

Collagenina

Face Pack with 6 Collagen Molecules
for In-Depth Fast Penetration

PLUMPING FIRMING DERMAL FACE PACK WITH 6 COLLAGENS

With 6 different types of in-depth fast penetrating Collagen
and molecules for the production of endogenous Collagen

Indicated for skin relaxation, marked microrelief, micro-wrinkles
14-day treatment for at-home use. With Transdermic Technology

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INTRODUCTION

In the cosmetic market, **“collagen”** is a widespread presence. The vast majority of consumers know what it is and what it does in the skin. For this reason, there are hundreds of products “with collagen” or mentioning “collagen” on their packaging, even among the big cosmetic companies.

In the course of an in-depth research that has been conducted on this type of products, it has been possible to notice that very often, while reporting the term **“collagen”** on the texts of containers or outer boxes, this active does not appear in any way among the ingredients. Sometimes, formulations contain some **peptides** whose function is to stimulate the production of collagen within the skin in a very superficial way.

In other cases, instead, formulations include actives under the name of collagen (**“soluble collagen”**, **“hydrolyzed collagen”**) and they often include only one type of collagen, that consists in a generic molecule without the specific features that make it suitable for transcutaneous penetration for allowing the active ingredients to be absorbed in depth. These active ingredients remain at skin surface and have nothing to do with true dermis penetration.



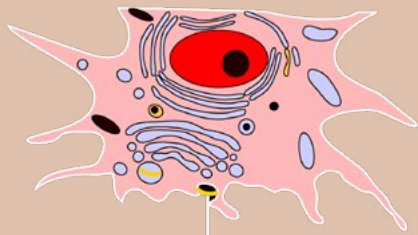
COLLAGEN

Collagen is the main protein of the connective tissues and plays **support, elasticity** and **protection functions**. It is the most abundant protein in mammals (about 25% of the total protein weight).

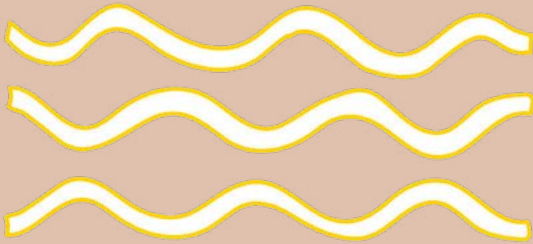
Tropocollagen is collagen structural unit: it is a protein, with a molecular weight of about 285 kilodalton, formed by three left-handed polypeptide chains intertwined to form a triple right-handed helix.

Every chain contains more than 1,400 amino acids including **glycine, proline** and **hydroxyproline** that contribute to 57% of the total amino acid amount.

Collagen biosynthesis is performed by fibroblasts within the connective tissue and by osteoblasts within bones, and starts from individual amino acids. Collagen consists in 19 amino acids, including hydroxyproline, which is exclusively present in collagen since it cannot be found in other proteins.



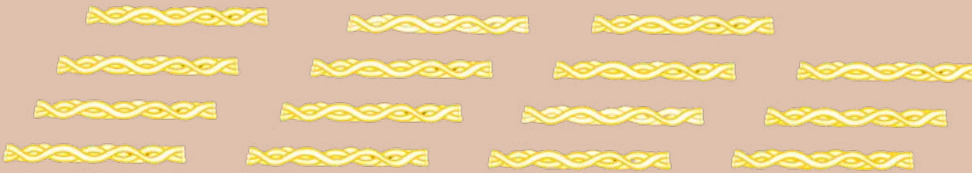
Fibroblast



Procollagen



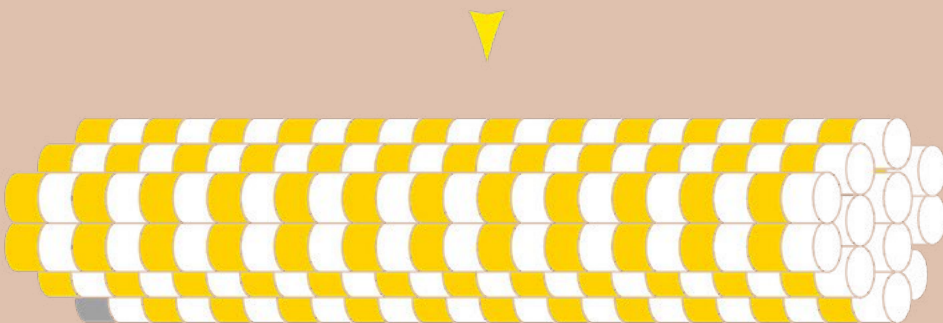
Tropocollagen



Collagen Fibrils



Collagen Fibre



Bundle of collagen fibres

COLLAGEN

Collagen biosynthesis starts from amino acid chains called procollagen that are subsequently released into the extracellular space where they are transformed into tropocollagen fibrils.

Tropocollagen molecules then associate spontaneously, forming **fibrils**.

