

PEPTIGENOL



A regenerating serum, used to correct and repair the lines and signs of aging. It provides multiple benefits: deeply nourishes, hydrates and moisturizes even the driest skin. Cells are boosted with the vitality of the vegetal proteo-embryos extracted from its soy proteins content, to recover the skin's metabolism. increases the elasticity and smoothness of the skin, provides antioxidant effects, besides exerting a lifting-tensor effect as it contains polysaccharides from Quinoa seed.

BIOACTIVE INGREDIENTS

Powerful functional ingredients:

REVITALIZING VEGETABLE ACTIVE INGREDIENT: HYDROLYZED SOY PROTEIN

Obtained by selective hydrolysis of soy proteins. A balanced peptide fraction that develops two levels of activity: • In the short term, it stimulates oxygen consumption and increases the potential energy cells. • In the longer term, it stimulates cell renewal, for a more radiant skin.



During its life, a cell breathes, communicates, grows and multiplies. There is a common point among these four vital functions: oxygen consumption, sign of a good metabolic activity. This natural ability of the cell is affected by modern life conditions. Subject to pollution and other environmental attacks, the cell suffers, reduce its metabolic capabilities. This results in a slowing of cell renewal. And the result is visible: the skin appears dull, presenting early symptoms of aging. At the beginning of plant life, the outbreak is the center of intense activity. This set of tissues, naturally rich in nutrients meets all necessary for the development of the life of the plant components: peptides rich in essential amino acids, trace elements. Soy is definitely the embryonic tissue that has the more interesting protein content. The soy hydrolyzate content offers to the cells its potential for life and dynamic power. It is obtained by a careful hydrolysis for selecting a balanced composition of peptides, amino acids and minerals. Each constituent contributes synergistically to relaunch vital cellular processes.

Peptides

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Induce to a revitalization of the skin's metabolism and ensure long-term, reeducation of the vital functions of the cell. Peptides contained have molecular weights between 1000 and 6000 Daltons. These peptide fractions also called "phytostimulines" are functionally characterized by their ability to stimulate cellular vital functions, thanks to its growth factor type action.

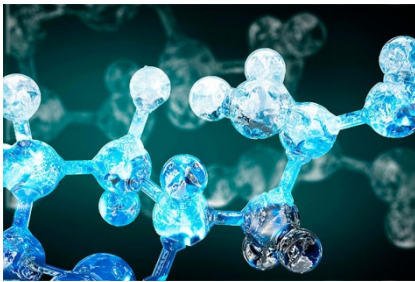
Aminoacids

Total amino acid composition presents a significant percentage of essential amino acids not synthesized by the body, thus ensuring a direct input to the cell of the necessary nutrients for biological balance. Amino acids are used for protein synthesis such as collagen, elastin or keratin.

Minerals

Minerals (potassium, sodium, calcium ...) act as catalysts for the cutaneous biological reactions, and help to maintain the optimum hydration state of the epidermis due to its ability to bind water molecules.

HYALURONIC ACID:



Hyaluronic acid (HA) is a polysaccharide from the type β - links glycosaminoglycans, having a structural function, such as chondroitin sulfates. It has the capacity to absorb more than 1000 times its volume in water.

That is why it is used in epidermis moisturizing the as it reconstructs the fibers that hold skin tissues, giving a better shape. With a very high viscoelasticity, it is a natural component part of the skin, and is essential to fight aging and wrinkles due to its high moisturizing power.

In the dermis, hyaluronic acid is the main component of the extracellular matrix (ECM). Fibroblasts are a cell type responsible for the production of collagen and elastin in the skin. ECM extracellular matrix is the space between the skin cells. This makes the skin soft, smooth and elastic. Young skin (soft and elastic) contains high amounts of HA (Hyaluronic acid).

Hyaluronic acid is of biotechnological origin, has a molecular weight of 50-110 kDa:

- ✓ Retains moisture and elasticity in the tissues (moisture retention in the extracellular matrix (ECM))
- ✓ Protects against environmental stress
- ✓ Helps to reduce the appearance of wrinkles and expression lines

POLYSACCHARIDES FRACTION FROM QUINOA SEEDS:

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100 % natural sugar tensor purified fraction of polysaccharides extracted from Quinoa seeds. It is an innovative active ingredient with a marked filmogenic and tightening effect, as shown at in-vivo efficacy studies.

Peruvian Gold, the ancestral gift from the Andes.

It is a 100 % natural sugar tensor purified fraction of polysaccharides extracted from Quinoa seeds. Quinoa is an Andean plant which originated in the area surrounding Lake Titicaca in Peru and Bolivia, is also known as *Quínoa*, *kinuwa* or *Peruvian gold*.

Polysaccharides are simple sugars. They fit between carbohydrates and fulfill various functions, especially energetic reserve and structural ones. They have a key role in the living systems' molecules, such as forming its cells and tissues structural components.

Sacred to the Incas, Quinoa was referred by them as the mother of all grains. It is the only plant food that contains all the essential amino acids, trace elements and vitamins.

