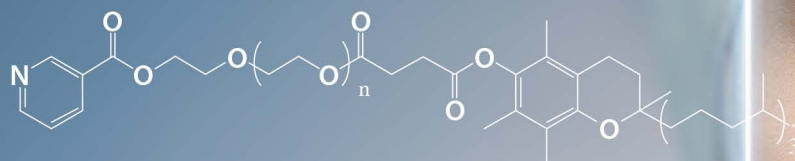


VitaPEG EB3 1000

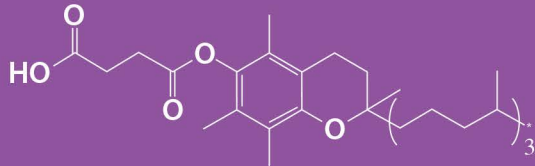
Double Effects of Brightening & Anti-Inflammation
by PEGylation of "Vitamin E" & "Vitamin B₃"



VitaPEG EB3 1000

Double Effects of Brightening & Anti-Inflammation

Active compound of VitaPEG EB3 1000



α - Tocopheryl succinate

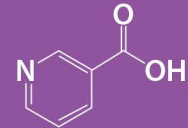
Vitamin E

1. Strength

- Inhibitory effect of ROS
- Inhibitory effect of MMP

2. Weakness

- Unstable
- Oil-soluble



Niacin

Vitamin B₃

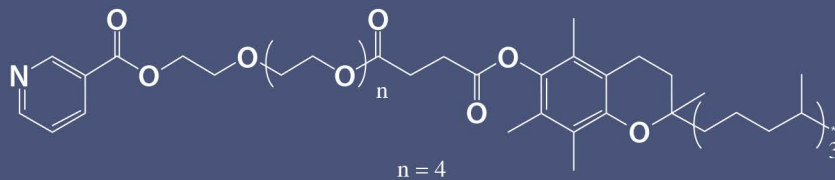
1. Strength

- Activation effect of Collagen production
- Activation effect of ATP production

2. Weakness

- Unstable
- Flushing, Itching

PEGylation



VitaPEG EB3

INCI Name : Nicotinoyl PEG-5 Tocopheryl Succinate

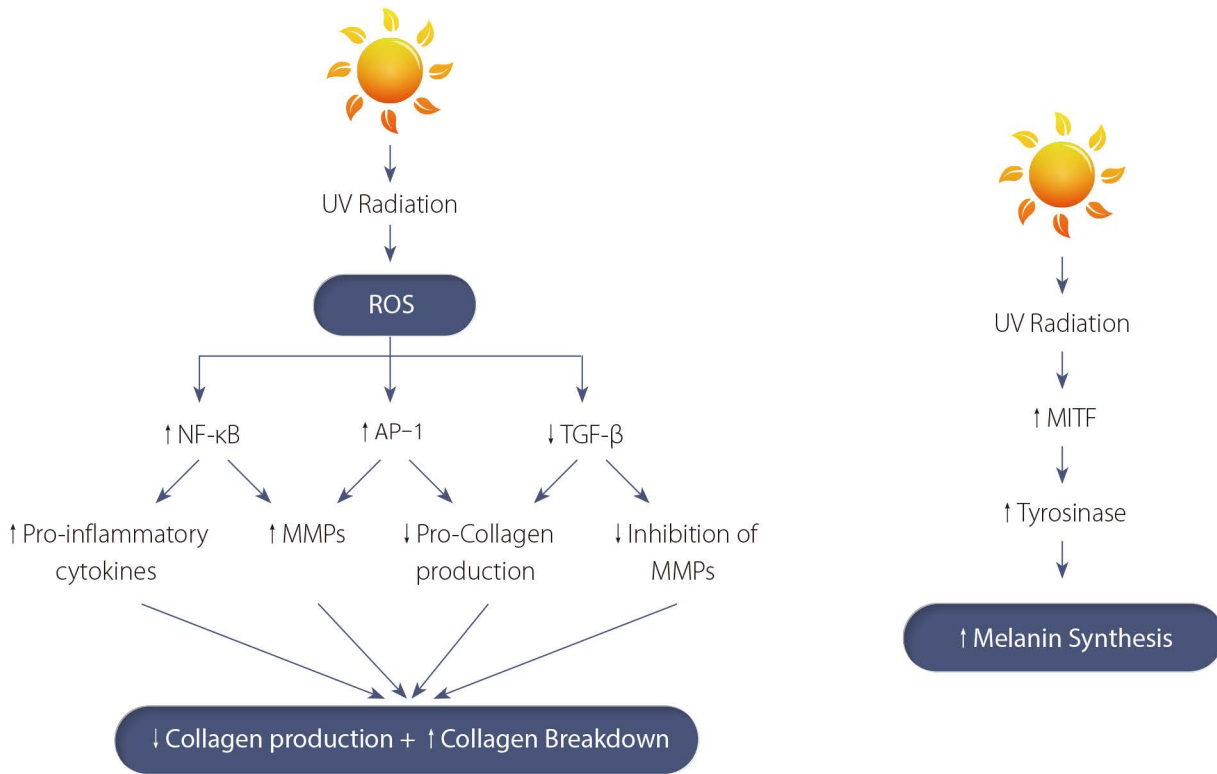
Advantages of VitaPEG EB3

- Multi & Synergy effect
- Brightening effect
- Anti-Inflammatory effect
- Anti-Oxidation effect

Chemical Information

- Molecular formula : C₄₇H₇₃NO₁₀
- Molecular weight : 812.08 g/mol
- Appearance : Pale yellow liquid
- Source : Synthetic

MECHANISM



Inflammation Reaction

- Induction of ROS production
- Increment of NF-κB expression
- Increment of AP-1 expression
- Reduction of TGF-β expression
- Induction of Collagen breakdown

Melanogenesis

- Increment of MITF expression
- Increment of Tyrosinase expression
