

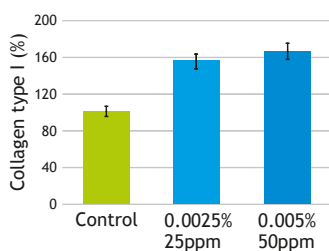


EXCLUSIVE WORLDWIDE DISTRIBUTOR OF 26 SELECTED PEPTIDES

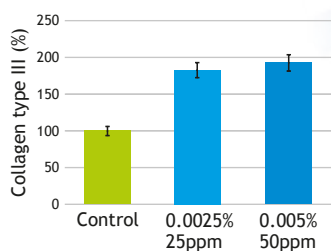
Restructuring

- Improves the dermal structure by improving firmness and elasticity of the skin
- Stimulates the production of Collagen, Elastin, Hyaluronic Acid
- Rejuvenating activity by reducing the depth and volume of the wrinkles
- Filling and volumizing effect

Restructuring boosts
Collagen type I in HDF

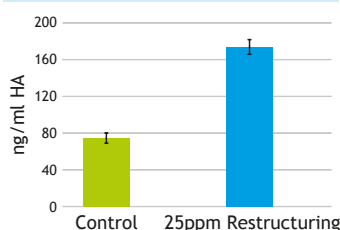


Restructuring boosts
Collagen type III in HDF

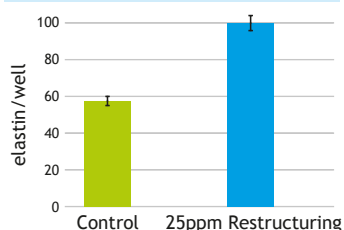


RESTRUCTURING stimulates the synthesis of both HYALURONIC ACID and ELASTIN

Hyaluronic Acid synthesis

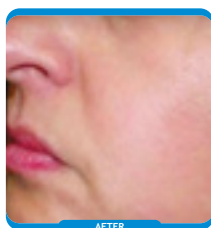


Elastin synthesis

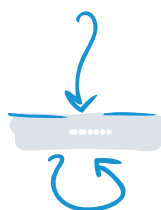


Studies performed in Normal Human Dermal fibroblasts in culture incubated for 48h.

Skin loses its elasticity with age, muscles get atrophy, and as a result, saggy cheeks and chins

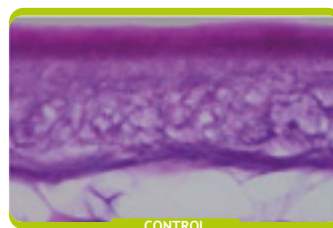


RESTRUCTURING ideal for skin sagging by boosting the Hyaluronic, Elastin and Collagen content in the skin.

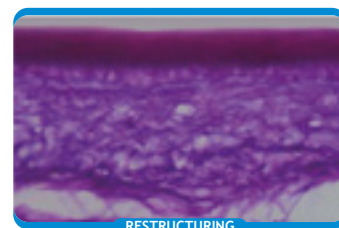


Restructuring can penetrate the dermis to stimulate the synthesis of collagen and elastin, and reverse the aging process through reconstruction from inside to outside, stimulating collagen, elastic fiber and hyaluronic acid. An increase moisture content and lock water increase skin thickness and reduce fine lines.

Specific stain for Hyaluronic acid with Alcian Blue shows a significant increase in Hyaluronic acid content.



CONTROL



RESTRUCTURING

Human 3D skin stained with Alcian Blue to detect hyaluronic acid deposition after incubation with Restructuring.

Darker color means more hyaluronic acid content.

RESTRUCTURING tested in vivo at 2,5% stimulates Hyaluronic acid synthesis and has a filler and plumping effect



- Powder form
Code: PPH05-08-PP016
Inci: Dextran, Decapeptide-5, Palmitoyl pentapeptide-4.
- Recommended use level: 2-3%
LEGAL STATUS: EU/US/CN/JP/KR/AUS

Bestsnare

- Synergistic combination of botox-like peptides that inhibits the facial neurocontractions that cause the formation of expression lines
- It reduces the depth of expression lines (forehead, crow's feet) by modulating muscle contractions
- It helps smooth skin roughness, providing a more even and rejuvenated appearance
- Stimulates the synthesis of collagen, elastin and hyaluronic acid, reinforcing the dermal structure

Membranes fusion play essential role in the intracellular traffic (Ungar & Hughson, 2003)



BESTSNARE acts on the SNARE* complex, slightly destabilizing it to prevent the excessive release of neurotransmitters that cause muscle contraction, thus reducing tension and expression lines

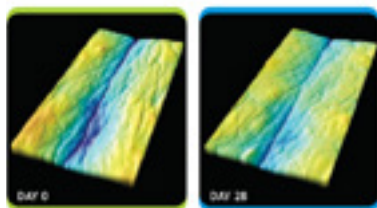
*Snare Complex: is the set of proteins that acts as the "key" for muscles to contract.

In vivo test

BESTSNARE relaxes muscles around fine lines and wrinkles including crow's feet and forehead furrows



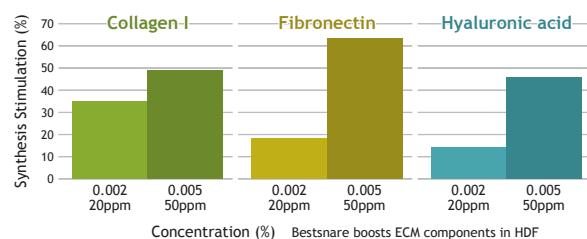
BESTSNARE reduces wrinkles depth by up to 60% after 28 days of application of a cream containing 2,5% of BESTSNARE solution



60%
REDUCTION IN WRINKLE DEPTH

Silicon imprints were obtained from around the eyes of 20 women and after the 28 day treatment. Analyses of the imprints were performed by confocal profilometry

In vitro test: Synthesis of ECM molecules in HDF incubated for 72h with BESTSNARE



Concentration (%) Bestsnare boosts ECM components in HDF

In vivo test

Attenuation of both expression lines and chronological wrinkles after 4 weeks treatment with a cream containing 2.5% BESTSNARE solution



ANTIWRINKLES & EXPRESSION LINES SKIN CONDITIONING

Expression lines are smoothed after 4 weeks treatment

BESTSNARE stimulates the synthesis of the fundamental pillars of the extracellular matrix (ECM)

Bestsnare not only smoothes expression lines but also stimulates the synthesis of Collagen, Elastin and Hyaluronic Acid, fundamental components of the dermal extracellular matrix (ECM) essential for the structure, elasticity and hydration of the skin.

- Powder form
Code: PPH05-08-PP013
Inci: Dextran, Pentapeptide-3, Acetyl octapeptide-3.
- **Recommended dose: 2-3% from 1g/L solution**
LEGAL STATUS: EU/US/CN/JP/KR/AUS

Amelopep

Amelopep is a biomimetic amelogenin-derived peptide bind on the enamel surface, transitorily stabilize the ACP, control the crystallization of hydroxyapatite and promote the remineralization of caries lesions

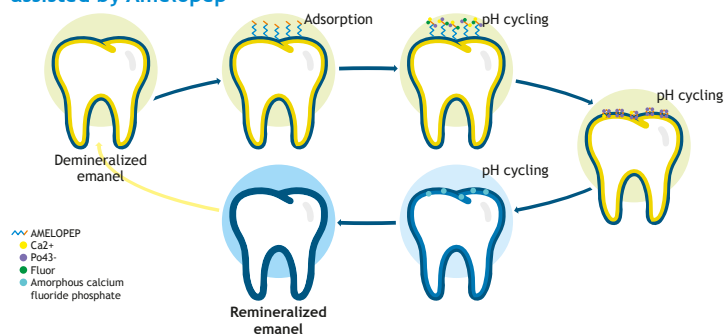
In the presence of fluoride, it had a positive interaction with fluoride, offering a promising dental material in research into improved fluoride remineralization efficiency



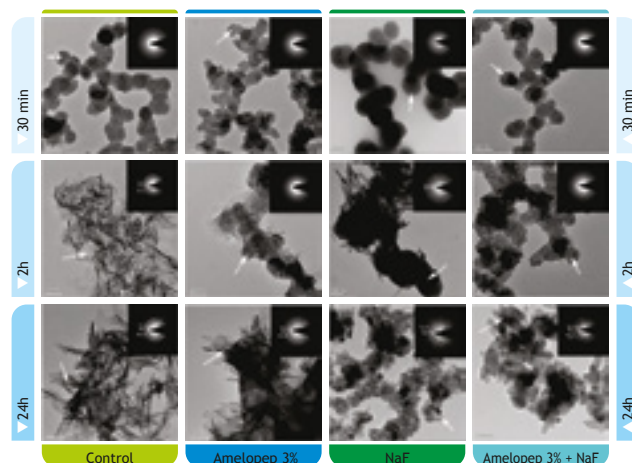
Amelopep has the ability to promote the remineralization of enamel caries and modulate the nanocrystalline structure of calcium phosphate

- Dental caries is one of the most common oral diseases and the major prevalent chronic disease that affects people worldwide.
- It is caused by cariogenic bacteria that breaks the dynamic re/demineralization balance
- Mature tooth enamel is a highly mineralized tissue composed of 95- 97% inorganic materials that consists of highly organized nanocrystals of hydroxyapatite
- Demineralized enamel is unable to completely repair itself due to its non-regenerative nature.
- Biomimetic remineralization has become an important approach to caries treatment
- Enamel matrix proteins (EMPs) play a key role in the enamel biomineralization. Amelogenin is one of the most important EMPs in enamel biomineralization that can promote the mineralization

Schematic representation of the enamel remineralization mechanism assisted by Amelopep

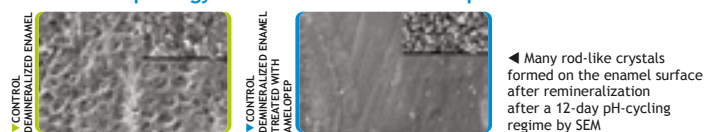


Images of calcium phosphate minerals formed



The effects of Amelopep 2% and fluoride on the nucleation and growth of calcium phosphate were analyzed by TEM after 30 min, 2 and 24 hours of incubation at 37°C

