



Collageneer[®]

Anti-ageing, remodeling, firming

Active ingredient from a **patented process**
Active molecule extracted from the sweet white lupine seed
coatings (lupeol) solubilised in oleic sunflower oil
Reasoned farming sourcing from **France**

O Stimulates the synthesis of high-quality **collagen I**

O Improves skin elasticity and firmness

O Remodels the sagging skin areas



Laboratoires Expanscience's
contribution to sustainable
development has been recognized
as exemplary by the AFAQ 26000
assessment



Laboratoires Expanscience
is a member of the UEBT for
protecting biodiversity and
complying with fair trade
regulations



Identity

Botanical information

Botanical name: *Lupinus albus*

Local names: Sweet white Lupin

Family: Fabaceae (leguminosae)

Characteristics: annual herbaceous plant with varying degrees of pubescence, white flowers, between 30 cm and 1.2 m in height

Environment: natural prairies, pastures, grassy slopes, mainly in sandy and acidic soil

Traditional uses: food, due to its high nutritional density (vegetable, beverage, pancakes, semolina); as medicine (rituals)



Supply chain from western France

Laboratoires Expanscience helps to stimulate the economy of this region, where lupine is cultivated according to sustainable agricultural practices and helps to support a sunflower european sourcing.

Expanscience uses the resulting co-products, i.e. the active molecules from the seed coatings of the sweet white lupin.

An original patented process for extracting lupeol was set up using these seed coatings, to develop COLLAGENEER®.

Concept

A « chaperone » protein, HSP47, for a high quality collagen network:

With the mixed effects of ageing process, free radicals and UV, collagen is altered and its quantity within the skin decreases: exacerbated degradation of existing collagen combined to a decrease of its synthesis thus limiting the replacement of the damaged collagen. As direct and visible consequences, some skin areas sag and slacken.

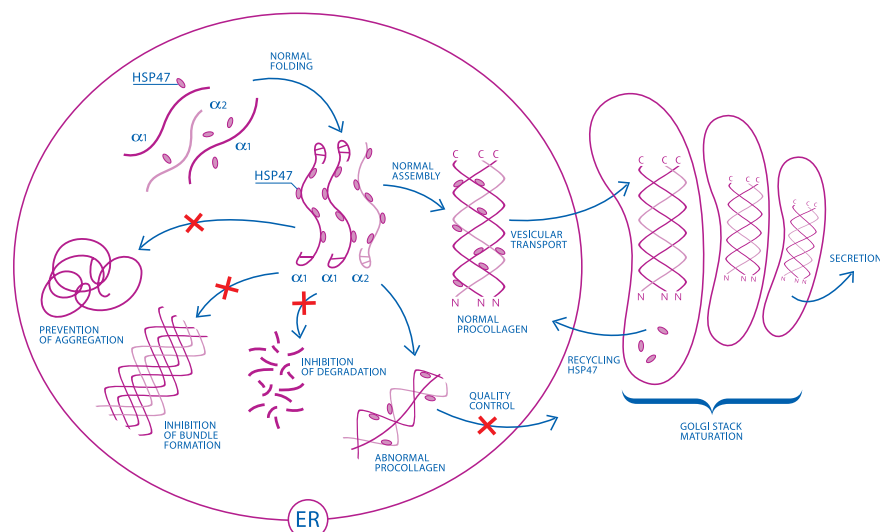
The HSP47 protein (Heat Shock Protein), enables to develop and improve the collagen network organization. **Specific from collagen I**, HSP47 ensures the production of high quality collagen in assisting the proper assembly of its structure.

HSP 47 is a collagen I specific **molecular chaperone** which facilitates the synthesis of a good quality procollagen I: HSP 47 attaches itself onto chains and facilitates their alignment and folding.

It prevents aggregation, abnormal associations and chains being disintegrated by proteases in the endoplasmic reticulum (ER).

HSP47 assists the proper assembly of the triple helix and then accompanies procollagen I to the Golgi apparatus for maturation phase before being secreted outside the cell.

HSP47 also opposes maturation of the abnormal procollagen (**quality control role**), keeping it inside the cell and preventing it from being secreted into the extracellular matrix.

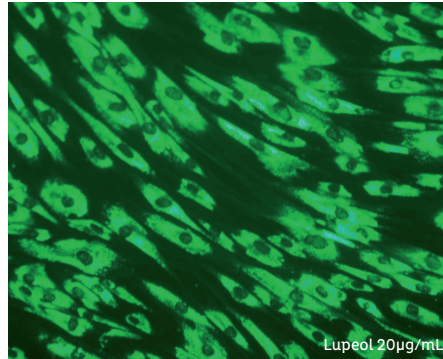
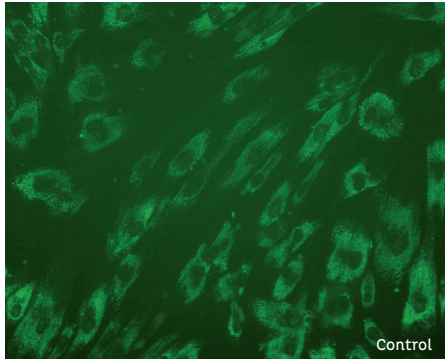


COLLAGENEER® STIMULATES SYNTHESIS OF HIGH QUALITY COLLAGEN, IMPROVI

Effectiveness in-vitro

Stimulation of HSP47 synthesis by Lupeol

In-vitro test: human fibroblasts, 48-hour treatment (Lupeol), Fluorescence immunostaining.

