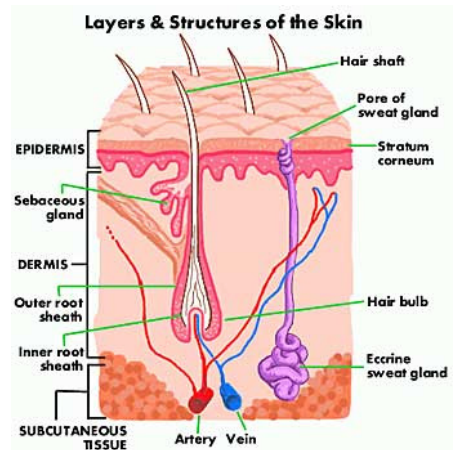


Integumentary System



Anatomy and Physiology

Mrs. Michaelson

6.1 Introduction

A. Organ:

B. Skin is the

C. Together with hair, finger nails, sensory receptors, and glands make up the

6.2 Skin and its Tissues

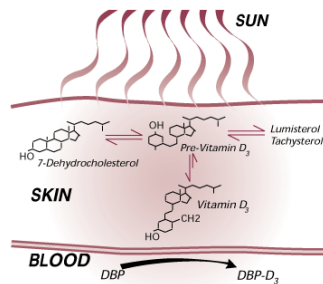
A. Vital to maintaining

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

6.2 Skin and its Tissues

7. Produces

- a. Necessary for
- b. Can obtain from diet or synthesized from
- c. Dehydrocholesterol travels via



Vitamin D Production

http://www.wardelab.com/img/reports/sun_skin.gif

8. Keratinocytes (specialized cells in skin)

6.2 Skin and its Tissues

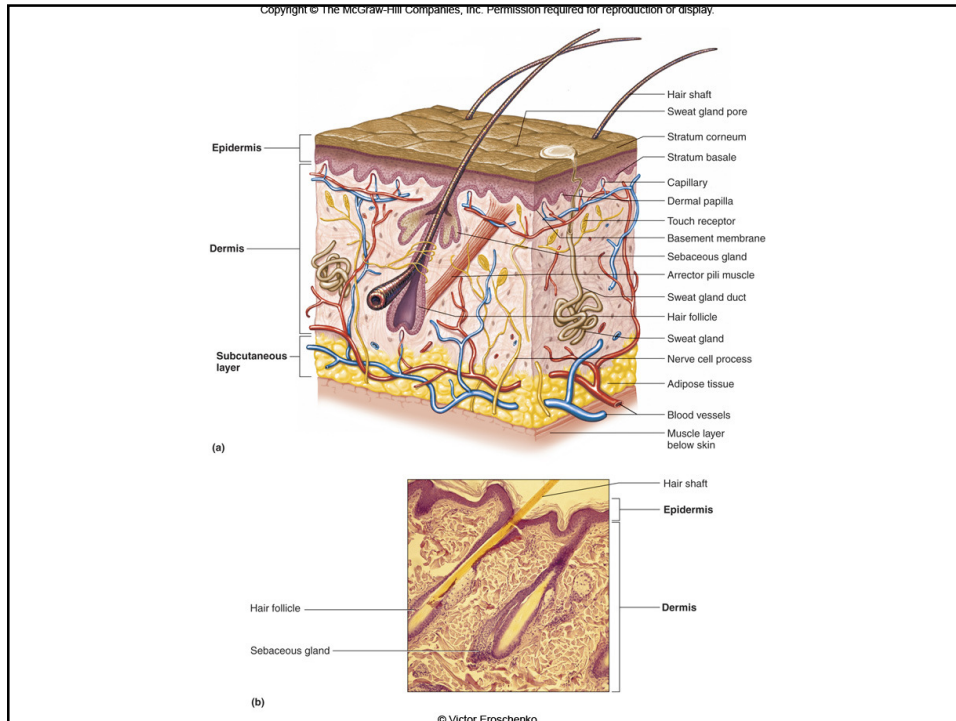
B. Two distinct layers:

