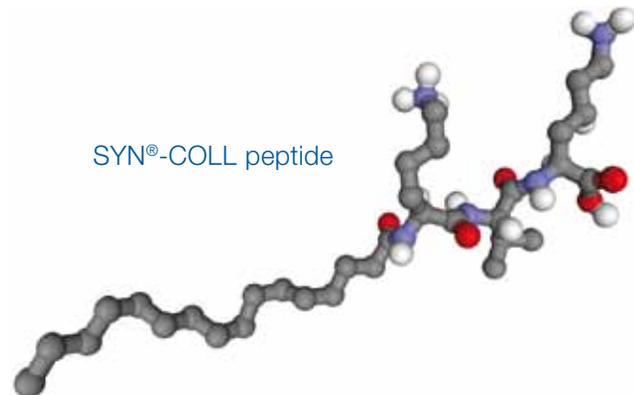




BOOST AND PROTECT COLLAGEN TO IRON OUT WRINKLES

SYN®-COLL is an innovative anti-wrinkle approach that comprises the boosting of the collagen production as well as collagen protection from degrading enzymes. Both activities work synergistically to achieve a maximal anti-wrinkle effect.

This scientific breakthrough is based on DSM's many years of experience in synthesizing peptides for the pharmaceutical industry. SYN®-COLL is a small tripeptide with a unique sequence to mimic the human body's own mechanism to produce collagen via TGF- β .

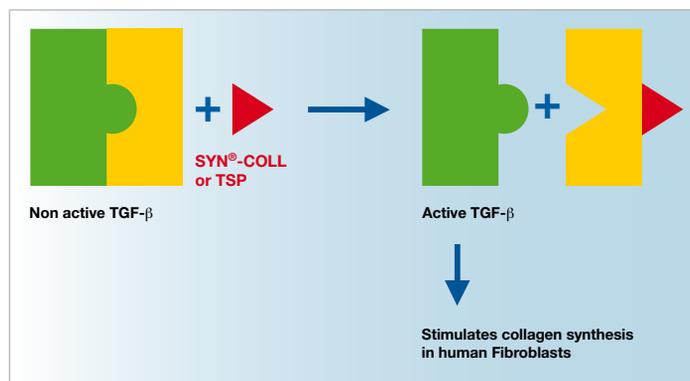


SYN®-COLL also protects collagen from degradation. This safeguarding is achieved by inhibition of the expression of matrix metalloproteinases (MMP 1 and 3) and of proinflammatory cytokines. MMP 1 is one of the key enzymes in collagen degradation.

Compared to other anti-aging peptides on the market, SYN®-COLL gets better results *in vivo* and has a much higher cost effectiveness.

Mechanism

Collagen represents the main component of the ECM (extracellular Matrix) of the dermal connective tissue. Thrombospondin I (TSP) is a multifunctional protein that activates the latent but biologically inactive form of TGF- β (Tissue Growth Factor). TGF- β is known as the key element in the synthesis of collagen and binds to a particular sequence in the TSP molecule to be activated. SYN®-COLL's sequence has the capacity to bind by mimicking the sequence and therefore also activates TGF- β .



This innovative mechanism made SYN®-COLL the first TGF- β booster on the market; a safe and painless alternative to collagen injections.

Comprehensive clinical tests show strong effects on all types of age related wrinkles and confirmed its safety for cosmetic use.

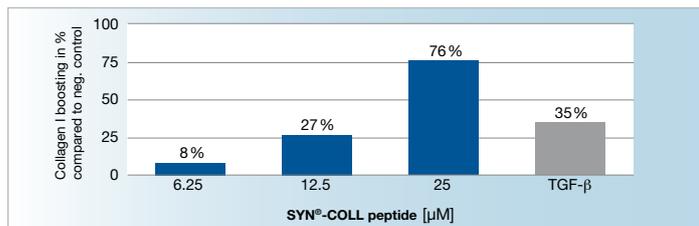
Literature:

J.E. Murphy-Ullrich, M. Poczatek, Cytokine & Growth Factor Reviews, 11, 2000, 59-69.

EFFICACY TESTS

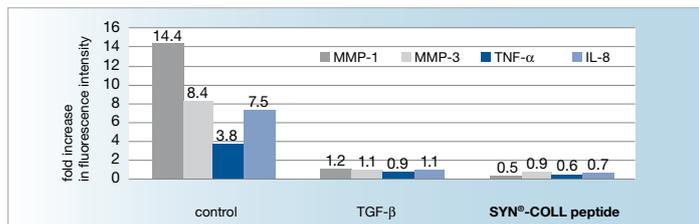
In vitro

Stimulation of collagen I synthesis in human fibroblasts compared to a negativ control. TGF- β (0.4 nM) was used as a positive control.



SYN[®]-COLL peptide shows a strong boosting effect on collagen synthesis in a dose-dependent manner.

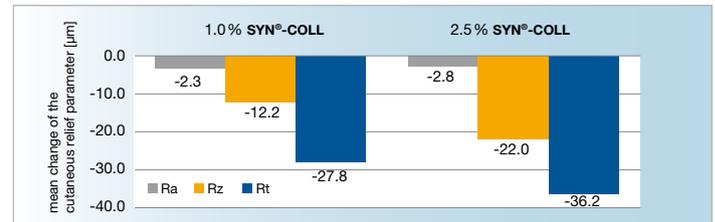
The expression of cytokines and MMPs after chemically-induced (PMA) stress (24 h) in normal human keratinocytes (NHK). The fold increase in fluorescence intensity is compared to control cells (=1.00).



These effects of SYN[®]-COLL peptide *in vitro* resemble that of the tissue growth factor TGF- β .

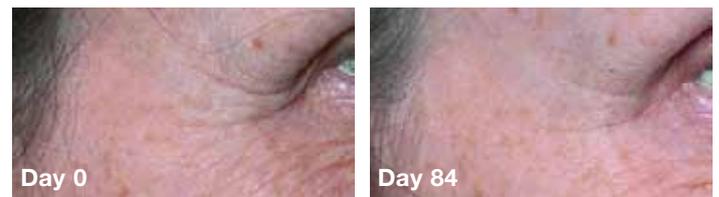
In vivo

To prove the anti-wrinkle effect of SYN[®]-COLL, a study with 60 healthy volunteers has been performed. Two formulations of SYN[®]-COLL (1% and 2.5%) have been applied twice daily for 84 days. Wrinkle parameters have been measured by Primos[®] technique.



All values given in μ m on day 84 compared to day 0. SYN[®]-COLL shows a strong effect for all parameters, (Ra: Average roughness, Rz: Mean of 5 consequent regions, Rt: Maximum difference).

Photos document the visible improvements at day 84 with 2.5% SYN[®]-COLL (volunteer #18, DermScan).



Function

- SYN[®]-COLL stimulates collagen synthesis to actively remove any type of age related wrinkles. In addition it has skin-firming and moisturizing properties.
- Collagen degradation is reduced by expression inhibition of MMPs and cytokines.
- SYN[®]-COLL has been clinically proven to be safe and effective.

Cosmetic application

- SYN[®]-COLL is a bioactive ingredient that reduces the appearance of wrinkles.
- It can be used in any type of anti-ageing products and is suitable for every aspect of wrinkle reduction.
- SYN[®]-COLL has a superior cost-effectiveness compared to similar competitors' products.

Suggested concentration

1–3% SYN[®]-COLL

Formulation

SYN[®]-COLL is a clear preservative-free aqueous solution that can easily be incorporated into the aqueous phase of a formulation.

INCI name

Glycerin, Aqua, Palmitoyl Tripeptide-5

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