

# ELASTONYL®

ANTI-STRIAE ACTIVE INGREDIENT  
PRESERVES THE ELASTIC CAPITAL  
OF THE SKIN

We all know how unsightly striae, or stretch marks, are. They result from a rupture of skin tissue due to the degradation of the network of collagen and elastic fibers. As the metabolic activity of striae fibroblasts is altered, the fibril network is no longer renewed.

In order to improve skin resistance and limit the appearance of striae, SILAB proposes ELASTONYL®, an active ingredient that protects and repairs elastic and collagen tissue.

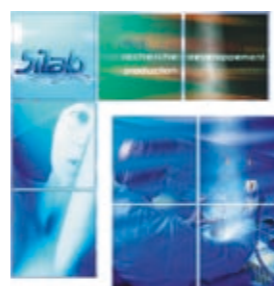
The defined protein fraction of *Cucurbita pepo* enables ELASTONYL® to re-establish fibroblast homeostasis:

- It combats the irreversible degradation of elastic tissue by inhibiting the expression of proteolytic enzymes such as MMP-1, MMP-2 and cathepsin L.
- It stimulates the synthesis of collagen and fibrillin, molecules involved in the organization of the fibril network.

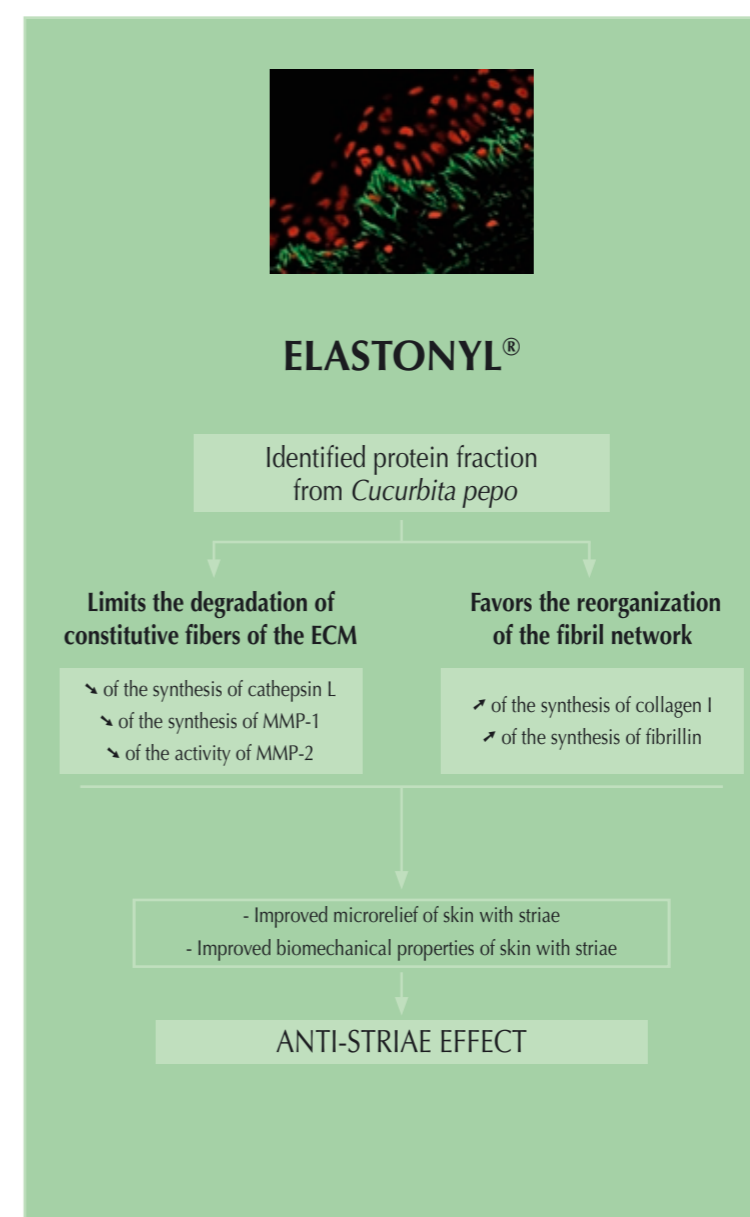
ELASTONYL® improves microrelief and restores the tone and elasticity of skin with striae. It is recommended for all types of body care products to prevent and attenuate striae.



07/2006 edition - All the scientific and technical data in this document are the SILAB's exclusive property



## Engineering natural active ingredients



Warning : the information contained in this publication is provided in good faith and is based on our current knowledge. No legally binding promise or warranty regarding the suitability of our products for a specific use is made. Silab S.A. and its associate companies shall not assume any expressed or implied liability in connection with the presentation or any use of this information, nor should data contained herein be construed as granting a license of any patents nor warranty that use of this information or product will not infringe a third party's intellectual property rights.