1. Epidermis:
2. Dermis: Inner layer, thicker and includes
3. Basement membrane anchors

6.2 Skin and its Tissues

C. Subcutaneous Layer: Beneath dermis and consists of

1. Binds skin to
2. Not a “true” layer of the skin –
3. Provides



6.2 Skin and its Tissues

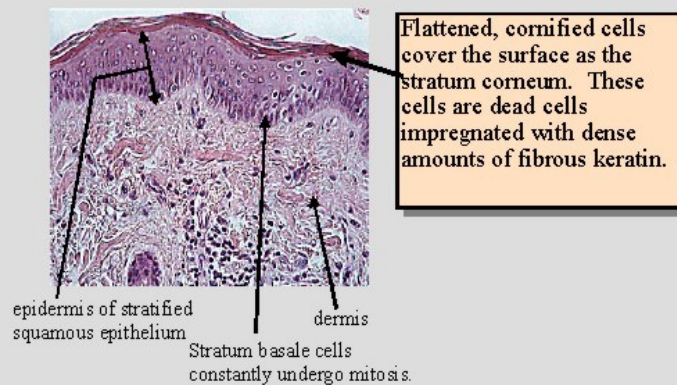
A. Epidermis

1. Outermost and
2. Protective—
3. Lacks
4. Stratum germinativum (basale): Innermost layer of cells
 - a. Nourished by
 - b. As cells approach surface,

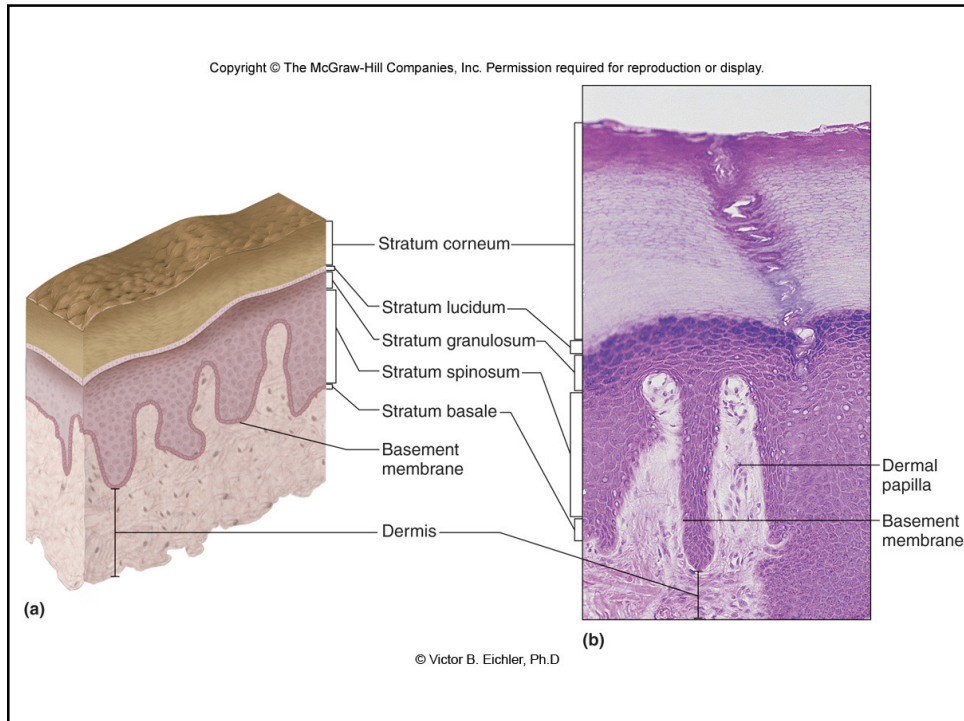
6.2 Skin and its Tissues

4. Dead keratinized cells accumulate and form the
5. Epidermis thickness varies
 - a. Usually four layers found:
 - b. Additional layer – *stratum lucidum* founds at palms and soles where calluses and corns develop.