- Induction of Melanin production

SOLUTION

VitaPEG EB3 1000

Anti-Inflammatory Effect

Scavenging of ROS
 Reduction of NF-κB expression
 Reduction of Collagen Breakdown

Brightening Effect

Reduction of MITF expression
 Reduction of Tyrosinase expression
 Reduction of Melanin synthesis

IN-VITRO TEST

ANTI-INFLAMMATORY EFFECT

VitaPEG EB3 1000 INCREASES THE EXPRESSION OF SOD

Superoxide dismutases (SOD) are enzymes that alternately catalyze the dismutation of the superoxide (O_2^-) radical into either ordinary molecular oxygen (O_2) or hydrogen peroxide (H_2O_2).

VitaPEG EB3 1000 increases the expression of SOD by 64%.

Protocol

Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37°C, CO₂: 5%) in presence of 2% VitaPEG EB3 1000. After irradiation with 100 mJ/cm² of UV-B for 3hrs, the expression levels of mRNA were analyzed by RT-PCR.

VitaPEG EB3 1000 REGULATES THE EXPRESSION OF NF-κB

Nuclear Factor kappa-B(NF-κB) is involved in cellular responses to stimuli such as stress, cytokines, free radicals, ultraviolet irradiation, oxidized LDL, and bacterial or viral antigens.

VitaPEG EB3 1000 decreases the expression of NF-κB by 24%.

Protocol

Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37°C, CO₂: 5%) in presence of 2% VitaPEG EB3 1000. After irradiation with 100 mJ/cm² of UV-B for 3hrs, the expression levels of mRNA were analyzed by RT-PCR.

