



Research article

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Uglo Derm tablets: Nutritional Support for Overall healthy & Nourishing Skin

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ABSTRACT

The skin supports its own ecosystems of microorganisms, including yeasts and bacteria, which cannot be removed by any amount of cleaning. Estimates place the number of individual bacteria on the surface of one square inch (6.5 square cm) of human skin at 50 million, though this figure varies greatly over the average 20 square feet (1.9 m²) of human skin. Oily surfaces, such as the face, may contain over 500 million bacteria per square inch (6.5 cm²). Despite these vast quantities, all of the bacteria found on the skin's surface would fit into a volume the size of a pea. In general, the microorganisms keep one another in check and are part of a healthy skin. When the balance is disturbed, there may be an overgrowth and infection, such as when antibiotics kill microbes, resulting in an overgrowth of yeast. The skin is continuous with the inner epithelial lining of the body at the orifices, each of which supports its own complement of microbes. Cosmetic products should be used carefully on the skin because these may cause allergic reactions. Sunlight, water and air play an important role in keeping the skin healthy. UGLODERM tablets are specially designed with essential natural Nutrients which has an Antioxidant & detoxifying effect on skin to protect the skin from innumerable skin damages. The present paper Reviews the Role of UGLODERM tablets developed by R&D cell of Lactonova Nutripharm Pvt Ltd. Hyderabad to protect the skin from innumerable skin damages..

Keywords: UGLODERM tablets, Natural Nutrients, Antioxidant, Detoxifying effect.

INTRODUCTION

The human skin is the outer covering of the body. In humans, it is the largest organ of the system. The skin has up to seven layers of ectodermal tissue and guards the underlying muscles, bones, ligaments and internal organs.¹ Human skin is similar to most of the other mammal's skin, and human skin is very similar to pig skin.^{2,3} Though nearly all human skin is covered with hair follicles, it can appear hairless. There are two general types of skin, hairy and glabrous skin (hairless).⁴ Because it interfaces with the environment, skin plays an important immunity role in protecting the body against pathogens⁵ and excessive water loss.⁶ Its other functions are insulation, temperature regulation, sensation, synthesis of vitamin D, and the protection of vitamin B folates. Severely damaged skin will try to heal by forming scar tissue. This is often discolored and depigmented.

In humans, skin pigmentation varies among populations, and skin type can range from dry to oily. Such skin variety provides a rich and diverse habitat for bacteria that number roughly 1000 species from 19 phyla, present on the human skin.^{7,8}

Structure of Human Skin

Skin has mesodermal cells, pigmentation, such as melanin provided by melanocytes, which absorb some of the potentially dangerous ultraviolet radiation (UV) in sunlight. It also contains DNA repair enzymes that help reverse UV damage, such that people lacking the genes for these enzymes suffer high rates of skin cancer. One form predominantly produced by UV light, malignant melanoma, is particularly invasive, causing it to spread quickly, and can often be deadly. Human skin pigmentation varies among populations in a striking manner. This has led to the classification of people(s) on the basis of skin color.⁹

In terms of surface area, the skin is the second largest organ in the human body (the inside of the small intestine is 15 to 20 times larger). For the average adult human, the skin has a surface area of between 1.5-2.0 square meters (16.1-21.5 sq ft.). The thickness of the skin varies considerably over all parts of the body, and between men and women and the young and the old. An example is the skin on the forearm which is on average 1.3 mm in the male and 1.26 mm in the female.¹⁰ The average square inch (6.5 cm²) of skin holds 650 sweat glands, 20 blood vessels, 60,000 melanocytes, and more than 1,000 nerve endings.¹¹ The average human skin cell is about 30 micrometers in diameter, but there are variants. A skin cell usually ranges from 25-40 micrometers (squared), depending on a variety of factors.

Skin is composed of three primary layers: the epidermis, the dermis and the hypodermis.¹⁰

Epidermis, is the outermost layer of the skin. It forms the waterproof, protective wrap over the body's surface which also serves as a barrier to infection and is made up of stratified squamous epithelium with an underlying basal lamina.

