

# melatime™

For a greater, faster  
and longer lasting tan



## A tanning accelerator peptide



### Description

A novel peptide that boosts the tanning process of the skin exposed to UV radiation. Furthermore, it also prolongs the tan, getting a perfect colour for more time.

### Appearance

Transparent solution containing 0.01% active ingredient.

### INCI

Butylene Glycol, Palmitoyl Tripeptide-40.

Preservative free.

### Properties

Tanning accelerator peptide that speeds up melanin production, providing a faster and a longer lasting tan. **melatime™** provides a natural tan to the skin fitting the skin constitutive colour and preventing the skin from the UV-induced free radical effects, such as photoaging, by shortening UV-exposure times.

### Applications

**melatime™** can be incorporated in sun care formulations such as emulsions, body milks or creams where a tanning accelerating effect is desired. Also recommended for after-sun products to maintain a perfect tan for more time.

**Dosage** 5%

### Solubility

Soluble in glycols.

## It speeds up melanin production

### Science

The skin level of melanin determines the genetically constitutive skin colour and tan. The ability of individuals with different constitutive pigmentation to burn or tan in response to sun exposure has been used to classify skin phototypes. UV-stimulation of skin pigmentation, called tanning, involves a stimulation of melanin neosynthesis.

UV radiation induces the expression of the proopiomelanocortin (POMC) and melanocortin 1 receptor (MC1R) genes, which encode the  $\alpha$ -melanocyte-stimulating hormone ( $\alpha$ -MSH). MC1R is expressed on the surface of melanocytes and binds the agonist  $\alpha$ -MSH, regulating melanin synthesis. The melanogenic effects of  $\alpha$ -MSH are mediated through upregulation of the cyclic adenosine-3',5'-monophosphate (cAMP) pathway by the MC1R. cAMP can influence the transcription of tyrosinase via MITF (microphthalmia-associated transcription factor). TYRP-1 (tyrosine-related protein) and DCT (dopachrome tautomerase) are melanogenesis related proteins which also respond in a cAMP-dependent manner via MITF.

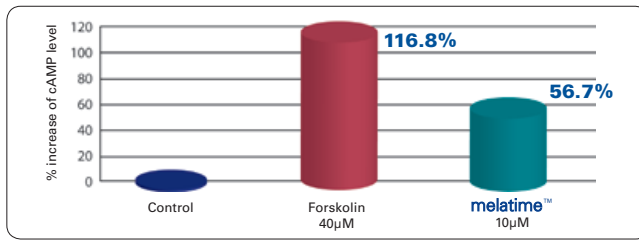
**melatime™** is a palmitoyl tripeptide that stimulates cAMP production, increasing melanin synthesis and accelerating the tanning process under UV-inducing conditions. Moreover, **melatime™** maintains the tan two weeks since the last irradiation providing a long-lasting effect.



# In vitro efficacy

## 1. INCREMENT OF cAMP LEVELS

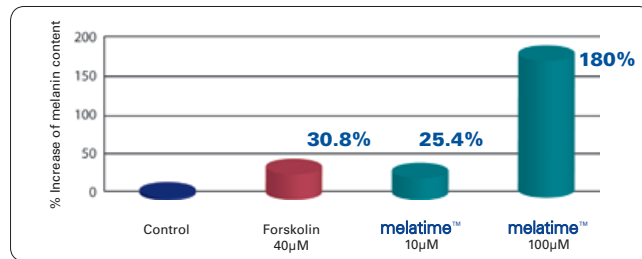
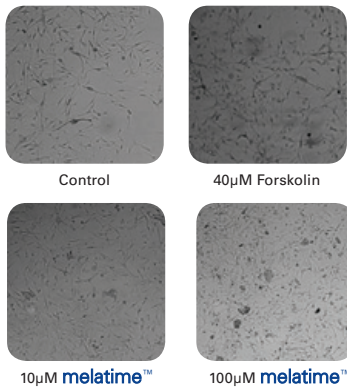
Cellular cAMP levels were analysed in a human melanocytes cell line, in presence of vehicle (used as negative control), melatime™ and Forskolin (used as positive control).



melatime™ increases cAMP levels by 56.7%

## 2. EVALUATION OF MELANIN PRODUCTION

Human epidermal melanocyte cells were incubated with melatime™ at different concentrations. Vehicle was used as negative control and 40µM Forskolin as positive control. Images were taken after 2 and 4 days of treatment. Image analysis software was used to calculate the melanin content.



180% Increment in melanin content after 4 days of treatment melatime™ induces melanogenesis via cAMP.

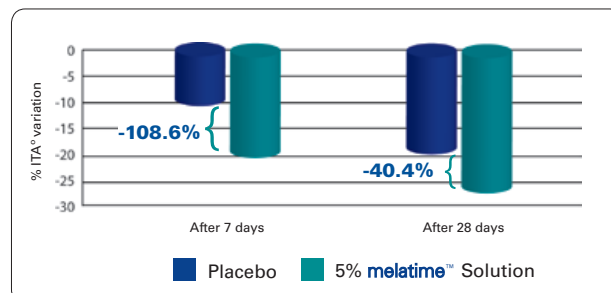
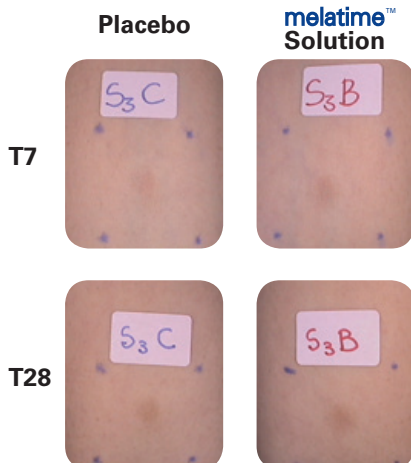
# In vivo efficacy

## ASSESSMENT OF TANNING BOOSTING AND LONG-LASTING EFFECT

A group of 5 caucasian volunteers applied a cream containing 5% melatime™ Solution on one forearm, once a day for 4 weeks and a placebo cream on the other forearm. Both forearms were exposed to UVA irradiation, three times per week for 2 weeks. Measurements were taken at the start of the test, during the irradiation period and two weeks after the last irradiation.

The parameters used to evaluate the in vivo effects of melatime™ on the skin colour were: L\* (Luminance) and ITA° (Individual Typological Angle).

melatime™ proved its accelerating and long-lasting tanning properties. It reduced by 108.6% the ITA° values more than placebo in the first week of treatment under UVA -inducing conditions and 14 days after last irradiation showed a decrease of 40.4%.



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