Different active ingredients have been investigated to fight facial sagging.

Among them, high molecular weight polymers, such as proteins and polysaccharides, act as immediate skin tightening agents, by forming a film on the skin, leading to a stratum corneum retraction.

It has a high molecular weight three-dimensional configuration, stabilized by inter and intra-chain hydrogen bridges.

This interaction performs an immediate mechanical tension on the skin, which translates to a smoothing of the cutaneous surface, giving the skin a firmer, smooth and radiant appearance.

The biological film slows down trans-epidermal water loss, retaining moisture, and protects the skin from environmental stresses, such as pollution.

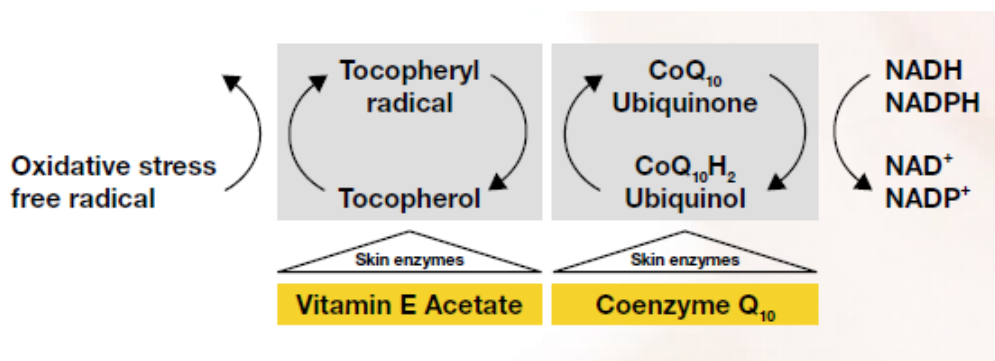
SYNERGISTIC COMBINATION OF SYNTHETIC PEPTIDE:

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- A first peptide (Acetyl hexapeptide) based on the transforming growth factor- α (TGF- α), with a marked effect on skin rejuvenation. This synthetic peptide based on the TGF- α has a very marked effect in the homeostasis of extracellular matrix (ECM). The technology used in obtaining this peptide makes it act as a mediator cell signaling certain cellular activities that are necessary to maintain youthful and healthy appearance of the skin. Some researchers refer to TGF- α as essential for the production of collagen and elastin. They also believe that TGF- α may be the answer to maintaining youthful skin indefinitely.
- A second synthetic biomimetic and sophisticated peptide (Acetyl hexapeptide) with a similar action to the botulftic toxin type A one, in reducing facial gestural wrinkles due to the contraction of muscles during facial expression effect.
- A third synthetic peptide (Palmytoil hexapeptide) that prevents skin aging by its potent inhibitory action against metalloproteases that are responsible for the destruction of the extracellular matrix. With all this actives we achieve an extremely advanced ingredient in order to make a breakthrough in the aging technology, as both preventive treatment level is achieved. This combination of peptides stimulates the ability of cells to repair the damage more efficiently and stimulates the synthesis of collagen and elastin. Secondly, enhances the repair functions or "reconstruction" providing the cell with the precise signals so that they can interpret and follow the correct instructions as if they were young and healthy cells.

COENZYME Q10 + VITAMIN E :

Coenzyme Q10 and vitamin E are the most important antioxidants in the skin. Both structurally closely interrelated, they are naturally contained in almost every cell of the body including the skin. CoQ10 is essential for energy synthesis (ATP). Together with vitamin E they form a defense against oxidative attack. Studies by Quinn et al. [3] showed that both antioxidants are integrated together in the lipid regeneration cycle. Once vitamin E is oxidized to its tocopheryl radical can be reduced by Ubiquinol regenerating Tocopherol as illustrated in the following figure regeneration of Vitamin E: Topical application of this combination of Coenzyme Q10 and vitamin E helps to balancing the level of endogenous antioxidants.



VITAMIN A and F:

The efficacy of retinol is well known and well documented. Discovered more than 80 years ago, today it is still considered the gold standard in the cosmetics industry, one of the best allies of women in their fight against aging. Skin aging is a gradual process that results in multiple visible signs such as fine lines and wrinkles, loss of skin elasticity, uneven skin tone or pigmentation and blemishes. Retinol has multiple skin benefits. Scientific studies have shown that, at a topical level in the dermis and epidermis, vitamin A increases collagen production, stimulates keratinocyte proliferation and epidermal thickness, and inhibits tyrosinase activity.

The effects of retinol on the appearance of the skin are really impressive, visibly improves the appearance of fine lines and wrinkles, increase skin firmness, tone and smoothness, and even age spots and hyper-pigmentation.

- ✓ Anti-aging / anti-wrinkle effect: Stimulating collagen synthesis, repairing the dermal matrix. Increases cell turnover.
- ✓ Anti acne effect: Exfoliates and regenerates. Regulates keratinization with increasing cell turnover (preventing clogging pores).
- ✓ Anti-spots effect: Exfoliates and regenerates (by increasing cell turnover). Modulating hyperactivity of melanocytes (spots).