The epidermis contains no blood vessels, and cells in the deepest layers are nourished almost exclusively by diffused oxygen from the surrounding air¹² and to a far lesser degree by blood capillaries extending to the outer layers of the dermis. The main type of cells which make up the epidermis are Merkel cells, keratinocytes, with melanocytes and Langerhans cells also present. The epidermis can be further subdivided into the following *strata* the outermost layer: corneum, lucidum (only in palms of hands and bottoms of feet), granulosum, spinosum, basale. Cells are formed through mitosis at the basale layer. The daughter cells move up the strata changing shape and composition as they die due to isolation from their blood source. The cytoplasm is released and the protein keratin is inserted. They eventually reach the corneum and slough off (desquamation). This process is called "keratinization". This keratinized layer of skin is responsible for keeping water in the body and keeping other harmful chemicals and pathogens out, making skin a natural barrier to infection.

Components of skin

The epidermis contains no blood vessels, and is nourished by diffusion from the dermis. The main type of cells which make up the epidermis are keratinocytes, melanocytes, Langerhans cells and Merkel cells. The epidermis helps the skin to regulate body temperature.

Layers

Epidermis is divided into several layers where cells are formed through mitosis at the innermost layers. They move up the strata changing shape and composition as they differentiate and become filled with keratin. They eventually reach the top layer called *stratum corneum* and are sloughed off, or desquamated. This process is called *keratinization* and takes place within weeks. The outermost layer of the epidermis consists of 25 to 30 layers of dead cells.

Sub layers

Epidermis is divided into the following 5 sub layers or strata:

- Stratum corneum
- Stratum lucidum
- Stratum granulosum
- Stratum spinosum
- Stratum germinativum (also called "stratum basale").

Blood capillaries are found beneath the epidermis, and are linked to an arteriole and a venule. Arterial shunt vessels may bypass the network in ears, the nose and fingertips.

Genes and proteins expressed in the epidermis

About 70% of all human protein-coding genes are expressed in the skin.^{13, 14} Almost 500 genes have an elevated pattern of expression in the skin. There are less than 100 genes that are specific for the skin and these are expressed in the epidermis.¹⁵ An analysis of the corresponding proteins show that these are mainly expressed in keratinocytes and have functions related to squamous differentiation and cornification.

Dermis

The **dermis** is the layer of skin beneath the epidermis that consists of connective tissue and cushions the body from stress and strain. The dermis is tightly connected to the epidermis by a basement membrane. It also harbors many nerve endings that provide the sense of touch and heat. It contains the hair follicles, sweat glands, sebaceous glands, apocrine glands, lymphatic vessels and blood vessels. The blood vessels in the dermis provide nourishment and waste removal from its own cells as well as from the Stratum basale of the epidermis.

The dermis is structurally divided into two areas: a superficial area adjacent to the epidermis, called the *papillary region*, and a deep thicker area known as the *reticular region*.

Papillary region

The papillary region is composed of loose areolar connective tissue. It is named for its fingerlike projections called *papillae* that extend toward the epidermis. The papillae provide the dermis with a "bumpy" surface that interdigitates with the epidermis, strengthening the connection between the two layers of skin.

In the palms, fingers, soles, and toes, the influence of the papillae projecting into the epidermis forms contours in the skin's surface. These epidermal ridges occur in patterns (*see*: fingerprint) that are genetically and epigenetically determined and are therefore unique to the individual, making it possible to use fingerprints or footprints as a means of identification.

Reticular region

The reticular region lies deep in the papillary region and is usually much thicker. It is composed of dense irregular

connective tissue, and receives its name from the dense concentration of collagenous, elastic, and reticular fibers that weave throughout it. These protein fibers give the dermis its properties of strength, extensibility, and elasticity. Also located within the reticular region are the roots of the hairs, sebaceous glands, sweat glands, receptors, nails, and blood vessels.