They arrange themselves in a parallel and staggered way. Finally, fibrils may arrange themselves in corrugated or parallel bundles to form **fibers**, which may form **fiber bundles** (the diagram here aside illustrates the process of collagen fiber formation).

In literature, 28 types of collagen have been described, and among them **type I collagen** represents 90% of the total collagen and is part of skin, tendons, bones and cornea compositions.

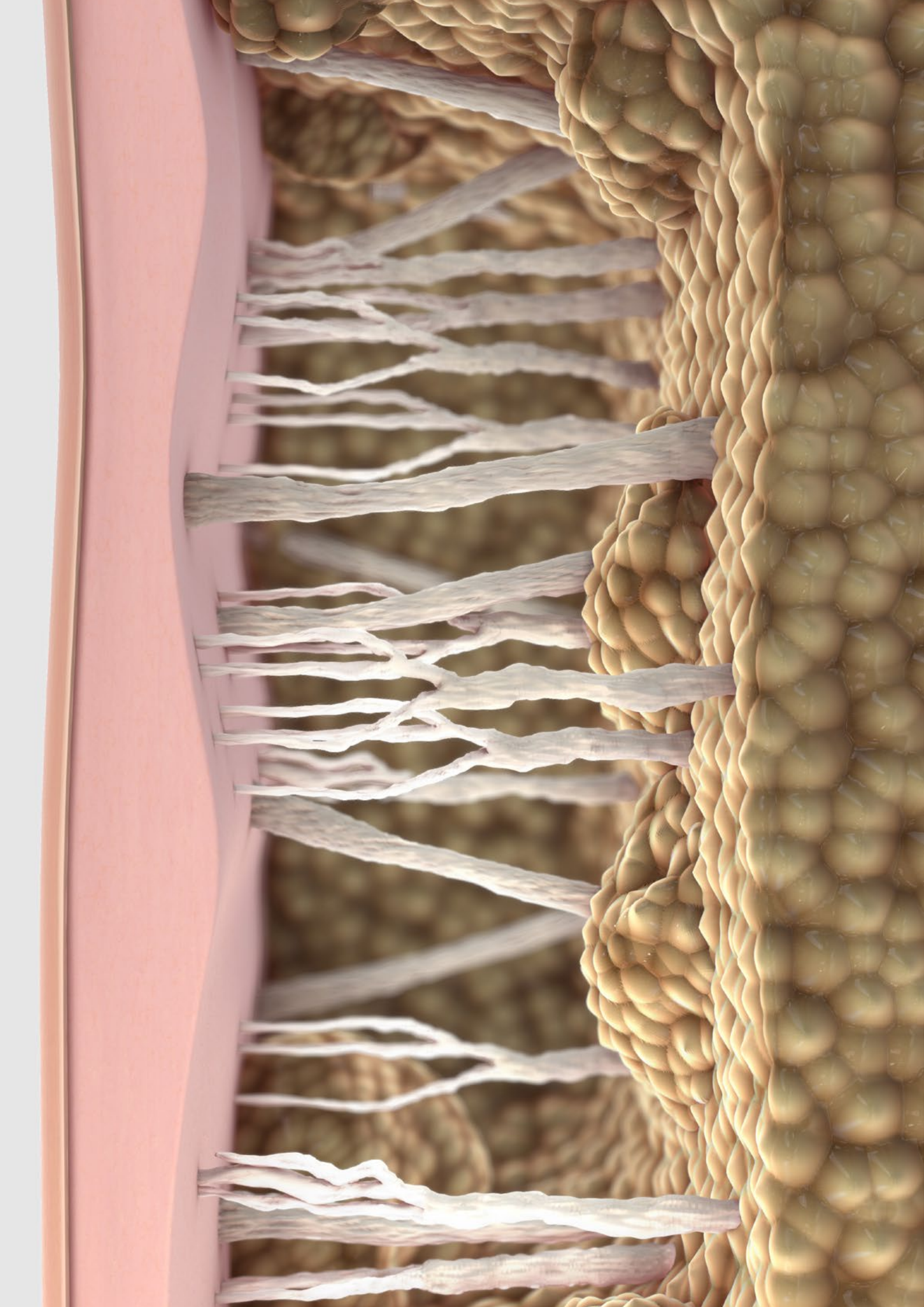
Type I collagen is responsible for skin strength and integrity.

COLLAGEN

Collagen is exclusively found in animals (marine, or fish, and cattle collagens are the most used ones) and there is no vegetable collagen, however, sometimes, individual amino acids from vegetable proteins may be isolated.

At skin level, collagen gives resistance and structural support, building the scaffolding of the extracellular matrix of the dermis. It is a kind of **three-dimensional network** that binds cells together providing support and resistance and is composed of fibrous proteins such as collagen, elastin and fibronectin and a fundamental substance that fills it, composed of proteoglycans and hyaluronic acid.

Collagen helps maintain skin **firmness, tone** and **turgor**, minimising the presence of small wrinkles.



