

Bioactives

REGU[®]-FADE



The most effective solution
for noticeably brighter skin



A growing segment

Skin brightening is one of the fastest growing segments in the cosmetic industry. In Asia skin brighteners are widely used to make skin fairer. In Western countries consumers want to diminish age spots, reduce excessive pigmentation and achieve an even skin tone. As a consequence, these markets are looking for increasingly efficient, fast-acting skin brighteners. At the same time, these actives must be absolutely safe for cosmetic use.

REGU[®]-FADE is high-performing and fast-acting. It uses pure nature-identical trans-resveratrol that is free from pesticides and emodin, addressing high consumer awareness about safety and visible effects. Resveratrol is a known potent antioxidant found in red grapes and associated with various health benefits.

REGU[®]-FADE has proven its outstanding efficacy in human clinical trials with visible effects in only 2 weeks. Compared with a market benchmark, REGU[®]-FADE worked faster early on and reduced the production of melanin more effectively throughout the studies. DSM scientists showed that REGU[®]-FADE attenuates skin pigmentation via multiple mechanisms, from initial signaling and gene expression to melanin production and final melanosome transfer.

Key facts

BENEFITS

- Visibly brighter skin in 2 weeks
- Nature identical pure trans-resveratrol for more effective and even skin brightening
- Multi-target mechanism

COSMETIC APPLICATION

- Skin brightening facial and body care products
- Creams and serums for age spots
- Anti-aging skin care products for more even skin tone

SUGGESTED CONCENTRATION

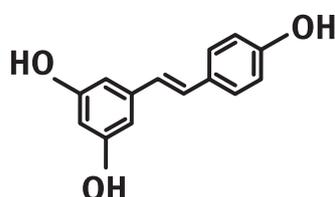
- Up to 1% REGU[®]-FADE in cosmetic formulations

INCI NAME (ACTIVE)

Resveratrol

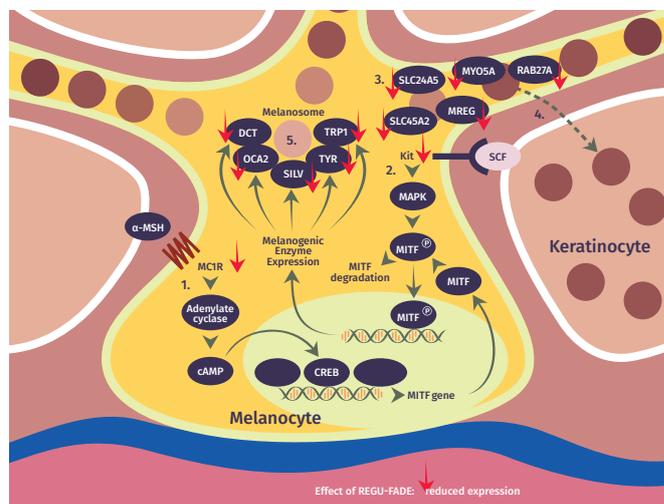
STRUCTURE

Trans-Resveratrol (molecular weight: 228.25 g/mol)



Mechanism

Skin pigmentation involves many genes at various steps. A gene expression test (RT-PCR) has been performed and showed that REGU[®]-FADE (0.002%) is very effective in attenuating the melanin production cascade at multiple points.



1 | α -MSH signalling

REGU[®]-FADE down regulates the MCR1 (α -MSH receptor) expression level to 49% in melanocytes, leading to decreased expression of MITF-related genes such as TYR (tyrosinase), TRP1, DCT, SILV and OCA2 which reduces melanin synthesis.

2 | KIT signalling

REGU[®]-FADE decreases KIT (=stem cell factor receptor) gene expression to 58% in melanocytes which additionally reduces melanin synthesis.

3 | Melanosome function and maturation

REGU[®]-FADE also affects the function and maturation of melanosomes by reducing SLC24A5 (-39%) and SLC45A2 (-74%) gene expression levels.

4 | Melanosome transport

REGU[®]-FADE attenuates melanosome transport within melanocytes, shown by the reduction of the MYO5A (-55 %) and MREG (-69 %) gene expression levels, as well as melanosome transport to keratinocytes, shown by the reduction of RAB 27A (-24%) gene expression levels.

