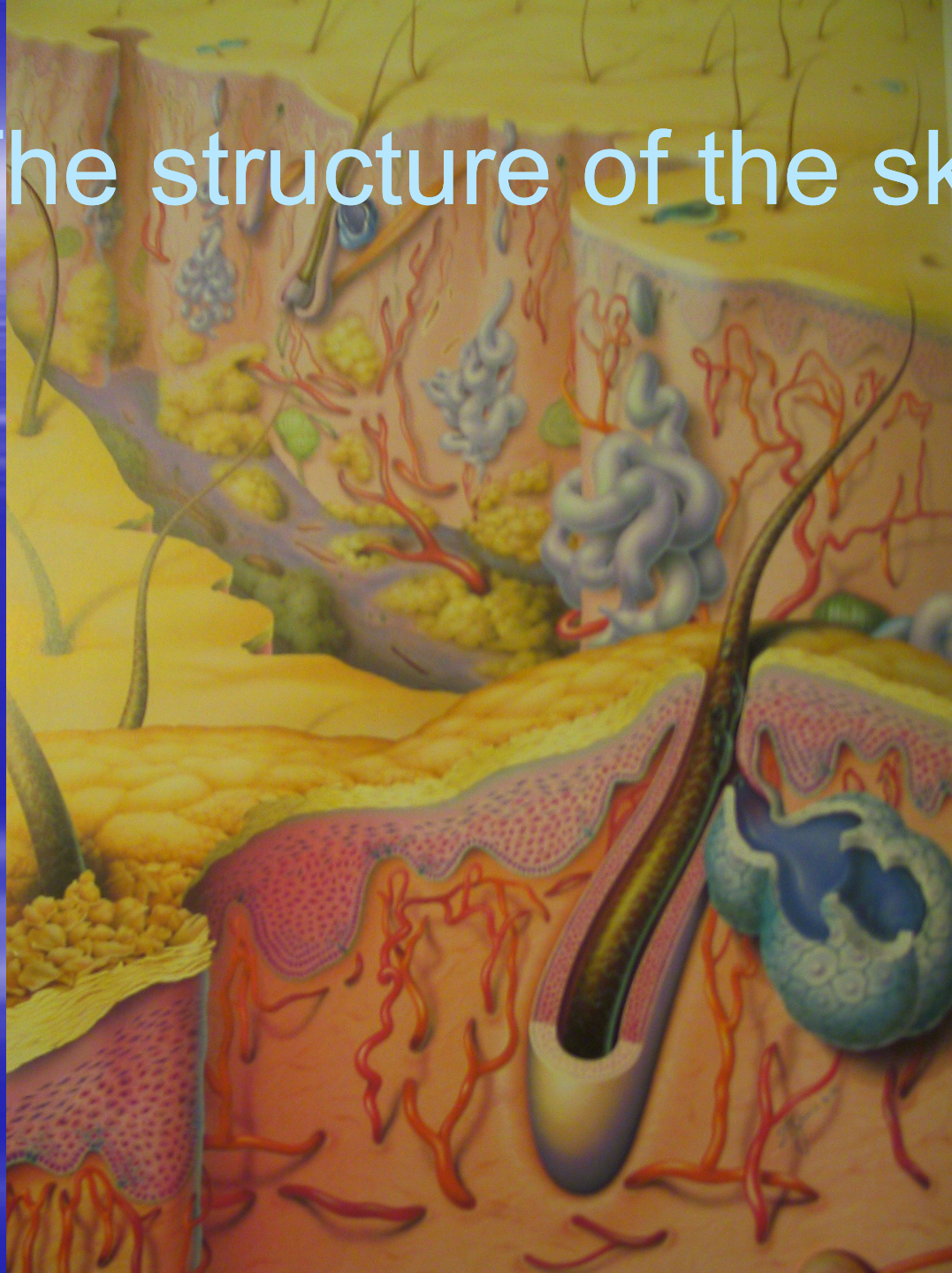


# The structure of the skin

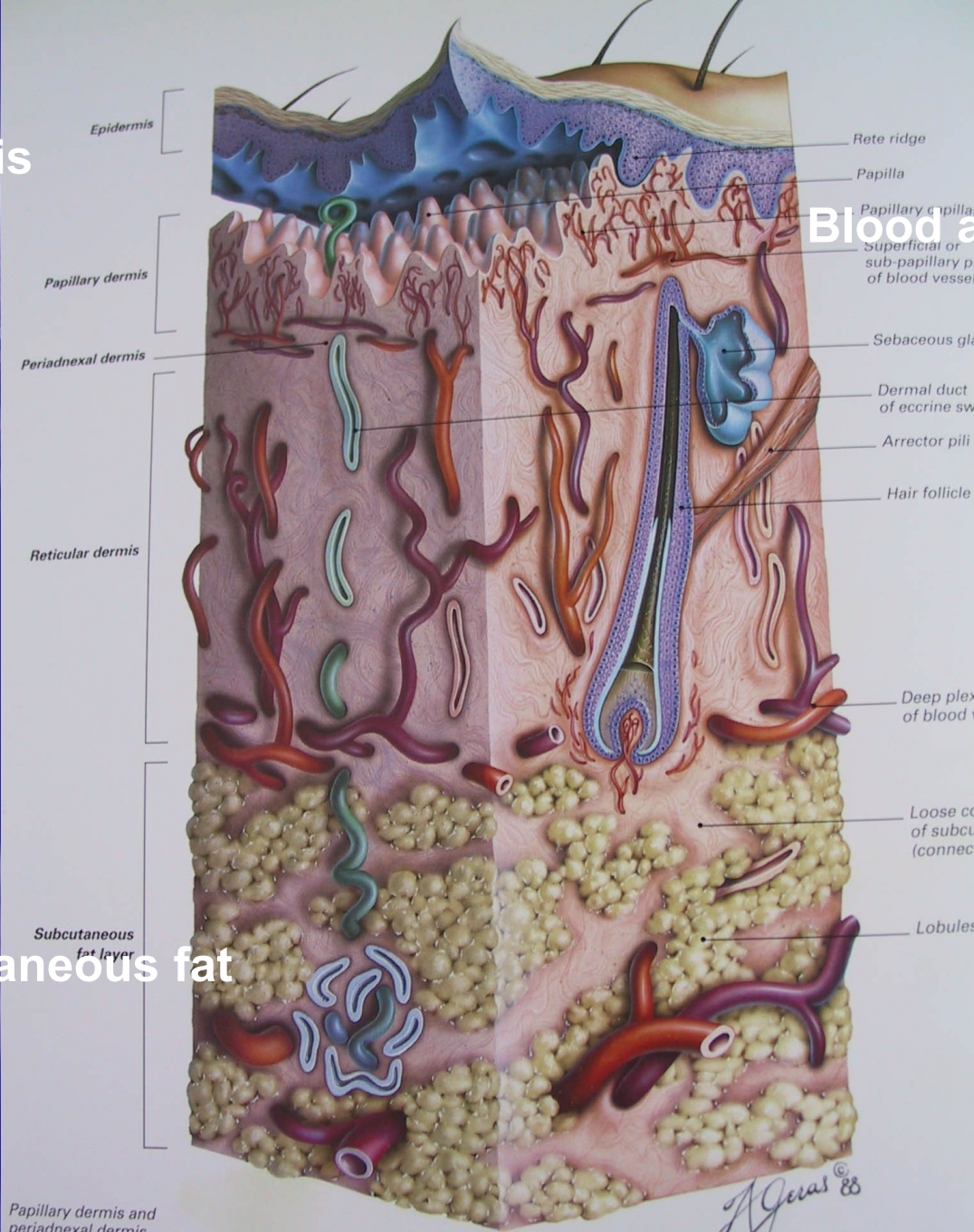




Epidermis

Dermis

Subcutaneous fat



Papillary dermis and periadnexal dermis together are also referred to as adventitial dermis

