Inside Light Poet's narcissus

Regulating melanogenesis

NAOLYS

NATURE EXPANDED


BRIGHTENING

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Regulating melanogenesis

A STORY

The Poet's narcissus | *Narcissus poeticus, Amaryllidaceae*

The myth of a dangerous beauty

In its search for innovative cells with a lightening effect, Naolys has developed a new strain of cell from a plant species that is rarely used in cosmetics: poet's narcissus. The white flowers of this early-flowering European perennial have a heady scent; the narcissus is a cousin of the daffodil, which has been recognized for its medicinal properties since ancient times. In Ovid's Metamorphoses, Narcissus dies after becoming fixated with staring at his reflection in the water. Today, the narcissus is an ornamental flower appreciated for its elegant beauty and is still used in the creation of fragrances.

Key points

An active plant cell
Developed to deliver the highest amount of original active molecules

A high tech natural ingredient
Created to preserve and improve the identity and the benefits of a natural product.

A general lightening effect
Decreases pigmentation, enhancing the complexion's natural brightness.

Because the complexion can become darker with age or after substantial exposure to UV light, particularly in people with darker skin, the challenge is to regulate melanogenesis in the epidermis. For a brighter, more uniform complexion with a lighter appearance.

PRODUCT BENEFITS

Brightening

Lightening and anti-blemish
Helps to prevent and reduce brown spots

Brightness of the complexion
Reduces skin blemishes, helps develop a more uniform complexion

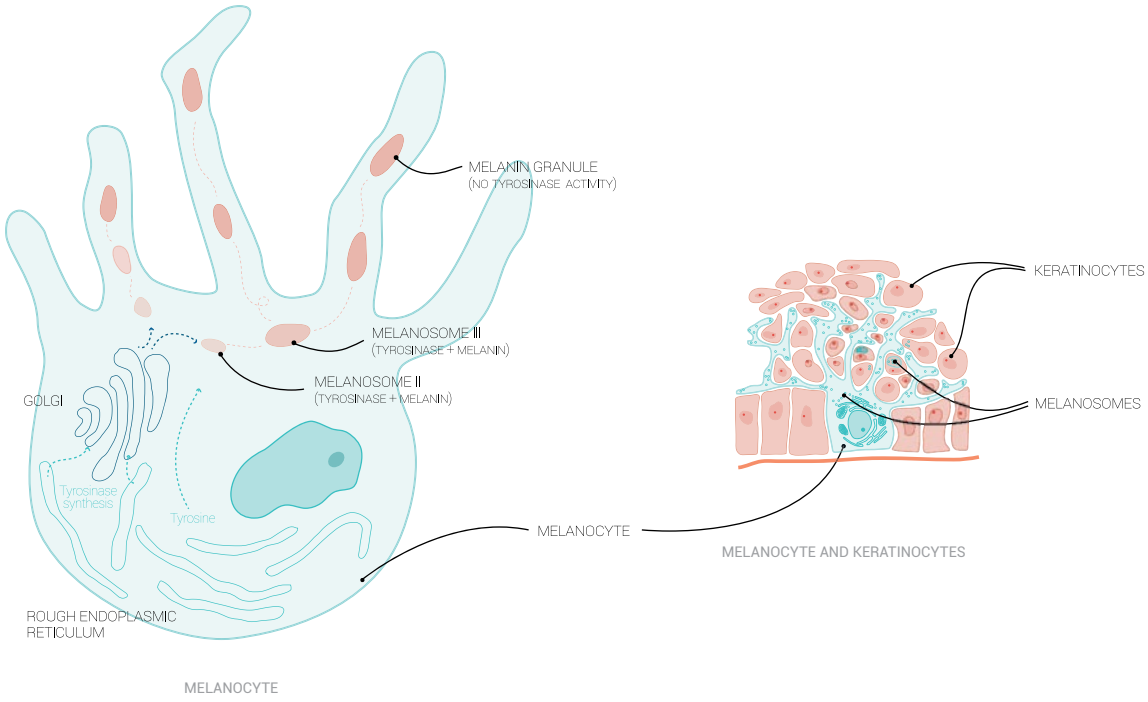
Anti-ageing
Reduces deterioration of pigmentation due to sun exposure

To be used in skincare or make-up products such as cream, fluid, serum, balm, lotion, milk, foundation, concealer, etc. In any cosmetic or skincare product dedicated to making skin tone more uniform.

