

Optimum Life Angelica

Combats ageing by strengthening vital cell functions



NAOLYS ACTIVE CELLS

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Combats ageing by strengthening vital cell functions

To look beautiful, skin has to be healthy,
and therefore functioning correctly.

By strengthening skin cells' vital functions,
Optimum Life Angelica - active angelica plant cells
- maintains their overall long-term capacity
to function correctly, despite the damaging effects
of natural ageing and environmental stress.

For balanced, radiant, younger-looking skin.

A VEGETAL STORY

Angelica archangelica, Apiaceae

One might well call this herbaceous plant from northern Europe that is particularly suited to lower temperatures "magical angelica". Its spicy, musky smell had a reputation in the Middle Ages for warding off evil spells! In the Renaissance, the root was recognized for its digestive properties, and the essential oil for its ability to induce sweating; it was also used against infections and epidemics such as the plague; "angel grass" or its sister "angelica sinensis" is one of the traditional Asian medicines. Edible, it is still used mixed with candied fruit in desserts (the French town of Niort is famous for its candied Angelica sticks), and in several famous liqueurs and luxury perfumes.



PRODUCT BENEFITS

Anti-ageing

Anti-wrinkle

Helps to reduce wrinkles on the face, especially crow's feet.

Anti-ageing

Stimulates collagen and elastin production making the skin firmer and more supple.

Balancing and stimulating, for healthy cellular function

Helps to keep cellular metabolism balanced (nutrition and respiration). Slows the deterioration in cellular communication caused by natural ageing.

Protecting, antioxidant and anti-pollution

Decreases oxidation caused by UV and pollution particles in cell metabolism.

HOW IT WORKS

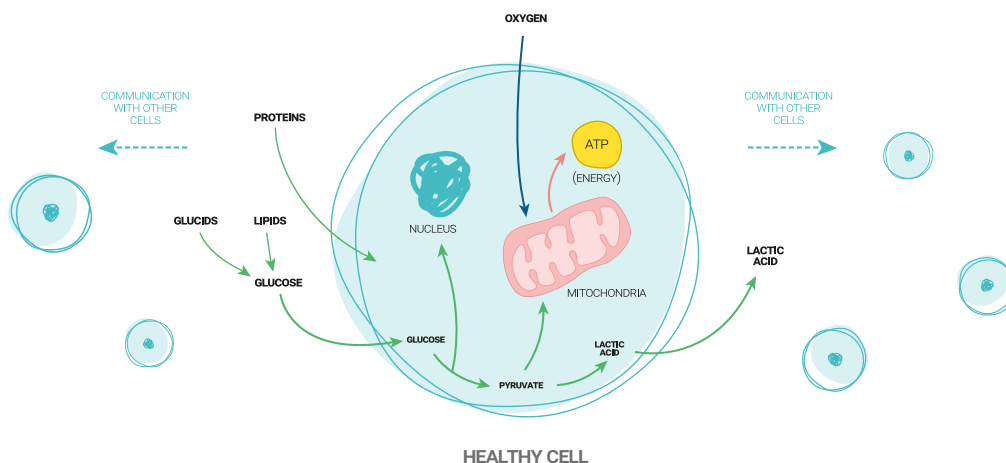
Optimum Life Angelica: reduces skin ageing by optimizing vital cell functions

At the origins of life: the vital functions of living beings

Nutrition, reproduction and communication are the three vital functions of living beings: these are the functions that all living beings must be able to perform to sustain life.

Skin cells, or any other cells, create the energy they need to live through two essential innate functions: nutrition and respiration. They produce energy in mitochondria via the conversion of glucose in the presence of oxygen. In this way, it is able to communicate efficiently with other cells and reproduce: two essential functions for multicellular organisms such as the human body.

Incredibly, respiration is intrinsically toxic, because it requires the absorption of oxygen which leads to the formation of free radicals; similarly, our environment exposes us to light radiation and pollution, further sources of oxidation to which we are exposed on a daily basis. This oxidation causes cell damage, ultimately leading to the ageing of our skin.



Optimum Life Angelica: improves skin cell health

Reduces damage caused by oxidation due to respiration

Good respiration means preventing a lack of oxygen and also absorbing oxygen in sufficient quantities. However, respiration in itself, like exposure to UV (especially UVB, but also other forms of light radiation) and pollution (such as fine particles from heavy metals, road traffic, asbestos, sulphur, micro-soot, etc.) causes oxidation of the cells, this continuous oxidation causes cellular dysfunctions, less efficient overall function, and ultimately premature ageing.

