

Care
Creations™

Proteasy™
by Beauty Creations

Botanical complex for firmness and elasticity

 **BASF**
The Chemical Company

Skin elasticity & firmness promoter

When we are young the regenerative processes in the skin exceed the destructive ones, hence maintaining the skin's youthful and glowing appearance. With genetically programmed chronologic aging the degradation process of the elastic and collagen networks gradually dominates due to an excess of proteases and a deficiency of inhibitors.

As a result, wrinkles deepen, skin becomes less elastic, facial features begin to sag and skin loses its youthful appearance. Products with a rejuvenating effect on facial skin usually target wrinkles.

However, it is equally important to stop the skin from sagging and stop the loss of elasticity and firmness by reducing destructive processes while stimulating new production of dermal, DEJ and epidermal macromolecules.

Such a complementary approach is offered by Proteasyl™, a polypeptidic fraction obtained by an exclusive extraction and purification technology from garden pea. It acts as a multifunctional anti-aging active thanks to its multiple biological activities:

At the level of the **epidermis**:

- elastases inhibition and boosting of elastin synthesis,
- stimulation of synthesis of the most abundant proteins of the extracellular matrix (ECM)
- stimulation of glycosaminoglycans (GAGs), collagen type I and III, as well as collagen type V that plays an important role in the efficient organization of newly synthesized collagen type I,

At the level of the **DEJ**: stimulation of perlecan, a molecule that plays an important role in DEJ stabilization.

At the level of the **epidermis**: plasmin inhibition and stimulation of syndecan synthesis, a proteoglycan responsible of epidermal adhesion.

With less break down and more regenerative processes, the skin will once again be young, healthy and more elastic!

Proteasyl™ is extracted from seeds of *Pisum sativum* L. (peas).

First grown in the Near East, pea has been domesticated since Antiquity.

Proteasyl™ is a botanical peptidic active ingredient, prepared according to an exclusive extraction/purification technology.



Properties

Comprehensive activity: protection and reparation
Perceivable effect on skin firmness and elasticity

Applications

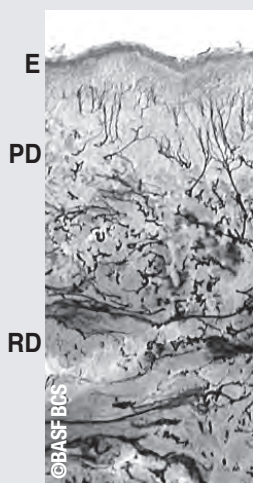
Anti-age, protecting, repairing skin defense care
Elastifying, firming care
Body care

At the level of the dermis

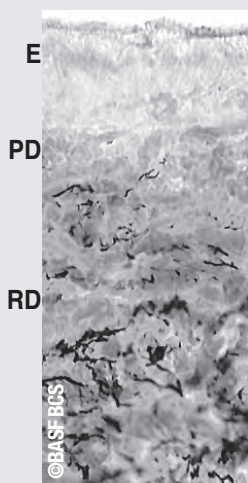
Protection

Anti elastase activity

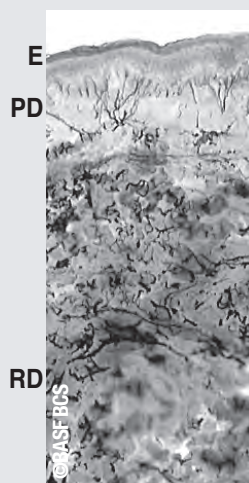
E = Epidermis, PD = Papillary dermis, RD = Reticular dermis



Untreated control area



Elastase alone
elastic network is destroyed



Elastase +5% Proteasyl™;
good preservation of the papillary and reticular elastic network

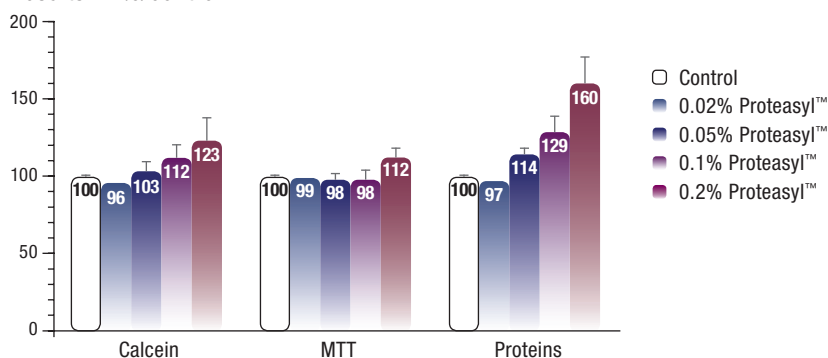
Proteasyl™ protects 50% of papillary elastic fibers and 35% of reticular elastic fibers.