Stratified Squamous in the Epidermis of the Skin



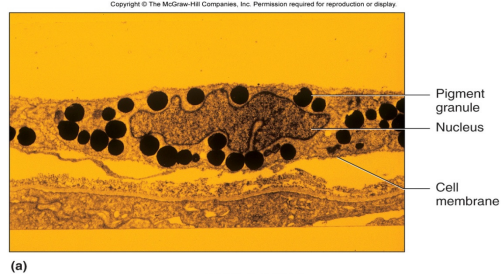
webanatomy.net/.../epithelial_index.htm

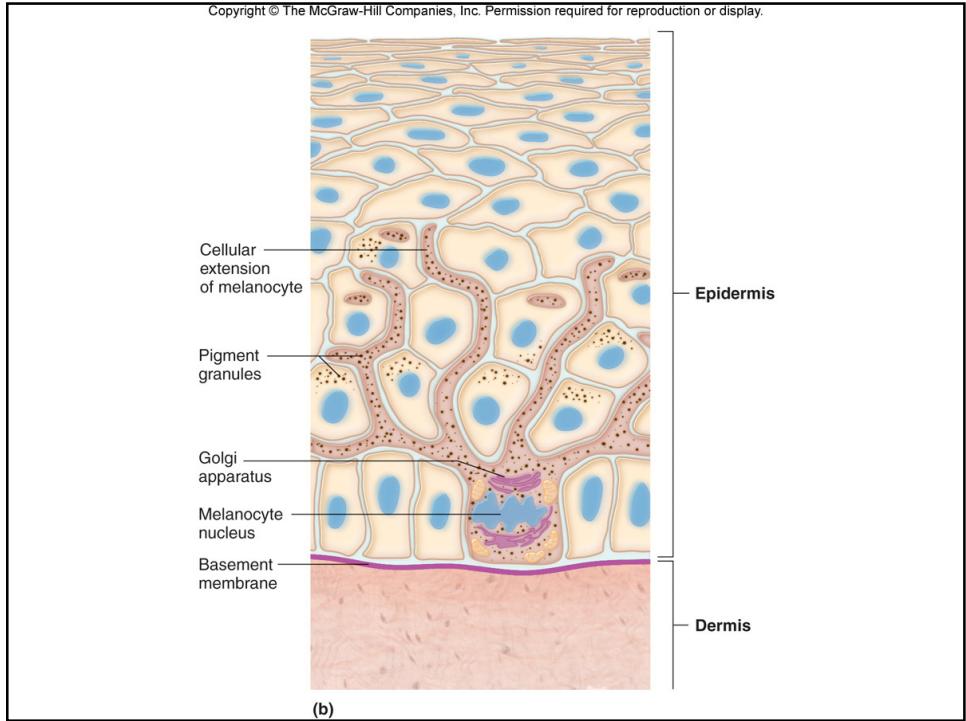


6.2 Skin and its Tissues

6. Special cells called

- a. Found in the deepest areas of epidermis.
- b. Melanin absorbs
- c. Can pass pigment to other epidermal cells by





6.2 Skin and its Tissues

7. Skin Color

- a. All people have the
- b. Differences occur due to

- i. This is

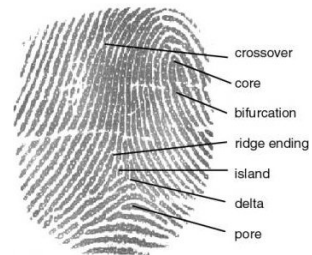
6.2 Skin and its Tissues

- a. Environmental and physiological factors can influence skin color.
 - i.
 - ii. Blood flow to skin – increase in blood flow (more oxygen) causes
A decrease in blood flow (lack of oxygen) causes
- b. Eating vegetables high in
can make skin turn yellow or orange.
 - a. Jaundice (accumulation of bilirubin)

6.2 Skin and its Tissues

B. Dermis

- 1.
2. Composed largely of
3. Upper area of dermis characterized by
4. Ridges and grooves in dermis form pattern