Optimum Life Angelica helps balanced respiration to be maintained by reducing oxidative stress that is of physiological and environmental origin.

Strengthens basic functions

Nutrition

To remain healthy, skin cells need to integrate nutrients, lipids, carbohydrates, and proteins in optimal quantities so that they assimilate them appropriately and use them to function correctly. If glucose is not provided in sufficient quantities, the cell cannot produce energy.

and communication

Cells communicate with each other and with connective tissues, via signals that are sent by surface molecules, or membrane proteins. Without these proteins, skin cells would no longer be able to maintain general skin function.

Optimum Life Angelica increases the supply of nutrients to cells and facilitates cellular communication.

Thanks to Optimum Life Angelica, that optimizes cellular functions, thereby strengthening overall cellular activity; the skin becomes firmer, suppler and wrinkles are less noticeable.

CLINICAL TEST RESULTS

An anti-wrinkle effect on the face

Declaration of the panel

- **95%** of women reported that their skin seemed firmer, and more toned
- **77%** of women reported that wrinkles appeared to be reduced
- **68%** of women reported that their face seemed to be reshaped

At the concentration of 0.5%

IN VITRO TEST RESULTS

A multiple strengthening effect

Balancing, stimulating effect

- Thanks to the increased speed of transport of lipids, proteins and carbohydrates
- And to a **16.7%** (average) increase in the level of connexin 43

Energizing effect

- Due to an increase in oxygen consumption of **22.6%** (average), and a decrease in hypoxia reflected by a decrease in HIF-1 alpha of **20%** (average)

Antioxidant effect

- Due to a decrease in proteins oxidized: in physiological conditions of **27%** (average); after exposure to UVB rays of **21%** (average); and after exposure to pollutant residues of **22.5%** (average)

Firming, toning effect

- Due to an increase in the levels of total collagens of **20%** and of elastin of **18%**

At the concentration of 0.5%

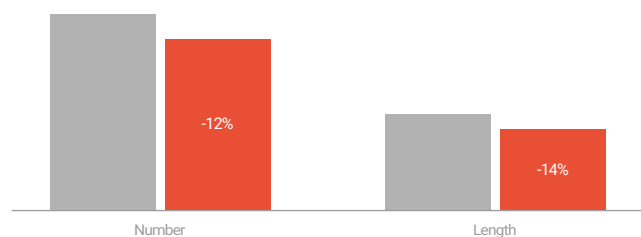
Clinical test results

Decrease of wrinkles and improvement of skin firmness on the face after 28 days (application twice a day)

Decrease of wrinkles (crow's feet)

Assessment of the anti-wrinkles effect by cutaneous replicas and image analysis (Quantirides® software)

■ D0 ■ D28



Decrease of the number of wrinkles of 12%

Decrease of the length of wrinkles of 14%



DAY 0

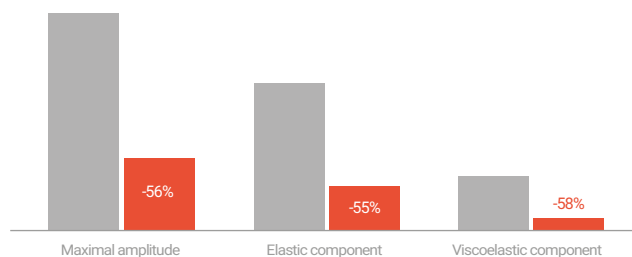


DAY 28

Improvement of skin firmness

Assessment of the product effect of the biochemical properties of the skin by Cutometer® (mm)

■ D0 ■ D28



Improvement of firmness

Conditions of the study:

- Tests were carried out for 28 days on a sample of 22 women aged 49 to 65 years (18 women for wrinkles)
- Application twice a day
- Assessment made by analysis of cutaneous prints (Quantirides®) and Cutometer®
- Emulsion with 0.5% of Optimum Life Angelica (20% cells)

Technical information on the formulation of Optimum Life Angelica

INCI name of cells

Angelica archangelica callus extract

form

cells (20%) in glycerin or sunflower oil (80%)

aspect

liquid

concentration

starting at 0.5%

dispersible

in any formulation (emulsion, lotion, fluid)

In vitro tests results

Improved overall respiration

Because humans are totally dependent on the absorption of oxygen, we decided to study how Optimum Life Angelica enables better absorption of the oxygen necessary for the creation of ATP, and therefore in parallel the reduction of hypoxia, and then the reduction of the oxidation of proteins, because this oxidation damages cellular function.

