RETILACTYL D®

THE TARGET SOLUTION FOR FIRMING UP SUPPORTING TISSUES

After investigating the papillary dermis and its specific features, SILAB R&D has targeted its research on a part of the skin still almost unexplored: the reticular dermis.

Not subject to intrinsic ageing to any great extent, reticular fibroblasts and their extracellular matrix are affected by extrinsic ageing, for example UV irradiation. The dermis loses substance and architecture, and photo-aged skin undergoes substantial loosening, with the oval form of the face slackening.

To preserve the structural and supporting properties of such aged skin, SILAB is introducing RETILACTYL D®, rich in α-glucans and rhamnogalacturonans purified from black pepper berries. Tested on reticular fibroblasts, RETILACTYL D®:

➢ Boosts the capacities of adhesion, contraction and migration.
➢ Normalizes the expression of the major specific matrix proteins of this supporting tissue.

RETILACTYL D® corrects the impact of photo-ageing by favouring remodelling of the contours of the face and the density and firmness of the skin. RETILACTYL D® is recommended in all anti-ageing and firming face and body care products.
**GENERAL PRINCIPLES**

A study was conducted by the group of Doctor F. Ruggiero of the Institute of Biology and Chemistry of Proteins of the University of Lyon 1 and the SILAB Research Department. The results showed that among the main functions of dermal fibroblasts (in particular proliferation, adhesion, contraction, migration and regulation of the epidermis), reticular fibroblasts are primarily dedicated to functions of adhesion, contraction and migration. Our work also showed that these principal functions are deteriorated by UV-induced aging. This is why SILAB proposes RETILACTYL D®, a product rich in o-glucans and rhamnogalacturonans, purified from black peppercorns. It acts on the reticular dermis as an architect of the deep skin, the structure that confers the properties of resistance to tensions and tractions on the skin.

**RETILACTYL D®** reinforces the functions of photoaged reticular dermis.

**RETILACTYL D®** stimulates adhesion capacities:
The specific interactions that exist between fibroblasts and the collagen network give rise to a functional tissue and also determine reciprocal cell-ECM exchanges.

**RETILACTYL D®** stimulates contraction capacities:
The elevated adhesion capacity of reticular fibroblasts enables their strong attachment to the ECM and develops contractile properties that regulate the organization and retraction of surrounding collagen fibers, required for remodeling the ECM. This process is required to create and maintain the skin’s properties of resistance.

**RETILACTYL D®** stimulates migration capacities:
Cell migration is a highly dynamic process that is essential for the regeneration of damaged tissues. It is regulated by the reorganization of the cytoskeleton and the renewal of points of contact between fibroblasts and the ECM.

Studies in-vivo have shown that RETILACTYL D® formulated at 3% vs. placebo significantly improves skin firmness and tone and also limits the phenomenon of ptosis (sagging). In addition, 90% of volunteers consider that RETILACTYL D® has a firming effect.

**TECHNICAL SHEET**

- **Latin name**: Piper nigrum
- **I.N.C.I. name**: Water & Hydrolyzed Pepper Fruit Extract
- **Cas N°**: 7732-18-5 / 84929-41-9

**Form**
- Aqueous solution
- Aspect: limpid liquid
- Odor: characteristic
- Color: amber

**Analytical features**
- Dry matter: 17 - 25 g/l
- Total sugar (Glucose method): 5 - 9 g/l
- pH: 3.0 - 4.0
- Preservative: Phenoxethanol 0.50 %
- Stabilizer: Ethylhexylglycerin 0.20 %

**Bacteriology**
- Sterile product
- No yeast and mould present
- No pathogenic germs present

**Packaging**
Sterile 1L and/or 5L plastic container

**Storage**
Store preferably at 20°C in a dark place

**Use**
- Fully soluble in aqueous medium
- Solubility in ethanol: soluble up to 30/70 ethanol/water (V/V)
- Can withstand temperatures up to 80°C for at least two hours
- Stable between pH 2 to 10
- Recommended amount: 0.25 to 3%

**Innocuousness**
- Determination of irritant potential on human skin: Non irritant
- No mutagenicity according to Ames’ test
- No phototoxic
- No cytotoxic
- Evaluation of sensitizing capacity on human volunteers with normal skin: Non sensitizing

**Studies in vitro**

The technique for isolating fibroblasts from the reticular dermis was adapted from literature data (as described in the product dossier).

**Effect of RETILACTYL D® on the functions of the reticular dermis**

- The adhesion of photoaged reticular fibroblasts is significantly reduced in comparison to normal reticular fibroblasts. Tested at 0.5%, RETILACTYL D® significantly increases the adhesion capacity of photoaged fibroblasts by 26%.
- The contractile capacity of photoaged reticular fibroblasts is significantly reduced in comparison to normal reticular fibroblasts. Tested at 0.5%, RETILACTYL D® significantly increases the contractile capacity of photoaged fibroblasts by 156%.
- The migration of photoaged reticular fibroblasts is significantly reduced in comparison to normal reticular fibroblasts. Tested at 0.5%, RETILACTYL D® significantly increases the migration capacity of photoaged reticular fibroblasts by 210%.

**Studies in vivo**

The description of the panel selected and studies conducted is detailed in the product dossier. All the studies described below were conducted on healthy female volunteers. Two groups were defined using a questionnaire to determine the volunteers’ skin type.

Group A: non photoaged. 19 volunteers, mean age 35.7 years and average phototype 3.
- Group B: photoaged. 19 volunteers, mean age 35.7 years and phototype 5.

**Modeling: influence of photaging on the biomechanical properties of the skin**

This study showed that there is a significant difference in biomechanical parameters of the skin: firmness, tone and ptosis between the non-photoaged (group A) and photoaged (group B) volunteers of the same mean age.

**Effect of RETILACTYL D® on the biomechanical properties of the skin**

Studies on normal and photoaged human reticular fibroblasts, the latter obtained by UVA irradiation.

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