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.

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.

SYN®-COLL peptide

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.

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 negative 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 µm 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