COLLAGEN AND AGEING

The skin ages and loses its characteristics of firmness and elasticity because of a **reduction in dermis thickness**, which largely consists in collagen that, over time, is produced by our body in ever **smaller quantities**.

Moreover, in the dermis, **the diameter of collagen fibres** decreases and the fibres become stiffer due to the **glycation** processes.

Collagen is degraded by particular enzymes that are able to break the long protein chains that make it up, forming shorter fragments without mechanical properties. In a young skin not exposed to sunlight, the synthesis of collagen and its degradation are in constant balance, and this preserves the integrity of the skin; with increasing age, instead, there is a progressive imbalance in this process, with consequent loss of skin tone.

In addition to the exposure to sunlight, which leads to the so-called “photo-aging”, another decisive external factor, among others, that accelerates the processes of skin aging is represented by oxidative stress. It triggers the production of free radicals capable of modifying the skin structure and altering the normal metabolism of collagen, which is thus destroyed more quickly.

Computer illustration of a skin section with the dermis and all its components giving the skin its compactness and consistency. Fibrils and collagen fibers (white vertical fibers) are highlighted.

AESTHETIC MEDICINE INTERVENTIONS ON COLLAGEN

Aesthetic medicine continuously offers new technologies that take into account the latest trends: more natural results in terms of rejuvenation and improvement of skin quality.

An example are the latest generation techniques for the non-surgical rejuvenation of face and neck, carried out with **fractional non-ablative lasers** of the latest generation or with **radiofrequency, currently in great demand**.

They are both less invasive options, albeit to a different extent, than the traditional cosmetic surgery, and address the deeper areas of the skin to **stimulate collagen production**.



LASER FOR COLLAGEN

There are numerous types of laser sources, which allow you to appropriately manage a wide range of skin problems. For each imperfection there is, in fact, an optimal laser source, with appropriate wavelength for the target to be hit. This target is called chromophore and, depending on the case, may correspond to melanin for pigmented lesions, oxyhemoglobin for vascular lesions, cellular water for skin rejuvenation (resurfacing).

Laser light is absorbed by the dermis after crossing the epidermis with negligible interaction. Light interaction within the skin induces a low-grade inflammatory response at the level of the dermis. Laser light targets inflammatory cells (such as mast cells, granulocytes, macrophages), which, in response, release inflammatory mediators and growth factors that stimulate fibroblasts to multiply and repair tissues by means of a **greater production of new type III collagen**. These newly synthesized matrix molecules form a granulation tissue that has little tensile strength (this is type III collagen). Inflammatory cells then disappear as repair progresses and **the ratio of type I collagen to type III collagen increases**. Collagen fibres ripen, are reoriented and increase tensile strength.

The typical healing period of laser-induced injuries takes a time of 2-3 days in which inflammation occurs. Subsequently, for about 30-40 days, the process of cell proliferation is triggered and finally, after about 90 days, all those processes that lead to the “remodeling phase”, i.e. the processes that recompose the architecture of the skin tissue and the dermis extracellular matrix, begin. The overall duration to see the effects of laser treatments is therefore around 4-5 months.

Typical wound healing timeframe

2-3 days

INFLAMMATION

30-40 days

CELLULAR PROLIFERATION

90 + days

REMODELLING PHASE

Although less invasive than cosmetic surgery, laser treatment is not free from side effects such as redness, swelling, itching, short-term skin color changes. Laser treatment is contraindicated during pregnancy, breastfeeding, in the presence of diabetes, and under treatment with drugs such as anticoagulants, anti-inflammatories, coumadin.

