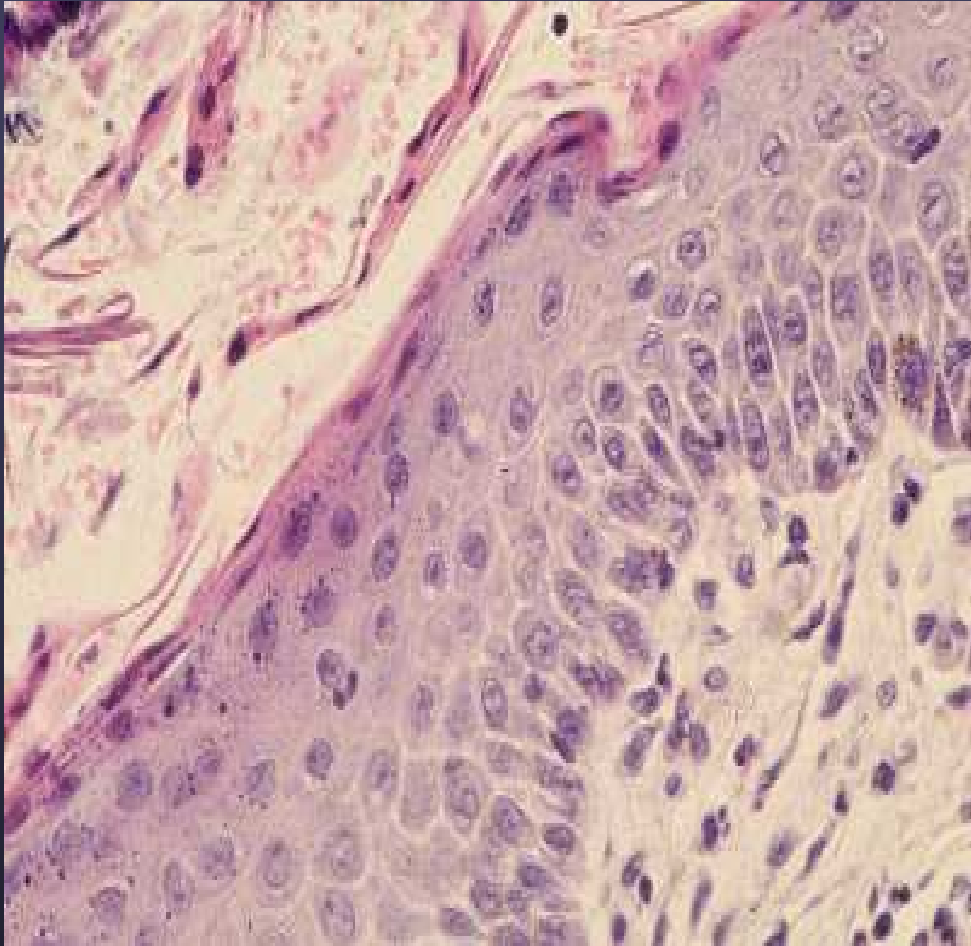


# Normal Anatomy of the Dog



► Muller and Kirk's Small Animal Derm, 2001



► Ackerman's Histologic Diagnosis of Inflammatory skin diseases, 1978

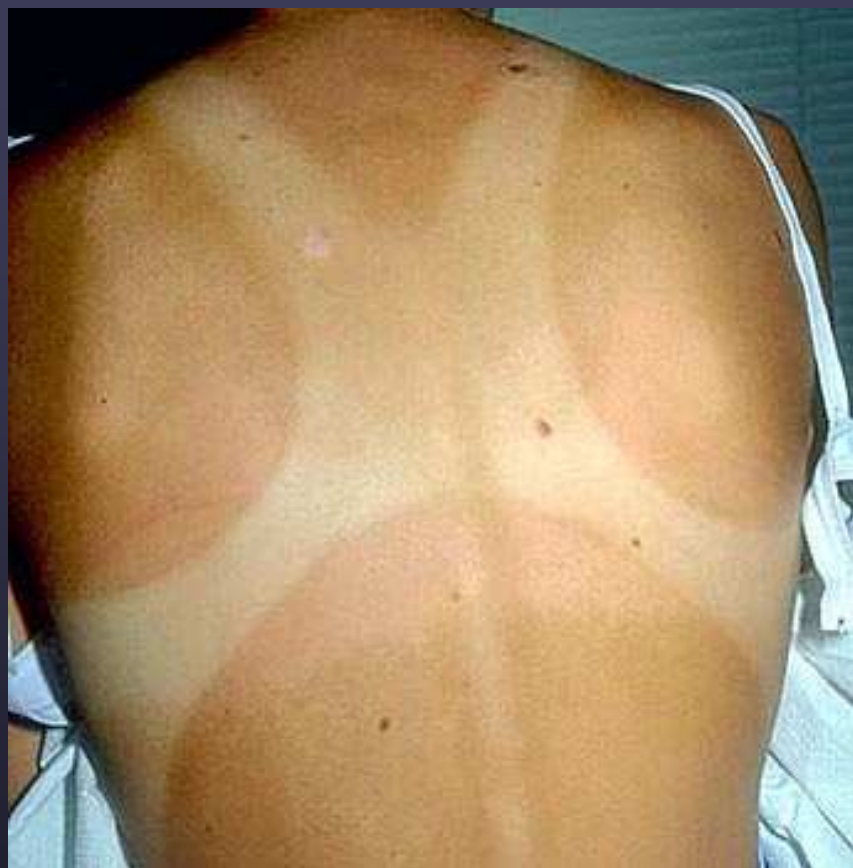
# Functions of Keratinocytes

- Structural support
- Contribute to skin immune system
- Undergo differentiation and cornification → major barrier function