Blood and lymphatic vessels

Hair follicle

Sweat glands

Nerves



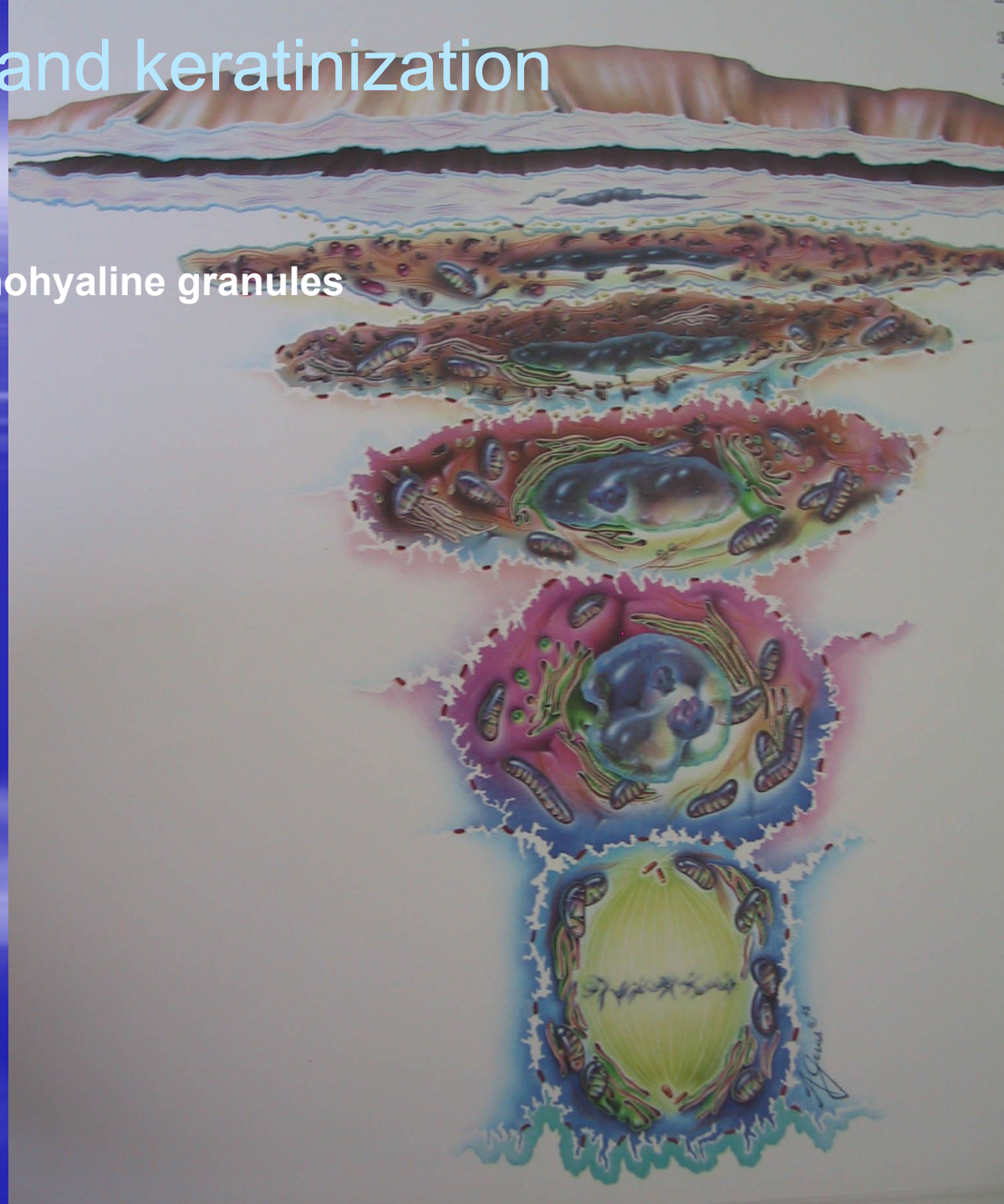
# Keratinocyte and keratinization

Horny layer