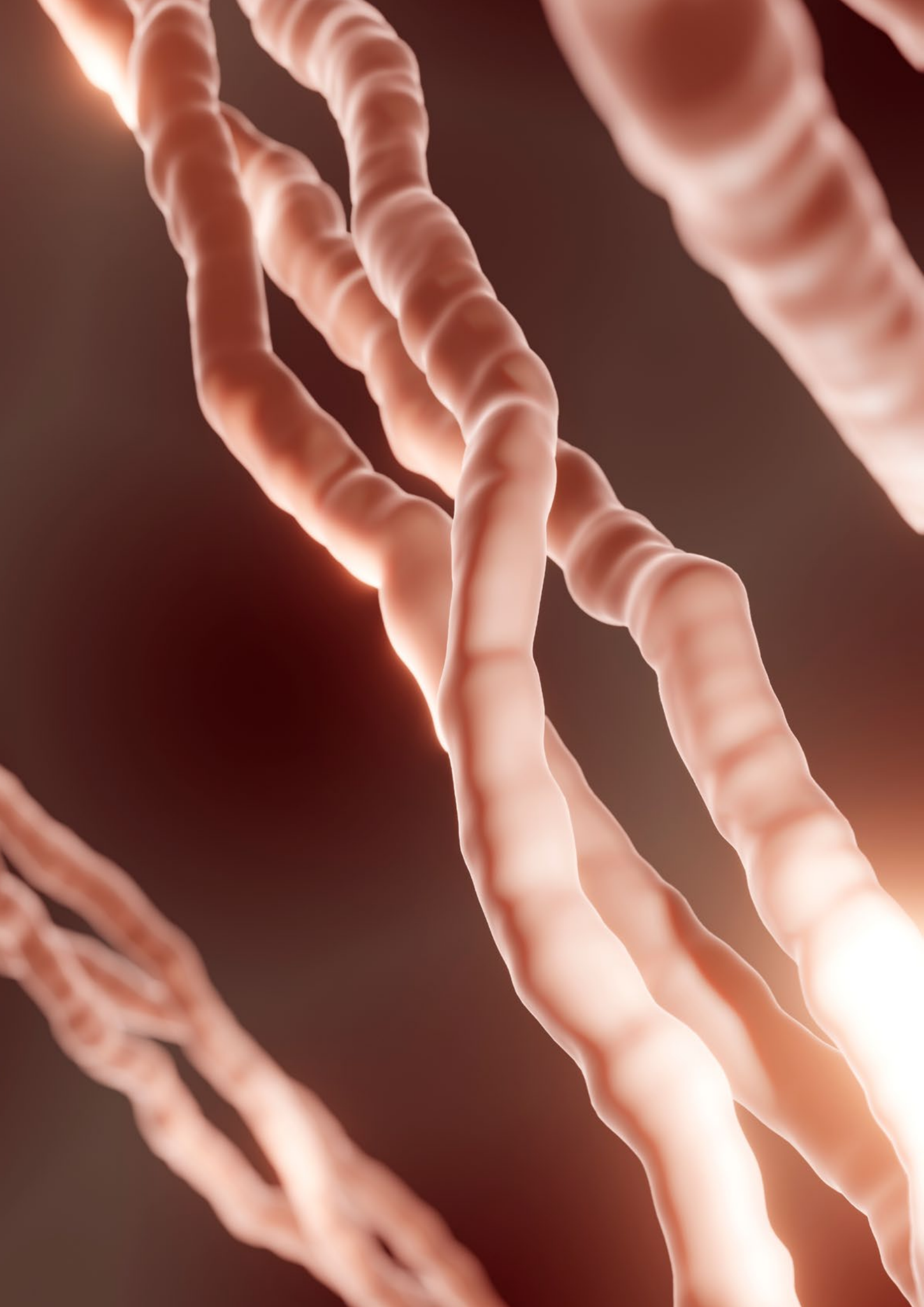


RADIOFREQUENCY FOR COLLAGEN

The treatment with radiofrequency bases its effectiveness on the transfer of electromagnetic waves (through a special handpiece, see image aside) at the level of the first dermal layers with instant heating action, deep and uniform. There is, therefore, an **immediate shortening of collagen fibers** (by about 1/3 of their length) and of elastin, while stimulating fibroblasts to **synthesize new “young” collagen**.

Another effect that is detectable already at low frequency is cellular oxygenation caused by the increase in cellular metabolism with consequent improvement in the efficiency of the microcirculation. Radiofrequency is a fairly painful procedure, caused by the heat developed on the skin, which requires the adoption of appropriate measures to make it bearable.

Although it is a technique with low invasiveness, **radiofrequency in aesthetic medicine has some contraindications** and should not be carried out on various types of patients (such as individuals with pacemakers or heart disease, over-sensitive skin, skin diseases, diabetes, during pregnancy).



LABO'S NEW FORMULATION: COLLAGENINA

From the age of 20, the building blocks of our skin, and collagen fibers in particular, begin to break down, causing skin laxity, sagging, and fine lines. Even genetics, sun exposure and unhealthy lifestyles can accelerate this deterioration.

Labo experts focused on the importance of collagen at the level of the dermis. In addition to analyzing the mechanisms of action of the instrumental techniques of aesthetic medicine, they have studied how **to intervene on skin relaxation using the Transdermic Technology.**

Thanks to it, 6 molecules of Collagens with different molecular weights penetrate the skin at the level of the dermis (*ex vivo* test) to firm and plump up the loose and marked tissue.

It is precisely thanks to this technology that Labo's most innovative dermo-cosmetic device has been formulated:

Collagenina Face Pack with 6 Collagens

Collagenina



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LABO COSMETOLOGIA

FACE PACK WITH 6 COLLAGENS

Collagenina is a dermal treatment for fast penetration and comes as a **Firming Plumping Face Pack** containing 6 collagens with different molecular weights, whose application shall be preceded by a **Preparatory Gel** for the transcutaneous penetration of the active ingredients and followed by an **Emulsion** still containing 6 collagens.

The treatment should be continued for 14 days following daily applications.

The package, characterized by an original box, contains:

14 Doses of **Penetration Preparatory Gel**

14 Doses of **Plumping Firming Face Pack with 6 Collagens**

14 Doses of **Emulsion with 6 Collagens**

2 graduated dispensers

1 Spatula



Collagenina Penetration Preparatory Gel
To be used with the appropriate dispenser

PENETRATION PREPARATORY GEL

To ensure the highest efficacy results, Collagenina treatment involves the use of a special **Preparatory Gel**, containing **5 Enhancers** and a **Protease**, an enzyme capable of catalyzing the breakage of the peptide bonds between the various amino acids contained in the proteins that form the stratum corneum.