Subcutaneous tissue

The subcutaneous tissue (also *hypodermis* and *sub cutis*) is not part of the skin, and lies below the dermis of the cutis. Its purpose is to attach the skin to underlying bone and muscle as well as supplying it with blood vessels and nerves. It consists of loose connective tissue, adipose tissue and elastin. The main cell types are fibroblasts, macrophages and adipocytes (subcutaneous tissue contains 50% of body fat). Fat serves as padding and insulation for the body. (Figure 1)

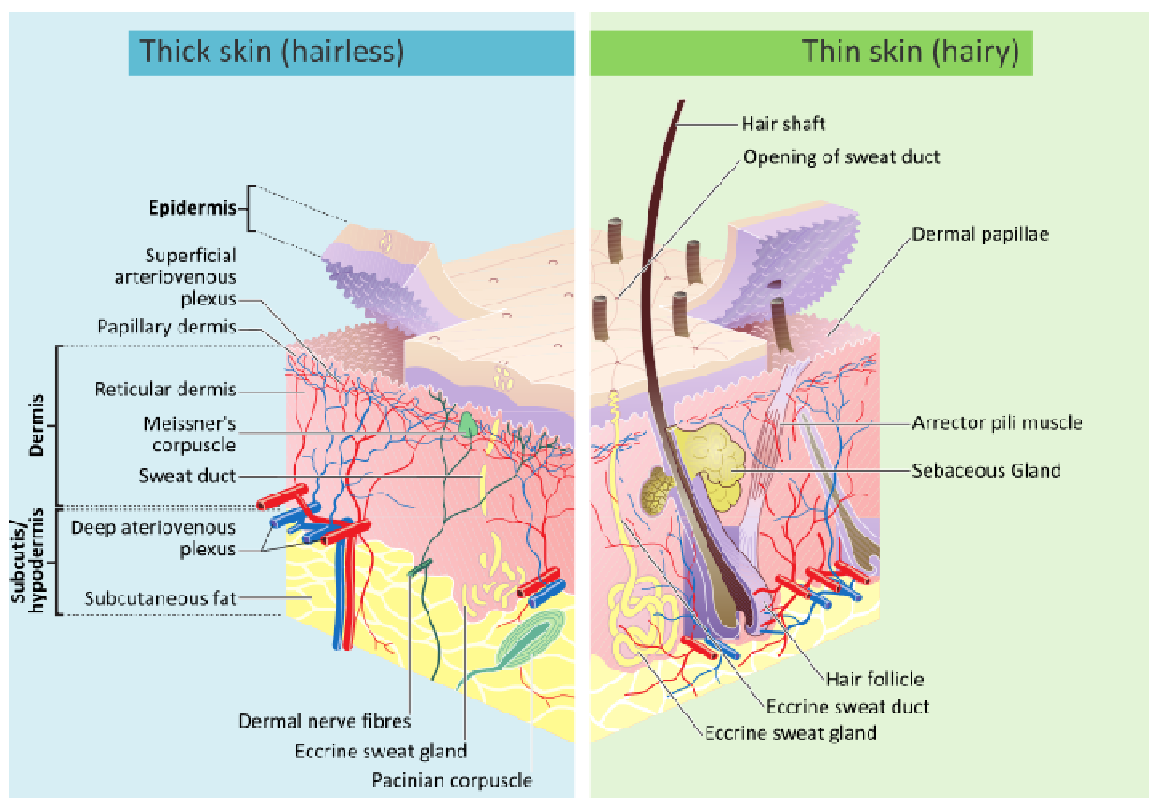


Fig.1 T.S of structure of skin

Functions

Skin performs the following functions:

1. **Protection:** an anatomical barrier from pathogens and damage between the internal and external environment in bodily defense; Langerhans cells in the skin are part of the adaptive immune system.^{5, 6} Perspiration contains lysozyme that break the bonds within the cell walls of bacteria.²⁸
2. **Sensation:** contains a variety of nerve endings that react to heat and cold, touch, pressure, vibration, and tissue injury.
3. **Heat regulation:** the skin contains a blood supply far greater than its requirements which allows precise control of energy loss by radiation, convection and conduction. Dilated blood vessels increase perfusion and heat loss, while constricted vessels greatly reduce cutaneous blood flow and conserve heat.
4. **Control of evaporation:** the skin provides a relatively dry and semi-impermeable barrier to fluid loss.^[6] Loss of this function contributes to the massive fluid loss in burns.
5. **Aesthetics and communication:** others see our skin and can assess our mood, physical state and attractiveness.
6. **Storage and synthesis:** acts as a storage center for lipids and water, as well as a means of synthesis of vitamin D by action of UV on certain parts of the skin.
7. **Excretion:** sweat contains urea, however its concentration is 1/130th that of urine, hence excretion by sweating is at most a secondary function to temperature regulation.
8. **Absorption:** the cells comprising the outermost 0.25–0.40 mm of the skin are "almost exclusively supplied by external oxygen", although the "contribution to total respiration is negligible".¹² In addition, medicine can be administered through the skin, by ointments or by means of adhesive patch, such as the nicotine patch or iontophoresis. The skin is an important site of transport in many other organisms.
9. **Water resistance:** The skin acts as a water-resistant barrier so essential nutrients are not washed out of the body.

As skin ages& also due to several changes in environmental conditions such as pollution, UV radiations, it becomes thinner and more easily damaged. Intensifying this effect is the decreasing ability of skin to heal itself as a person ages. skin aging is noted by a decrease in volume and elasticity. There are many internal and external causes to skin aging. For example, aging skin receives less blood flow and lower glandular activity.

A validated comprehensive grading scale has categorized the clinical findings of skin aging as laxity (sagging), rhytids

(wrinkles), and the various facets of photo aging, including erythema (redness), and telangiectasia, dyspigmentation (brown discoloration), solar elastosis (yellowing), keratoses (abnormal growths) and poor texture.²⁴ Cortical causes degradation of collagen, accelerating skin aging.²⁵

UGLODER tablets are specially designed with essential natural Nutrients which has an Antioxidant & detoxifying effect on skin to protect the skin from innumerable skin damages. (Figure 2)