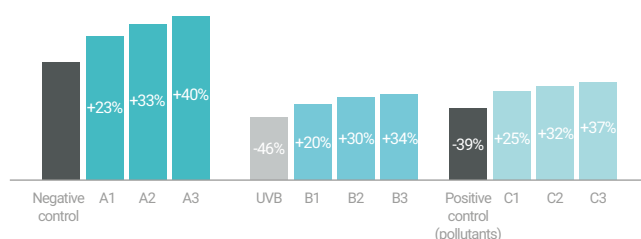
The studies were adapted to an urban lifestyle - exposure to light radiation and pollution particles - in terms of the level of keratinocytes and fibroblasts (to study the oxidised proteins).

Increases absorption of oxygen

Study of the consumption of oxygen Physiological conditions and exposition to UVB and pollutants

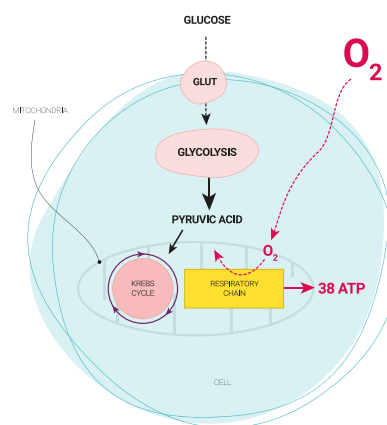
Oxygen consumption rate (pmole/min/mg of proteins)

■ OLA (A1=0.5%; A2= 1%; A3=2.5%)
■ OLA +UVB (B1=0.5%; B2= 1%; B3=2.5%)
■ OLA +Pollutants (C1=0.5%; C2= 1%; C3=2.5%)



Increase of the consumption of oxygen

→ At concentrations of 0.5%, 1% and 2.5%, increase of the oxygen consumption of 23%, 33% and 40% in physiological conditions. Increase of the oxygen consumption after exposition to UVB of 20%, 30% and 34% (decrease of 46% by UVB), increase of the oxygen consumption after exposition to pollutants of 25%, 32% and 37% (decrease of 39% by pollutants).



OXYGEN IN CELLULAR RESPIRATION

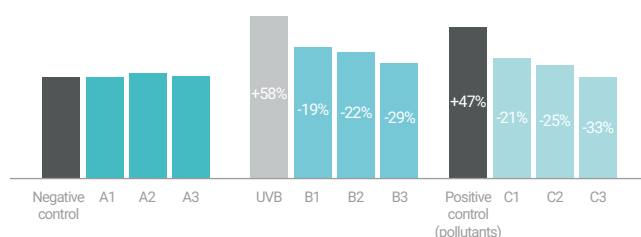
Decreases hypoxia (lack of oxygen supply)

Cells can sometimes suffer from a lack of oxygen (hypoxia), leading to a slowdown in mitochondrial enzymatic reactions. When this occurs, the cells respond by modifying protein activities and gene expressions, in particular by using HIF-1 alpha (*hypoxia inducible factor-1*), a protein complex specific to the hypoxic response.

Study of the HIF-1 alpha factor Exposition to UVB and pollutants

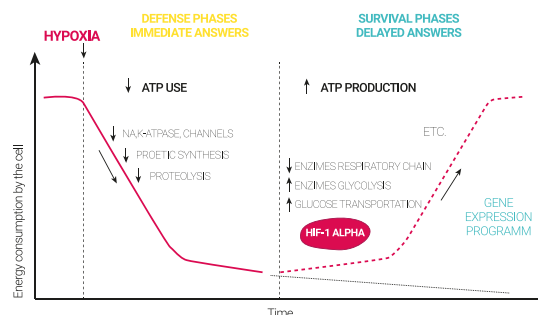
HIF-1 alpha (pg/mg of proteins)

■ OLA (A1=0.5%; A2= 1%; A3=2.5%)
■ OLA +UVB (B1=0.5%; B2= 1%; B3=2.5%)
■ OLA +Pollutants (C1=0.5%; C2= 1%; C3=2.5%)



Decrease of HIF-1 alpha

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the HIF-1 alpha factor of 19%, 22% and 29% after exposition to UVB (increase of 58% by UVB) and of 21%, 25% and 33% after exposition to pollutants (increase of 47% by pollutants).