B.P. 213 - 19108 Brive Cedex - France  
Plant : Z.I. de la Nau - 19240 Saint Viance  
Phone : (33) 555 84 58 40 - Fax : (33) 555 84 95 64  
www.silab.fr - e-mail : silab@silab.fr



## GENERAL PRINCIPLES

SILAB has developed ELASTONYL® to preserve the elasticity capital of the skin and thus prevent skin's slackening and the appearance of striae.

ELASTONYL® is obtained from *Cucurbita pepo* and combats striae:

### by limiting the enzymatic degradation of skin fibers

ELASTONYL® inhibits the expression of MMP-1 and MMP-2, proteases involved in the degradation of elastic and collagen tissues of the skin. ELASTONYL® thus limits the irreversible degradation of elastic tissue by reducing the synthesis of an enzyme with high elastolytic activity: cathepsin L.

### by favoring reorganization of the fibril network

ELASTONYL® improves the architectural arrangement of the network of elastic and collagen fibers - by boosting the synthesis of collagen I, the major component of the dermis, between which elastic fibers are interwoven, - and by stimulating the synthesis of fibrillin, a molecule involved in the formation of elastic tissue.

Tested directly in volunteers at 4%, ELASTONYL® improves the microrelief of skin with striae and restores its elasticity capacities and tone.

## TECHNICAL SHEET

- **Latin name:** *Cucurbita pepo*
- **I.N.C.I. name:** Hydrolyzed Cucurbita Pepo (Pumpkin) Seedcake
- **Cas N°:** 89998-03-8

### Form

- Aqueous solution
- Aspect : limpid
- Odor : characteristic
- Color : amber

### Analytical features

- Dry matter: 50-70 g/l
- Proteins (Lowry method): 38-50 g/l
- pH: 6.5 to 7.5
- Preservatives: 0.36% phenoxyethanol  
0.14% parabens

### Bacteriology

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

### Packaging

Sterile plastic 1 and/or 5 liter packages

### Storage

Store preferably at 20°C and in a dark place

### Use

- Fully soluble in aqueous medium
- Solubility in ethanol: soluble up to 40/60 ethanol/water (v/v)
- Can withstand temperatures of up to 80°C for at least two hours
- Stable between pH 2 and pH 10
- Recommended amount: 2 to 4 %

### Safety

- ✓ Evaluation of skin safety on human volunteers: Non irritating
- ✓ No mutagenicity according to the Ames test
- ✓ No phototoxicity
- ✓ No cytotoxicity
- ✓ Search for contact eczema: Non-allergenic

## COSMETIC EFFICACY

### IN VITRO STUDIES

Studies conducted on normal human fibroblasts and human fibroblasts from striae

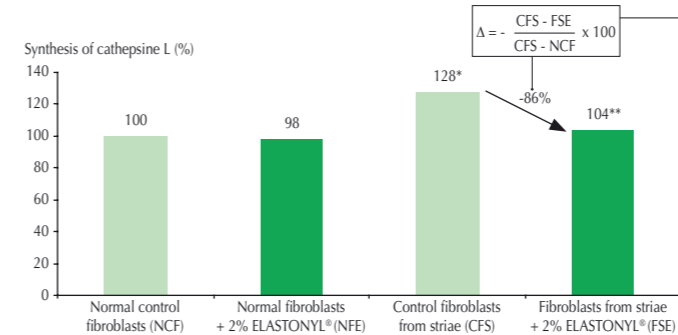
#### PROTECTION OF THE FIBRIL NETWORK OF THE ECM

The following studies have determined the capacity of ELASTONYL® to limit the activity of enzymes involved in the degradation of elastin and collagen fibers: cathepsin L, MMP-1 and MMP-2.

#### Protection of elastin fibers

Effect on the synthesis of cathepsin L - Western blot method

Tested at 2%, ELASTONYL® reduces the synthesis of cathepsin L in fibroblasts from striae and returns its level to that comparable to normal human fibroblasts significantly (P=0.027).



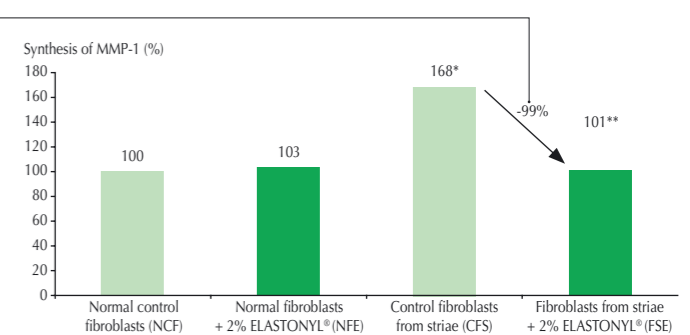
\*: Significant difference between normal human fibroblasts and fibroblasts from striae according to Student's test (P<0.05)

\*\* : Significant difference between fibroblasts from striae treated with ELASTONYL® and untreated fibroblasts from striae, according to Student's test (P<0.05)

#### Protection of collagen fibers

Effect on the synthesis of MMP-1 - Western blot method

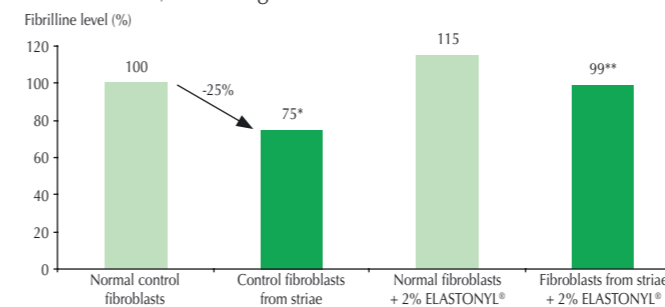
Tested at 2% on fibroblasts from striae, ELASTONYL® returns its level to that comparable to normal human fibroblasts significantly (P=0.03).



