

NV PLUMPING

SKIN CARE

Active: Sesamum Indicum Seed
Extract and Hyaluronic Acid

Benefits

- Lip filling and volume;
- Reduction of expression lines;
- Combats sagging;
- Enhances and restores facial volume and regions such as cheekbone and lip contour;
- Smoothing of the “perioral” lip lines (creases that form on the edges of the lips);
- Anti-aging treatment for the hands;
- Improves skin elasticity;
- Antioxidant action;
- Firmer skin;
- Promotes restoration and hydration for the hair.

Application

Anhydrous bases (water-free): stick products (sunscreen, lipsticks, deodorant, etc.). Non-ionic, anionic and cationic emulsions, gels, cream gels.



DESCRIPTION

The encapsulation of *Sesamum Indicum Seed Extract* in hyaluronic acid nanoparticles-through Nanovetores Technology enables intelligent and safe delivery of the active ingredient, with significant increase in stability, ensuring greater efficiency of cosmetic products.

NV Plumping nanoparticles are characterized by having an average size greater than 200nm. Encapsulation through the technolo-

gy developed by Nanovetores allows the stabilization of sensitive and complex components to be formulated in their free form. The blend can be incorporated into cosmetic formulations, where it enhances and restores facial volume in regions such as cheekbone and lip contouring, improves hydration and reduces expression lines and sagging. The natural characteristics and non-toxicity of the product enable its daily use, delivering efficacy safely.

FACIAL HARMONIZATION AND REJUVENATION

Naturally, aging triggers changes in the skin, such as tissue elasticity, the appearance of marks and changes in texture. The loss of facial volume and subcutaneous adiposity modify facial harmony, which is one of the most visible signs of aging.

With age, this mechanism of skin aging accentuates the appearance of expression lines and wrinkles, which form especially in the eye area and around the mouth, accompanied by loss in lip volume^{1,2}.

To mitigate the loss of facial volume it is common to resort to dermal treatments that fill wrinkles and fine lines. According to the American Society of Plastic Surgeons, the use of these treatments is the second most chosen method, after Botox, because it is a non-surgical method for anti-aging treatments.

Treatment for increased lip volume is also commonly used to obtain a younger and more attractive appearance, however, on many occasions, these invasive procedures through injections can give rise to an unwanted result and cause some characteristics to lose harmony with the rest of the face, giving an artificial and unnatural result.

Restoring natural volume distribution is an important objective in facial rejuvenation, which can now be achieved by cosmetic means. By stimulating the body's natural mechanisms, **NV Plumping** delivers more natural and attractive results in the redistribution of facial volume, especially in the perioral and labial region.

ADIPOSE TISSUE FORMATION PROCESS

Fatty adipose or fatty tissue is a specialized variety of connective tissue. It is formed by the union of adipocytes, by the reticular fibers (collagen), which form the lobes and these constitute the adipose lobes. White adipose tissue is the majority part of the adipose tissue and is widely distributed throughout the body, especially at the subcutaneous level. Traditionally, it is considered a passive reservoir of energy; however, it has also been found that it is responsible for shaping the facial and body surface. This tissue is characterized by having a very heterogeneous cell population; However, most cells are mature adipocytes:

- Preadipocytes are cells that are already predestined to differentiate only in adipocytes. They still have a phenotype similar to fibroblasts, but are already beginning to develop the enzymatic machinery of the adipocyte, although they are not able to synthesize or accumulate lipids.
- Adipocytes are the main cells of adipose tissue. They are rounded when they are isolated or polyhedral when they constitute lobes, and one of their functions is to synthesize and accumulate lipids (in the form of a large triglyceride vacuole)³.

DIFFERENTIATION PROCESS

During adipogenesis (**Figure 1**), cells change from a fibroblast appearance to a spherical form; at the same time, there are major changes in cell morphology, cytoskeleton components and extracellular matrix ⁴.

This phenomenon is a process that comprises several stages in which several transcription factors are involved, which regulate the expression or silencing of more than 2,000 genes and allow the development and differentiation of adipocytes. Within adipogenesis, 2 phases can be differentiated:

1. Determination phase: conversion of the stem cell into a pre-adipocyte.
2. Terminal differentiation phase: the pre-adipocyte assumes the characteristics of a mature adipocyte. This, in turn, acquires the necessary machinery for the transport and synthesis of lipids.

The key point of this process is the level of transcription factors, particularly C/EBP (CCAAT/enhancer binding protein) and PPAR γ

(Peroxisome proliferator-activated receptor γ). The differentiation step begins with the Expression of C/EBP β which increases the expression of PPAR γ . The PPAR γ must bind to a linker to activate and stimulate the expression of C / EBP α , which in turn also increases the expression of PPAR γ itself, closing the positive feedback cycle⁵.