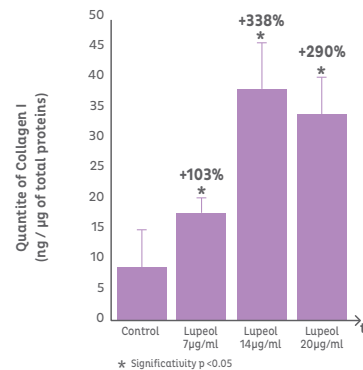


- ▶ Lupeol stimulates the production of HSP47, via overexpression of the gene (qRT-PCR: +21% for 20 µg/ml).

Quality... and quantity: effect on type I collagen synthesis

In-vitro test: human fibroblasts, 72-hour treatment (Lupeol), ELISA test.

- ▶ Lupeol significantly stimulates production and secretion of type I collagen, starting at 7 µg/ml, via overexpression of the collagen $\alpha 1$ gene (qRT-PCR: +46% for 20 µg/ml).



Clinical study

COLLAGENEER® properties on skin's elasticity

This open study was carried out to validate the concept on volunteers. 25 volunteers (45 to 65 years old) displaying saggy skin on the facial oval, tested a cream with 2% COLLAGENEER® (2 applications/d. during 89 d.)

● Skin elasticity (Cutometer)

Beginning at T42, an increase in the parameters characteristic of skin elasticity (Ur/Ue and Ur/Uf) is noted. At T89, the increases of 11.2% and 10.6%, respectively are significant.

● Facial contour (fringe projection)

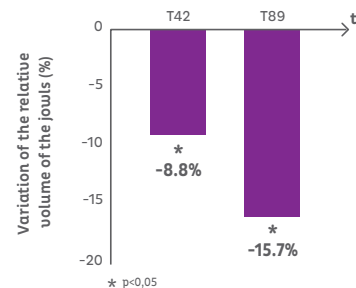
With age, the skin of the facial oval sags. The skin sagging volume is measured. At T42, a significant reduction in this volume is seen. This is confirmed and amplified at T89.

- ▶ COLLAGENEER® remodels the facial contours.

● Self-assessment

The volunteers confirmed these clinical results by their own assessment of the cream's effectiveness:

- improved firmness of the skin _____ **92%**
- reduced sagging of the facial contour _____ **72%**

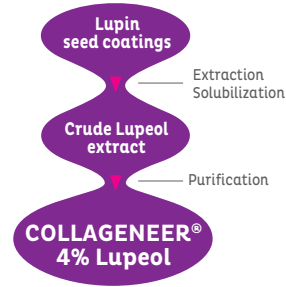


Notes for formulators

General information

- Description: yellow to orange-brown liquid, characteristic odour
- INCI name: *Helianthus Annuus (Sunflower) Seed Oil and Lupinus Albus Seed Extract*
IECIC Listed - 2015 issue (China)
CTFA Listed 2004
- Origin: plant – sunflower oil and extract of *Lupinus albus* seeds
- Dose: 0.5% to 2%
- Solubility: liposoluble
- Recommended formulation temperature: optimal temperature is 40°C. Possibility of adding at 75°C just before blending, over a short period of time
- Antioxidant: α-Tocopherol of natural origin
- Storage: between 15°C and 25°C, under nitrogen, protected from light, heat and humidity
- Patents: WO2085827, 03/04/2001 - WO2005009331, 18/07/2003

Process



Applications

- Remodeling anti-ageing skin care
- Firming skin care
- Eye contour

COLLAGENEER® in H.Q.C

Firming Eye Contour with remodeling effect to fight the slackening skin

HELIOFEEL	Glyceryl Stearate Citrate and Polyglyceryl-3 Stearate and Hydrogenated Lecithin	LUCAS MEYER COSMETICS	4,00%
DUB ININ	Isononyl Isononanoate	STEARINERIE DUBOIS	2,00%
HUILE D'AVOCAT HAREF	Persea Gratissima (Avocado) Oil	LABORATOIRES EXPANSCIENCE	0,50%
A VIRGIN PRUNUS OIL	Prunus Domestica Seed Extract	LABORATOIRES EXPANSCIENCE	3,00%
LANETTE 16	Cetyl Alcohol	BASF	1,40%
LANETTE O OR	Cetearyl Alcohol	BASF	0,70%
SEPI NOV EMT10	Hydroxyethyl Acrylate and Sodium Acryloyl Dimethyl Taurate Copolymer and Sorbitan Isostearate and Polysorbate 60 and Aqua	SEPPIC	0,60%
COLLAGENEER®	Helianthus Annuus (Sunflower) Seed Oil and Lupinus Albus Seed Extract	LABORATOIRES EXPANSCIENCE	2,00%
EAU DEMINERALISÉE	Aqua, Water		81,25%
EDETA BD	Disodium EDTA	BASF	0,10%
B GLYCERINE CODEX	Glycerin	INTERCHIMIE	2,00%
CARBOPOL ULTREZ 21	Acrylates/C10-30 Alkyl Acrylate Crosspolymer	GATTEFOSSE	0,15%
PHENOXYETOL	Phenoxyethanol	TER	0,60%
C SPECTRASTATE	Methylpropanediol and Ethylhexylglycerin and Caprylhydroxamic Acid	SACI-CFPA	0,80%
SODIUM HYDROXIDE 10%			0,75%
D OXYNEX K LIQUIDE	PEG-8 and Tocopherol and Ascorbyl Palmitate and Ascorbic Acid and Citric Acid	MERCK	0,15%

Formulation instructions on demand