Enhancers are substances that facilitate the penetration of the active components because, at the level of the lipids of the stratum corneum (the outermost layer of the epidermis), they can open pathways through which the 6 Collagen molecules can penetrate the skin tissues in depth and reach the dermis. The Preparatory Gel is rich in the 5 Enhancers of Labo's Transdermic Technology: Pentylene Glycol, Decylene Glycol, Caprylyl Glycol, Propylene Glycol, Butylene Glycol.

Proteases are enzymes that act on skin proteins by breaking them down into peptides and amino acids. In other words, they are natural enzymes capable to loosen the bonds between the corneal cells, to lighten the epidermis and make it more receptive to the subsequent application of active molecules.

The Preparatory Gel is essential to prepare the skin to a higher penetration of the 6 Collagens of the Face Pack.

How to use

Open the glass bottle of the Preparatory Gel by removing the safety ring. Draw up 2 ml with the help of the appropriate doser. Distribute it all over the face. Leave to act for 2 minutes. Close the bottle with the rubber cap provided in the box.



Collagenina Face Pack
with 6 Collagens
To be used with the spatula



FACE PACK WITH 6 COLLAGENS

The Plumping Firming Face Pack with 6 Collagens is a hydrophilic Gel containing high doses of 6 Collagens with differentiated molecular weights:

Hydrolyzed Collagen 2K Da	101.3%
Collagen Amino Acids 2.4K Da.....	92.4%
Hydrolyzed Collagen 4K Da.....	98.7%
Hydrolyzed Collagen 12K Da.....	95.5%
Soluble Collagen 230K Da.....	81.2%
Soluble Collagen 300K Da.....	74.6%

Thanks to their different types and molecular weights, these Collagen molecules can penetrate deep into the dermis (*ex vivo* test with Franz Cells), thus helping plump up and firm the skin tissues of the face characterized by laxity.

Collagenina Face Pack formulation contains also some components of endogenous collagen such as

Glycine	75.9%
Proline.....	51.5%
Hydroxyproline.....	69.5%

Being constitutive amino acids of the collagen protein chain, they are inserted inside the Pack to penetrate into the skin tissues for being used by dermal fibroblasts to produce collagen from the inside.

Moreover, **Palmitoyl Tripeptide-5** also participates in the internal synthesis of collagen, as it stimulates its production and helps the correct spacial arrangement of collagen fibers within the dermis. The presence of **Carnosine** helps preserve the stability and integrity of the collagen fibres of the dermis (anti-glycation effect).

Palmitoyl Tripeptide-5.....	91.1%
Carnosine.....	86.1%



Spatula to be used for the application of Collagenina Face Pack

FACE PACK WITH 6 COLLAGENS

How to use

Collagenina Plumping Firming Face Pack with 6 Collagens shall be applied after the Preparatory Gel.

Take a small amount of pack from the jar with the help of the spatula and spread a thin layer of it on the face, on cheeks, jaw line and forehead. Avoid the eye area and the nose.

It is recommended to distribute the pack with the spatula by following horizontal linear movements, for example from left to right. This will help to evenly distribute the preparation.

Wait for 10 minutes, then remove the residue with the spatula by performing horizontal movements similar to the previous ones, but in the opposite direction (for example from right to left). Rinse with warm water using, if necessary, a sponge or a microfiber cloth. Pat dry with a soft cloth.



Collagenina Emulsion with 6 Collagens
To be used with the appropriate dispenser

EMULSION WITH 6 COLLAGENS

To complete the application, an **Emulsion** containing 6 Collagens has been formulated: the type of Collagen molecules is the same as in Collagenina Face Pack.

The Emulsion, light yet rich, is intended to **continue to provide collagen to the skin** for many hours during the night or during the day, depending on when the treatment is used.

An essential complement to the Plumping Firming Face Pack is the Emulsion, that comes in a 30 ml glass bottle. The special dispenser inserted in the box allows to take the right amount for each application.

How to use

Complete the application by opening the bottle of the Emulsion with 6 Collagens. Draw up 2 ml of Emulsion with the appropriate doser, and spread the preparation on the treated areas. Help the absorption with a light massage. Close the bottle with the rubber cap provided in the box.

THE MECHANISM OF ACTION OF COLLAGENINA

The particular composition in active molecules of Collagenina, object of a Swiss patent application, involves an increase in skin thickness and density for a firming and plumping action on the dermal tissues. It helps maintain skin firmness, tone and turgor, minimising the presence of small wrinkles. These functions are the result of:

- **6 transdermic molecules of Collagen**
- **Collagen precursors: Glycine, Proline, Hydroxyproline, plus Palmitoyl Tripeptide-5**
- **An anti-glycation molecule, Carnosine**

The Transdermic Technology, with its 5 Enhancers contained in the Preparatory Gel, as well as in the Face Pack and in the Emulsion, allows all Collagenina active molecules to penetrate deep into the dermis where they perform their specific functions.