Surface morphology of the tooth enamel samples



- Powder form
Code: PPH05-10-PP002
water soluble
INCI: dextran, sh-polypeptide-22
- Recommended dose: 2-3% from 1g/L solution
LEGAL STATUS: EU|US

Growlash

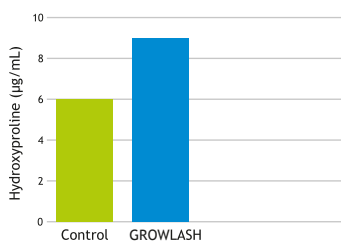
An stimulator of extracellular matrix proteins favouring a **better hair anchoring hair**

- Dermal part of hair follicle, such as dermal papilla cells and dermal sheath cells play an important role in the induction and maintenance of hair growth
- Growlash stimulates the dermal papilla extracellular matrix proteins which in turn has a direct effect on the structures surrounding hair follicles
- Growlash helps to anchor the hair fibre into the scalp which can strengthen strands and target the causes of hair loss

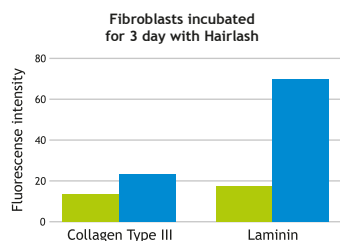
HAIR & EYELASHES GROWTH BOOSTER



Fibroblasts treated with Growlash

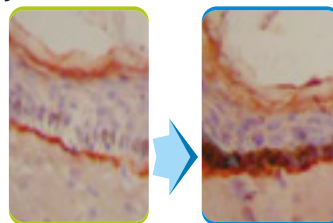


GROWLASH STIMULATES COLLAGEN PRODUCTION ECM INTEGRITY FOR BETTER FOLLICLE ANCHORING
Fibroblasts treated show higher production of collagens determined as level of Hydroxyproline



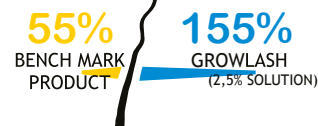
GROWLASH STIMULATES DERMAL PAPILLA EXTRACELLULAR MATRIX PROTEINS THUS HAS A DIRECT EFFECT ON HAIR FOLLICLE SIZE AND BETTER ANCHORING

GROWLASH efficacy reinforces dermal-epidermal junction



BY INCREASING COLLAGEN VII ALONG THE DERMAL-EPIDERMAL JUNCTION

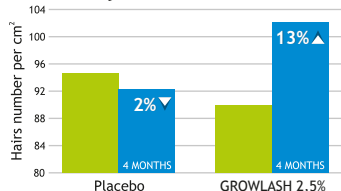
increases hair growth



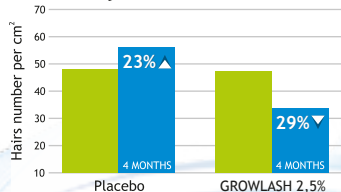
Percent of activity after 7 days in vitro treatment of hair follicles vs bench mark product

Growlash, in vivo study

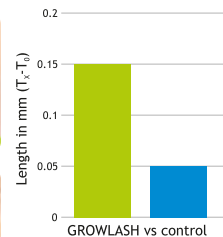
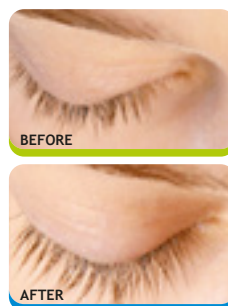
Average Anagen (growth) hair density



Average Telogen (fall) hair density



GROWLASH induced eyelashes length increase (4 weeks)



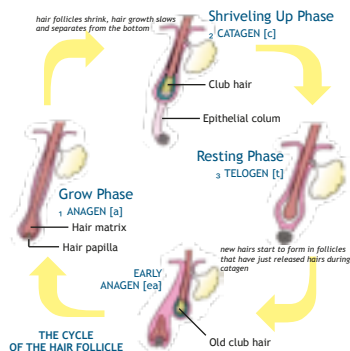
Growlash induced eyelashes length increase triples control



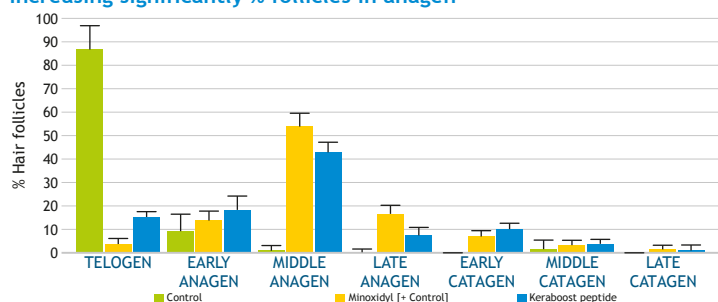
- Powder form, water soluble
Code: PPH05-09-PP011
INCI: Dextran, Acetyl tetrapeptide-3, Copper tripeptide-1
- Recommended dose: 2-3% from 1 g/L solution
LEGAL STATUS: EU|US|CN

Keraboo

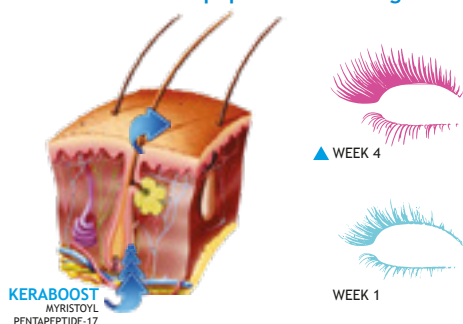
- A five amino acid peptide attached to the oil-soluble fatty acid for better bioavailability. It is known to significantly stimulate keratin genes
- It can stimulate cells to produce more keratin, the super important structural protein in hair


 PHOTO BY MICHAEL
ANNE DESIGN

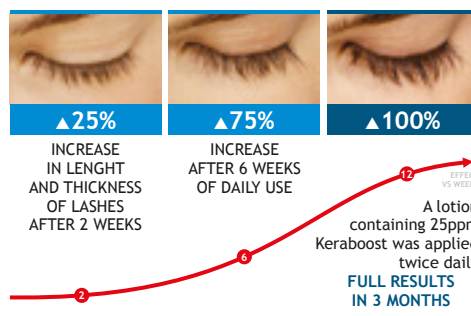
Keraboo peptide modulates hair cycle increasing significantly % follicles in anagen



Effect of Keraboo peptide on lashes growth

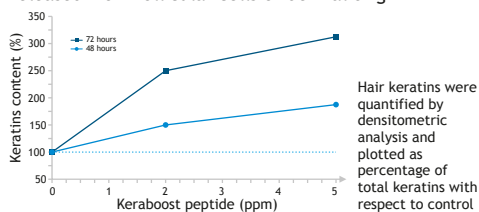


Keraboo enhances lashes in weeks



Keraboo increases keratins synthesis

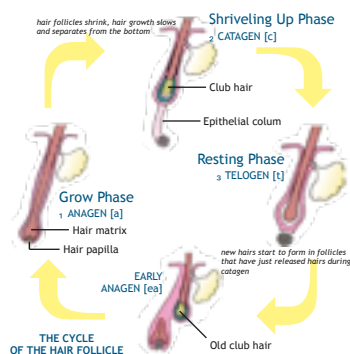
Hair keratins constitute up to 95% of the hair structure, and they are synthesized by specialized hair follicular keratinocytes, stimulated within the hair bulb by mediators released from follicular cells of dermal origin



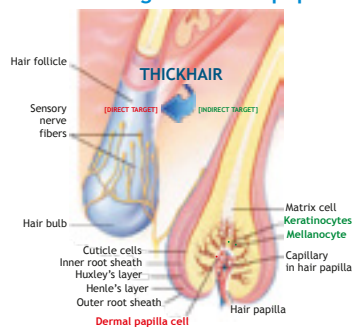
- Powder form
Code: PPH05-09-PP007
water soluble
INCI: dextran, myristoyl pentapeptide-17
- Recommended use level: 2-3% from 1g/L solution
LEGAL STATUS: EU | US

Thickhair

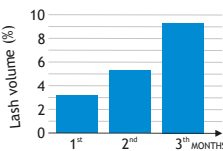
- It enhances the appearance of eyelashes with its excellent lengthening and thickening effects
- This product fortifies the hair, noticeably intensifying one's expression
- It significantly stimulates keratin genes it can convince the cells to produce more keratin, the super important structural protein in hair, nails and the outermost layer of the skin



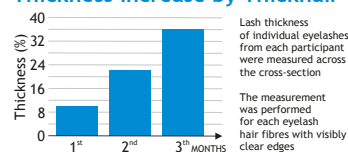
Different targets of Thickpeptide



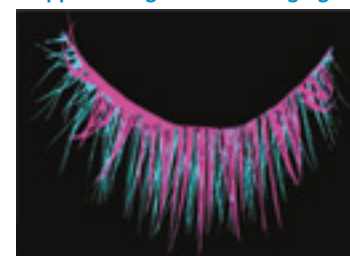
Lash volume



Thickness increase by Thickhair

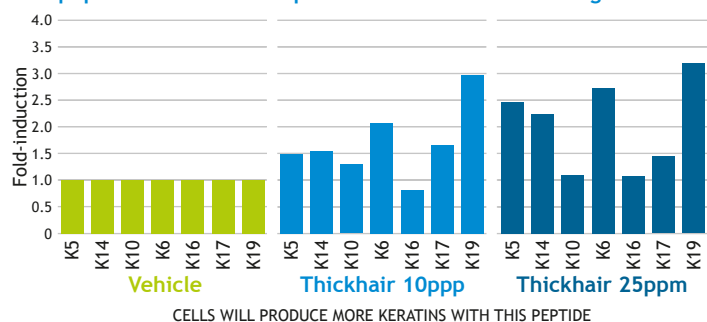


Total lash area/volume mapped using Visia CR imaging

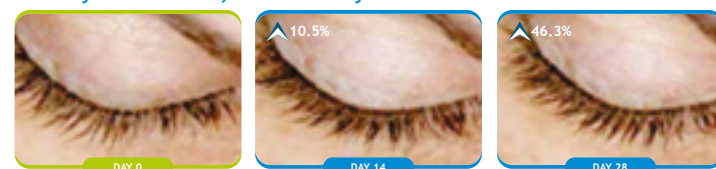


Before
After 3 months of use 25 ppm Thickhair peptide

Thickpeptide induces the expression of different keratin genes



Efficacy of Thickhair, in vivo study



Panelists evaluation after 4 weeks of treatment ▶

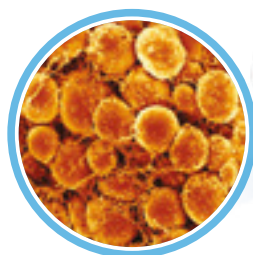


▲ In vivo effect of Thickhair 25 ppm in a serum

- Powder form water soluble
Code: PPH05-09-PP006
INCI: dextran, myristoyl hexapeptide-16
- Recommended use level: 2-3% from 1g/L solution
LEGAL STATUS: EU|US