Related products | BRIGHT LIGHT MADONNA LILY | ENLIGHTENING INDIAN KUDZU | SMOOTH LIGHTENING WHITE ROSE

HOW IT WORKS

Inside Light Poet's narcissus: reducing the production of melanin at its key stages



Acting in the core of melanocyte

Skin pigmentation is due to the presence of melanin in the skin which is manufactured through a complex process. Melanin is a pigment that is synthesized in melanocytes, and then transferred into surrounding keratinocytes which transport it to the skin's surface. In the skin on the face, there are about 2000 dendritic melanocytes per mm^2, in the basal layer of the epidermis. They are evenly distributed among the keratinocytes and may transfer melanin to 36 surrounding keratinocytes. The melanocytes produce little sacks which contain melanin: the melanosomes.

Reducing melanin synthesis

The synthesis of melanin begins with the synthesis of tyrosine, an amino acid, supplied by the blood, which is catalysed by enzymes, including tyrosinase. Several chemical reactions then take place that result in the production of melanin. The synthesis takes place in the melanosomes, intracellular organelles in the melanocytes, created from various vesicles in the melanocytes. As the melanin is synthesized, different types of melanosomes form according to the quantity and type of melanin they produce. After these chemical reactions, the melanin is stored in the melanosomes until their internal structure is no longer visible.

Inside Light Poet's narcissus reduces the synthesis of melanin in melanosomes by reducing both the synthesis of tyrosine and tyrosinase activity.

Reducing the transfer of melanosomes

The melanosomes are transported from the perinuclear region toward the tips of the dendrites. Having reached their final stage when they are filled with melanin, they migrate to the ends of the melanocytes' dendrites. They then transfer to the keratinocytes through a mechanism that is not yet fully understood.

Inside Light Poet's narcissus decreases the transfer of melanosomes to keratinocytes.

Due to its action during the different stages of melanogenesis, Inside Light Poet's narcissus enables a reduction in blemishes and a lightening of skin tone.

CLINICAL TESTING RESULTS

Lightening of the surface of the skin on the face in 28 days

Declaration of the women in the panel

90% declared that their complexion is lighter

85% declared that their complexion is more uniform

85% declared that their pigmentation imperfections have decreased

IN VITRO TESTING RESULTS

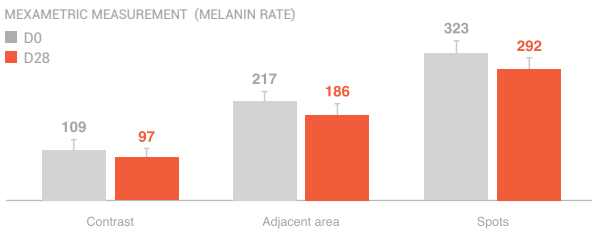
An overall decrease of melanin in the epidermis

Brightening effect

Lightening and anti-blemish effect due to the decrease in the production of melanin and its transfer to the keratinocytes.

Clinical testing results

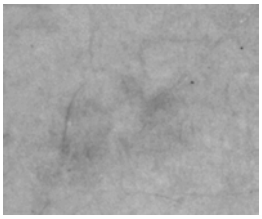
Lightening of the surface of the skin on the face



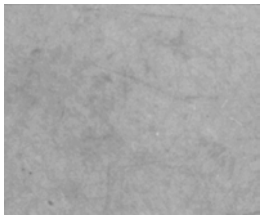
+11% in terms of contrast between marks and normal adjacent areas

+14% in terms of the colour of normal adjacent area

+10% in the intensity of marks



DAY 1



DAY 28

Study conditions:

→ Testing for 28 days on 30 women from 33 to 64 years, with spots on the face.
→ Mexametric measurement after 28 days of treatment, application of the product on the face twice a day.
→ Measurement of melanin index with Mexameter.