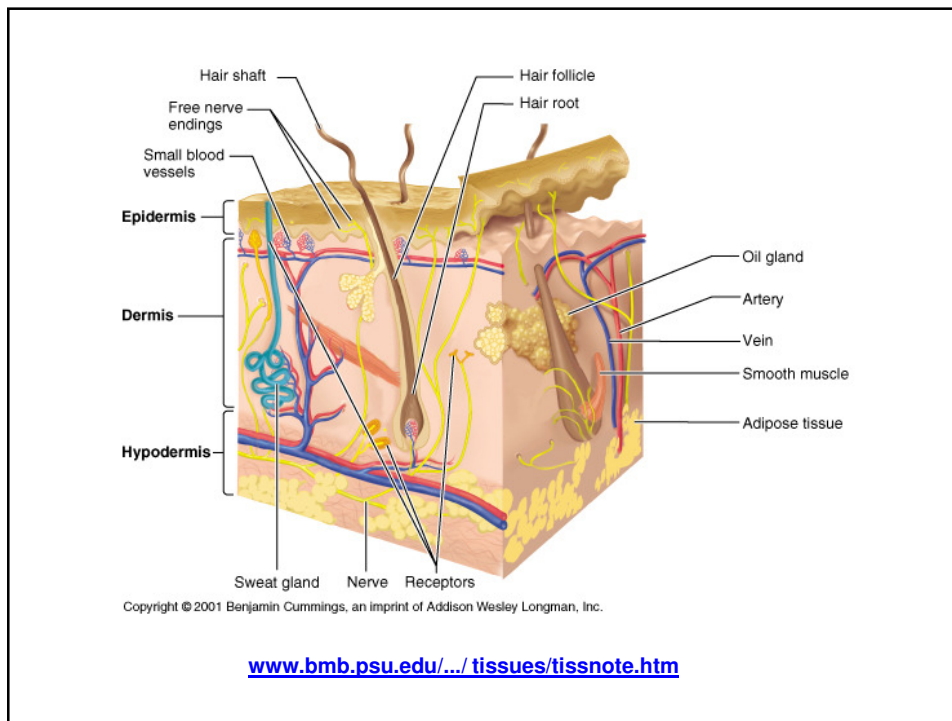
<http://shs.westport.k12.ct.us/forensics/textbook.htm>

6.2 Skin and its Tissues

5. Deeper areas of dermis filled with

6. Number of elastic fibers

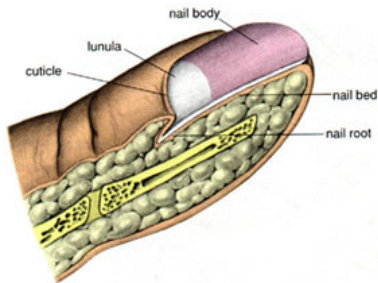
a. Dermis also contains



6.3 Accessory Structures of the Skin

B. Appendages of the Skin

1. Nails



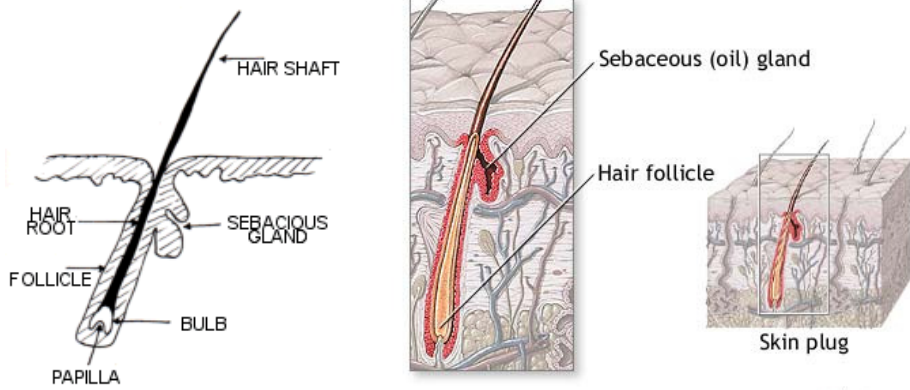
- a. Produced by
- b. Visible part called
- c. Root lies in a
- d. Crescent-shaped area nearest root called
- e. Nail bed may

6.3 Accessory Structures of the Skin

2. Hair Follicles

- a. Found everywhere except
- b. Composed of
- c. Hair develops from epidermal cells located in tube-like depression called a
- d. Follicle extends from deep in dermis and
- e. Epidermal cells divide and are pushed toward the surface