Fatiline

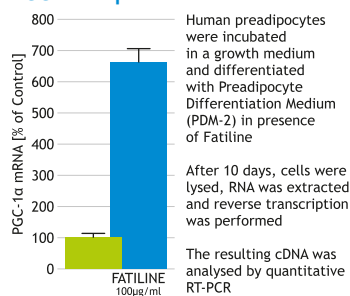
- It stimulates peroxisome proliferator activated receptor Gamma coactivator 1α (PGC-1α) expression
- Increases fatty tissue volume in specific areas enhancing adipogenesis rate



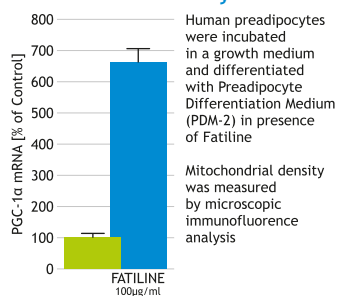
- Aging promotes skin thinning, lose of firmness and gravity pulls it downwards leading to undesired and visible changes both in face and body
- Adipose tissue, beneath the skin acts as a support tissue decreases in cheeks, facial oval, breasts or hands
- To get perfect curves in the face and body people look for efficient way of increasing tissue volume

- Fatiline stimulates PGC-1α a transcriptional co-activator that, interacting with the Peroxisome Proliferator-Activated Receptor (PPARγ), modulates adipogenesis rate
- Fatiline by promoting PGC-1α expression and lipid accumulation increases local volume improving facial appearance

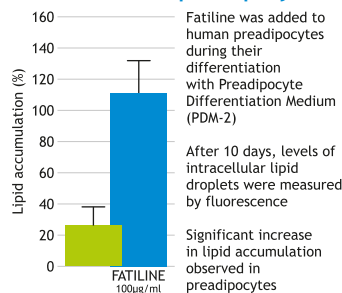
Fatiline increases PGC-1α expression



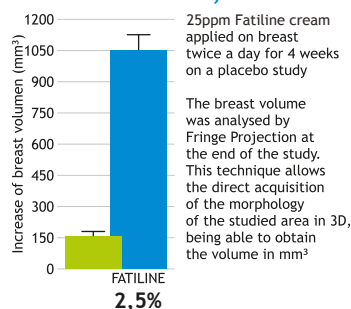
Fatiline also increases mitochondrial density



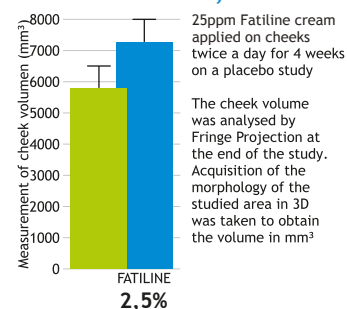
Fatiline increases lipid accumulation in preadipocytes



Fatiline increased breast volume at 2,5%



Fatiline increased cheek volume at 2,5%



- Powder form, water soluble
Code: PPH05-08-PP002
INCI: dextran, acetyl hexapeptide-38
Recommended dose: 2-3% from 1g/L solution
- LEGAL STATUS: EU|US

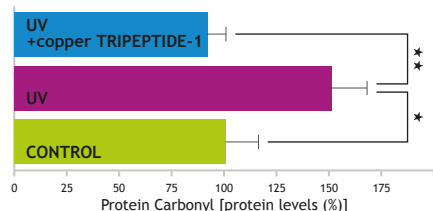
UVTWO New

- Protects cells from UV radiation and reduce free radicals damage
- Improves skin's firmness and elasticity inhibiting UV damage-induced elastin degradation
- Protects skin from environmental stress and its consequences helping to maintain skin elasticity
- Reduces UV induced protein carbonylation in skin cells, a major cause of photoaging

Carbonylation and Photoaging

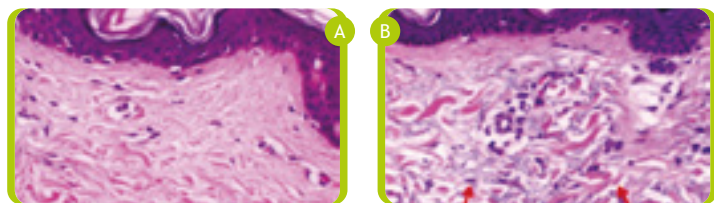
UV radiation significantly stimulates the carbonylation of the proteins of the skin extracellular matrix (ECM), representing one of the main causes of photoaging. Carbonylation is an irreversible protein modification that damages the structure and function of proteins, leading to the degradation of elastin and collagen and therefore to premature aging with loss of elasticity and wrinkle formation.

UVTWO reduces UV induced protein carbonylation in skin cells



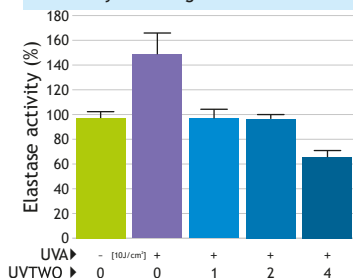
Elastin role on photoaging

The loss of cutaneous elasticity is a direct reflection of UV radiation effects and leads to changes in elastic fibre structuring. Typically, photoaged skin exhibits an accumulation of dystrophic elastotic material in the dermis known as solar elastosis.

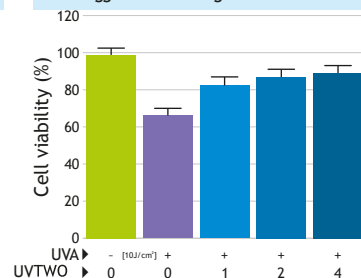


Changes in elastic fibre organization with skin photoaging.
(A) Skin from a region that has not been exposed to solar radiation.
(B) Skin from a region exposed to solar radiation.
The skin fragments were obtained from participants in the same age group (45-50 years). Disorganization of the elastic fibres (arrows) with fragmented material and accumulation characteristic of solar elastosis are observed in the skin exposed to solar radiation.
Haematoxylin-eosin staining. Magnification 20x.

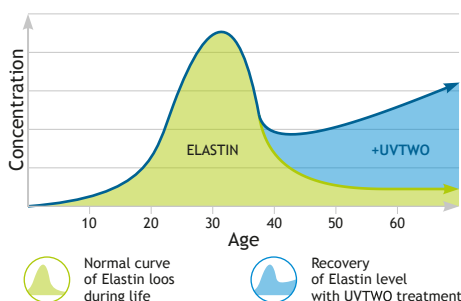
UVTWO (%) inhibits elastase activity in human fibroblasts induced by UV damage



UVTWO (%) protects fibroblasts from UV damaging effect that triggers elastin degradation



UVTWO inhibits Elastin degradation



As you get older, the elastic fibers break up and Elastin becomes damaged.

The skin progressively loses its elasticity and wrinkles appear.

Damage is inevitable over time and this is part of the ageing process.

- Powder form, water soluble
Code: PPH05-07-PP022N
INCI: dextran, Copper tripeptide -1, dipeptide-4
- Recommended dose: 2-3% from 1 g/L solution
LEGAL STATUS: EU|US|CN

Genogrity

- *Genogrity stimulates the natural FOXO protein functions and reinforces the skin's natural abilities to repair and delete DNA damage*
- *It enhances the natural mechanisms to diminish the DNA damage and delay senescence of cells*

The causes of ageing are assigned to the damage concept, whereby the accumulation of damage (such as DNA oxidation) causes biological systems to fail, or to the programmed ageing concept, whereby problems with the internal processes (epigenomic maintenance such as DNA methylation) cause ageing.

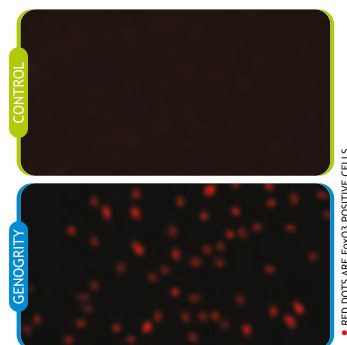
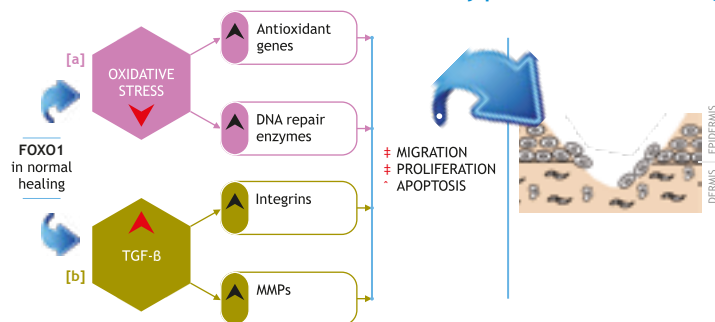
The FOXO3 controller is a particular family of proteins in the FOXO factor,

which regulates cellular redox status by increasing the levels of well-known antioxidant agents, and leads to inducing the expression of genes involved in DNA-damage repair.

FOXO3 helps regulate DNA damage responses, which helps stimulate the natural cellular repair process.

This helps improve the appearance and delay skins signs of aging.