Granular layer- keratinohyaline granules

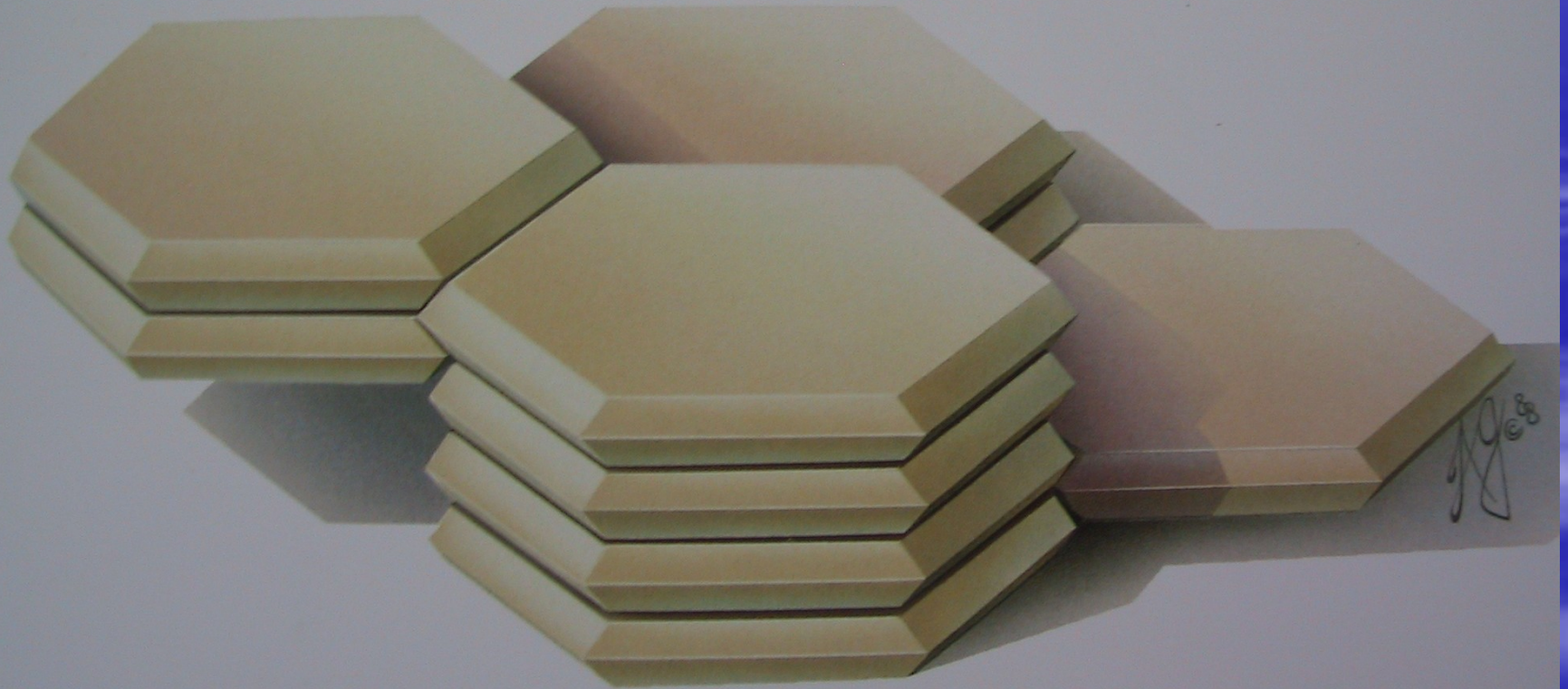
Stratum spinosum

Basal cell layer