Hair



ADAM.

www.nlm.nih.gov/.../ency/imagepages/9703.htm

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Keratinized cells of hair shaft

Keratinized cells of epidermis

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6.3 Accessory Structures of the Skin

f. Genes determine hair color by

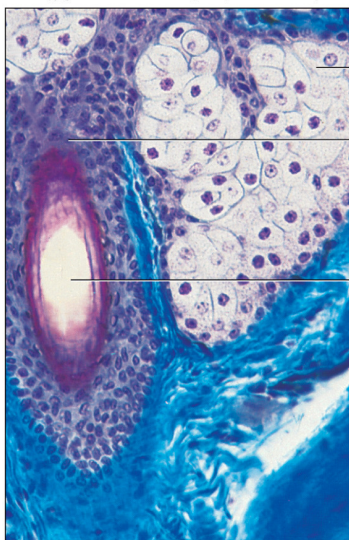
- i. Eumelanin –
- ii. Pheomelanin –

g. Arrector pili:

- i. When muscle contracts
- ii. Called

6.3 Accessory Structures of the Skin

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© Per H. Kjeldsen

3. Sebaceous Glands

a. Holocrine glands that secrete an

b. Sebum keeps hair

6.3 Accessory Structures of the Skin

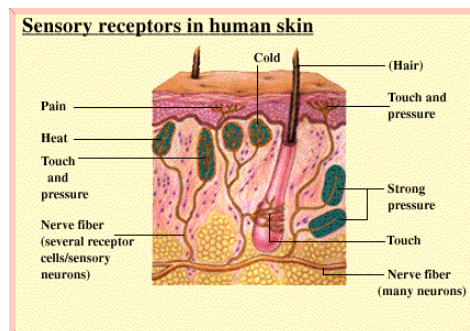
4. Sweat Glands (sudoriferous glands)

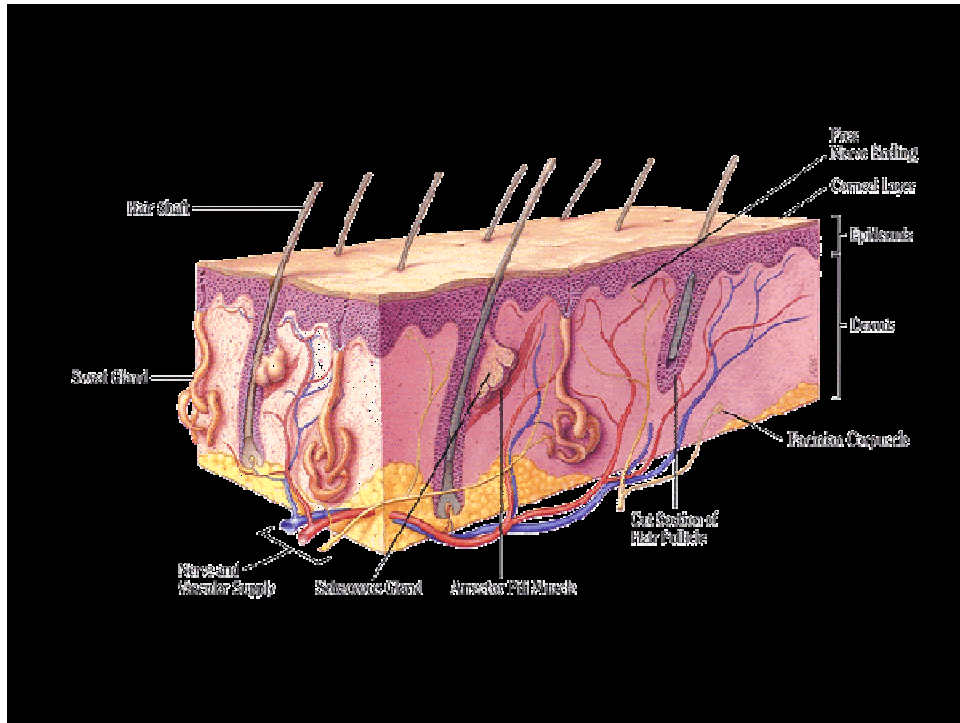
- a. Exocrine glands with
- b. Lined with
- c. Eccrine:
 - i. Mostly water and
- d. Apocrine: Respond when a person is
 - i. Thicker, milky secretion
 - ii. Found in
 - iii. Develop scent as