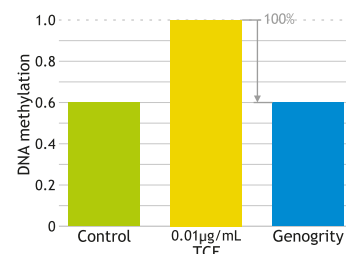
Oxidative stress increases in the inflammatory phase of wound healing



- Downregulation of FoxO3a accelerates cellular senescence in human dermal fibroblasts
- Upregulation results in protection against UVB and oxidative damage
- Dermal Keratinocytes HaCaT were incubated in culture with Genogrity peptide and 48h later a immunostaining was performed using specific antibody raised against FoxO3
- Genogrity significantly increases the expression of FoxO3 at 3ppm

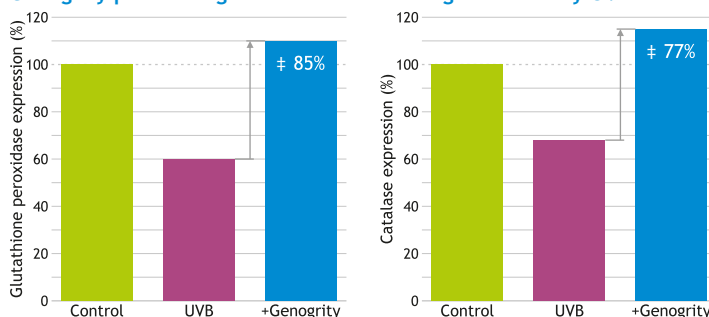
... [a] FOXO down-regulates oxidative stress by activating antioxidant genes and DNA repair enzymes. This facilitates keratinocyte migration and proliferation and decreases keratinocyte apoptosis.
... [b] FOXO1 stimulates TGF-β promoter activity resulting in the upregulation of TGF-β expression. Increased TGF-β stimulates expression of integrins and matrix metalloproteinases to improve wound healing through increased keratinocyte migration and decreased apoptosis.

Genogrity protects against DNA methylation in dermal keratinocytes



Cells were incubated with TCE to induce DNA damage with or without Genogrity peptide

Genogrity protects against oxidative damage induced by UVB

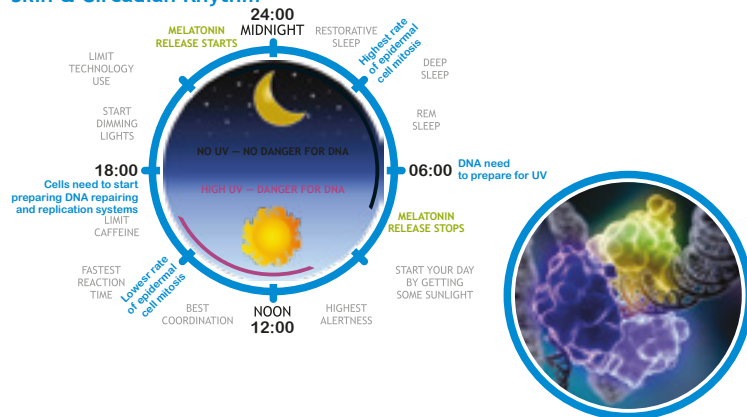


- Powder form, water soluble
Code: PPH05-07-PP019
INCI: dextran, acetyl hexapeptide-51-amide
- **Recommended dose: 2-3% from 1g/L solution**
LEGAL STATUS: EU|US

Circadyn

- It activates the clock gene *PER1*, which regulates the normal sleep cycle, or Circadian rhythm
- *PER1* gene activates keratinocyte genes at a time when they would normally be less active or inactive in the normal sleep cycle

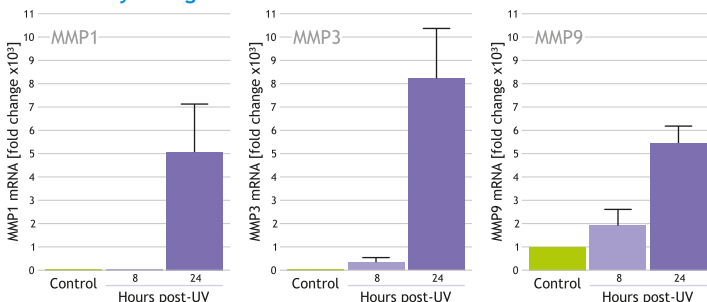
Skin & Circadian Rhythm



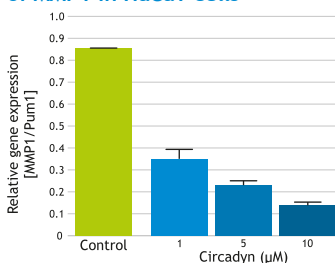
Circadyn activates the circadian clock protein (*PER1*)

- ☒ Human skin properties oscillate in a circadian manner including cell proliferation rates, hydration and trans-epidermal water loss (TEWL), sebum production, surface pH, temperature, and facial rhythms
- ☒ The circadian clock protein *PER1* expressed in keratinocytes, melanocytes and fibroblasts plays a key role in regulating *MMP1*, the major enzyme responsible for collagen digestion induced by UV
- ☒ *MMP1*, 3 and 9 are induced by exposure to sunlight causes DNA damage leading to premature skin aging
- ☒ DNA repair, which is a mechanism for removing UV photoproducts, and DNA replication are also regulated by the circadian clock

UV irradiation induces *MMP1*, 3 and 9 in human skin that destroy collagens



Circadyn suppresses the expression of *MMP1* in HaCaT cells

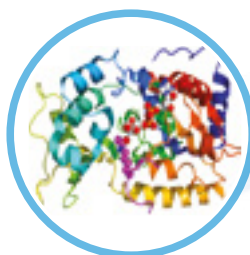


MMP1 proteins in cell supernatants of HaCaT cells

- Powder form, water soluble
- Code: PPH05-07-PP015
- INCI: dextran, tripeptide-3
- Recommended dose: 2-3% from 1g/L solution
- LEGAL STATUS: EU|US|CN

Lifest

- It is a pro-sirtuin peptide which works topically by extending skin cells' life span
- It promotes the activity of the enzyme sirtuin
- Help rejuvenate ageing cells by strengthening their DNA repair processes and stimulating production of protective antioxidants



● Sirtuins are implicated in influencing cellular processes like aging, apoptosis, inflammation and stress resistance, as well as energy efficiency and alertness during low calorie situations

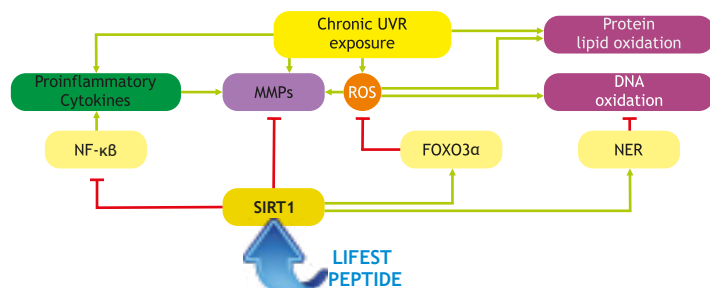
● The dependence of sirtuins on NAD⁺ links their enzymatic activity directly to the energy status of the cell via the cellular NAD⁺:NADH

● An enhanced sirtuin gene expression have shown extended lifespan

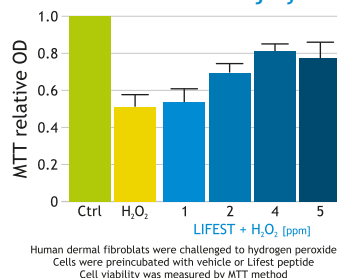
● The levels of Sirtuins decrease in senescent fibroblasts exposed to oxidants

● Sirtuin-related suppression of cellular senescence is mainly mediated through the prevention of telomere attrition and the promotion of DNA damage repair

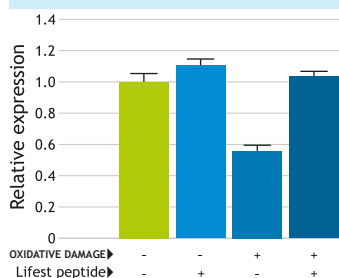
Lifest peptide by stimulating SIRT1 stops DNA damage, inflammation, collagen degradation and oxidative changes



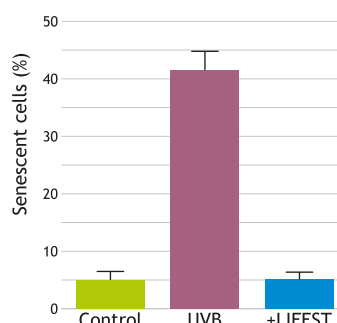
Lifest alleviates hydrogen peroxide-triggered human skin fibroblast injury



The loss of Sirtuin-1 is recovered by Lifest peptide



Lifest reduces senescent cell number; in vitro study



UVB induces premature cellular senescence of human dermal fibroblasts

Fibroblasts were left untreated or treated with 350J/m² of UVB and then incubated for 48h.

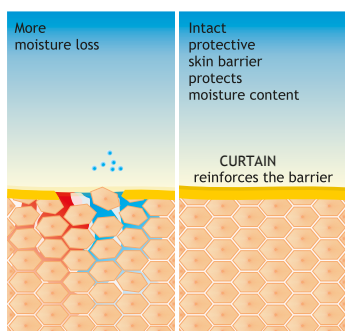
The population of SA-β-gal positive cells was determined by the random counting control fibroblasts and UVB-treated fibroblasts under a microscope.

- Powder form, water soluble
Code: PPH05-07-PP013
INCI: dextran, heptapeptide-6

- Recommended dose: 2-3% from 1g/L solution
LEGAL STATUS: EU|US|CN

Curtain

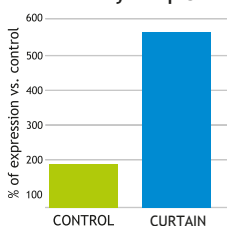
- **Reinforces the barrier function by increasing filaggrin and loricrin production**
- **Skin is our shield from external stress factors and prevents the loss of water**
- **Skin hydration is mostly linked to the skin barrier function and determines the skin aspect**



The epidermis provides a physical and permeability barrier which is continuously regenerated by the epidermal keratinocyte differentiation process. When properly differentiated, the epidermis prevents water loss and provides a barrier to epidermal invasion of pollutants, toxins, allergens and bacteria. Barrier care increases loricrin and filaggrin that impact the barrier function and protein structure.