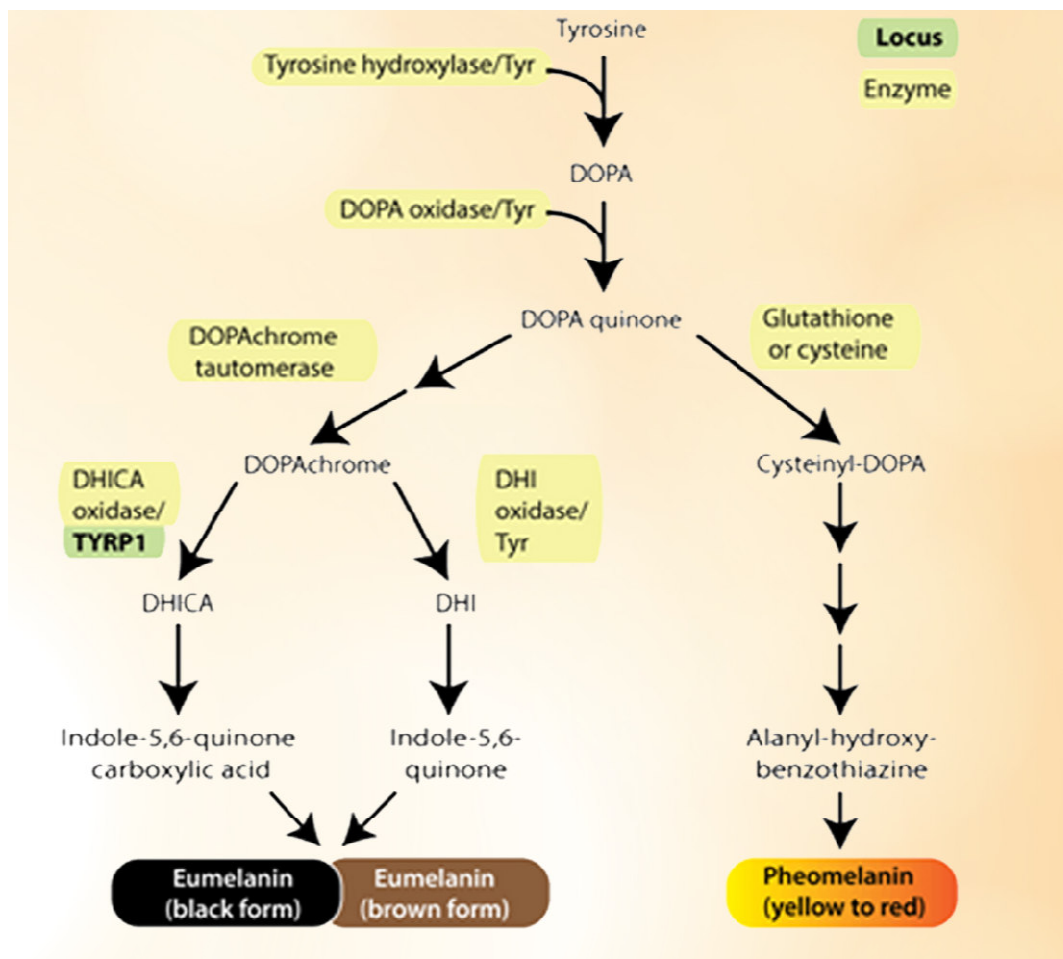


Figure 2

Composition of ugloderm tablets

Each film coated tablet contains:		%ICMR RDA*
L-Glutathione	100mg	**
Alpha Lipoic acid	50mg	**
Pine Bark Extract (as Pycnogenol)	30mg	**
Green tea extract	50mg	**
Vitamin C	40mg	100
Vitamin E	10mg	100
L-Arginine	30mg	**
*Indian council of medical research recommended dietary allowances.		
** Not established		

Figure 3**Pharmacological Action –****L- GLUTATHIONE :**

Glutathione is an antioxidant naturally found in human cells that neutralizes free radicals, boosts the immune system and detoxifies the body. It can also cause skin lightening by converting melanin to a lighter color and deactivating the enzyme tyrosinase, which helps produce the pigment.

- Fights oxidative stress in the body.
- It contains Anti aging property.
- Glutathione lightens and brightens the skin tone.

ALPHA LIPOIC ACID :

Your body makes alpha-lipoic acid, a natural chemical that's in every cell you have. As an antioxidant, it attacks free radicals throughout the body. In skin care products, companies tout it as a substance that can erase fine lines and wrinkles, diminish pores and give skin a healthy glow.

- A powerful anti oxidant both inside and outside
- Scavenges several reactive oxygen species

PINE BARK EXTRACT:

Pine Bark has suggested the plant extract could contribute to skin hydration and reduce pigmentation when taken orally as a nutritional supplement.

GREEN TEA EXTRACT :

Products enriched with Green Tea Extracts are known to further support skin health by moisturizing, stimulating circulation and regulating sebum production, thereby exhibiting a positive effect on the complexion's overall tone, texture, strength and resilience. Green tea has been shown to have antioxidant effects in human skin. Since oxidative stress appears to play a significant role in the aging process, green tea may also have anti aging effects by decreasing scavenging free radicals.

VITAMIN C :

Vitamin C is an antioxidant, it protects skin cells from damaging free radicals caused by UV exposure. It also inhibits melanin production in the skin, which helps to lighten hyper pigmentation and brown spots, even out skin tone and enhance skin radiance.

VITAMIN E :

Vitamin E and help cleanse your skin by removing the impurities and helps to improve skin elasticity. Vitamin E works to block free radicals from the body, which play a large

L-ARGININE :

Nitric oxide is said to dilate the capillaries and increases healthy blood circulation to the skin. The enhanced circulation helps to bring a flood of nutrients saturating the malnourished skin with new life.

Figure 4

INDICATIONS

UGLODERM tablets are specially designed with essential natural Nutrients which has an Antioxidant & detoxifying effect on skin to protect the skin from innumerable skin damages.

