

Palmitoyl Oligopeptide and –Tetrapeptide-7

Mode of action

The extracellular matrix is the structural backbone of skin and represents therefore a main target of cosmetic research. Of high interest are active ingredients that can stimulate the biosynthesis of extracellular matrix components such as collagen. Palmitoyl oligopeptide has the same structure as a certain substructure of collagen type I. Its effect is explained by an improved collagen synthesis based on a feedback regulation mechanism. In contrast, palmitoyl tetrapeptide-7 inhibits the expression of interleukine 6 (IL-6) being responsible for inflammatory processes in the skin. By reducing the IL-6 concentration in skin inflammation mediated degradation processes of the extracellular matrix are reduced. Skin aging is consequently slowed down.

In vitro studies

Evidence for the efficacy of these two peptides is provided by various in vitro studies. In Fig. 1 the increase in collagen 1 and fibronectin gene expression is illustrated.

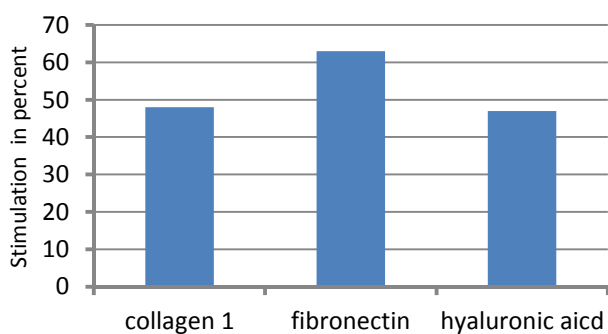


Fig. 1. Increase in extracellular matrix components (collagen 1, fibronectin and hyaluronic acid) after 72 hours treatment with palmitoyl oligopeptide and palmitoyl tetrapeptide-7 [Study: Sederma SAS, Le Perray -en-Yvelines cedex France]

Because of its comparatively low molecular mass palmitoyl oligopeptide and palmitoyl tetrapeptide-7 can penetrate into deeper skin layers in order to reach their receptors at the target cells. Furthermore, our formulations contain special penetration enhancers improving the penetration of palmitoyl oligopeptide and palmitoyl tetrapeptide-7 in deeper skin layers. Consequently the efficacy of these active ingredients is augmented.

In vivo studies

A panel of 23 volunteers aged from 39 to 74 applied palmitoyl oligopeptide and palmitoyl tetrapeptide-7 56 days twice a day resulting in a significant reduction of wrinkles. Results of this study are listed in Table 1.

Tab. 1. Improvement of listed parameters after 56 days of treatment with palmitoyl oligopeptide and palmitoyl tetrapeptide-7 [Study: Sederma SAS, Le Perray -en-Yvelines cedex France]

	Treated with palmitoyl oligopeptide and palmitoyl tetrapeptide-7	Control
Deep wrinkles (>200 µm)	-45%	4%
Wrinkle density	-37%	-10%
Wrinkle average depth	-15%	-3%
Wrinkle average volume	-19%	-9%
Roughness	-14%	1%
Lifting effect	-17%	4%