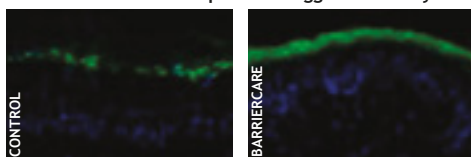
Curtain stimulates production of Filaggrin by normal Human Epidermal Keratinocytes

Filaggrin expression measured by RT-qPCR



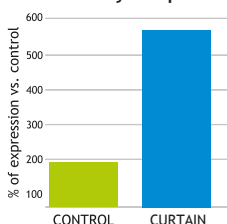
Filaggrin is the most important source for maintaining skin hydration. It is the precursor of Natural Moisturizing Factor

3D skin stained with specific filaggrin antibody



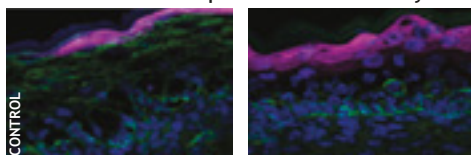
Curtain stimulates production of Loricrin by normal Human Epidermal Keratinocytes

Loricrin expression measured by RT-qPCR



Loricrin is essential for the skin barrier physical properties and permeability

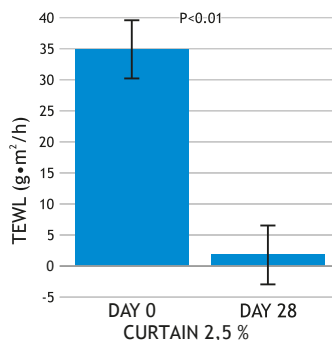
3D skin stained with specific loricrin antibody



Curtain in vivo study

TEWL is an indirect estimate of the ability of the skin to act as a barrier. It quantifies the amount of water flowing through the skin by passive diffusion per unit area and time.

The better the skin acts as a barrier, the lower the water diffusion rate and, therefore, the lower the value of TEWL.



Age 35-55 years old

CURTAIN 2,5% was applied twice daily for 28 days

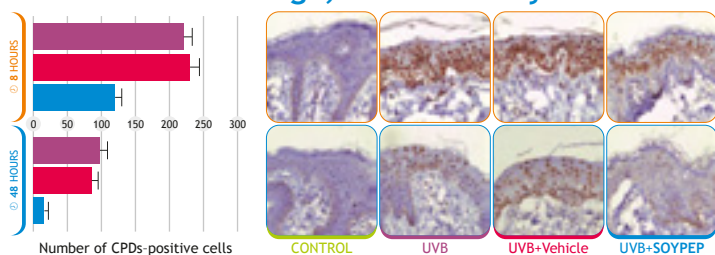
- Powder form, water soluble
Code: PPH05-07-PP004
INCI: Dextran, Myristoyl Pentapeptide-8
Recommended dose: 2-3% from 1 g/L solution
- LEGAL STATUS: US/EU

Soypep

A natural peptide from Soybean protect skin cells from Ultraviolet-B damage

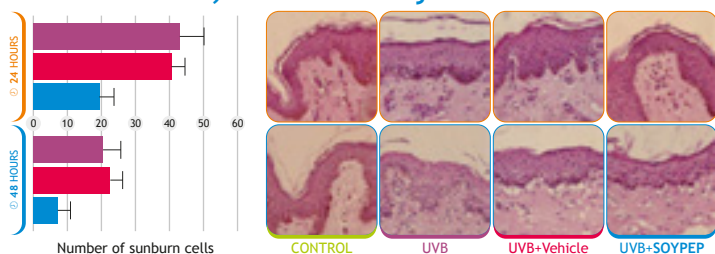
Soypep effectively relieves photodamage induced by Ultraviolet-B irradiation

Ultraviolet-B damage; ex vivo study



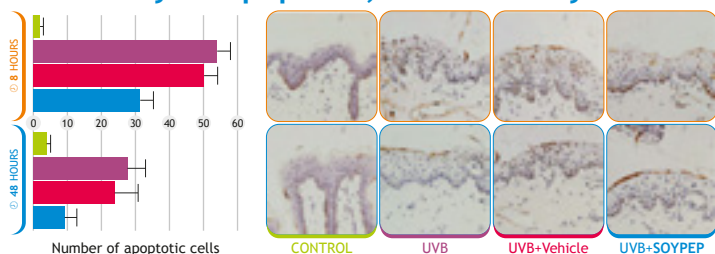
CPDs are the main light product produced in UV-irradiated cell. UVB dose was 180mJ/cm. Detection of CPDs formation and removal is important for the evaluation of DNA damage severity and repair. SOYPEP SIGNIFICANTLY REDUCES ULTRAVIOLET-B DAMAGE

Sunburn cells; ex vivo study



UVB irradiation above erythral dose can cause skin inflammatory erythema and delayed hyperpigmentation. Sunburn cells in the epidermis stained by He&Eos. SOYPEP SIGNIFICANTLY REDUCES THE NUMBER OF SUNBURN CELLS

Keratinocytes apoptosis; ex vivo study

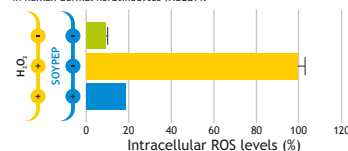


SOYPEP REDUCES THE NUMBER OF APOPTOTIC KERATINOCYTES EXPOSED TO ULTRAVIOLET-B IRRADIATION. Apoptotic cells in the epidermis detected by TUNEL staining and light microscopy

- When the skin receives more than the maximum tolerated dose of ultraviolet (UV) irradiation, an acute phototoxic reaction occurs.
- UVB can induce up to 800 times greater biological effects in the skin compared with UVA of the same dose, and the most visual indicator of acute injury to skin caused by Ultraviolet-B irradiation is Erythema.
- During erythema formation, there is infiltration of inflammatory cells in the dermis and sunburn cells in the epidermis.

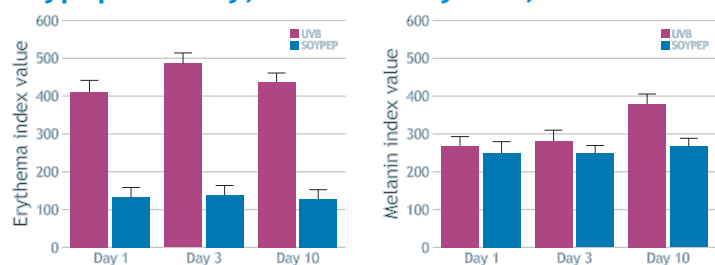
Oxidative stress in human keratinocytes; in vitro test

The oxidative damaged keratinocytes contribute to skin aging. Oxidative stress caused by over production of ROS induces cell damage of macromolecules such as DNA, proteins, and lipids. Intracellular ROS level significantly increased by oxidative challenge in human dermal keratinocytes (HaCaT).



SOYPEP REDUCES OXIDATIVE STRESS IN HUMAN KERATINOCYTES

Soypep efficacy; in vivo study at 2,5%



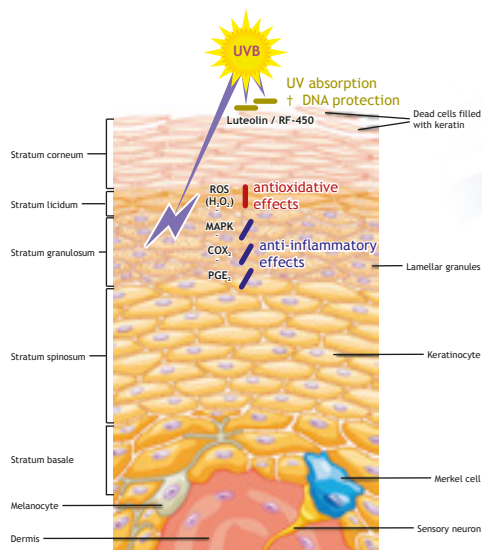
TOPICALLY APPLIED SOYPEP ON ULTRAVIOLET-B-IRRADIATED FOREARM REDUCES ERYTHEMA AND MELANIN INDEX

- Powder form, water soluble
Code: PPH05-07-PP002
INCI: Dextran, hydrolyzed soy protein
Recommended dose: 2-3% from 1 g/L solution
- LEGAL STATUS: EU|US|CN|

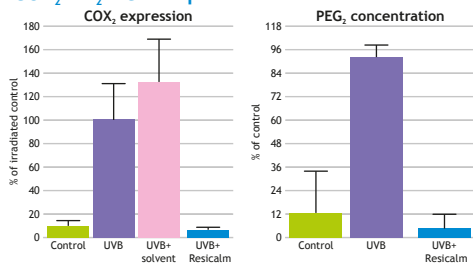
Resicalm

- *Palmitoyl tetrapeptide-7 is a peptide that combines several chains of amino acids to reduce skin inflammation and skin damage*
- *It increases the amount of hyaluronic acid in the skin, helps to tighten the skin by attracting moisture to the epidermis*
- *Palmitoyl tripeptide-8 calms inflammation in sensitive skin irritated by chemicals or environmental pollutants. It helps build a higher sensitivity threshold in reactive skin*

Schematic summary of the complex skin-protecting properties of Calming from the deleterious effects of UVB by UV-absorbing, DNA- protective, antioxidative, and anti-inflammatory effect

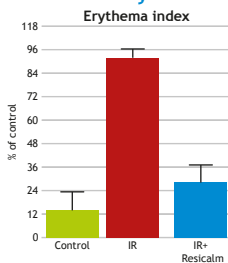


Effects of Resicalm on UVB-induced COX₂ and PGE₂ expression



HaCaT cells were treated for 30 min with Resicalm peptide before irradiation with 40mJ/cm² UVB

Resicalm significantly decreases erythema



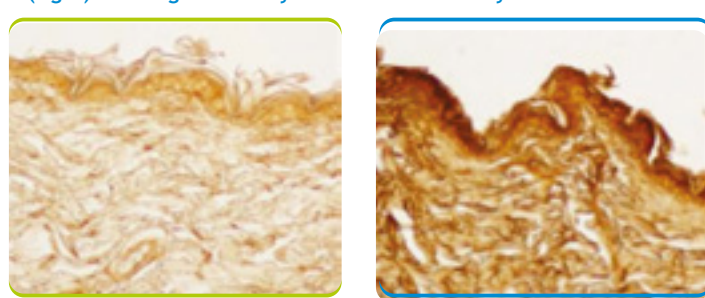
Dorsal arm skin was challenged with IR lamp for 5 minutes. Placebo or a cream containing 2,5% RESICALM was applied. Erythema was quantified by colorimetry

Resicalm solution 2,5%
efficacy for 28 days twice daily



Resicalm prevents and soothes inflammation in the irritated skin. It works to improve the resiliency of sensitive skin. Red skin is often the result of inflamed skin, which is most common in women with extreme sensitivities.