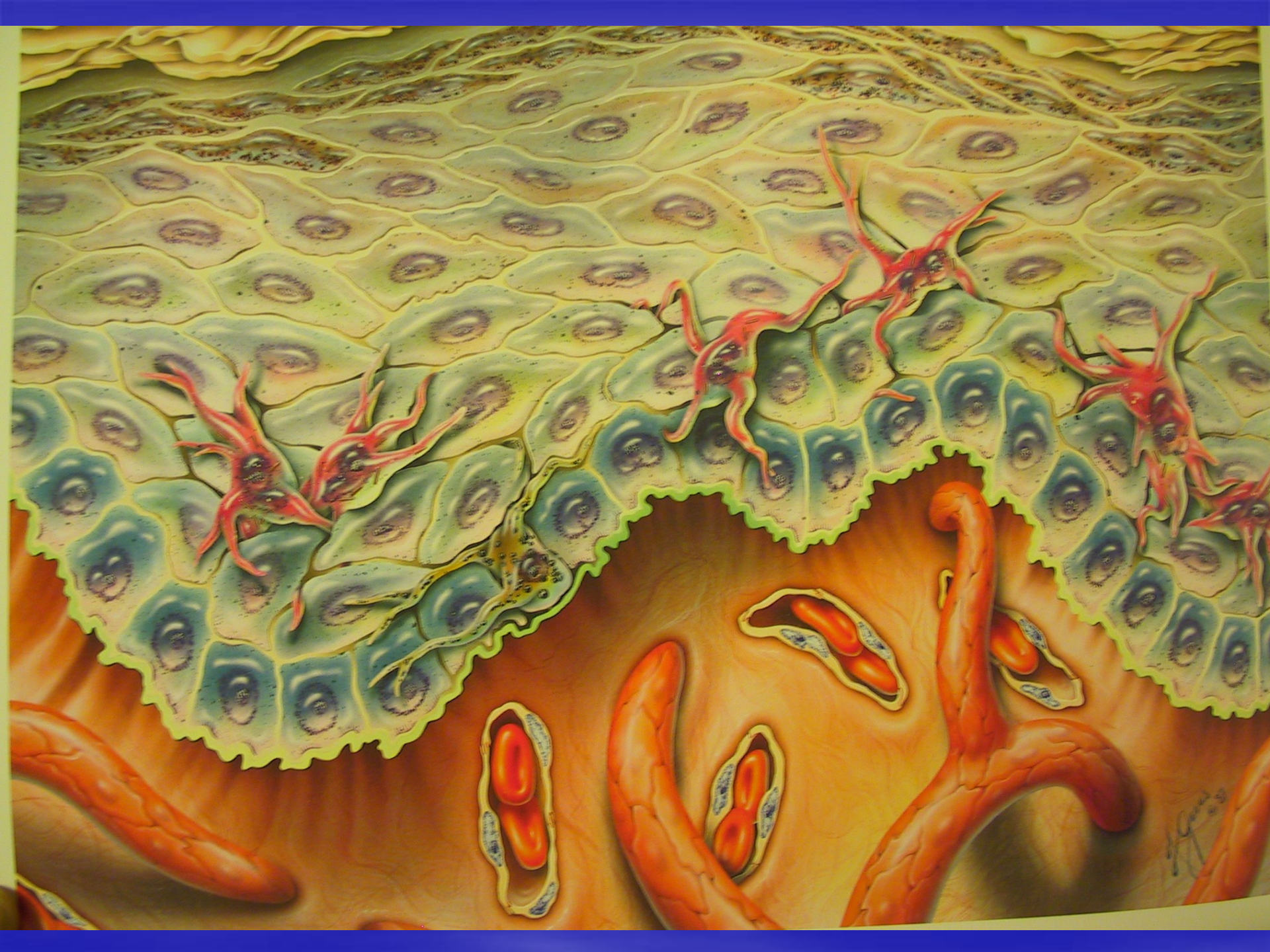




# Horny layer - epidermal barrier

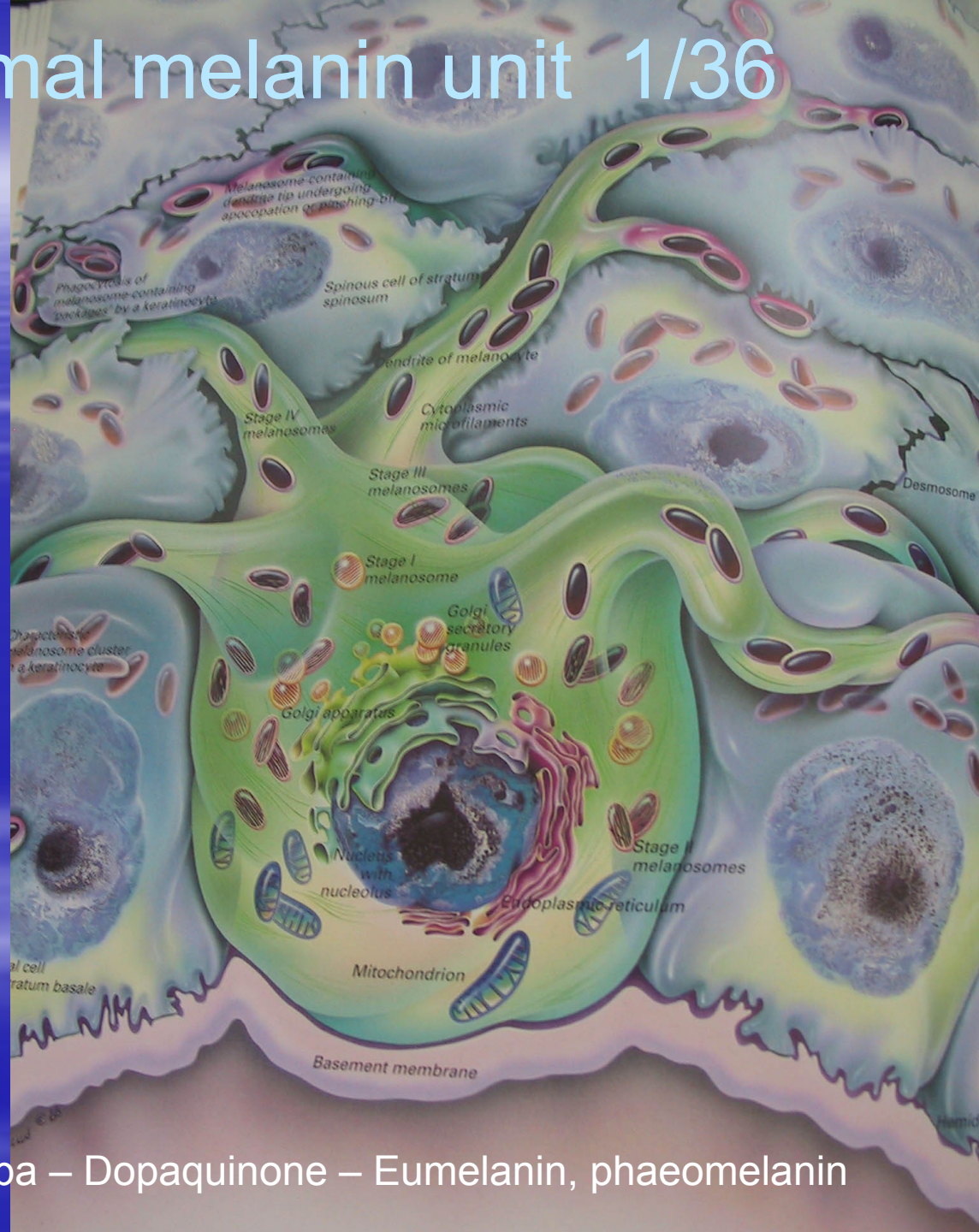








# Epidermal melanin unit 1/36

