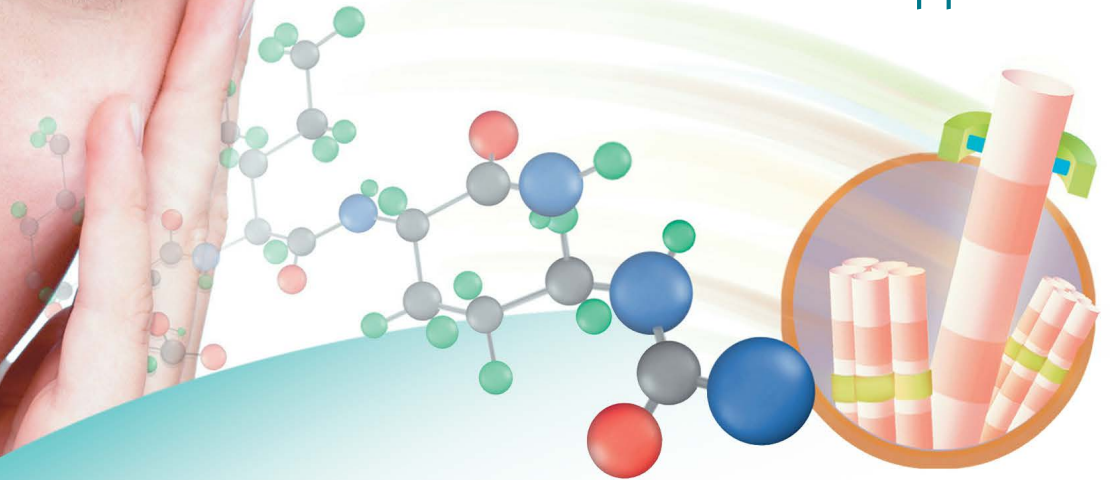


decorinyl[®]

functional ingredient

A collagen organising tetrapeptide to restore skin suppleness



Regulates the fibrillogenesis process



Description

Mimic tetrapeptide of the sequences of decorin that specifically bind to collagen fibrils, improving skin suppleness and providing higher resiliency.

decorinyl[®] functional ingredient comprises a liposomal system for enhanced penetration and increased efficacy.

Appearance

Suspension containing 0.2% Tripeptide-10 Citrulline.



INCI

Water (Aqua), Lecithin, Tripeptide-10 Citrulline, Carbomer, Triethanolamine, Caprylyl Glycol, Phenoxyethanol.

Properties

decorinyl[®] functional ingredient increases the skin suppleness and tonicity, improving skin appearance.

Applications

Cosmetic formulations designed for mature skin where an improvement of suppleness and strength of skin is desired.

Controls fibril dimensions

Science

Fibrillogenesis is an essential process in tissue formation, but must be controlled and regulated in order to avoid excessive bundle-like aggregation of collagen. The fibrillogenesis control is the role of decorin, a small leucine-rich proteoglycan, which is associated with collagen fibrils at specific binding sites in the protein core, controlling fibril dimensions, the uniformity of their diameter and their regular spacing.

Aging skin contains a truncated form of decorin, which lacks binding regions with collagen fibrils, producing a negative effect on the elasticity on the skin.

decorinyl[®] functional ingredient contains a mimic peptide of these binding sequences that has proved to regulate fibrillogenesis, control collagen fibril diameter and increase skin suppleness.

Dosage 5%

Solubility

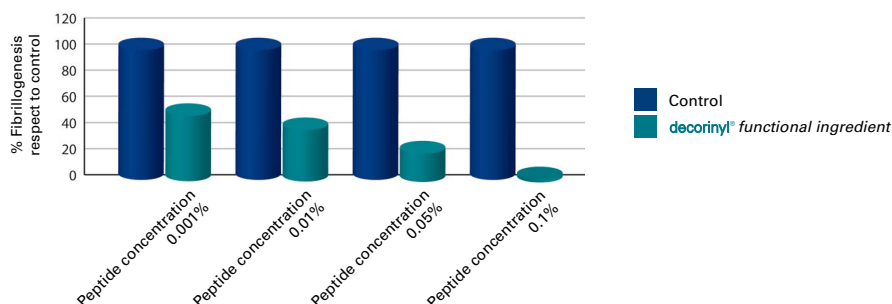
Dispersible in water.



In vitro efficacy

1. REGULATION OF COLLAGEN FIBRILLOGENESIS

Type I collagen samples were treated with **decorinyl® functional ingredient** at different concentrations. The process of fibrillogenesis was measured by turbidity readings. All tested concentrations of **decorinyl® functional ingredient** present significant activity on regulation of fibrillogenesis respect to control, in a dose-dependent manner.



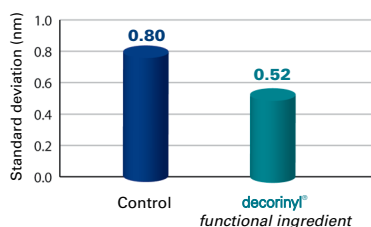
Significant effect on the regulation of fibrillogenesis **decorinyl® functional ingredient** ensures the regular spacing of collagen fibrils, maintaining tissue shape.

2. DERMAL COLLAGEN FIBRILS STUDY

Tissues from a tridimensional human skin model were treated with 0.01% **decorinyl® functional ingredient** (peptide concentration).

Skin sections were observed by transmission electron microscopy (TEM).

The diameter of collagen fibres was measured and statistically analysed using the One way ANOVA analysis.

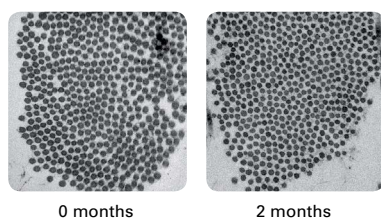


Improvement in the quality of collagen fibres **decorinyl® functional ingredient** guarantees uniformity of fibril diameter, helping to establish skin mechanical properties.

Ex vivo efficacy

HISTOCHEMICAL STUDY OF HUMAN BIOPSIES

Skin biopsies of three volunteers were evaluated before and after a two-month treatment with a cosmetic formulation containing 0.01% **decorinyl® functional ingredient** (peptide concentration). The collagen fibril diameter was measured from transmission electron micrographs.



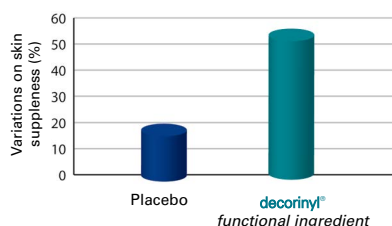
9% decrease of the standard deviation of collagen fibril diameter **decorinyl® functional ingredient** is able to mimic decorin activity and interact with collagen fibrils, regulating the fibrillogenesis process and controlling fibril dimensions.

In vivo efficacy

SKIN SUPPLENESS

The test was performed on a group of 22 female volunteers between the ages of 40 and 58. A cream containing 5% **decorinyl® functional ingredient** was applied daily on the face for 28 days.

Another group of 21 female was treated with a placebo cream. Variations of skin suppleness were measured at time 0 and after 28 days.



54% increase in skin suppleness after 28 days