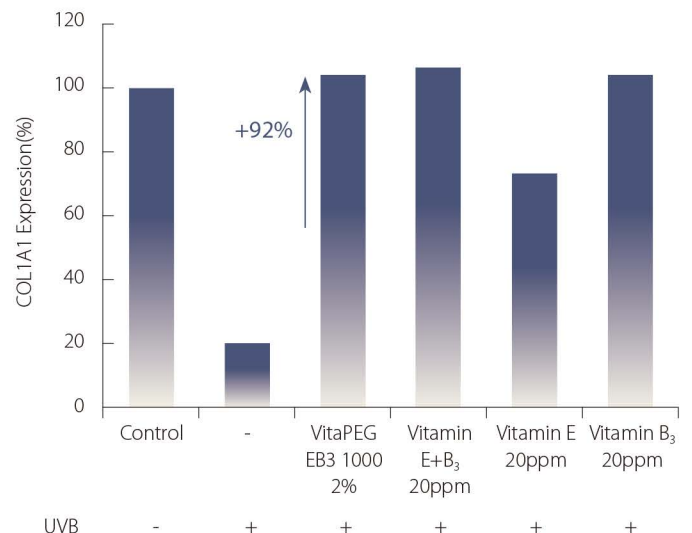
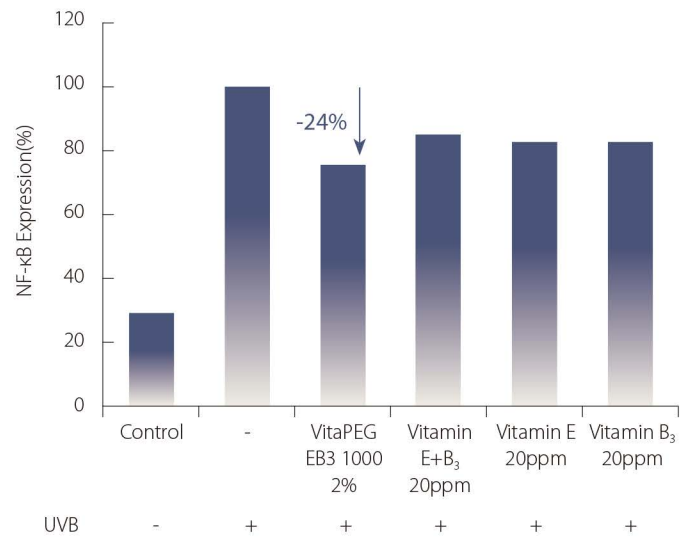
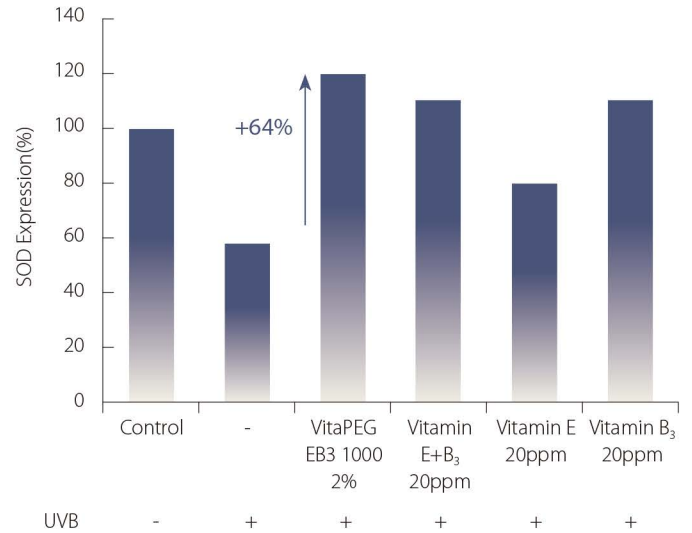
VitaPEG EB3 1000 INCREASES THE EXPRESSION OF COL1A1

COL1A1 (Collagen, type I, alpha 1) is a collagen, which belongs to a family of extracellular matrix (ECM) proteins that play an important role in cellular proliferation and differentiation.

VitaPEG EB3 1000 increases the expression of COL1A1 by 92%.

Protocol

Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37°C, CO₂: 5%) in presence of 2% VitaPEG EB3 1000. After irradiation with 100 mJ/cm² of UV-B for 3hrs, the expression levels of mRNA were analyzed by RT-PCR.



IN-VITRO TEST

BRIGHTENING EFFECT

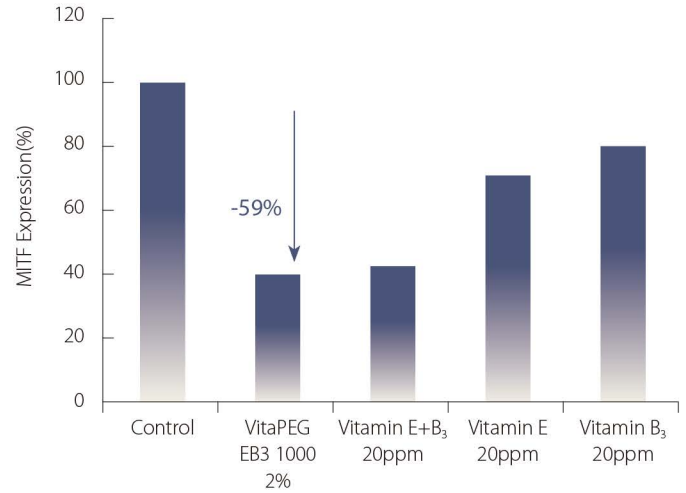
VitaPEG EB3 1000 DECREASES THE EXPRESSION OF MITF

Microphthalmia-associated transcription factor (MITF) is a master regulator of melanocyte and melanoma biology.