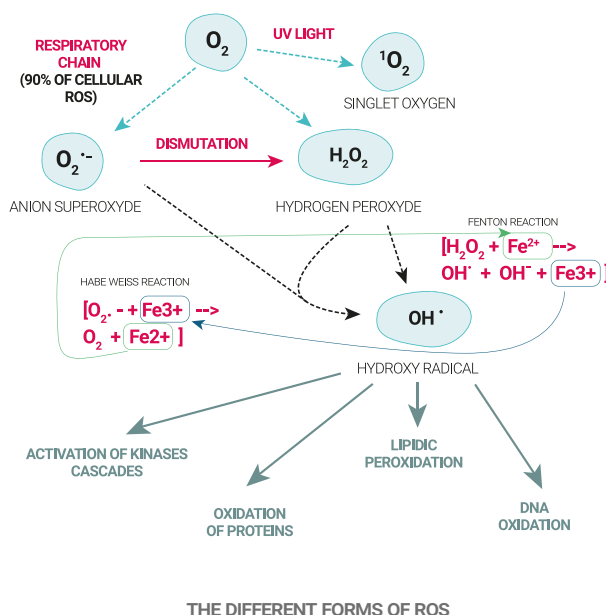


THE CELL ANSWER TO SEVERE HYPOXIA

Reduces oxidation caused by oxygen

Finally, dioxygen (O_2) is a biradical molecule composed of two atoms each with a free electron in their external orbits. It will therefore easily bond with one and then two electrons to be partially reduced to O_2^- and then to H_2O_2 . In this way, it is at the origin of the formation of reactive oxygen species (ROS). Among these ROS, $OH^\bullet$, with a half-life of the order of nanoseconds, is the most unstable and the most reactive of all the oxygen derived species.

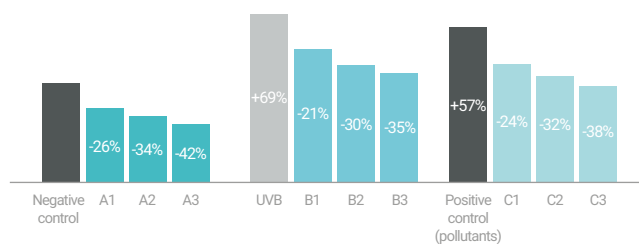
The limited distribution of this radical allows it to react with numerous nearby molecular species (proteins, lipids, DNA, etc.) resulting in wide-ranging cellular damage. $OH^\bullet$ appears as the radical species having a major role in the cytotoxicity of ROS.



Study of the oxidised proteins Exposition to UVB and pollutants - keratinocytes

Oxidised proteins (nmol/mg of proteins)

■ OLA (A1=0.5%; A2= 1%; A3=2.5%)
■ OLA +UVB (B1=0.5%; B2= 1%; B3=2.5%)
■ OLA +Pollutants (C1=0.5%; C2= 1%; C3=2.5%)



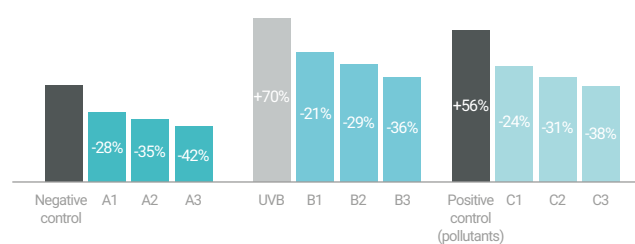
Decrease of oxidised proteins at the level of keratinocytes

→ At concentrations of 0.5%, 1% and 2.5%, at the level of keratinocytes, decrease of oxidised proteins of 26%, 34% and 42% in physiological conditions, decrease of oxidised proteins of 21%, 30% and 35% after exposition to UVB (increase of 69% by UVB) and of 24%, 32% and 38% after exposition to pollutants (increase of 57% by pollutants).