In vitro study

Skin sections are incubated with elastase alone or with elastase and Proteasyl™ at 5%. Elastic fibers are black stained by the histo-chemical technique. Optical microscope and image analysis Calculation of the percent of the surface covered by papillary and reticular elastic fibers.

Stimulation of cell metabolism

Results in %/control



Statistics: Average ± SEM
3 trials in triplicate

Vitality (calcein rate = +23%) | **Enzymatic activity** (MTT rate = +12%) | **Protein rate** (+60%)

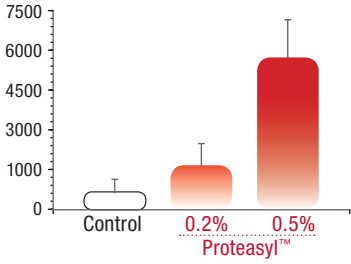
In vitro study

To evaluate the stimulating effect of Proteasyl™ on the synthesis of proteins of human fibroblasts in culture. Dosage of calcein, MTT and proteins.

Reparation

Synthesis of Type III collagen

Synthesis factor



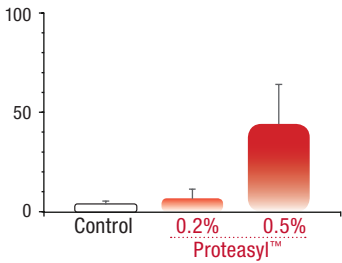
Statistics: Average ± SEM on 3 assays

In vitro study

Quantification of Type III collagen by fibroblasts in collagen lattices after 7 days.

Synthesis of Elastin

Synthesis factor



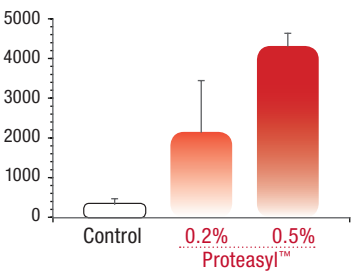
Statistics: Average ± SEM on 3 assays

In vitro study

Quantification of Elastin by fibroblasts in collagen lattices after 7 days.

Synthesis of GAGs

Synthesis factor



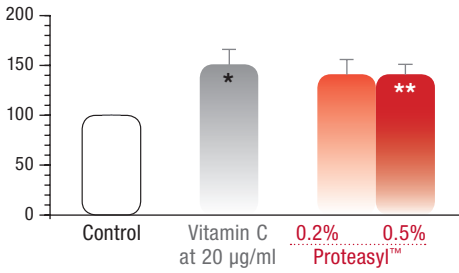
Statistics: Average ± SEM on 3 assays

In vitro study

Quantification of Chondroitin-Sulfates by fibroblasts in collagen lattices after 7 days.

Synthesis of Type I collagen

Results in %/control



Statistics: Mean ± SEM on 5 assays in triplicate Student's t test

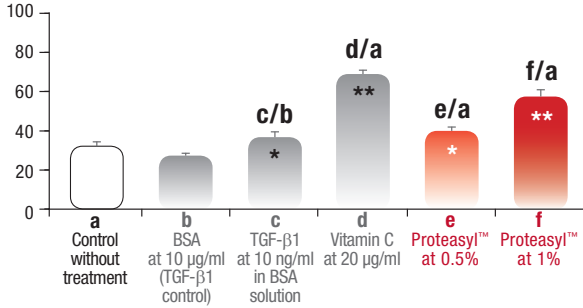
* p<0.05; ** p<0.01;

In vitro study

Measure of type I collagen synthesis in culture medium by Elisa on fibroblasts culture

Synthesis of Type V collagen

Results in %/control



Statistics: Mean ± SEM on 6 measurements

Test U of Mann and Whitney

* p<0.05; ** p<0.01;