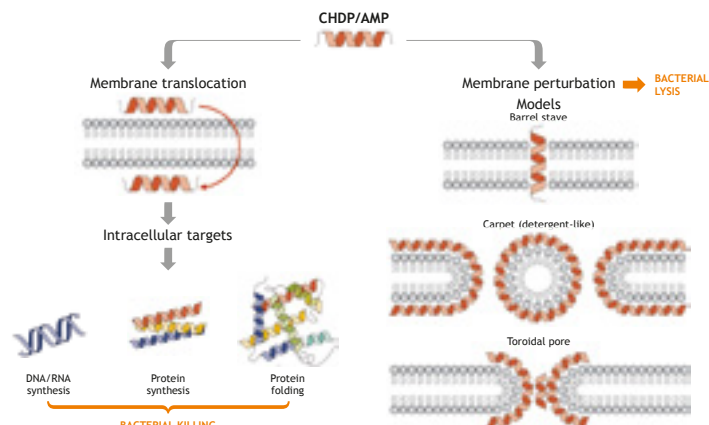
Light microscopy images of skin treated with vehicle or peptide (right) showing intense hyaluronic acid stain by Resicalm



- Powder form, water soluble
Code: PPH05-06-PP014
INCI: dextran, palmitoyl tetrapeptide-7, palmitoyl tripeptide-8
- **Recommended dose: 2-3% from 1g/L solution**
LEGAL STATUS: EU|US|CN

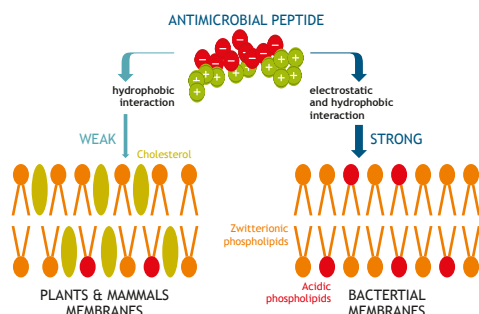
Microbact

Synergistic combination with strong antimicrobial activity against pathogenic bacteria including *S aureus* with application as antimicrobial and preservative



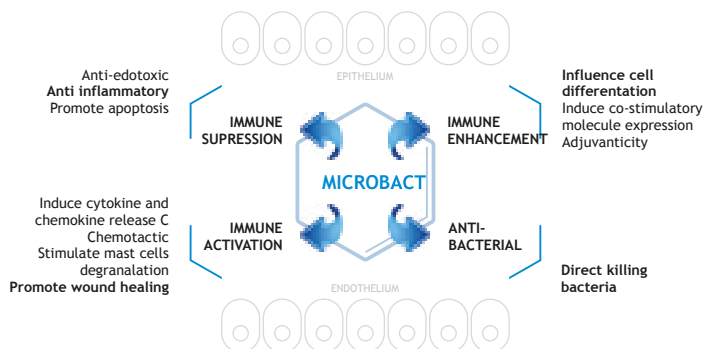
Innate immunity is the most ancient form of immune defense. Cationic host defense peptides (CHPD) with antimicrobial activity are present in every life form. CHPD are produced, in large quantities, at sites of infection and, usually, have broad spectrum antimicrobial activity.

Antimicrobial mode of action to kill bacteria varies and may be different for different bacteria. Cytoplasmic membrane is a frequent target but also CHPD may interfere with DNA and protein or cell wall synthesis. The initial contact between peptide and target organisms is electrostatic.



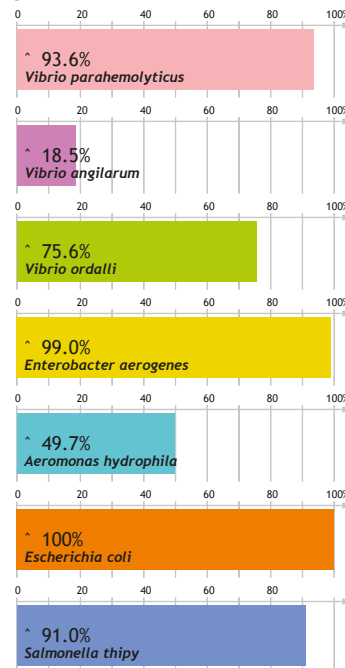
Microbact has positively charged residues that interact with negative charges on membrane components.

SBP interaction causes damage and distortion of outer membrane.

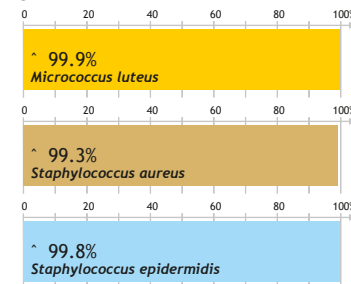


Antibacterial efficacy of 2% MICROBACT solution in different species

Gram - inhibition

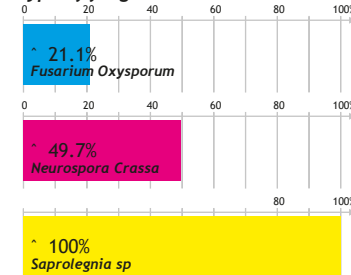


Gram + inhibition



Antifungal efficacy of 2% Microbact solution in different species

Type of fungi



- Powder form, water soluble.
Code PPH05-06-PP013
INCI: dextran, oligopeptide-10, palmitoyl tripeptide-36
- Recommended dose: 2-3% from 1g/L solution
LEGAL STATUS: EU | US

ACNEPEP

A COMBINATION AGAINST ACNÉ

Acneprep is a well balanced combination of actives that synergise to treat all factors of acne

- **Docosahexaenoic acid (DHA)**, stimulate synthesis of resolvines and protectines with strong antiinflammatory and antioxidant effects
Retinol, an strong inhibitor of the sebous production
- **Oligopeptide-10**, with powerfull activity against *Cutibacterium acnes* that also contibutes to the inflammatory reactions
LZ1 peptide is a brad spectrum antimicrobial peptide

Main factors in acne's production:

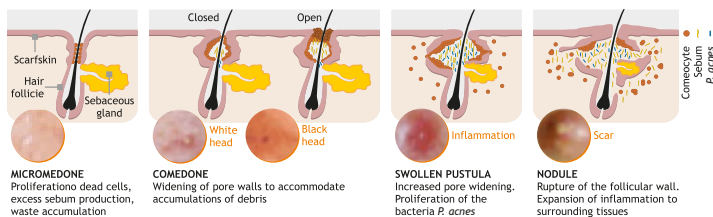
1. Increased sebum production and sebaceous gland hiperplasia.
2. Abnormal desquamation of keratinocytes.
3. Presence of *Cutibacterium acnes*.
4. Inflammation

Inflammation is the key phenomenon as the immunological and inflammatory changes occur before the hyperproliferation of keratinocytes



Treatment of acne prone skin & acne

- Acne vulgaris, is a chronic inflammatory skin condition which involves the pilosebaceous units: hair follicles and sebaceous glands
- It is characterized by the formation of comedones, papules, pustules, nodules and scars which appear mainly on the face



Antibacterial activity of Acneprep in vitro

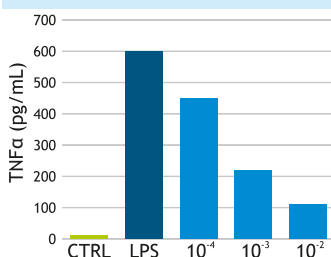
Bacteria Strain	MIC*
Staphylococcus aureus	10nM
Bacillus subtilis	20nM
Cutibacterium acnes	10nM
Escherichia Coli	>50mM
Klebsiella aerogenes	>50mM
Pseudomonas aeruginosa	>50mM
Mycobacterium smegmatis	>50mM

In vivo efficacy against acne in 30 volunteers with severe acne ranging 20±7 years old

Composition	*pH 5-6
Docosahexaenoic acid	1%
Retinol	0.3%
Oligopeptide-10+LZ1	1%

Treatment was given twice daily for 28 days and evaluation of efficacy followed up by photographic analysis on day 0 and day 28. Sensorial analysis carried out individually to identify the severity of acne classified was calculated vs day 0 based on the score: 1-2: bad to very bad, 3: no change observed, 4-5: improvement from good to excellent

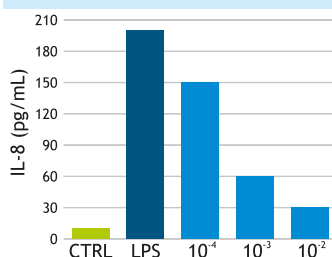
Efficacy in vitro to inhibit TNFα production by HaCat in culture



% Acneprep from 1g/L was added to the incubation media 24h before HaCat were challenged with LPS to induce inflammation

Acneprep in a dose dependent manner block the production of the proinflammatory cytokine in HaCat

Efficacy in vitro to inhibit IL-8 production by skin cells



% Acneprep from 1g/L was added to culture medium 24h before cells were challenged with LPS to induce inflammation

Acneprep in a dose dependent manner block the production of IL-8 that plays a role in the inflammatory process in acne

Photographic evaluation, in vivo study at 2%



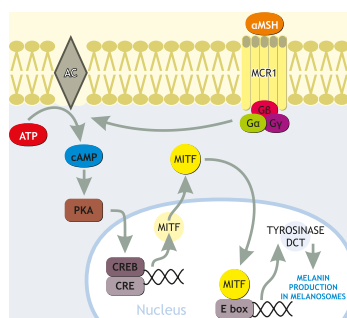
✓ 66% PIMPLES REDUCTION
75% INFLAMMATION REDUCTION

▲ 80% HEALING IMPROVEMENT
70% OVERALL IMPROVEMENT

- Powder form water soluble
Code: PPH05-06-PP012
INCI: Dextran, Docosahexaenoic acid, oligopeptide-10, Retinol, LZ1 peptide
- **Recommended dose: 2-3% from 1g/L solution**
LEGAL STATUS: EU|US

WHITEMORE-20

- Whitemore associates two potent whitening peptides: Nonapeptide-1 and Palmitoyl tripeptide-5 that hinders multiple mechanisms of pigmentation, it inhibits MCR1 coupling and tyrosinase activity and also hinders the transport of the pigment to the upper layers of the skin



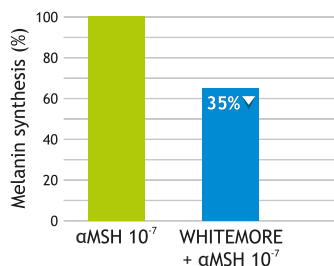
Key reactions involved in melanin synthesis

The synthesis of melanin is controlled via a cascade of reactions triggered by αMSH action on MCR1 receptors. Tyrosinase that synthesizes dopaquinone from tyrosine is the rate limiting step of melanogenesis.