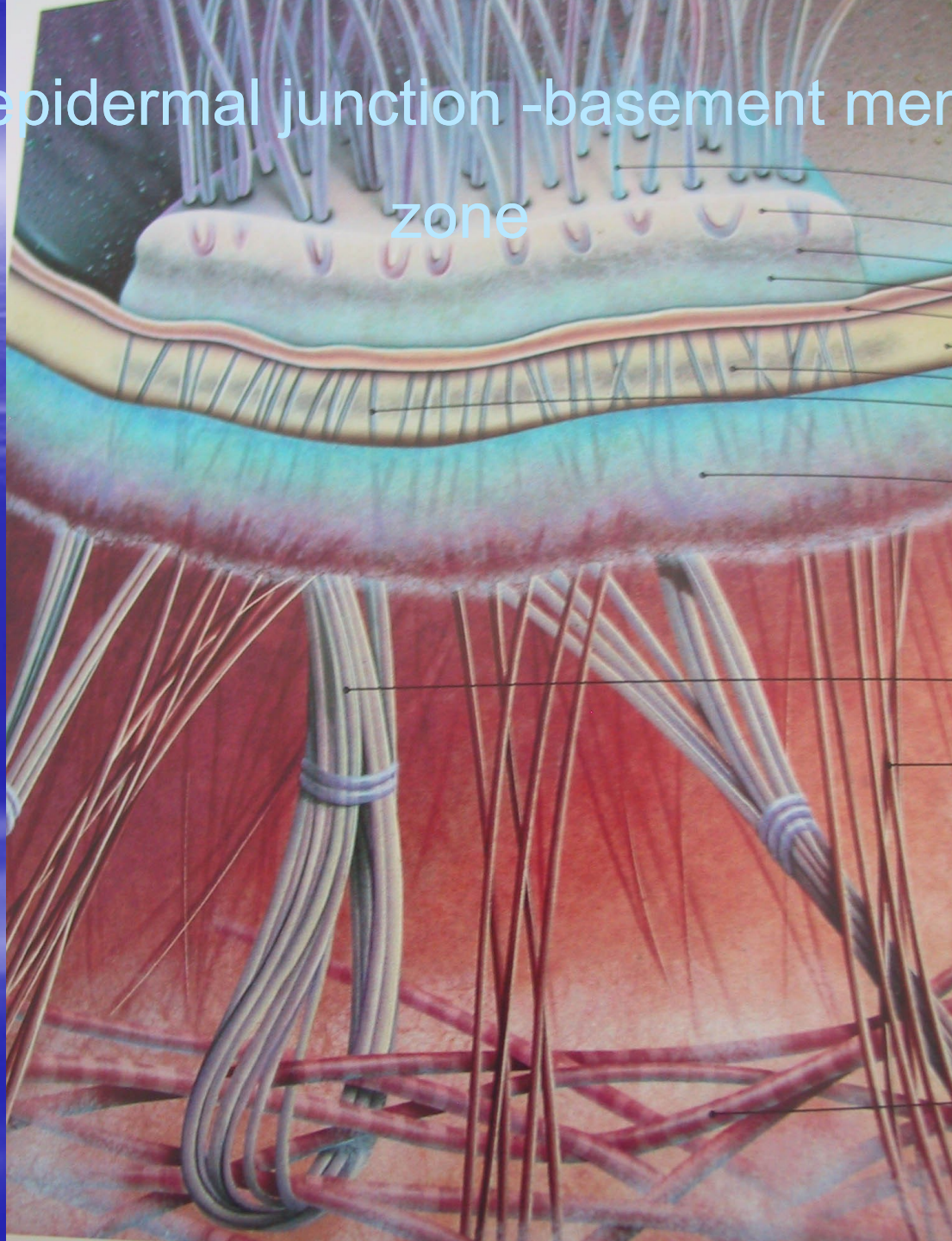


Tyrosinase

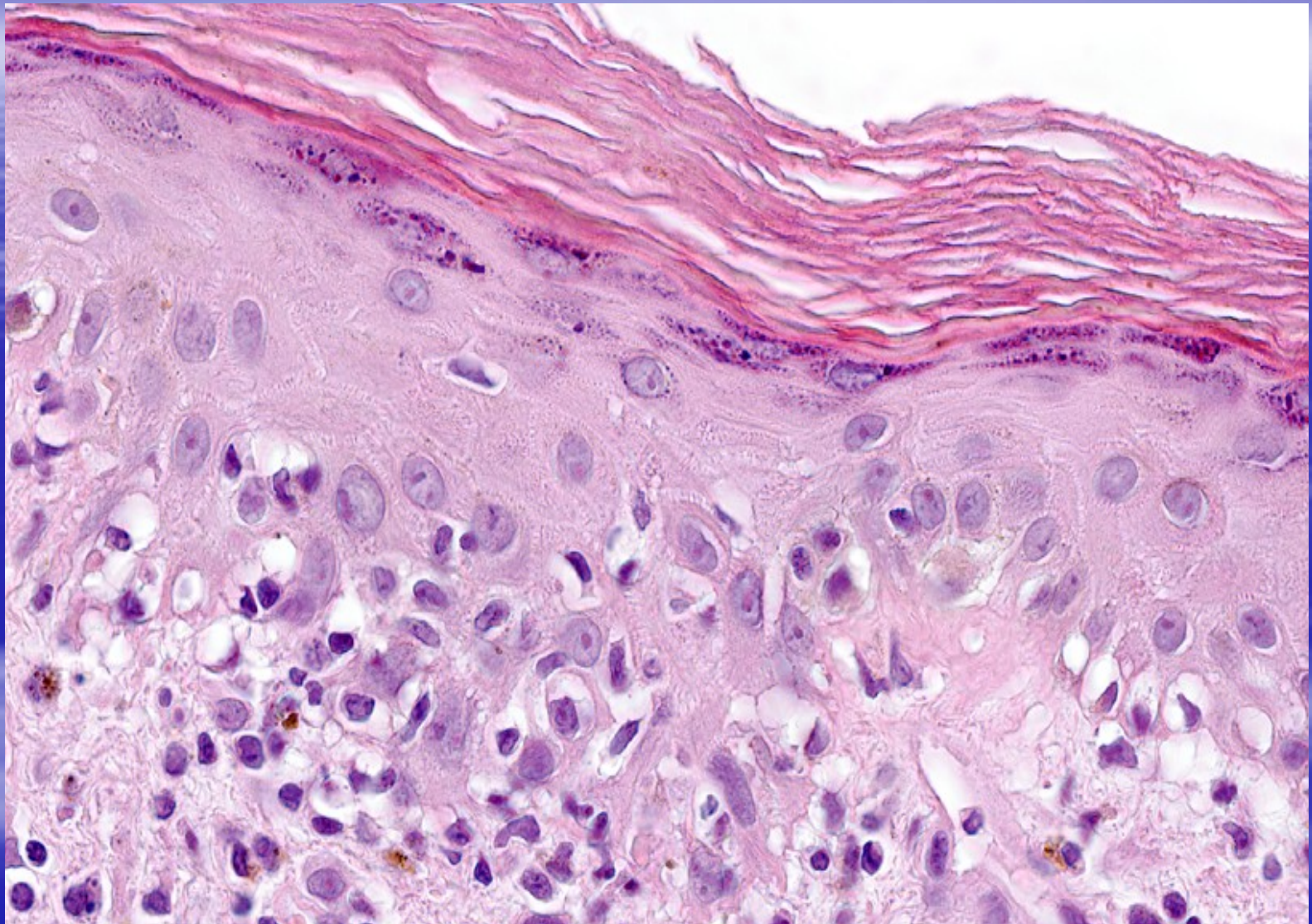
Tyrosine – Dopa – Dopaquinone – Eumelanin, pheomelanin