In addition, a study involving zymography, or electrophoretic protein banding, showed that ELASTONYL® a 2% results in a 69% reduction in the activity of MMP-2, an enzyme participating in the final degradation of collagen fibers and in the hydrolysis of elastin.

#### RESTORATION OF THE NETWORK OF ELASTIC AND COLLAGEN FIBERS

The following studies have allowed to determine the ELASTONYL® effect on the synthesis of molecules involved in the organization of the fibril network, i.e. collagen I and fibrillin.



#### Synthesis of fibrillin - Western blot method

The addition of ELASTONYL® at 2% to the culture medium of fibroblasts from striae restores the fibrillin level to a value comparable to that of normal fibroblasts.

\*: Significant difference between normal human fibroblasts and fibroblasts from striae according to Student's test (P<0.05)

\*\* : Significant difference between fibroblasts from striae treated with ELASTONYL® and untreated fibroblasts from striae, according to Student's test (P<0.05)

#### Synthesis of collagen I - ELISA method

ELASTONYL® at 2% led to a significant (P = 0.03) 62% increase in the synthesis of collagen I by fibroblasts from striae.

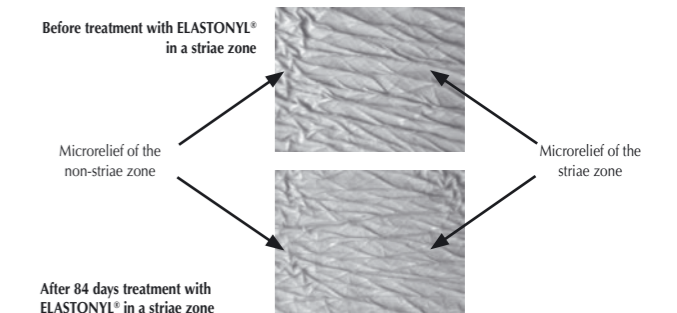
### IN VIVO STUDIES

Studies on skin with striae (33 female volunteers, mean age 37 ±2 years, for 42 days and 22 of the volunteers for 84 days, striae of the hips and abdomen less than 5 years old)

#### SMOOTHING MICRORELIEF

Observation by profilometry and image analysis

ELASTONYL® reduces the differences in microrelief between striae and non-striae zones. After 84 days of twice daily application and in comparison to the placebo, ELASTONYL® significantly reduced the variation of mean roughness between striae and non-striae zones (14%, P = 0.016). The distribution of the results showed that 76% of the volunteers presented this decrease.



#### BIOMECHANICAL PROPERTIES

Cutometer® measurements

ELASTONYL® restores elasticity, tone, biological deformation and the capacity of skin with striae to return to its initial state.

ELASTONYL® significantly reduces the variations of biomechanical parameters observed after 84 days of twice daily treatment between striae and non-striae zones treated with ELASTONYL® compared to striae and non-striae zones treated with the placebo.

	Elasticity	Tone	Biological deformation	Return to initial state
ΔPdt-ΔPI	+11%*	+26%*	-15%*	+30%*

\* Results significant according to Student's test (P < 0.05)

ΔPdt: variation between the striae and non-striae zone treated with ELASTONYL®  
ΔPI: variation between the striae and non-striae zone treated with the placebo

## Warning

The information contained in this publication is provided in good faith and is based on our current knowledge. No legally binding promise or warranty regarding the suitability of our products for a specific use is made. Silab S.A. and its associate companies shall not assume any expressed or implied liability in connection with the presentation or any use of this information, nor should data contained herein be construed as granting a license of any patents nor a warranty that use of this information or product will not infringe a third party's intellectual property rights.

All the technical and scientific data in this document are the exclusive property of SILAB. SILAB has published edocuments that describe the company and the products it manufactures. The information in those edocuments is protected by copyright by the « Société Industrielle Limousine d'Application Biologique » (SILAB) that has published it in accordance with Volumes I to III of the Code of Intellectual Property and International Conventions of Berne and Geneva. The Client pledges not to copy, reproduce, duplicate all or part of the edocuments. The Client shall consider as strictly confidential all the information contained in the edocuments. The Client shall make the content of the edocuments accessible only to members of his personnel who are qualified to know them and have them comply with the obligations that follow. He shall not divulge or transmit to a party external to his company, in any form whatsoever, all or part of the information, concepts, technical formulas, chemical formulas and processes concerning the products described in the said edocuments without the formal consent of SILAB.