→ Emulsion with 0.5% of Inside Light Poet's narcissus

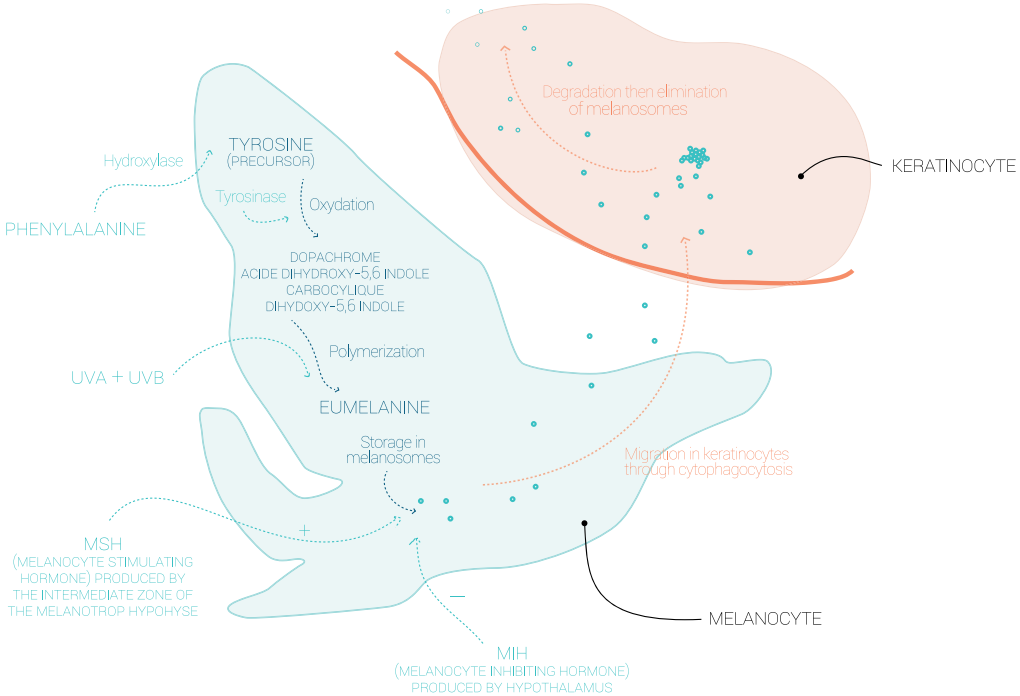
Technical information on the formulation of Inside Light Poet's narcissus

INCI name of cells	form	aspect	concentration	dispersible
narcissus poeticus callus extract	20% cells dispersed in 80% vegetal glycerin	liquid	starting at 0.5%	in any formulation

In vitro testing results

Study of melanin production

The synthesis of melanin begins with an amino acid, tyrosine, which is catalysed by the enzyme, tyrosinase, itself synthesized in the form of a inactive precursor which is activated when the melanocytes are stimulated by alpha-MSH via cAMP. Tyrosine is transformed into DOPA (3,4-dihydroxyphenylalanine) which is then oxidized into DOPAquinone, which are oxidised into indole compounds. After several other chemical reactions, these indole compounds bond to each other to form eumelanin, a brown-black pigment. Pheomelanin, the second type of melanin synthesized by melanocytes, is a yellow-red colour, and is formed from the reaction of cysteine, a sulphur-containing amino acid, with DOPAquinone.



PRODUCTION OF MELANIN

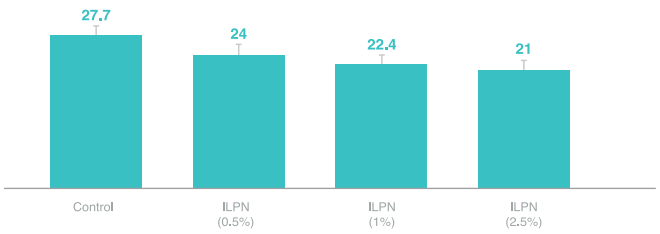
Naolys has chosen to study two key stages in the synthesis of eumelanin.
The neosynthesis of [^{14}C]L-Tyrosine from the transformation of [^{14}C]L-Phenylalanine: this informs us of the capacity of the melanocyte to convert phenylalanine into tyrosine outside the direct capture of tyrosine from the extracellular environment.
The tyrosinase activity: this informs us of the transformation of tyrosine into melanin. It consists of the transformation of tyrosine from the direct capture from the extracellular environment or from the transformation of phenylalanine. To recreate natural conditions as effectively as possible, Naolys also induced an increase in the melanocytes activity through alpha-MSH.

In its studies, Naolys not only used melanocytes by themselves but also of co-cultures of melanocytes/ keratinocytes, which correspond more closely to the actual situation in the skin, in which the two cell types are very close. In fact, a melanocyte combined with several keratinocytes forms an epidermal melanin unit. Measurements were taken in the melanocytes.