Through this process, lipid droplets appear in the cell cytoplasm and, over time, increase and merge to form one or two large lipid droplets that will occupy a great part of the adipocyte. During youth, all these stages of adipogenesis pass without complications to give rise to a subcutaneous adipose tissue characterized by diffuse fat, homogeneously distributed. But as we age, although the determination phase is still active and in later stages, adipoblasts continue to differentiate until pre-adipocytes, the latter do not complete the terminal differentiation and cannot give functional adipocytes capable of synthesizing and accumulating fat. As a consequence, subcutaneous fat is lost, mainly around the eyes, forehead and perioral region.

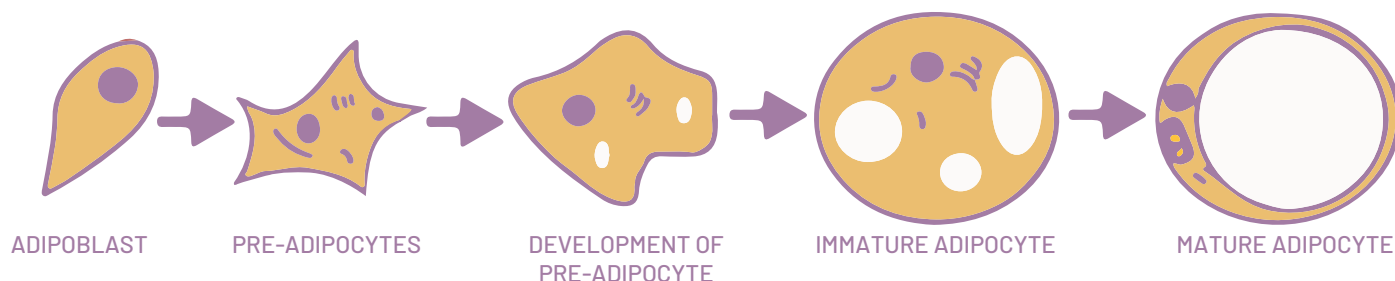


Figure 1: Adipogenesis process ⁴.

NV PLUMPING MECHANISM OF ACTION

Nv Plumping presents the benefits of the nanoencapsulated active, such as active protection, the best permeation that ensures effective action in the target. Sesamine encapsulated in hyaluronic acid nanoparticles promotes synergistic effect for the increase of lip and facial volume, conferring youthful, harmonic and natural aspect.

The action of **NV Plumping** consists in the activation of the first phases of adipogenesis to obtain at the end a greater number of

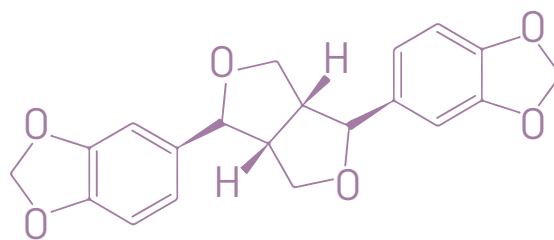
mature adipocytes capable of synthesizing and accumulating fat. When the early stages of terminal differentiation of preadipocytes are stimulated, the aging process of adipose tissue can be reversed and the consequences of subcutaneous fat loss may be reduced. Thus, **NV Plumping** is able to act as a linker or agonist of PPAR γ and activate it, stimulating the passage from pre-adipocyte to adipocyte to finally have more mature adipocytes, capable of synthesizing and accumulating fats.

COMPOSITION

NV Plumping is an activesbooster that promotes filling, volume and hydration based on Sesamum Indicum Seed Extract and Hyaluronic Acid.

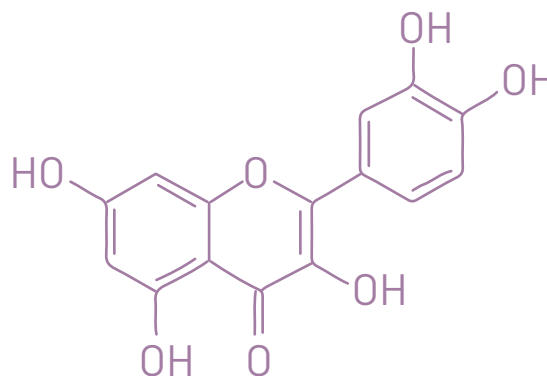
SESAMUM INDICUM SEED EXTRACT

Sesamum indicum seed extract is rich in sesamine (**Figure 2**), which belongs to a group of compounds called lignans. Lignans are a type of polyphenol found in plants. Research shows that sesame oil is able to increase the expression of PPAR γ and that sesamine itself increases the transcriptional activity of PPAR γ in various cell types ⁶. These activities can be explained with the activation of the Gamma PPAR receptor, since its direct involvement in all these processes has been demonstrated ⁷. These studies support the mechanism described for stimulation of sesamine adipogenesis.



