

CLINICAL DATA – ACETYL TETRAPEPTIDE-40

Description

Tetrapeptide that decreases the appearance of facial redness and telangiectasia caused by an exaggerated inflammatory response. Acetyl Tetrapeptide – 40 reduces the release of interleukins (IL-6 and IL-8) induced by 37-amino-acid-peptide (LL-37), cathelicidin overexpressed in skin disorders with erythema.

Properties

Acetyl Tetrapeptide – 40 fights the undesired effects caused by inflammation such as skin redness and dilated blood vessels, tissue degradation as well as post-inflammatory hyperpigmentation and dull skin.

Science

In the natural response of the immune system to potential harmful agents and conditions, antimicrobial compounds like cathelicidins have an important role. They induce the release of interleukines (IL), which are among the increased molecules in facial skin redness and vascular alterations. In skin disorders with erythema and dilated blood vessels, like rosacea, LL-37 expression is found to be abnormally high, it is locally activated and a cascade of inflammatory reactions leads to an increase of pro-inflammatory metabolites, IL-6 and IL-8 among others.

The dermal connective tissue may be damaged as the proteolytic degradation of the extracellular matrix (ECM), mainly of collagen, is increased due to Matrix Metalloproteinases (MMPs) activation.

Therefore, red areas become more visible as capillaries are fragile and permeable, and blood vessels can easily dilate due to inflammation.

Acetyl Tetrapeptide – 40 helps to decrease facial redness and other skin disorders caused by LL-37 activation and subsequent release of IL. It also provides a photoprotective effect lowering cell damage and skin inflammation negative effects.

In vitro efficacy

1. Inhibition of LL-37-Induced IL Release

The inhibition of the activity of LL-37 was measured by the release of the key pro-inflammatory cytokines IL-6 and IL-8 in human primary keratinocytes treated with LL-37 alone or with Acetyl Tetrapeptide – 40. Quantification was performed by ELISA.

- Acetyl Tetrapeptide – 40 lowers LL-37 mediated IL-6 and IL-8 release: IL-6 levels decreased by 24.2% and IL-8, by 22.8% with Acetyl Tetrapeptide – 40 at 0.5mg/mL.

2. Anti-collagenase Assay

The anti-collagenase effect of Acetyl Tetrapeptide – 40 was evaluated by measuring the fluorescence of the fluorescein conjugate (gelatine). Fluorescence intensity is proportional to proteolytic activity.

- Connective tissue degradation is reduced by Acetyl Tetrapeptide – 40: Acetyl Tetrapeptide – 40 demonstrated a statistically significant inhibitory effect on collagenase activity.

***In vivo* efficacy**

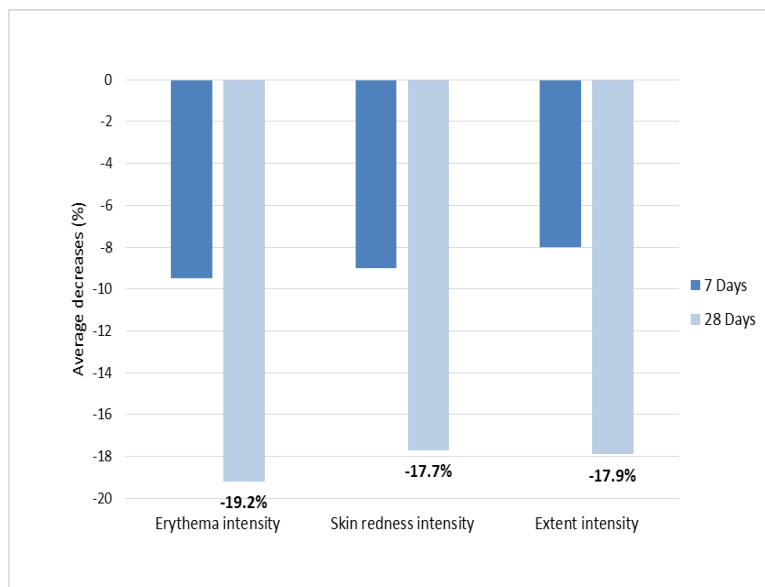
Skin redness improvement

A group of volunteers (aged between 25 and 65) with healthy skin but mild rosacea applied a cream containing 2% Acetyl Tetrapeptide – 40 solution twice a day for 28 days.

Dermatological evaluation

A trained specialist evaluated erythema, skin redness and extent intensity as well as skin roughness using a scale from no intensity to maximum intensity, after 1 and 4 weeks.

- Erythema, redness and extent are reduced with Acetyl Tetrapeptide – 40: Skin roughness diminished as well, by 7.5% at the end of the treatment.



Instrumental evaluation

VISIA analysis was performed in 5 of the volunteers at the end of the treatment (4 weeks). Feature counts are the number of red areas and absolute scores are the size and intensity of the red areas.

- Acetyl Tetrapeptide – 40 decreases facial redness, reducing the number of red areas as well as their size and intensity.

SYNERGIE SKIN

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