6.3 Accessory Structures of the Skin

5. Receptors

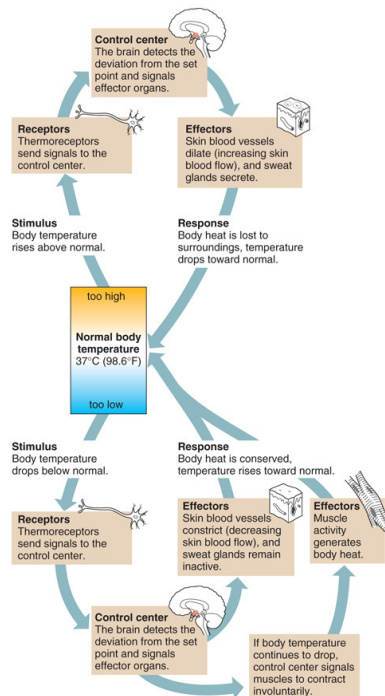
- a. Specialized nerve endings make it possible
- b. Meissner's corpuscle:
- c. Pacinian corpuscle:





6.4 Regulation of Body Temperature

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6.5 Healing of Wounds

- A. Response to injury or stress is
- B. Blood vessels
- C. Causes
- D. Brings more

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Table 6.1 Inflammation	
Symptom	Cause
Redness	Vasodilation, more blood in area
Heat	Large amount of blood accumulating in area and as a by-product of increased metabolic activity in tissue
Swelling	Increased permeability of blood vessels, fluids leaving blood go into tissue spaces (edema)
Pain	Injury to neurons and increased pressure from edema

Disorders of the Skin

- A. Skin lesions
 - 1. Elevated lesions:
 - a. Papule:
 - b. Plaques:
 - c. Vesicle:
 - d. Pustule:
 - e. Crust:
 - f. Wheal (hive):



Psoriasis plaque



Papules of molluscum contagiosum



Fire ant pustule



Hives

2. Flat lesions:

a. Macule:

3. Depressed lesions:

a. Excoriation:

b. Ulcer:

c. Fissure:



Macule



Excoriation



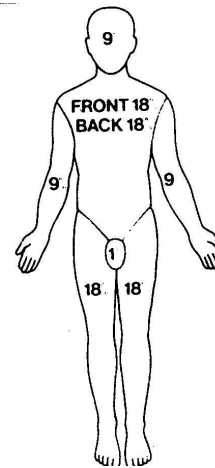
Ulcer from Diabetes



Fissure – Athlete’s Foot

B. Burns

1. Treatment and recovery or survival depend
2. Estimating body surface using the
 - a. Body divided into
 - b. Additional



3. Classification of Burns

a. First-degree (partial thickness) burns:

b. Second-degree (partial thickness) burns:

c. Third-degree (full-thickness) burns:

i. May involve underlying

ii. Lesion is insensitive to pain because of destruction of

First degree

Second degree

Third degree



C. Skin Infections

1. Impetigo:
2. Tinea:
3. Warts: Benign neoplasms caused by
4. Boils; furuncles:

D. Vascular and Inflammatory Skin Disorders

1. Decubitus ulcers (bedsores) develop when pressure
2. Urticaria or hives: Red lesions caused by



Impetigo



Tinea - Ringworm



Warts



Boil

3. Scleroderma: Disorder of vessels and connective tissue characterized by

4. Psoriasis: Chronic inflammatory condition.

5. Eczema: Common inflammatory condition characterized by

Scleroderma



Psoriasis



Eczema



E. Skin Cancer

1. Three common types
 - a. Squamous cell carcinoma:
 - b. Basal cell carcinoma: Characterized by
 - c. Melanoma: Malignancy in a
2. The most important causative factor in common skin cancers is

Squamous Cell Carcinoma

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(a)

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Basal Cell Carcinoma

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(b)

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Melanoma

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(c)

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