Study of the oxidised proteins Exposition to UVB and pollutants - fibroblasts

Oxidised proteins (nmol/mg of proteins)

■ OLA (A1=0.5%; A2= 1%; A3=2.5%)
■ OLA +UVB (B1=0.5%; B2= 1%; B3=2.5%)
■ OLA +Pollutants (C1=0.5%; C2= 1%; C3=2.5%)



Decrease of oxidised proteins at the level of fibroblasts

→ At concentrations of 0.5%, 1% and 2.5%, at the level of fibroblasts, decrease of oxidised proteins of 28%, 35% and 42% in physiological conditions, decrease of oxidised proteins of 21%, 29% and 36% after exposition to UVB (increase of 70% by UVB) and of 24%, 31% and 38% after exposition to pollutants (increase of 56% by pollutants).

Strengthens basic cellular functions

Enhances cell nutrition

Among the basic cellular functions, nutrition is essential for good reproduction, general function and communication (cells must be able to communicate efficiently with each other). Furthermore, nutrients - carbohydrates, lipids, and proteins - are essential for cell division.

Skin cells, like all human cells, are heterotrophic: in order to function, they take their nutrients, plus water and mineral salts from the extra cellular medium. To be specific, for skin cells in the epidermis, their nutrition is provided via the micro-circulation inside the dermis, that brings them the elements they need. If they do not assimilate those elements properly, the epidermis will not be of an appropriately good quality.

In our *in vitro* test, we studied the effect of Optimum Life Angelica on the transport of the three essential nutrients (carbohydrates, lipids and proteins).

These nutrients are substances directly assimilable by cells: they will be used to perform their metabolism or assimilation.

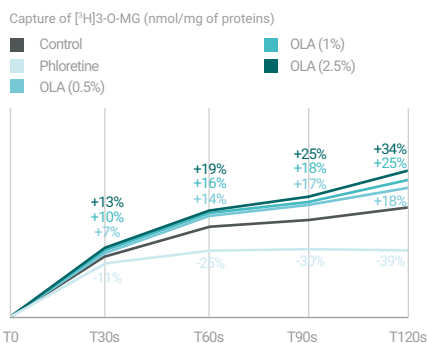
Lipids and carbohydrates are used to create the cell's energy or in the activation of primary and secondary metabolisms, but proteins have many functions. They contribute to the construction of cell components, to cell communication (signal reception, information transfer), and also to the catabolism and anabolism of various cell constituents, that allow cells to make healthy tissue, in this case, the epidermis.

With ageing, cell metabolism and assimilation slow down, and the quality of tissues decreases.

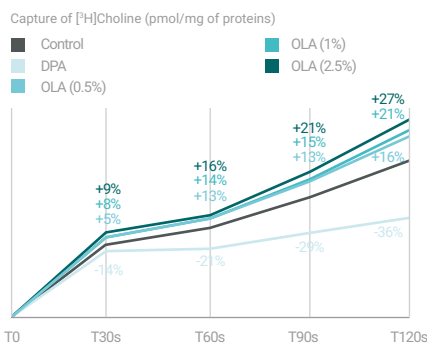
Study of the transportation speed of the nutrients

Physiological conditions - keratinocytes and fibroblasts

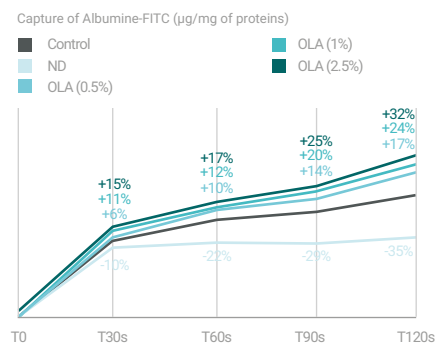
Study of the transportation speed of glucids (glucose)



Study of the transportation speed of lipids (choline)



Study of the transportation speed of proteins (albumine-FITC)



Increase of the speed of transportation

→ In physiological conditions, at concentrations of 0.5%, 1% and 2.5%, at the level of the microsomes of epidermis stem cells treated by Optimum Life Angelica, significant progressive increase (from 30s to 120s) :

→ of the transportation speed of glucids translated by the increase of the cinetik of the capture of the glucose compared to the treatment with phloretin

→ of the transportation speed of lipids translated by the increase of the cinetik of the capture of the choline compared to the treatment with diphenhydramine

→ of the transportation speed of proteins translated by the increase of the cinetik of the capture of the albumine compared to the treatment with nocodazole

Regenerating cellular communication that has deteriorated due to ageing

Multicellular organisms are composed of organs consisting of different types of tissue, which in turn are composed of various types of differentiated cells.