In vitro study

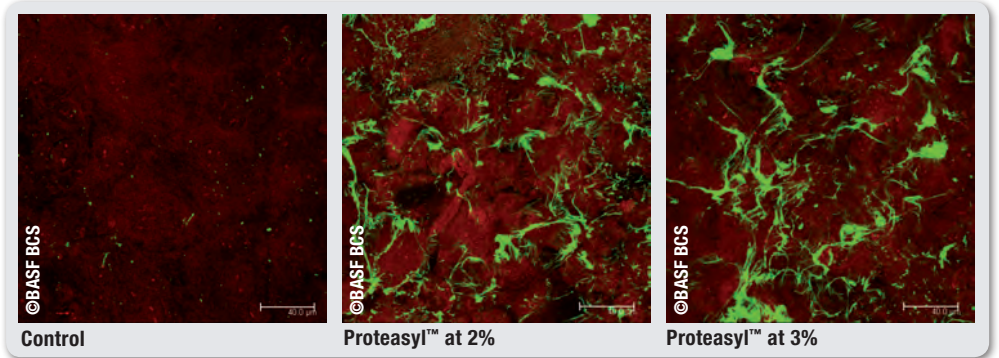
Measure of type V collagen synthesis by ICC and image analysis on fibroblasts culture

Reinforcement of the dermis by synthesis of its major components

At the level of the DEJ

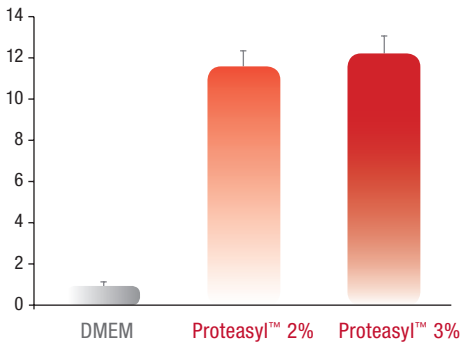
Synthesis of Perlecan

Visualization of Perlecan by ICC



Quantification of Perlecan by image analysis

% occupation of Perlecan



TMean on 3 assays

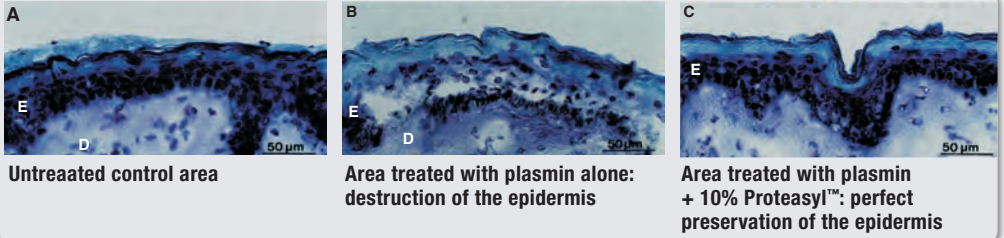
In vitro study

Measure of perlecan synthesis by ICC and image analysis on keratinocytes culture

DEJ stabilization

At the level of the Epidermis

Plasmin inhibition

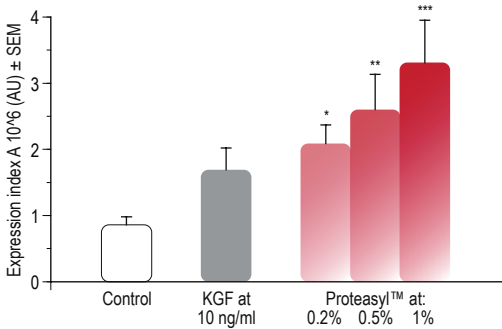


In vitro study

Histological staining and microscopic observation of skin section after treatment (placebo, plasmin, plasmin + 10% Proteasyl™)

