A NEW COLLAGEN ORGANISING TETRAPEPTIDE TO RESTORE SKIN SUPPLENESS
As society becomes evermore youth-focused, the desire to stave off the aging process is stronger than ever.

The number of anti-aging Facial Care products reaching the market continues to expand, with claims becoming more sophisticated.

As well as fighting more overt signs of aging such as age-spots and wrinkles, consumers also look for products which can improve or maintain the firmness of their skin, which loses elasticity over time.

Source: Mintel, 2009
Launches of anti-aging products in 2009

There is not alone a matter of Facial Care...

... about a quarter of Americans who buy body/hand lotion look for products that are firming or toning.

Source: Mintel report, Bodycare-US, July 2009
After being secreted into the extracellular space, collagen molecules assemble into ordered polymers called collagen fibrils.
Decorin belongs to the family of small leucine-rich proteoglycans (SLRPs).

**WHAT IS DECORIN? (I)**

**STRUCTURE OF PROTEOGLYCANS**

Protein core

GlycosAminoGlycans

**FUNCTIONS**

SLRPs are directly involved in:

- The control of matrix organization.
- Cell growth.
Decorin has a horseshoe-like structure where the β-sheets form the inner concave surface and the α-helices make up the outer convex face.

Decorin inner concave surface is of suitable size to accommodate a single triple helix of collagen.

Decorin is associated with collagen fibrils at specific binding sites via the protein core.
ROLE OF DECORIN

Decorin binds to surface of collagen fibrils, delaying fibril assembly.

Prevents lateral fusion of collagen molecules, controlling:
- fibril dimensions
- the uniformity of their diameter
- their regular spacing

Fibrils are stabilised and fibrillogenesis is orientated.

Higher order matrix assembly, giving 
**suppleness** and **strength** to the skin.
As skin ages...

Dramatic changes occur in skin’s morphology, physiology and mechanical properties.

A catabolic fragment of decorin is abundant. This truncated form lacks important regions for interaction with collagen.

Regulates fibrillogenesis and collagen fibril growth, IMPROVING SKIN SUPPLENESS

This may have significant effect on skin elasticity and morphologic differences between collagen fibres of young and mature skin.
1. Regulation of Collagen Fibrillogenesis

- Type I Collagen samples treated with Decorinyl® at different concentrations (0.001%, 0.01%, 0.05% and 0.10%).
- Fibrillogenesis was measured by turbidity readings, by monitoring the change in absorbance at 405 nm, at 30-min or 1-h intervals.

**Significant effect on regulation of fibrillogenesis**

Decorinyl® ensures the regular spacing of collagen fibrils, maintaining tissue shape, in a dose-dependent manner.
2. Dermal Collagen Fibrils study

• Tissues from a 3D human skin model were treated with 0.01% Decorinyl® (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.

IN VITRO EFFICACY (II)

Improvement in the quality of collagen fibres

decorinyl guarantees uniformity of fibril diameter, helping to establish skin mechanical properties.
Histochemical study of human skin biopsies

- Skin biopsies of three patients were evaluated before and after a two-month treatment.
- Cosmetic formulation containing 0.01% Decorinyl® (peptide concentration).
- The collagen fibril diameter was measured from Transmission Electron Micrographs.

Transmission electron micrographs of dermal collagen from skin biopsies of Patient 1.

9% decrease of standard deviation of collagen fibril diameter

decorinyl® is able to mimic decorin activity and interact with collagen fibrils, regulating the fibrillogenesis process and controlling fibril dimensions.
Skin suppleness

- 22 female volunteers, aged 40 to 58.
- Daily application of a cream containing 5% Decorinyl® on the face, for 28 days.
- Another group of 21 females was treated with a placebo cream.

54% increase in skin suppleness after 28 days

Variations on skin suppleness were measured with a MPA 580 Cutometer® at time 0 and after 28 days.
COSMETIC BENEFITS

Based on a scientific background

Mimic of the sequences of decorin that specifically bind to collagen fibrils

Improves collagen quality

Provides strength and suppleness to the skin

Efficacy in only 28 days!

Improves skin suppleness

decorinyl®

Lipotec
We research for you
DESCRIPTION
Mimic tetrapeptide of the sequences of decorin that specifically bind to collagen fibrils, improving skin suppleness and providing higher resiliency. Decorinyl® has been incorporated into a liposomal system for enhanced penetration and increased efficacy.

APPEARANCE
Suspension.

INCI
Water (Aqua), Lecithin, Tripeptide-10 Citrulline, Carbomer, Triethanolamine, Caprylyl Glycol.
Paraben free.

PROPERTIES
Decorinyl® 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.

DOSAGE
5%
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