5 | Melanin synthesis

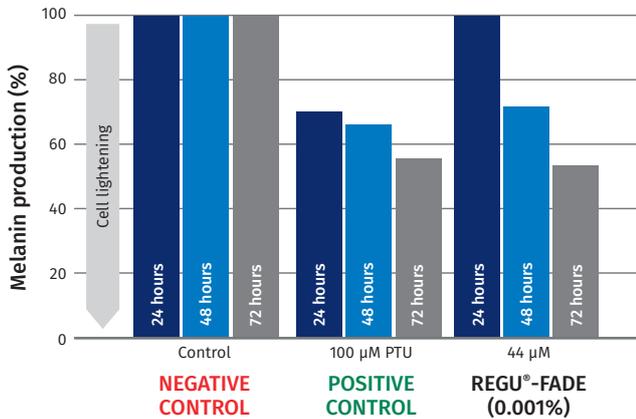
REGU[®]-FADE reduces the conversion of tyrosine into REGU[®] or pheomelanin at various points, shown by the downregulation of OCA2 (-37%), TYR (tyrosinase) (-31%), DCT (-85%) and TRP1 (-63%) gene expression levels.

Efficacy

In vitro

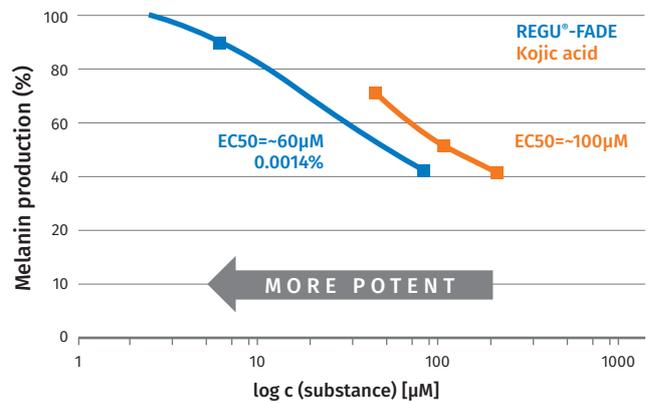
Melanin assay on B16F10 cells

Low concentration REGU®-FADE (0.001%) leads to a 50% reduction of melanin content.



Melanin assay on normal human melanocytes

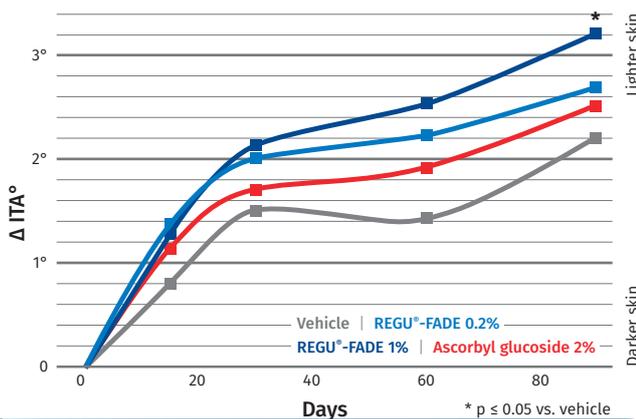
REGU®-FADE (0.0014%) decreases melanin production with higher activity than kojic acid.



In vivo

Long-term study

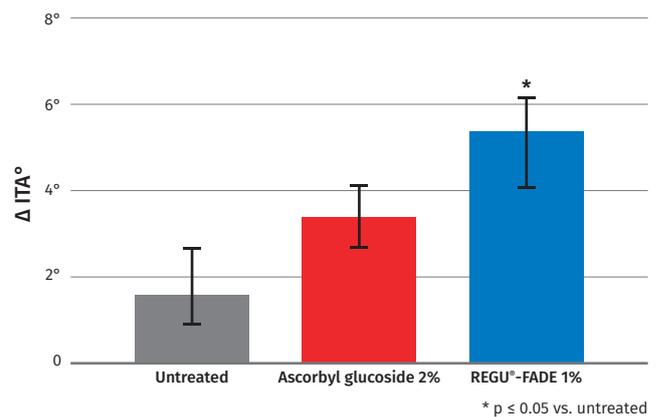
A double-blind, placebo-controlled study was performed on 52 Indian female volunteers. Per test area a cream (SPF ~10) plus test substance was applied twice daily on the forearms. Colorimetric measurements were performed after 14, 28, 60 and 90 days respectively.



Significant skin brightening with 1% REGU®-FADE

Short-term study

A double-blind, placebo-controlled study was performed on 12 Caucasian volunteers. Per test area creams were applied 3 times per day on the forearm. Colorimetric measurements were performed after 14 days.



Visible and significant skin brightening in 2 weeks with 1% REGU®-FADE

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