Action of plasmin neutralized Normal cell organization preserved

Syndecan synthesis



ANOVA, Fisher's MLSD test

* p<0.05; ** p<0.01; *** p<0.001

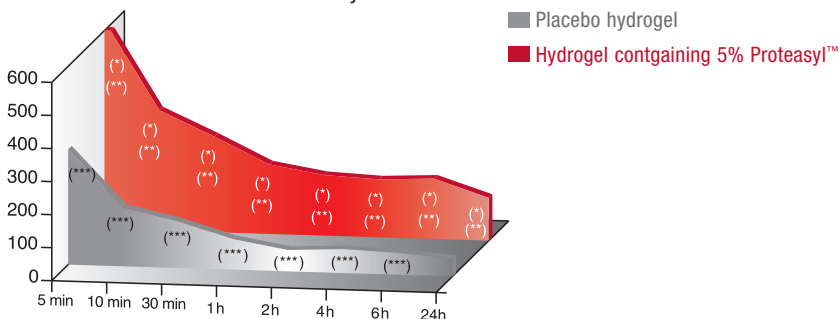
In vitro study

On keratinocytes, visualization of syndecan-1 by immunofluorescence. Quantification of the staining by image analysis

Epidermal cohesion

Moisturizing activity

% increase of dielectric conductivity versus control



Statistics: Average of 10 tests - 1 factor ANOVA

(*) Sign. Proteasyl™ / control p<0.0007

(**) Sign. Proteasyl™ / placebo p<0.034

(***) Sign. placebo / control p<0.014

Ex vivo study

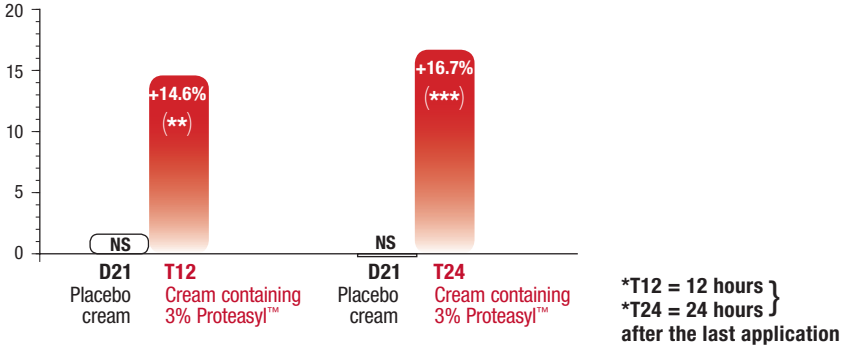
Evaluation of the long lasting moisturizing activity on *Stratum corneum* by measurement of the dielectric conductivity (tagami test)

Moisturization: up to +60% (/placebo)
Long-lasting effect: 24 h

Clinical studies

Skin elasticity

Improvement (%) / D0



Statistics:
Student's paired t test
(**): $p = 0.01$
(***): $p = 0.005$
NS: Not significant

In vivo study

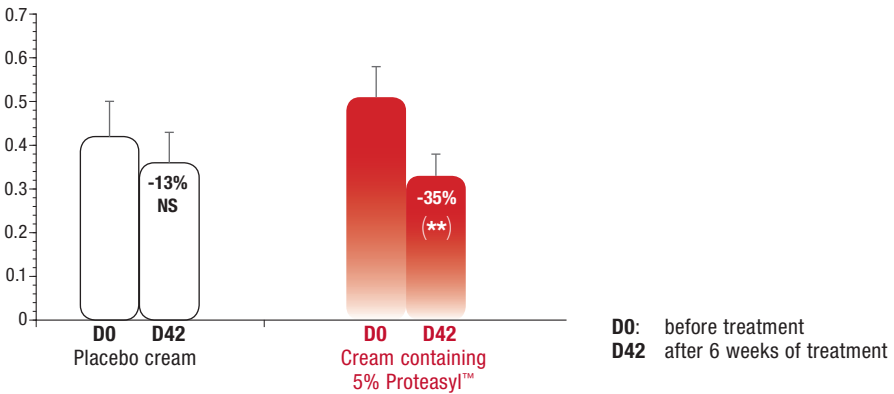
On 10 female volunteers with a loss of elasticity on the outer side of the arms.

Twice daily treatment during 3 weeks of a placebo cream on one side, and a cream containing 3% Proteasyl™ on the other side. Quantitative measurement of skin elasticity, by vertical extensimetry (Cutometer) after repeated constraints: 12 and 24 hours after the last application.