CONTRA-INDICATIONS

UGLODERM tablets may interact with Antidiabetic & Anticoagulant drugs,
Known contraindications to any ingredients of the supplement.

DOSAGE AND DIRECTIONS FOR USE

1-2 tablets daily

It is taken preferably with meals or as directed by a physician, licensed nutritionist.

SAFETY

UGLODERM tablets has an excellent safety record in both animal & human investigations, should be considered as a supplement of choice for healthy skin

UGLODERM tablets is generally regarded as safe when taken in the recommended doses, however, mild reactions can include gastrointestinal problems, such as nausea.

UGLODERM tablets are generally well tolerated. Because of lack of long-term safety data, Lacto skin tablets should be avoided by pregnant women and nursing mothers.

UGLODERM tablets may interact with Antidiabetic & Anticoagulant drugs,

SIDE-EFFECTS

Very Mild Epigastric pain/tenderness, heartburn, diarrhea and nausea.

REFERENCES

1. Skin care. Analysis. 2007.
2. Herron Alan J. Pigs as dermatologic models of human skin disease. Parkinson's disease foundation; December 5 2009. Available from: ivis.org [cited 27-4-2021].
3. Liu J, Kim D, Brown L, Madsen T, Bouchard GF. Sinclair Research centre. Auxvasse, MO: Veterinary Medical Diagnostic Laboratory, Columbia, MO, USA. 27 January 2018.
4. Marks James G, Miller Jeffery. Looking bill and Marks' principles of dermatology. 4th ed. Elsevier Inc; 2006.

SPECIAL PRECAUTIONS

UGLODERM tablets with or directly after meals to lessen the possibility of gastrointestinal upset.

It should be avoided by pregnant women and nursing mothers.

STORAGE CONDITIONS

Store in a cool & dry place, protected from light.
Keep out of reach of children.

STORAGE LIFE IS 2 YEARS

The preparation should not be used after the expiry date.

CONCLUSION

The human skin is a rich environment for microbes. Around 1000 species of bacteria from 19 bacterial phyla have been found. Most come from only four phyla: Actinobacteria (51.8%), Firmicutes (24.4%), Proteobacteria (16.5%), and Bacteroidetes (6.3%).

Skin has mesodermal cells, pigmentation, such as melanin provided by melanocytes, which absorb some of the dangerous ultraviolet radiation (UV) in sunlight. It also contains DNA repair enzymes that help reverse UV damage. Skin performs the function of Protection by forming an anatomical barrier from pathogens and damage between the internal and external environment in bodily defense, Langerhans cells in the skin are part of the adaptive immune system. Perspiration contains lysozyme that breaks the bonds within the cell walls of bacteria. UGLODERM tablets are specially designed with essential natural Nutrients which has an Antioxidant & detoxifying effect on skin to protect the skin from innumerable skin damages.