# Dermo epidermal junction -basement membrane zone



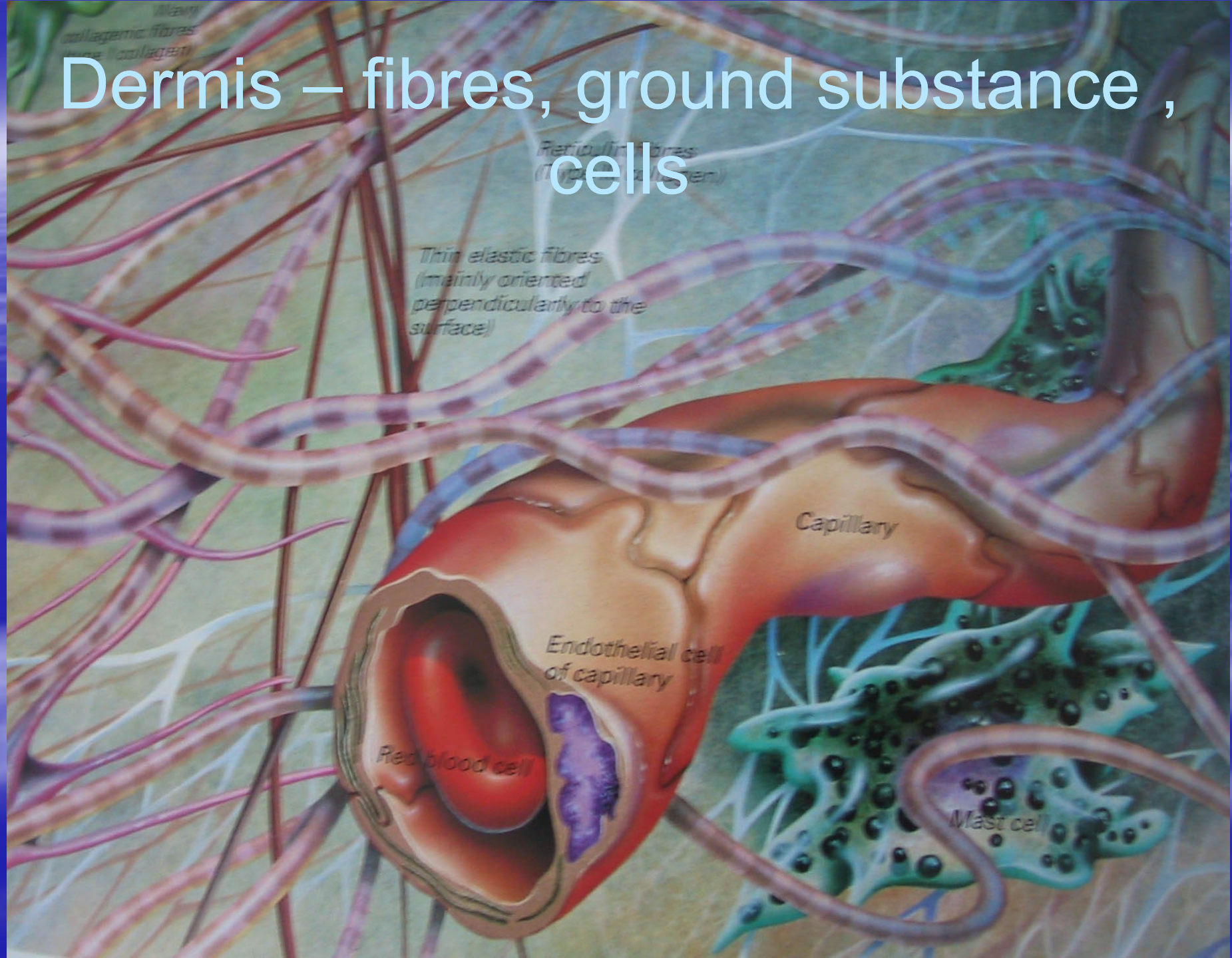




[www.muni.cz/atlas](http://www.muni.cz/atlas)