COLLAGENINA 6 COLLAGENS

In Collagenina, Labo used collagen of marine origin, well-known for having the best bioavailability compared to the collagen of other sources.

The tissues, in fact, are not made up of cells only: a significant part of their volume is formed by the extracellular space, occupied by an intricate network of macromolecules, whose three-dimensional organization represents precisely the ECM (Extracellular Matrix). A biochemical analysis of ECM reveals that it is composed of a quantity of proteins and polysaccharides, which aggregate in an organized and compact lattice, connected to the surface of the cells that produced it and of the surrounding ones.

The differentiated molecular weight of collagen plays a key role in its capability to penetrate when applied topically. Thanks to the 5 Enhancers, the topical application of 6 collagens with different molecular weights (Hydrolyzed Collagen 2K Da, Collagen Amino Acids 2.4K Da, Hydrolyzed Collagen 4K Da, Hydrolyzed Collagen 12K Da, Soluble Collagen 230K Da, Soluble Collagen 300K Da) **allows them to penetrate through the layers of the skin and reach the dermis where, at the level of the extracellular matrix, they reconstruct the cross-linked structure of the native collagen, while stimulating the proliferation of fibroblasts and the synthesis of new collagen.**

COLLAGEN PRECURSORS IN COLLAGENINA

Collagen precursors, Glycine, Proline and Hydroxyproline, are the essential building blocks for the endogenous synthesis of collagen, and represent 57% of it.

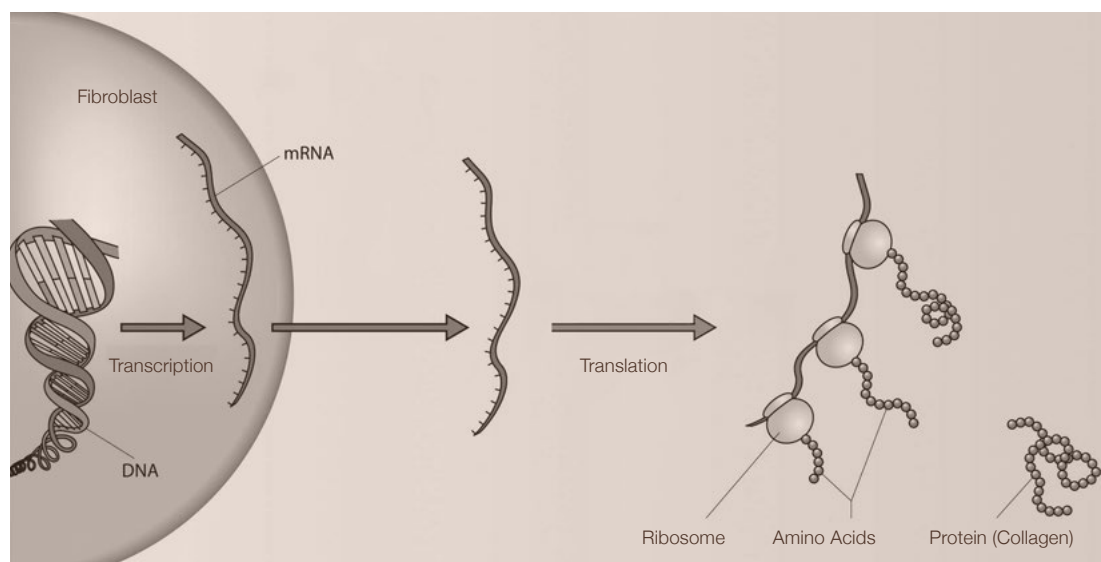
Collagen protein synthesis

Protein synthesis (see diagram below) takes place in special cellular organelles called ribosomes located within the fibroblast. Messenger RNA (mRNA) carries to the ribosome the information on the amino acid sequence that a protein, i.e. collagen, must have. This information comes from the cell nucleus.

Ribosomes are macromolecular complexes immersed in the cytoplasm and their function is to read the information contained in the messenger RNA chain. Subsequently, transfer RNA (tRNA) carries, to the ribosome, the amino acids necessary for the protein synthesis and a triplet of nucleotides complementary to the mRNA.

Transfer RNA molecule is, therefore, the “adapter” device that translates the nucleotide sequence into an amino acid sequence. Therefore, ribosomes work as real assemblers of amino acids to form the collagen protein (or, as in our case, its precursors Glycine, Proline and Hydroxyproline).