5. Proksch Ehrhardt, Brandner Johanna M, Jensen Jens-Michael. The skin: an indispensable barrier. *Exp Dermatol*. 2008;17(12):1063-72. doi: 10.1111/j.1600-0625.2008.00786.x, PMID 19043850.
6. Madison Kathi C. Barrier function of the skin: “la raison d’être” of the epidermis. *J Invest Dermatol*. 2003;121(2):231-41. doi: 10.1046/j.1523-1747.2003.12359.x, PMID 12880413.
7. Grice Elizabeth A, Kong Heidi H, Conlan Sean, Deming Clayton B, Davis Joie, Young Alice C, NISC Comparative Sequencing Program, Bouffard Gerard G, Blakesley Robert W, Murray Patrick R, Green Eric D, Turner Maria L, Segre Julia A. Topographical and temporal diversity of the human skin micro biome. *Science*. 2009;324(5931):1190-2. doi: 10.1126/science.1171700, PMID 19478181.
8. Pappas S. *Science NOW*. Daily News; 2009.
9. Maton Anthea, Hopkins Jean, McLaughlin Charles William, Johnson Susan, Warner Maryanna Quon, LaHart David, Wright Jill D. *Human biology and health*. Englewood Cliffs, NJ: Prentice Hall; 1893.
10. Wilkinson PF, Millington R. *Skin* (Digitally printed version ed.). Cambridge: Cambridge University Press; 2009. p. 49-50.
11. Bennett Howard. Ever wondered about your skin? *The Washington Post*; 2014-05-25.
12. Stücker M, Struk A, Altmeyer P, Herde M, Baumgärtl H, Lübbers DW. The cutaneous uptake of atmospheric oxygen contributes significantly to the oxygen supply of human dermis and epidermis. *J Physiol*. 2002;538(3):985-94. doi: 10.1113/jphysiol.2001.013067, PMID 11826181.
13. The human proteome in skin - the Human Protein Atlas. Available from: <http://www.proteinatlas.org> [cited 27-4-2021].
14. Uhlén Mathias, Fagerberg Linn, Hallström Björn M, Lindskog Cecilia, Oksvold Per, Mardinoglu Adil, Sivertsson Åsa, Kampf Caroline, Sjöstedt Evelina, Asplund Anna, Olsson IngMarie, Edlund Karolina, Lundberg Emma, Navani Sanjay, Szgyarto Cristina Al-Khalili, Odeberg Jacob, Djureinovic Dijana, Takanen Jenny Ottosson, Hober Sophia, Alm Tove, Edqvist Per-Henrik, Berling Holger, Tegel Hanna, Mulder Jan, Rockberg Johan, Nilsson Peter, Schwenk Jochen M, Hamsten Marica, von Feilitzen Kalle, Forsberg Mattias, Persson Lukas, Johansson Fredric, Zwahlen Martin, von Heijne Gunnar, Nielsen Jens, Pontén Fredrik. Proteomics. Tissue-based map of the human proteome. *Science*. 2015-01-23;347(6220):1260419. doi: 10.1126/science.1260419.
15. Edqvist Per-Henrik D, Fagerberg Linn, Hallström Björn M, Danielsson Angelika, Edlund Karolina, Uhlén Mathias, Pontén Fredrik. Expression of human skin-specific genes defined by transcriptomics and antibody-based profiling. *J Histochem Cytochem*. 2015;63(2):129-41. doi: 10.1369/0022155414562646, PMID 25411189.
16. Muehlenbein Michael. *Human evolutionary biology*. Cambridge University Press; 2010. p. 192-213.
17. Jablonski NG. *Skin: a natural history*. Berkeley: University of California Press; 2006.
18. Chaurasia BD. *Handbook of general anatomy by*.
19. Webb Ann R. Who, what, where and when-influences on cutaneous vitamin D synthesis. *Prog Biophys Mol Biol*. 2006;92(1):17-25. doi: 10.1016/j.pbiomolbio.2006.02.004, PMID 16766240.
20. Jablonski NG, Chaplin G. The evolution of human skin coloration. *J Hum Evol*. 2000;39(1):57-106. doi: 10.1006/jhev.2000.0403, PMID 10896812.
21. The Fitzpatrick skin type classification scale. *Skin Inc.* [retrieved Jan 7 2014]; November 2007.
22. Australian Radiation Protection and Nuclear Safety Agency. March 31 2016. [retrieved Jan 7 2014].
23. Alexiades-Armenakas Macrene R, Dover Jeffrey S, Arndt Kenneth A. The spectrum of laser skin resurfacing: nonablative, fractional, and ablative laser resurfacing. *J Am Acad Dermatol*. 2008 May;58(5):719-37; quiz 738. doi: 10.1016/j.jaad.2008.01.003, PMID 18423256.
24. Cutroneo Kenneth R, Sterling Kenneth M. How do glucocorticoids compare to oligo decoys as inhibitors of collagen synthesis and potential toxicity of this therapeutics? *J Cell Biochem*. 2004;92(1):6-15. doi: 10.1002/jcb.20030, PMID 15095399.
25. Oikarinen A. Connective tissue and aging. *Int J Cosmet Sci*. 2004;26(2):107. doi: 10.1111/j.1467-2494.2004.213_6.x.