

reproage™ peptide

Reprogramming the skin for a youthful appearance

Epigenetics brought to cosmetics



Description

Peptide that modulates the levels of microRNA-145 (miR-145), which is involved in the regulation of epidermal differentiation. **reproage™ peptide** may support cell reprogramming to boost radiance and youthfulness of the skin complexion.

Appearance

Translucent solution containing 0.05% Acetyl Hexapeptide-8.



INCI

Water (Aqua), Disodium Phosphate, Acetyl Hexapeptide-8, Sodium Phosphate, Caprylyl Glycol.

Properties

Through the modulation of miR-145 levels, **reproage™ peptide** may induce cell reprogramming in the epidermal basal layer to make its self-renewing ability last longer. This can help improve the appearance of aging signs.

Applications

reproage™ peptide can be incorporated into any anti-aging formulation to cope with the slowdown in skin regeneration that takes place with age. It can also be used in formulations designed to rejuvenate the skin.

Recovery of the stemness potential

Science

Epigenetic mechanisms control gene activity beyond the information in the DNA sequence and are involved in the regulation of epidermal development. Basal cells of the epidermis (stem and progenitor cells) have the ability to proliferate giving rise to cells that then follow a process of differentiation into mature keratinocytes. In basal cells, the capacity to replenish the tissue is maintained mainly by the transcription factors OCT4, SOX2 and KLF4, markers of stem cells. Activity of these genes is regulated at the epigenetic level by microRNAs. Concretely, miR-145 represses these stem cell transcription factors, causing basal cells to stop dividing and start the process of differentiation. This involves also changes in the levels of characteristic markers, switching from the expression of keratin K14 in basal cells with stemness properties to the production of keratin K10 in suprabasal cells that are in the maturation process.

reproage™ peptide reduces the levels of the epigenetic regulator miR-145 in skin cells and increases the typical factors of basal cells, suggesting a reactivation of the pool of epidermal progenitors. This can support an improvement in the skin properties, with a smoother, more radiant and visually rejuvenated appearance.

Dosage 2%

Solubility

Water soluble.



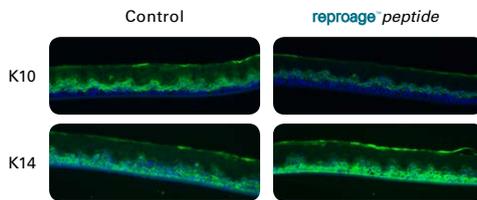
In vitro efficacy

1. INDUCTION OF STEM CELL TRANSCRIPTION FACTORS

Keratinocytes were treated with 1 or 5 µg/mL reproage™ peptide and the expression profiles of SOX2, OCT4 and KLF4, genes regulated by miR-145, were evaluated by RT-PCR.

2. REPROGRAMMING OF EPIDERMAL CELLS

Reconstructed human epidermal (RHE) tissues were treated with 0.01 mg/mL reproage™ peptide and keratin proteins were detected by immunostaining.



Stimulation of genes related to stemness in epidermal cells



Favoring the activation of the basal layer

Increase in K14, basal cell marker, while K10 is decreased.

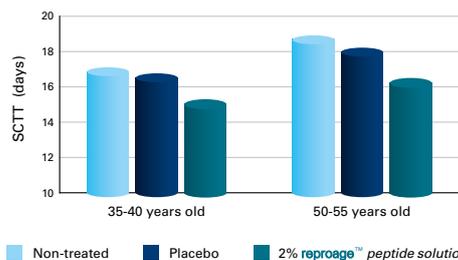
In vivo efficacy

1. RENEWAL AND SMOOTHING OF THE SKIN SURFACE

40 female volunteers of 2 different age groups (35-40 and 50-55 years old) applied a cream containing 2% reproage™ peptide solution or a placebo cream for 56 days.

• Renewal of the stratum corneum

The stratum corneum turnover time (SCTT) was evaluated in forearm skin by means of dihydroxyacetone staining. Years of rejuvenation in skin renewal were calculated from a SCTT-age correlation.

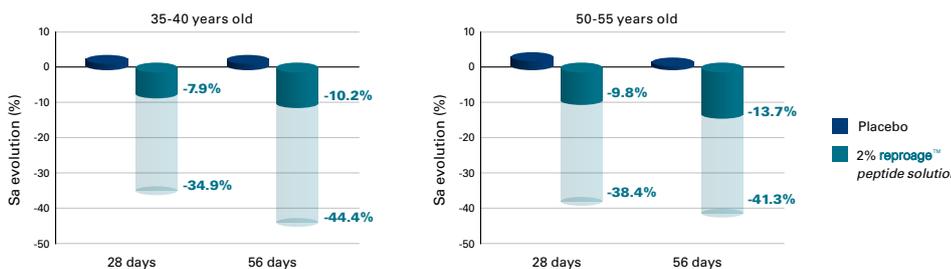


Revitalized skin, behaving as 17 years younger

in the older group, and as 13 years younger in the 35-40 years old one.

• Skin roughness

Changes in average surface roughness (Sa) were measured in the area underneath the eye by means of fringe projection. Average and maximum results are shown.



Up to 41.3% decrease in roughness in 50-55 years old volunteers

2. RADIANT AND BETTER-LOOKING SKIN

20 female volunteers applied a cream containing 2% reproage™ peptide solution to the face twice a day for 56 days. High resolution photographs were obtained and skin luminance (L*) was measured by means of the appropriate software.



Overall improvement of skin complexion

More radiant skin, with a 1.5% increase in L*.

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