Protein Synthesis: a fundamental biological process



COLLAGENINA: Palmitoyl Tripeptide-5

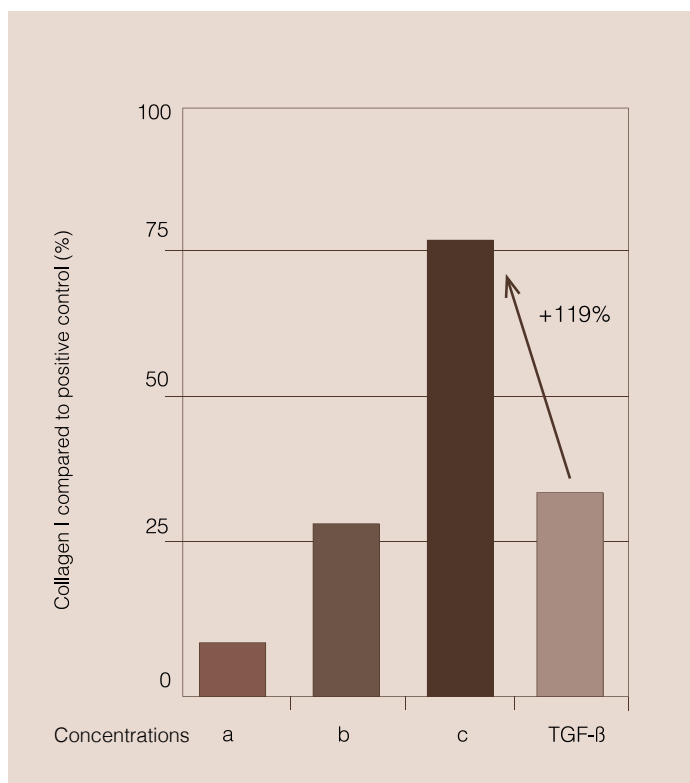
Palmitoyl Tripeptide-5, included in the formula of Collagenina Face Pack, is a peptide that stimulates the natural production of collagen by fibroblasts.

It is a biomimetic peptide that reproduces the action of a protein that is naturally present in the skin, **TGF beta, a growth factor that aims at regulating collagen synthesis**. Thanks to its small size, it easily penetrates and promotes a firming and wrinkle-correcting action.

Within the skin, TGF beta stimulates dermal fibroblasts to synthesize many extracellular matrix proteins, including collagen.

Palmitoyl Tripeptide-5 **stimulates collagen synthesis in dermal fibroblasts in a dose-dependent manner and up to 119% more than the positive control (TGFβ)**.

Palmitoyl Tripeptide-5 stimulates Collagen I synthesis

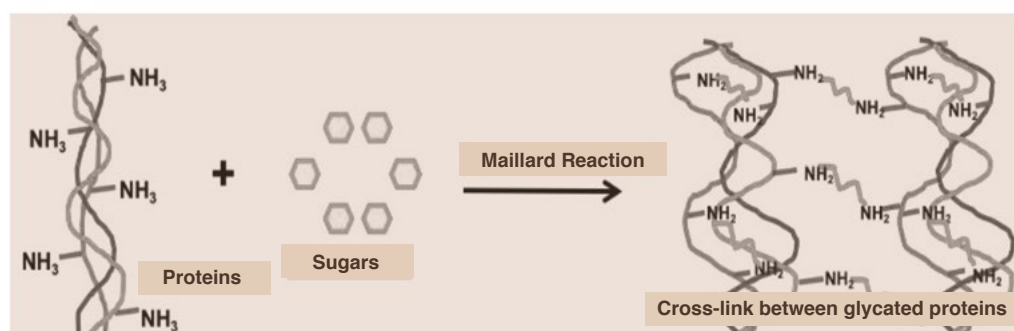


COLLAGENINA: the Anti-Glycation effect

Glycation is a process that causes collagen to interact with sugars and change into cross-linked proteins that have lost their conformation and are no longer able to perform their task in the skin. AGE (Advanced Glycation End-products) are the end result of this process. Their accumulation is at the basis of the natural process of skin aging.

Carnosine is a dipeptide that helps **prevent the glycation of collagen**, counteracting the signs of skin aging, i.e. the formation of AGE, deformed and malfunctioning glycoproteins.

The glycation process



COLLAGENINA: Transdermic Technology

6 molecules of Collagen	Molecular weight	penetration %
Hydrolyzed Collagen	2 K Da	101.3%
Collagen Amino Acids	2.4 K Da	92.4%
Hydrolyzed Collagen	4 K Da	98.7%
Hydrolyzed Collagen	12 K Da	95.5%
Soluble Collagen	230 K Da	81.2%
Soluble Collagen	300 K Da	74.6%

Collagen Precursors	Molecular weight	penetration %
Glycine	75.07 Da	101.3%
Proline	115.13 Da	92.4%
Hydroxyproline	131.13 Da	98.7%

Biomimetic Peptide	Molecular weight	penetration %
Palmitoyl Tripeptide-5	226.3 Da	91.1%

Anti-Glycation Effect	Molecular weight	penetration %
Carnosine	226.2 Da	86.1%

TRANSDERMIC TECHNOLOGY

The skin is hardly permeable: to ensure that the functional molecules of Collagenina penetrate the different skin layers, Labo researchers used the Transdermic Technology that lays on the low molecular weight of the active substances. This is the fundamental condition to guarantee their penetration exclusively in the skin layers, where they will play their real dermo-cosmetic effectiveness. The percentages here above refer to the transdermic penetration of the functional active molecules, in solution, after 24 hours, obtained with Labo Transdermic Technology and tested by means of Franz Cells.