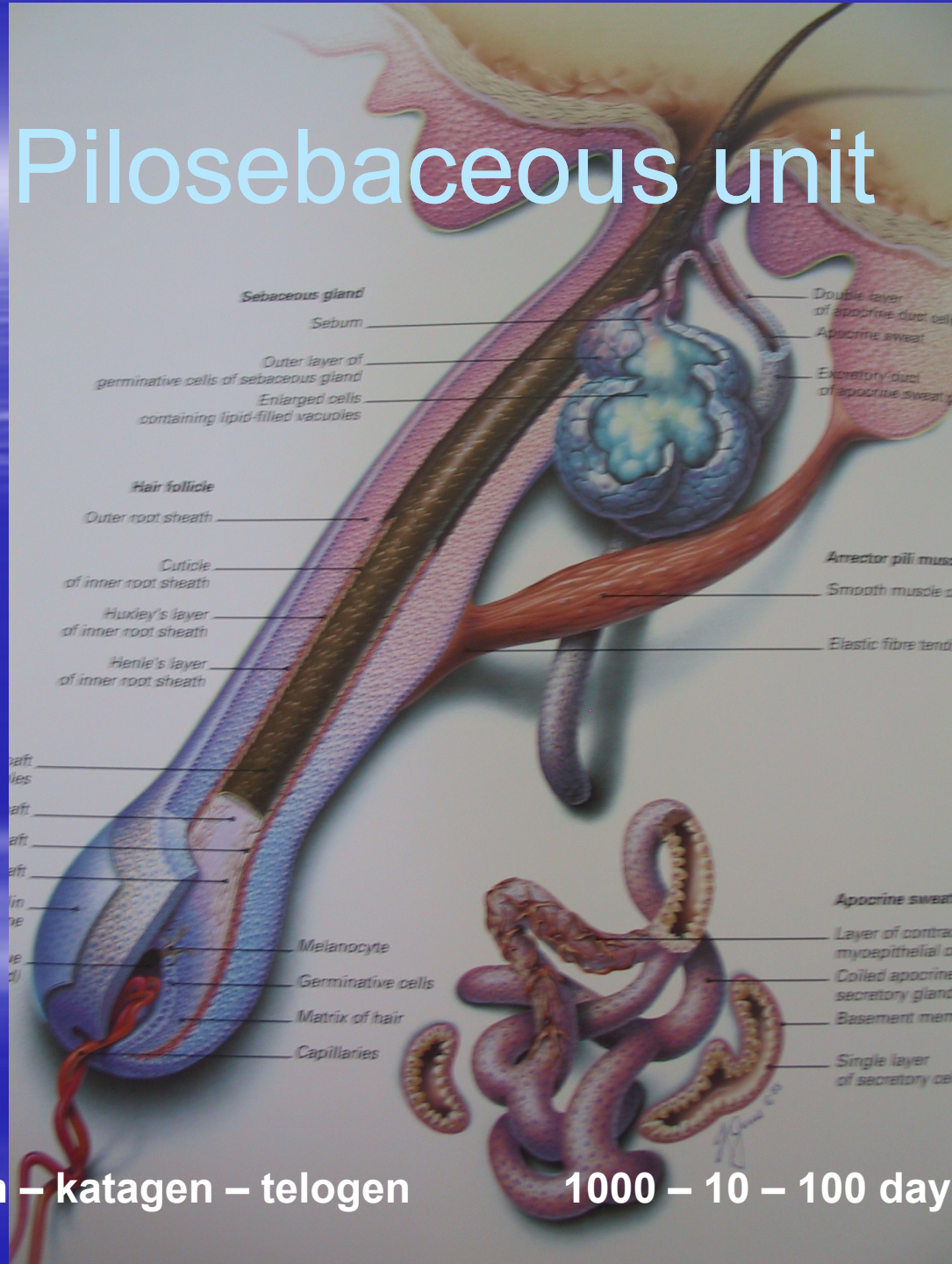


# Dermis – fibres, ground substance , cells





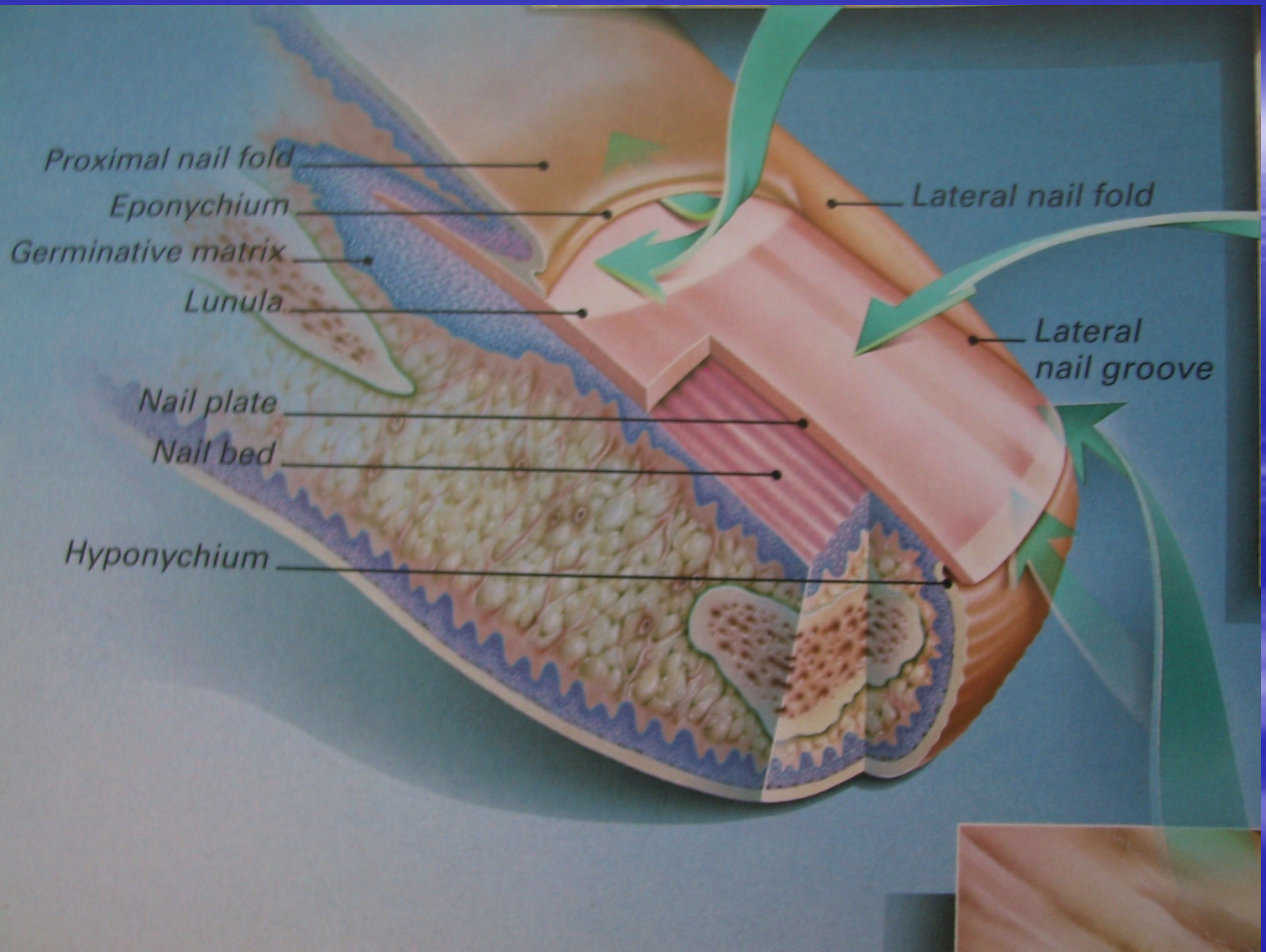
# Pilosebaceous unit



Hair cycle anagen – katagen – telogen

1000 – 10 – 100 days







# Nerves

Nerve endings

Merkel cells

Corpuscles



Itch



# The function of the skin

## 1. Protection against

- chemicals
- physical factors – UV, cold, heat
- Infections
- antigens
- Horny layer
- Melanocytes
- Langerhans cells



# The function of the skin

## 2. Preservation of balanced internal environment

- Loss of water, electrolytes, macromolecules

## 3. Temperature regulation

## 4. Shock absorber

## 5. Sensation

## 6. Energy reserve

## 7. Vitamin D synthesis

- Horny layer

- Blood vessels, eccrine sweat glands
- Dermis, subcutaneous fat

- Nerves

- Subcutaneous fat

- Keratinocytes



# The function of the skin

## 8. Protection and fight

- Nails, hair

## 9. Psychosocial function

- Cosmetic quality, lips, hair

## 10. Body odour

- Apocrine sweat glands



# Some functions of dermal resident cells

- **Fibroblast** synthesis of collagen, reticulin, elastin, fibronectin, glycosaminoglycans
- **Mononuclear phagocyte** phagocytose (bacteria), cytokine secretion
- **Lymphocyte** – immunosurveillance
- **Mast cell** – release of mediators (histamine, heparin, prostaglandins, leukotrienes, tryptase etc)