Skin is more elastic even 24h after application

Skin firmness

Compressibility (mm/log t)



Statistics: Mean on 10 volunteers (\pm SEM)
According to Wilcoxon's T test
NS: Not significant
(**): $p = 0.005$
T SEM (Standard Error of Mean)

In vivo study

Randomized double blind clinical study on 10 female volunteers, between 46 and 64 years old having a loss of skin firmness on the forearms. Treatment during 6 weeks, twice daily application of a placebo cream on one forearm, and a cream containing 5% Proteasyl™ TP on the other forearm. Measurement of the skin firmness of the 2 forearms, using the dermofirmometer, before and after the 6 weeks of treatment.

Skin is firmer after only 42 days

Summary data sheet

REF **Proteasy!™ LS 9818**

DESCRIPTION

Peptidic active, prepared according to an exclusive technology of extraction/purification from seeds of *Pisum sativum*

DOSE OF USE

3-10%

REGULATORY DATA

INCI Water (and) Glycerin (and) Pisum Sativum (Pea) Extract

CAS: 7732-18-5, 56-81-5, 90082-41-0

EINECS: 231-791-2, 200-289-5, 290-130-6

PRESERVATIVES: Phenoxyethanol

CHINA: : All the raw materials comprising the INCI name Proteasy!™ are listed on the «International Cosmetic Ingredient Standard Chinese Name»(2007 version)

PRELIMINARY SPECIFICATIONS

Aspect: liquid

Color: clear yellow

Odor: weak

pH: 6 - 7 (pure product)

6 - 7 (pure product) conform

Phenoxyethanol / H.P.L.C 1.20 - 1.60%

Total proteins 1.50 - 3.00%

Glycerol 40.0 - 44.0%

Antitrypsic activity 2.00 - 3.50 UI

Total germs < 50 CFU/g

FORMULATION

Soluble in water and insoluble in oils.
incorporated into the finishing process at 45°C, or at room temperature for cold processing.

TOXICOLOGY

Not sensitizing - Not mutagenic

CUSTOMS CODE: 38249097

STORAGE

Store properly at room temperature (15-25°C) in unopened original container and protected from light.
During storage, slight separations might occur which, if necessary, can be eliminated by filtration through 0.8 to 0.2 µm

LIFETIME

12 months

MANUFACTURER

BASF Beauty Care Solutions France SAS
3 rue de Seichamps - 54425 Pulnoy (France)

Summary data sheet

REF **Proteasy!™ LS 8951**

DESCRIPTION

Peptidic active, prepared according to an exclusive technology of extraction/purification from seeds of *Pisum sativum*

DOSE OF USE

0.2-0.5%

REGULATORY DATA

INCI Pisum Sativum (Pea) Extract (and) Cyclodextrin

CAS: 90082-41-0, 7585-39-9

EINECS: 290-130-6, 231-493-2

PRESERVATIVES: None

CHINA: : All the raw materials comprising the INCI name Proteasy!™ are listed on the «International Cosmetic Ingredient Standard Chinese Name»(2007 version)

NATURAL LABEL Raw material conform to Ecocert standard of Natural and Organic Cosmetics

PRELIMINARY SPECIFICATIONS

Aspect: fine powder

Color: light beige

Odor: weak

pH: 4.8 - 6.0

Water content Karl & Fischer max. 8.0%

Dry extract [SW:1g] 88.0 - 96.0

Ashes (700-800°C) max. 7.0 %

Infra-red spectrum conform

Total nitrogen [SW:2g] 2.3 - 4.3%

Total proteins [SV:0.1ml] 18.0 - 28.0%

Total reducing sugars 56.0 - 76.0%

Antitrypsic activity > or = 45.0 TUI/mg

Total germs < 100 CFU/g

Pathogens absent

FORMULATION

Prepare extemporaneously a mother aqueous solution of Proteasy!™ in nine times its weight of distilled water : heat water up to 45°C and dissolve Proteasy!™ by agitation at this temperature : bring its pH back to 7.5 by adding a sufficient quantity of NaOH(N). The mother solution is clear, slightly yellow and must be used immediately. Incorporate the mother aqueous solution of Proteasy!™ into the emulsion at 45°C or so; keep on stirring until reaching a perfect distribution and homogeneity. Cool to room temperature. In case of gels, cool the mother solution to room temperature, and add it to the gel at room temperature.

TOXICOLOGY

Not sensitizing - Not mutagenic

CUSTOMS CODE: 38249097

STORAGE

Store properly at room temperature (15-25°C) in unopened original container and protected from moisture

LIFETIME

36 months

MANUFACTURER

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