All cells in tissue are in contact with:

- a complex network of secreted macromolecules: the extracellular matrix (ECM) (= connective tissue) which fills the intercellular space
- a contiguous cell

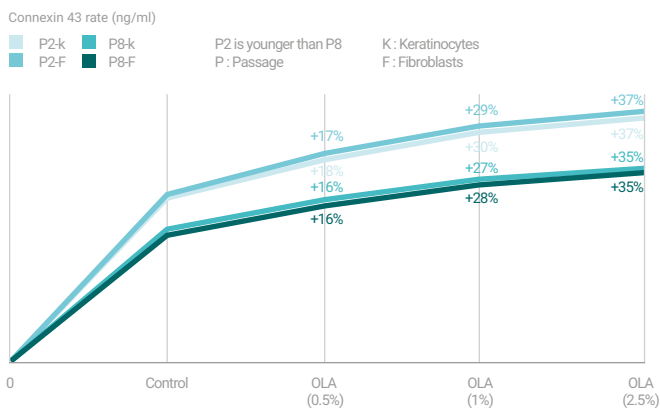
All of these cell-extracellular matrix and cell-cell interactions are due to proteins in the plasma membrane called cell adhesion molecules (CAM). Among these adhesion molecules are gap junction proteins called connexins, which form transmembrane channels, enabling neighbouring cells to exchange numerous ions and cytoplasmic metabolites directly. This intercellular communication mechanism, also called junctional coupling, is involved in many cellular functions.

Identified in 1987, connexin 43 is synthesized by keratinocytes and fibroblasts. However, natural ageing decreases the synthesis of these connexins.

We therefore studied the impact of Optimum Life Angelica on the synthesis of connexin 43 in young cells and artificially aged cells.

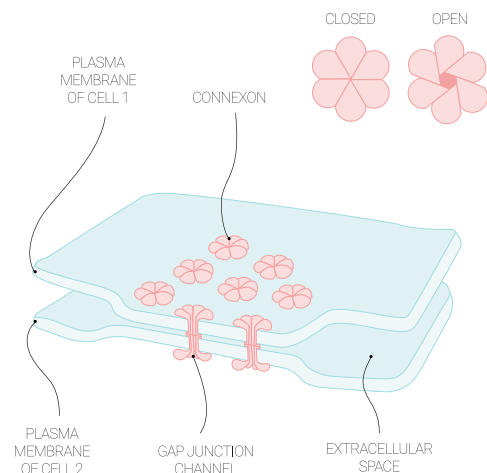
Study of connexin 43

Physiological conditions - keratinocytes and fibroblasts



Increase of the connexin 43 rate

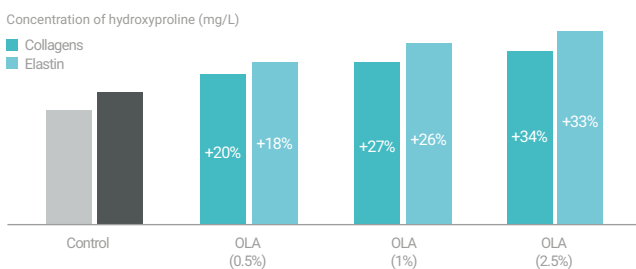
→ In physiological conditions, at concentrations of 0.5%, 1% and 2.5%, increase of the connexin 43 rate for keratinocytes at the level of P2 of 18%, 30% and 37% and at the level of P8 16%, 28% and 35%. For fibroblasts, at the level of P2, increase of 17%, 29% and 37%, at the level of P8, 16%, 28% and 35%.



GAP JUNCTIONS (CONNEXINS)

To verify improvements in vital cell functions, with a view to demonstrating visible results, two essential components of the ECM were studied: collagens and elastin.

Study of the extra cellular matrix (collagens and elastin)



Increase of the collagens and elastin rates

→ At concentrations of 0.5%, 1% and 2.5%, increase of the total collagens rate of 20%, 27% and 34% and of the elastin rate of 18%, 26% and 33% synthesized by fibroblasts in physiological conditions.

Due to its effect on the basic functions of skin cells, Optimum Life Angelica enables skin ageing to be reduced.



See also

All Even Sweet iris

Foreseen Shield Nopal

InitialE [PT+TMG]

Inside Heart Egyptian blue lily

MReload Sequoia

PowerExtension [HSB+R]

StandStill Rose from Damas