SCALE OF SKIN RELAXATION



Grades 1, 2 and 3 of the scale of skin relaxation correspond to the dosages of Collagenina Face Pack with increasing concentrations of active ingredients, and in particular of the 6 Collagens.

DOSAGES AND DEGREES OF COLLAGENINA

All Collagenina treatments, the Face Pack, the Emulsion and the Creams for daily use, are formulated with increasing concentrations of both the 6 Collagens for in-depth fast penetration and the additional molecules for the production of endogenous collagen.

The concentrations correspond to three degrees of severity of skin relaxation (the photographic scale of skin relaxation is shown aside).

Grade 1: initial laxity of the tissues and presence of micro-wrinkles, barely evident microrelief.

Grade 2: moderate laxity of the tissues, in particular on the cheek line; visible presence of micro-wrinkles, marked microrelief.

Grade 3: advanced laxity of the tissues, cheek line with very visible relaxation, presence of wrinkles; very marked microrelief.

COLLAGENINA

Creams with 6 Fast Penetrating Collagens for the Daily Care

Collagenina Creams contain the 6 Collagens for fast penetration for a daily Plumping Firming treatment and can be used as real collagen treatments or as a maintenance solution, after the 14-day treatment with Collagenina Face Pack.

Three different types of cream are available:

Day Cream with 6 Collagens

Night Cream with 6 Collagens

Neck Cream with 6 Collagens

All creams contain the 6 Collagens with differentiated molecular weight (Hydrolyzed Collagen 2K Da, Collagen Amino Acids 2.4K Da, Hydrolyzed Collagen 4K Da, Hydrolyzed Collagen 12K Da, Soluble Collagen 230K Da, Soluble Collagen 300K Da). They also contain the components for the endogenous production of Collagen (Glycine, Proline, Hydroxyproline, Palmitoyl Tripeptide-5) and for the anti-glycation effect (Carnosine). Transdermic Technology with 5 Enhancers.

All creams for daily care **have a different base** (day, night, neck) and are available in three dosages - Grade 1, 2 and 3 - with increasing concentrations of active ingredients.

P.O.S. Materials

Collagenina Face Pack with 6 Collagens for In-Depth Fast Penetration

P.O.S. Materials

Consumer Leaflet



Shelf Talker

Collagenina

Collagenina

Face Pack with 6 Collagens for In-Depth Fast Penetration

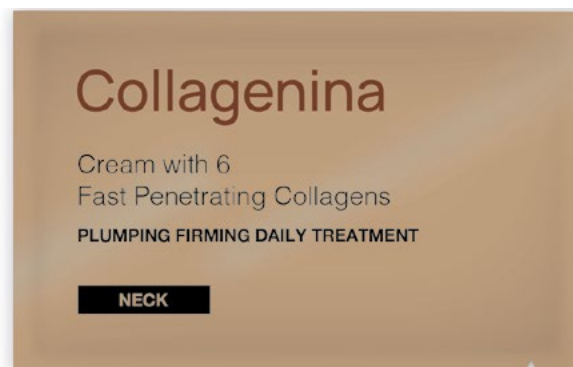
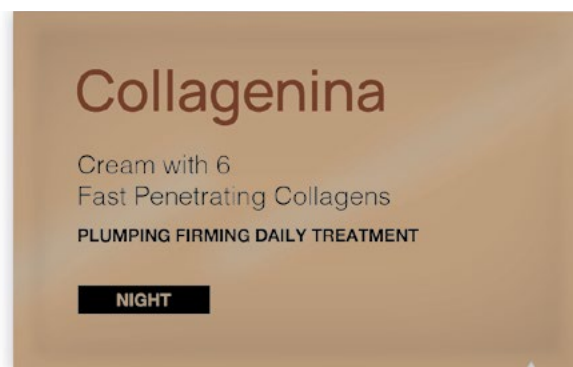
P.O.S. Materials

Face Pack Free Samples - 4 ml



P.O.S. Materials

Day, Night and Neck Creams Free Samples - 2ml



Collagenina Face Pack with 6 Collagens for In-Depth Fast Penetration

P.O.S. Materials

Roll-Banner



Collagenina Face Pack with 6 Collagens for In-Depth Fast Penetration

P.O.S. Materials

Window Card

Skin laxity, Thin skin
or Sagging face?

Collagenina
Face Pack with 6 Collagens for Fast Penetration

SWISS PATENT
CH 111 466

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The Treatment that pumps up and firms the face skin in 14 days.
For at-home use

14 Doses of Penetration Preparatory Gel
14 Doses of Pumping Firming Face Pack with 6 Collagens
14 Doses of Emulsion with 6 Collagens
2 graduated dispensers, 1 Spatula

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Transdermic Technology
Swiss Patent CH 711 466

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