Assessment of [^{14}C]-L Tyrosine neosynthesis

In melanocytes only

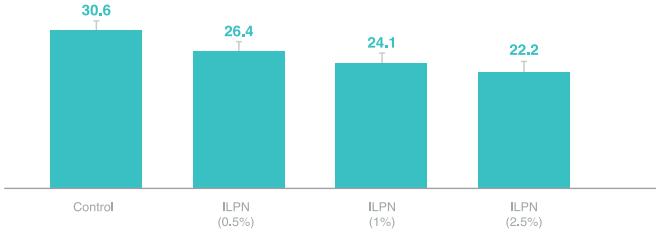
[^{14}C]L-TYROSINE (µmoles/mg of proteins/20 minutes)



Reduction of the synthesis of [^{14}C]L-Tyrosine after incubation of the product during 20 minutes in melanocyte only culture, at concentrations 0.5%, 1% and 2.5 %, by 13%, 19% and 24% respectively.

In the melanocytes/keratinocytes co-culture

[^{14}C]L-TYROSINE (µmoles/mg of proteins/20 minutes)

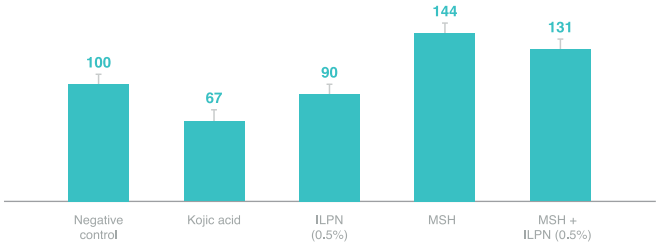


Reduction of the synthesis of [^{14}C]L-Tyrosine after incubation of the product during 20 minutes with a melanocytes/keratinocytes co-culture, at concentrations 0.5%, 1% and 2.5%, by 14%, 21% and 27% respectively.

Evaluation of tyrosinase activity

In melanocytes only

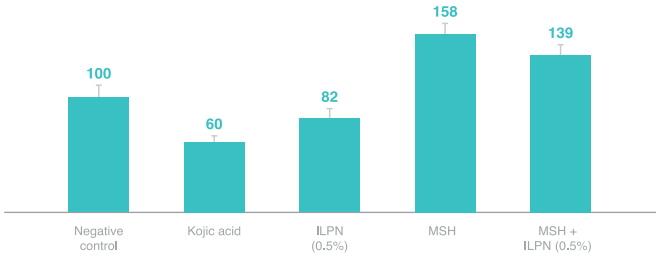
TYROSINASE ACTIVITY (%)



At a concentration of 0.5%, a decrease in tyrosinase activity in melanocyte only culture of 10% compared to the negative control, (kojic acid: -33%) and 13% after induction of MSH (Melanocyte Stimulating Hormone).

In the melanocytes/keratinocytes co-culture

TYROSINASE ACTIVITY (%)



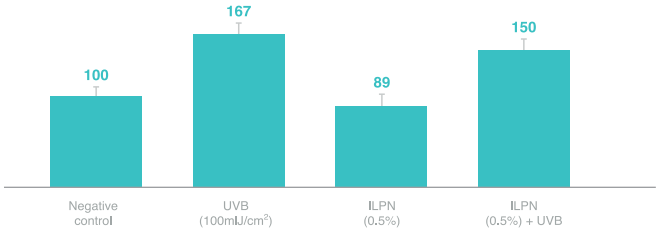
At a concentration of 0.5%, a decrease in tyrosinase activity with a melanocytes/keratinocytes co-culture of 18% compared to the negative control, (kojic acid: -40%) and 19% after induction of MSH (Melanocyte Stimulating Hormone).

Evaluation of the capture of melanosomes by keratinocytes (melanin dosage)

Only the melanocytes/keratinocytes co-culture was used for this evaluation.
Melanin dosage was only carried out in the keratinocytes.

In the melanocytes/keratinocytes co-culture

MELANIN RATE (%)



At a concentration of 0.5%, a decrease in the level of melanin in the keratinocytes of 11% compared to the negative control and 17% after stimulation of melanin production in response to UVB. This result reflects a decrease in the migration of melanosomes into the keratinocytes.