Vitamin F, is not a vitamin as such. It is a mixture of vegetable oils rich in essential fatty acids omega-3 and omega-6, such as corn oil and rosehip. It cannot be synthesized by the body and therefore its external supply is necessary. Vitamin F does not act like other active substances that react with other compounds such as the other vitamins do, but become part of cell membranes as structural elements. Its deficiency can cause: eczema and obstruction of hair follicles. The main activity of Vitamin F is the restoring function of the skin barrier. Essential fatty acids (EFAs) are important components of all cell membranes conferring permeability and elasticity. These acids play a major role in the formation of ceramides, the most important barrier-forming lipids of the epidermis, and therefore are essential for stability and barrier function of the skin (Flores Ahumada DA, 2005). EFAs are so called because the body cannot synthesize them in adequate amounts and therefore must be obtained from outside. Physiological properties of AGEs are due to that they are capable of recovering the integrity of the structure and function of the cell membrane. AGEs deficiency produces physiological effects such as hyperproliferation of the epidermis, responsible for scaly skin, loss of structural integrity of skin barrier (with consequent increase in transepidermal water loss). As a result of this, a remarkable dry skin, erythema, low healing capacity and swelling occurs. These severe skin symptoms are reversible by adding EFAs in the diet or, even better, by applying them topically. EFAs administration improves and repairs the skin's barrier function, reduces transepidermal water loss and improves hydration. Furthermore, by

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increasing the lipid content, EFAs also provides shine to the skin (Brenner, J. et al., 2004). Thus Vitamin F promotes regeneration of cell membranes and skin tissues. It has an intense nourishing and restorative effect and significantly improves the appearance of the skin, restoring its flexibility and elasticity, so it is highly recommended especially for dry skin care.

SQUALENE

It is a terpene with antioxidant properties naturally present in our skin, binding to the cell membrane, helping to eliminate toxins and disabling free radicals. With age, the production of this compound decreases and since it is one of the main constituents of our lipids, (25% approx), this reduction causes over the years that skin gets dehydrated more easily and become dryer. It is an extraordinary emollient, keeps the skin hydrated also is non-comedogenic and quickly absorbed.

CARROT OIL



Carrot is one of the products of nature with the highest percentage of beta-carotene (provitamin A). Carotenoids are powerful antioxidants, when applied to the skin, prevent cellular oxidation and thus delaying skin aging.

This active ingredient stimulates the regeneration of the skin and is essential for synthesizing vitamin A. Carrot oil is also very rich in vitamin E (tocopherol), essential to generate new skin. Promotes circulation in the small capillaries of the skin and thus facilitates the income of nutrients that nourish the cells providing smoothness and elasticity.

✓ **Carrot oil protects the skin from the harmful effects of the sun and stimulates melanin synthesis:** It is very beneficial to protect the skin in summer. On the one hand, it helps maintain dermoprotector mantle of the skin, and prepares the skin for exposure to solar radiation. It is soothing and acts effectively against dehydration and swelling caused by the heat accumulated in the skin, making it ideal as a calming "after-sun". It also stimulates the secretion of melanin and its continued use, manages to preserve longer the tanned skin.

✓ **Regenerador dérmico:** Its ability to stimulate cell regeneration, makes it effective in treating wounds, scars, skin affected by radiotherapy and to regenerate rough skin in elbows and knees. Vitamins A and E and beta-carotene are foods that have great conditioning properties. They are very useful in skin conditioning.

SUNFLOWER OIL

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Sunflower oil is a natural vegetable oil obtained from the seeds of the sunflower. It is an especially rich in vitamin E, caffeic acid, and unsaturated fatty acids. It is therefore a natural antioxidant that helps maintain good skin being very useful in the treatment of dermatitis.

SOY LECTHIN



Lecithin is a fatty compound that is usually obtained from soybeans. This fatty complex is present naturally in our body and is essential for the proper functioning of the glands. In addition, lecithin is part of the cell wall and can contribute to the regeneration of cells.

Strengthens the cohesion of skin cells, thus turning the skin more flexible.

- ✓ Thanks to its phosphorus content and vitamins A, E and K, lecithin helps maintain skin elasticity and promotes its hydration.
- ✓ It acts as an antioxidant.
- ✓ Helps fight common skin problems such as acne, seborrhea, psoriasis, ...

References:

[1] Pascher I. Molecular arrangements in sphingolipids. Conformation and hydrogen bonding of ceramide and their implication of membrane stability and permeability. *Biochimica et biophysica acta*, 455:433-451 (1976)

[2] Molecular Simulation Study of Phospholipid Bilayers and Insights of the Interactions with Disaccharides Amadeu K. Sum , *Roland Faller, and Juan J. de Pablo.

[3] Quinn, P.J. et al. Expansion of antioxidant function of vitamin E by coenzyme Q. *Biofactors* 9, 149-154 (1999)