VitaPEG EB3 1000 decreases the expression of MITF by 59%.

Protocol

Mouse melanoma cell (B16F10) cultures were incubated during 36 hours (at 37°C, CO₂: 5%) in presence of 2% VitaPEG EB3 1000. The expression levels of mRNA were analyzed by RT-PCR.



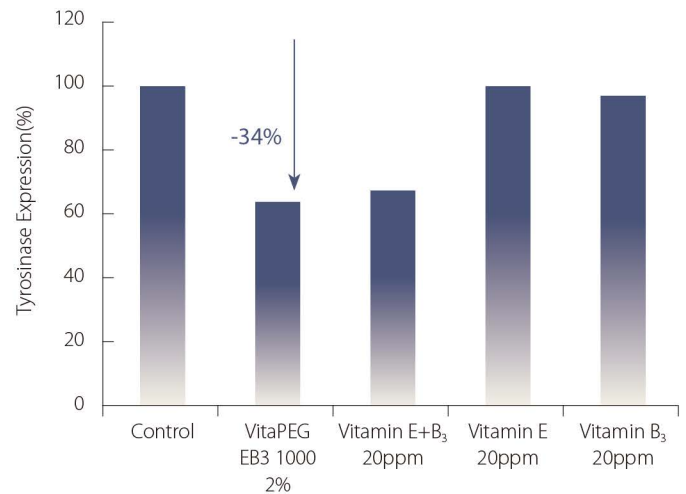
VitaPEG EB3 1000 DECREASES THE EXPRESSION OF TYROSINASE

Tyrosinase is an oxidase that is the rate-limiting enzyme for controlling the production of melanin.

VitaPEG EB3 1000 decreases the expression of Tyrosinase by 34%.

Protocol

Mouse melanoma cell (B16F10) cultures were incubated during 36 hours (at 37°C, CO₂: 5%) in presence of 2% VitaPEG EB3 1000. The expression levels of mRNA were analyzed by RT-PCR.



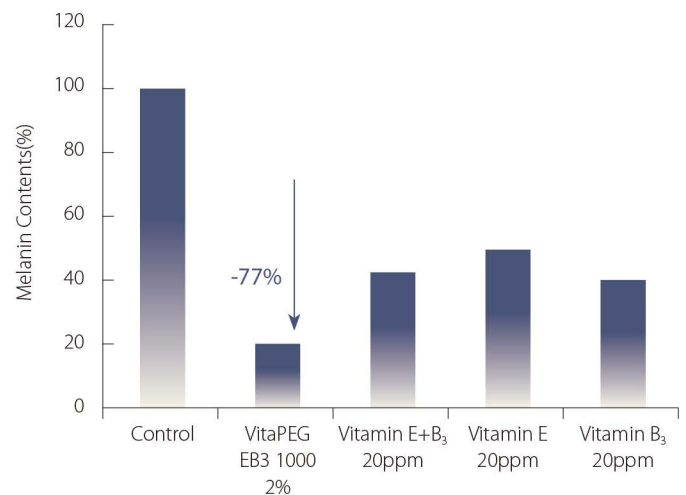
VitaPEG EB3 1000 REDUCES THE SYNTHESIS OF MELANIN

Melanin is produced by the oxidation of the amino acid tyrosine.

VitaPEG EB3 reduces the synthesis of Melanin by 77%.

Protocol

Melanin content assay of the VitaPEG EB3 1000 on the B16F10 cells. B16F10 cells were pre-incubated for 18 hours, and the melanin content was assayed after incubation of the B16F10 cells treated with 2% VitaPEG EB3 1000 for 36 hours (at 37°C, CO₂: 5%). The absorbance was measured at 405 nm by an ELISA.





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Cosmetic activities	<ul style="list-style-type: none">• Anti-Inflammatory effect by inducing SOD production & regulating Cytokines production• Brightening effect by inhibiting MITF & Melanin production
INCI name	<p>VitaPEG EB3 1000 Water (and) Butylene Glycol (and) Alcohol (and) Phenoxyethanol (and) Ethylhexylglycerin (and) Nicotinoyl PEG-5 Tocopheryl Succinate</p> <p>VitaPEG EB3 1000 (HD) Water (and) Butylene Glycol (and) Alcohol (and) 1,2-Hexanediol (and) Nicotinoyl PEG-5 Tocopheryl Succinate</p>
Recommended % of use	VitaPEG EB3 1000 2% VitaPEG EB3 1000 (HD) 2%