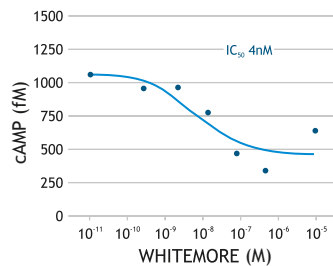
TYROSINASE: -36.5% AND MITF: -38.0% IN THE MELANOGENESIS PATHWAY

LIGHTENING CARE
WHITENING ACTION
SKIN TONE EQUALIZER
DARK SPOT CORRECTIVE

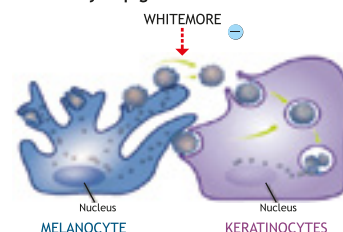
whitemore reduces the action of MSH



Melanogenesis pathway after activation of MCR1

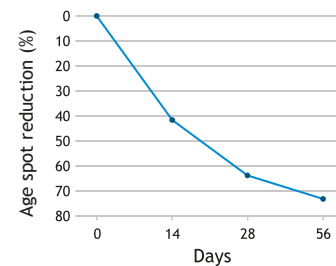


Without successful melanosomes transfer to keratinocytes, the skin can appear essentially unpigmented



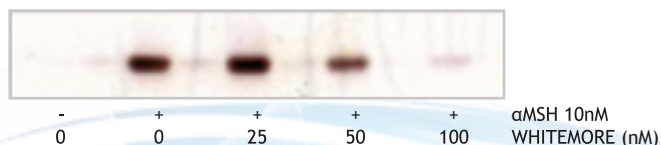
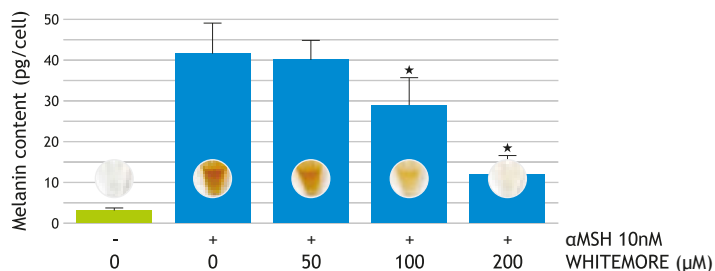
DOWNREGULATES TRANSFER OF MELANOSOMES FROM MELANOCYTES TO KERATINOCYTES

In vivo efficacy of whitemore on spot reduction



whitemore by antagonizing αMSH action

Tyrosinase expression in melanocytes



whitemore on spot reduction, in vivo study

twice daily application in women 25-50 years old (1,25% SOLUTION)

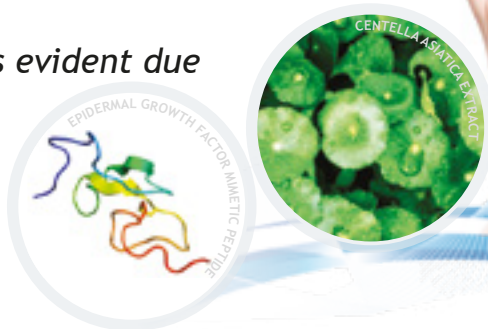


- Powder form, water soluble
Code: PPH05-05-PP012
INCI: Dextran, palmitoyl tripeptide-5, Nonapeptide-1
- Recommended dose: 1-1,5% from 1g/L solution**
LEGAL STATUS: EU|US|CN

Bodyderm creator

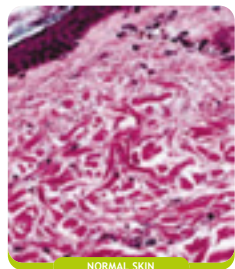
Therapeutic and prophylactic management of Stretch marks aims to increase collagen production, restore elastin fibers, and recover epidermal thickness

- Stretch marks (*Striae distensae*) are common dermal lesions which arise due to the stretching of the dermis
- The most common anatomical locations which are affected by stretch marks are the abdomen, breasts, buttocks and thighs
- Elastolysis of the mid-dermis is evident due to mast cell degranulation and stimulation of macrophages
- Stimulation of collagen and elastin synthesis is one of the keys to recover tissue integrity and density

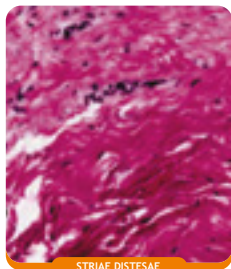


STRETCH MARKS
BODYCARE SKIN
CONDITIONING

Histological comparison between normal skin and striae distensae skin



NORMAL SKIN



STRIAE DISTESA

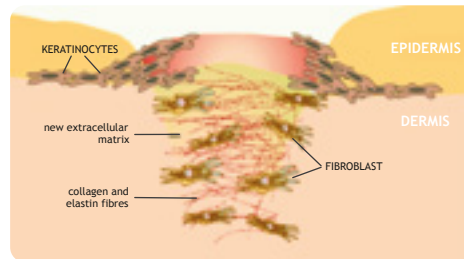
The normal epidermis has basket weave appearance and well formed rete ridges.

In contrast, SD shows loss of the rete ridge pattern

Additionally, normal dermis demonstrates parallel collagen bundles to the surface, which are evenly spaced, which is in contrast to SD dermis

Benefits of Bodyderm creator

Benefits of EGF mimetic peptide + asiaticoside are mainly due to enhancement of type I collagen in fibroblasts



● Triterpenes of *Centella asiatica* extract increase the metabolism of lysine and proline, the amino acids building the collagen molecule.

In addition, these compounds increased the synthesis of tropocollagen, and mucopolysaccharide in the connective tissues

● *Centella asiatica* improves nutrition of tissues and connective vascular stimulation.

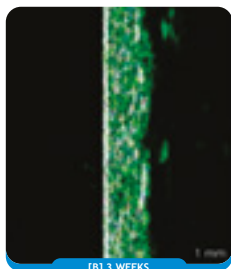
The positive effects of the treatment of stretch marks with the *Centella asiatica* are well supported by a few clinical studies

EGF mimetic peptide+asiaticoside

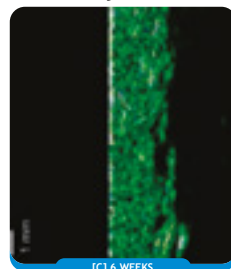
stimulates proliferation of fibroblasts and keratinocytes



[A] CONTROL



[B] 3 WEEKS



[C] 6 WEEKS

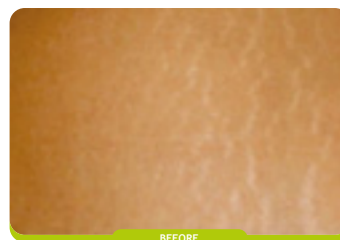
Ultrasonographic aspect of Stretch marks before [A], after 3 weeks [B] and after 6 weeks [C] of cream application containing 2% Bodyderm Creator

Homogeneity of the dermis is well recovered

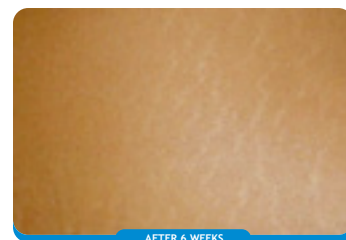


Effects of Bodyderm creator at 2%

The ideal combination to fight against stretch marks EGF mimetic peptide+asiaticoside



BEFORE



AFTER 6 WEEKS

- Powder form, water soluble
Code: PPH05-04-PP002
INCI: dextran, oligopeptide-24, asiaticoside
- Recommended dose: 2-3% from 1g/L solution
LEGAL STATUS: EU|US

Pcarny

- *Palmitoyl dipeptide derivative that helps to reduce the appearance of wrinkles and improve the firmness of skin*
- *It has anti-glycation activity and also neutralizes metal ions being a powerful antioxidant that combats oxidative cell damage*

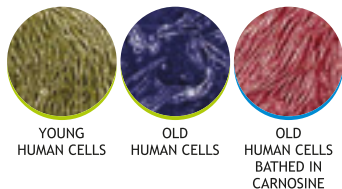
Skin aging is an obvious external manifestation of the natural process occurring in tissues.

In young and healthy skin, the level of collagen is high, the skin looks young and glowing, and the proteolytic system can effectively prevent the accumulation of damaged proteins in cells and in ECM.

While in aged skin, collagen is depleted, skin muscles stop providing support, leading to lines and wrinkles and sagging skin, and the skin is damaged, the skin system becomes inefficient and is easily "clogged" by some protein fragments.

Therefore, we need some ways to prevent aging. Peptides affect the aging process by modulating collagen homeostasis.