# Keratinocytes and Inflammation

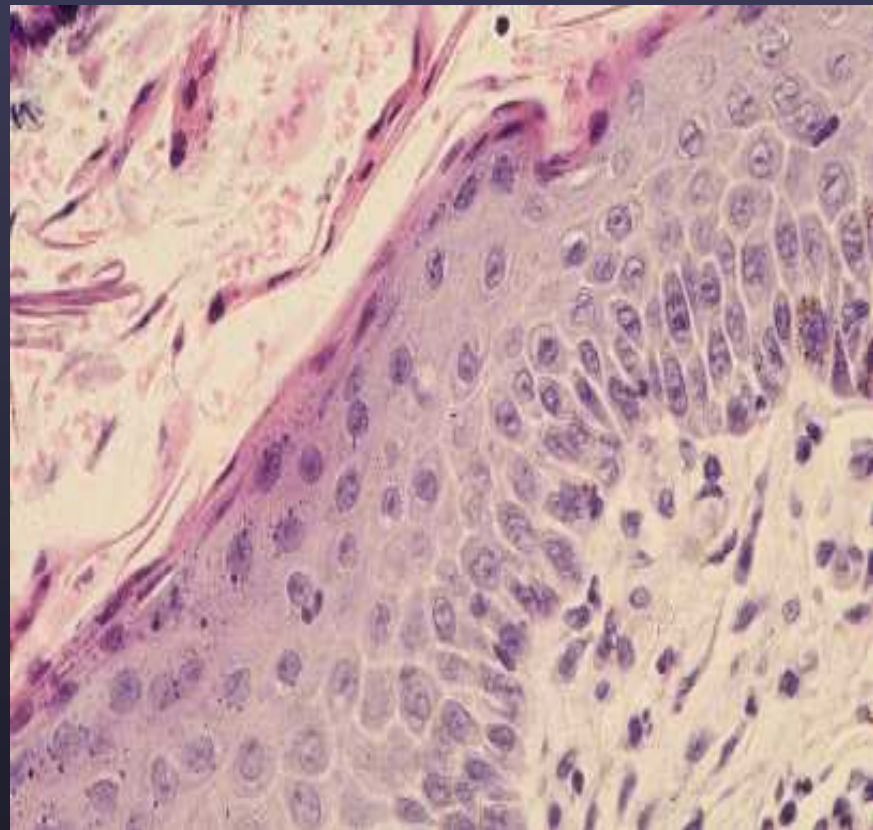
- Produce cytokines
  - Constitutively
  - Upon activation
  - Can cause systemic effects
  - Produce other inflammatory mediators
    - Neuropeptides, free radicals, prostaglandins, growth factors
- Drug metabolism





# Keratinocyte Differentiation and Cornification

- Modified form of apoptosis
- Lose all cytoplasmic organelles
- Develop a thick cornified envelope