Chemical name: Sesamine.

Figure 2: Chemical structure of Sesamine.



Chemical name: Hyaluronic Acid.

Molar Mass: 846.8 g/mol.

Figure 3: Chemical structure of Hyaluronic Acid.

HYALURONIC ACID

Hyaluronic acid (Figure 3) is a substance naturally present in the human body, responsible for decreasing the rate of water evaporation for the maintenance of the skin natural hydration, besides being a collagen stimulating substance. Hyaluronic acid has a high ability to bind to the water molecule forming a cohesive block. It functions as a humectant agent and keeps water molecules on the surface of the skin to keep it hydrated. Prevents TEWL (Transepidermal Water Loss), keeping the skin hydrated, ensuring that water does not escape from the skinsurface. Topical application of acid, due to this ability to form a cohesive block with water, decreases the appearance of expression lines and wrinkles, enhances and restores facial volume, making the skin smoother, firmer and rejuvenated. The active also has antioxidant effect, because it acts as a scavenger of free radicals, increasing the protection of the skin in relation to radiation and contributes to the increase of tissue repair capacity ^{8,9,10}.



Regulatory Information

INCI Name	Cas Number	EINECS Number
CAPRYLIC/CAPRIC TRIGLYCERIDE	73398-61-5	277-452-2
AQUA	7732-18-5	231-791-2
PEG 30 DIPOLYHYDROXYSTEARATE	70142-34-6	-
DIMETHYL ISOSORBIDE	5306-85-4	226-159-8
GLYCERYL CAPRYLATE	26402-26-6	247-668-1
SESAMUM INDICUM SEED EXTRACT	8008-74-0	232-370-6
HYALURONIC ACID	9004-61-9	232-678-0
POLOXAMER 407	9003-11-6	-
GLYCERYL UNDECYLENATE	65684-27-7	-
TOCOPHERYL ACETATE	7695-91-2	231-710-0
TOCOPHEROL	59-02-9	200-412-2

Physical-chemical information

Aspect	Slightly viscous milky liquid.
Color	White to cream.
Odor	Characteristic.
Dispersibility	Dispersion of actives encapsulated in anhydrous medium.
Relative density	0.8 to 1.1 g/mL.

Mode of Use

Shake before use, add to the formulation under mild to moderate agitation, in the desired concentration.

Concentration of Use

1 to 10%.

Storage

Keep in a well ventilated place, away from light and heat.

Compatibility

Anhydrous bases (water free): stick products (sunscreen, lipsticks, deodorant, etc.). Non-ionic, anionic and cationic emulsions, gels, cream gels.

Incompatibility

Ethanol and other organic solvents.



Our production process is based on Green Chemistry, being water-based and free of organic solvents, totally sustainable. We do not generate waste that could be harmful to users or the environment



We do not test on animals. All tests are conducted in trustworthy laboratories with human volunteers.



Essential oils, Vitamins, Acids and Natural Extracts are highly oxidative substances that degrade quickly and react constantly with the medium and other cosmetic compounds (light, oxygen, packaging, preservatives, fragrances, surfactants, etc.). By encapsulating it, we guarantee the stability of the active ingredients and protect them from potential reactions with the formulation or the environment.

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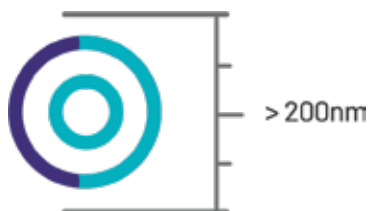
Nanovetores Encapsulation Technology



Active Ingredient Protection against oxidation resulted from interaction with external environment and other components of the cosmetic formulation.



Monodispersity, that ensures control of the particle size, providing adequate permeation to its proposed action.



Secure particles larger than 200nm, bio-compatible and biodegradable.



Greater Permeation on the contact surface due to the small size of the capsule.



Surface Charge Control of the particle, promoting greater affinity with the contact surface.



Water Base. Active ingredients are manufactured without the use of organic solvents, ensuring safety for users and the environment.

Use Encapsulated Active Ingredients and Ensure:

- Stability Improvement
- Increased compability in the formulation
- Occlusion of odors
- Increased skin permeation
- Reduced dose
- Use of sensitive active ingredients (without refrigeration)
- Increased Solubility
- Prolonged release
- Increased effectiveness



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