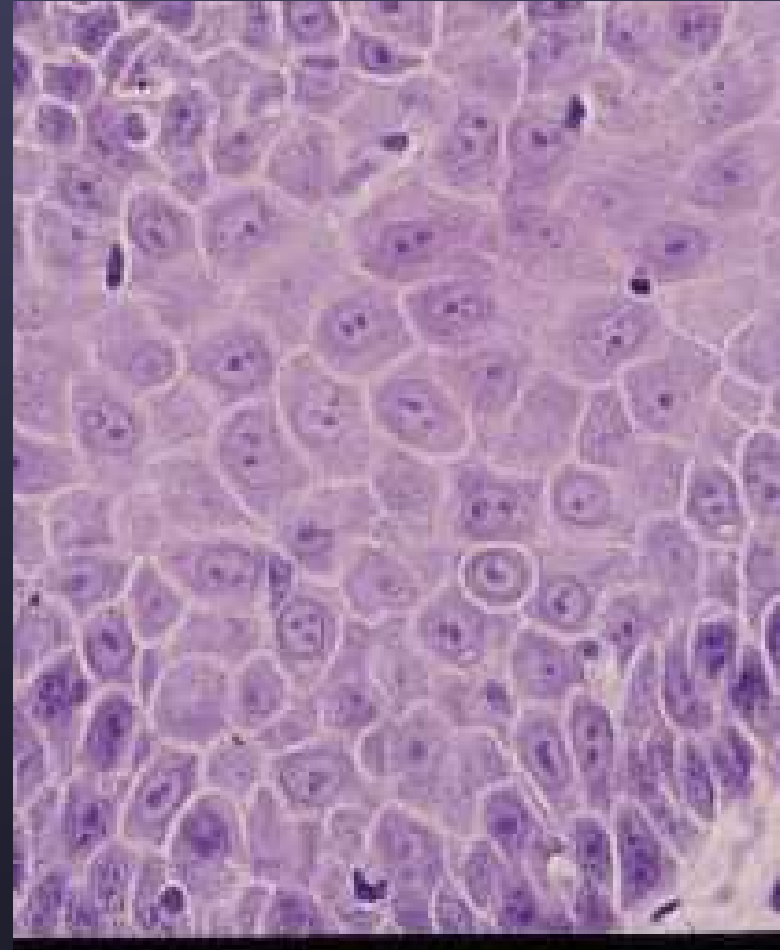
# Stratum Basale

- Progenitor layer
  - Slow-cycling stem cells
  - Transiently amplifying cells
  - Terminally differentiated cells
- Rests on BMZ
  - Hemidesmosomes
- Melanocytes



# Stratum Spinosum

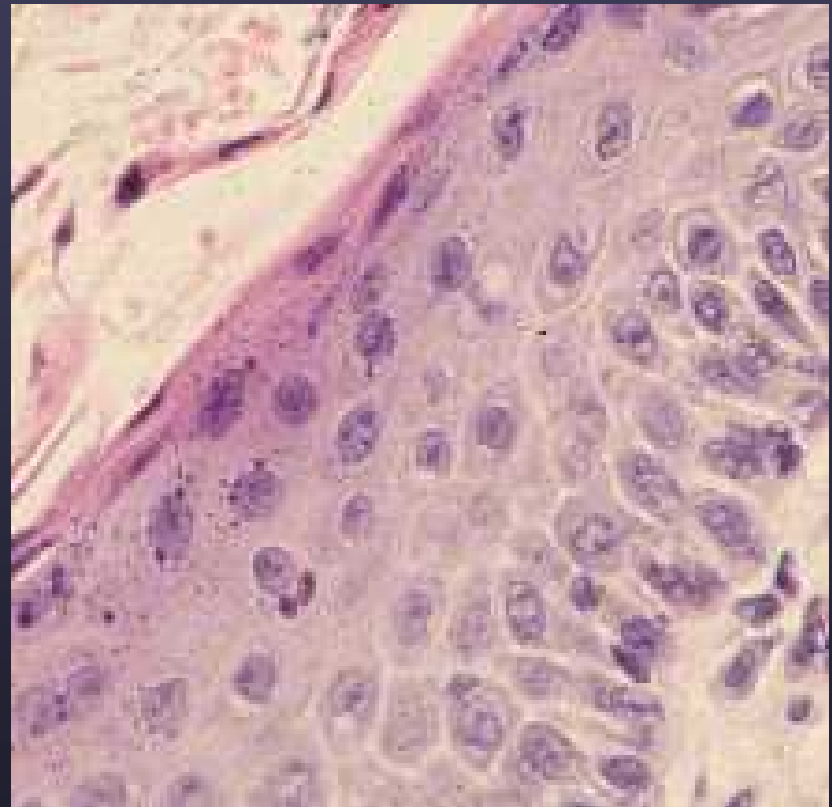
- Prominent intercellular attachments (desmosomes)
- Cells become larger, flatten out
- May contain Langerhans cells





# Stratum Granulosum

- Layer of flattened keratinocytes
- Basophilic (keratohyalin) granules
- Profilaggrin- a precursor of filaggrin
  - Aggregates keratin filaments.
- Variably present in domestic animals



# Stratum Corneum

- Fully keratinized, anucleate, dead cells
- > 20 layers
- Continuously shed
- Keratin and intercellular lipids
  - “mortar and bricks”
- Major structural barrier