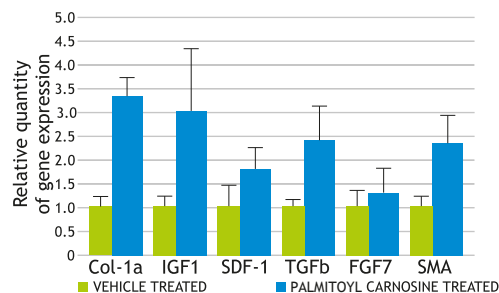
Palmitoyl Carnosine is a potent antioxidant, dubbed the anti-aging peptide by scientists



Glycation and crosslinks form in skin as you age and are thought to be a major cause of wrinkles

APPLICATION OF PALMITOYL-CARNOSINE MAKES OLD SKIN LOOK YOUTHFUL, MAKING IT IMPORTANT FOR SKIN MAINTENANCE

Palmitoyl Carnosine up-regulates the expression of growth factors during wound healing



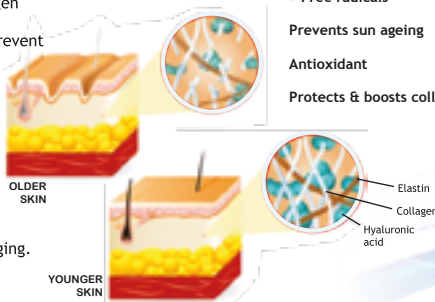
Protects skin cells from

- DNA damage
- UV, IR & VIS
- Free radicals

Prevents sun ageing

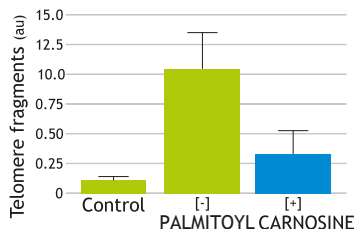
Antioxidant

Protects & boosts collagen



**ANTI-AGING
SKIN CONDITIONING
& REPAIR**

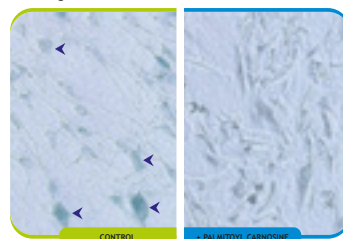
Palmitoyl Carnosine delay the replicative senescence, and extend the lifespan of fibroblasts



Palmitoyl L-carnosine reduces telomere damage and shortening rate in cultured normal fibroblasts

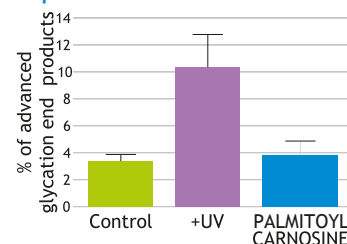
Palmitoyl Carnosine reduced the senescent cells

Blue stained cells are galactosidase positive cells meaning senescent cells



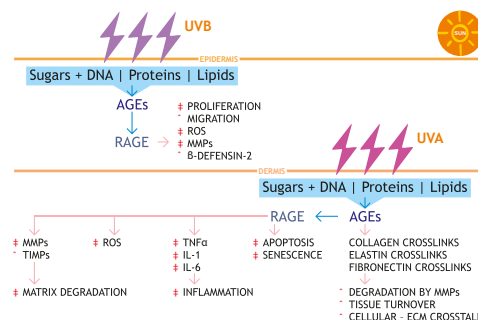
AFTER PALMITOYL CARNOSINE THE SENESCENT CELLS ARE REDUCED

Palmitoyl Carnosine inhibits the formation of advanced glycation end products in human dermal fibroblasts exposed to UV



Palmitoyl L-Carnosine is also able to reduce the effects of glycation

This process occurs naturally during ageing and produces damaged forms of proteins, called advanced glycation end products (AGEs). Collagen is among the proteins most affected by this, and its glycation may be responsible for loss of elasticity or other negative consequences of skin aging.



- Powder form, water soluble

Code: PPH05-03-PP023

INCI: dextran, palmitoyl carnosine

- **Recommended use level: 2-3% from 1g/L solution**

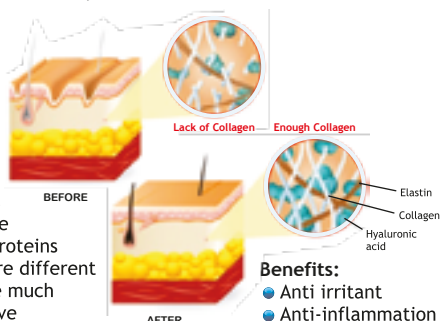
LEGAL STATUS: EU|US

Ricecoll

- Clinical studies have shown the effect of rice peptides to significantly reduce the appearance of dark circles and puffiness around the eyes
- A regular application will make the skin look smooth, rejuvenated, and regenerated with more even skin pigmentation, less blotchiness and improved skin texture as well as an improvement in fine lines and wrinkles

Rice peptides are short strings of amino acids derived from cereals

On the molecular level, while peptides are made of the same basic monomers as proteins (amino acids) they are different from in that they are much shorter and don't have the same type of secondary folding structures

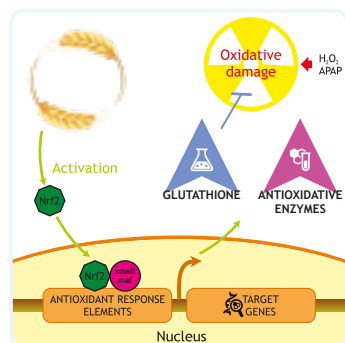


Benefits:

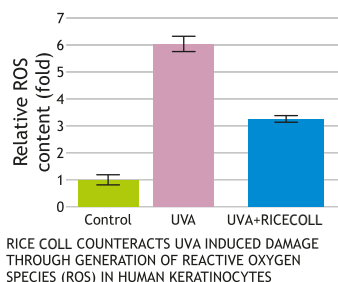
- Anti irritant
- Anti-inflammation
- Increases collagen synthesis
- Rejuvenates regenerates skin



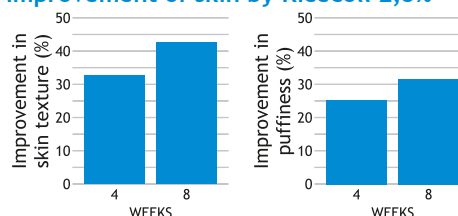
ANTI WRINKLE
ANTI-AGING
REPAIR
SKIN CONDITIONING



Ricecoll counteracts UVA induced damage



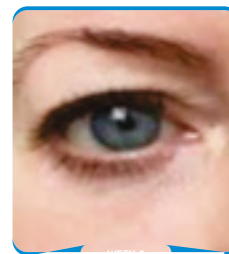
Improvement of skin by Ricecoll 2,5%



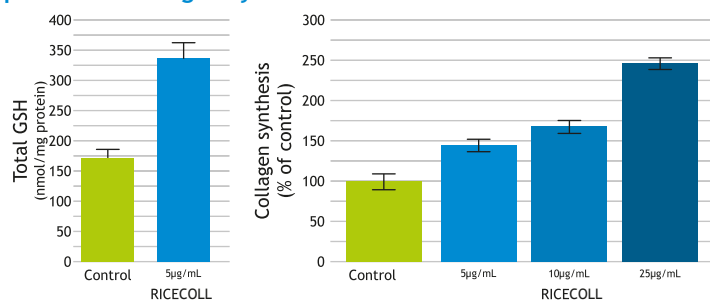
**32%
REDUCTION**

AFTER 8 WEEKS
TREATMENT

Silicone replicas of the skin texture of the eye area were taken and analyzed via digital image analysis for lines and wrinkles, as well as overall skin texture



Ricecoll increases both GSH level (antioxidant) in parallel to collagen synthesis



- Powder form
Code: PPH05-03-PP015
INCI: dextran, rice amino acids
Water soluble
- Recommended use level: 2-3% from 1g/L solution
LEGAL STATUS: EU|US|CN

Noage



Protect skin cells from:

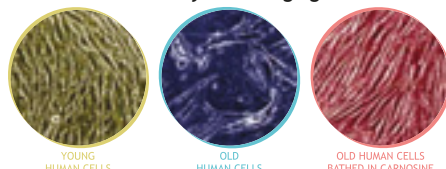
- DNA damage
- UV, IR & VIS
- Free radicals

Prevents sun ageing
Antioxidant
Protects & boosts collagen



Carnosine has been shown to rejuvenate connective tissue cells.

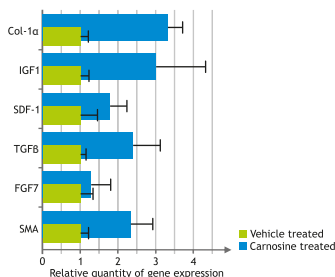
Carnosine, dubbed the anti-aging peptide by scientists, is a potent antioxidant that has a wide variety of anti-aging effects



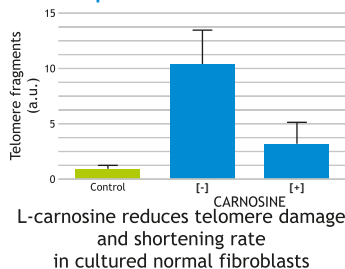
Damaged proteins accumulate and cross-link in the skin, causing wrinkles and loss of elasticity.

Glycation and crosslinks form in skin as you age and are thought to be a major cause of wrinkles. Application of carnosine makes old skin look youthful, making it important for skin maintenance.

Carnosine up-regulates the expression of growth factors



L-carnosine delay the replicative senescence, and extend the lifespan of fibroblasts

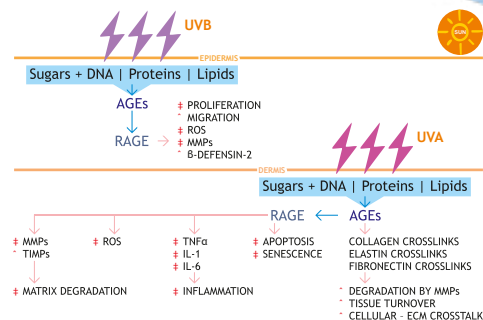


ANTI-AGING SKIN CONDITIONING AND REPAIR

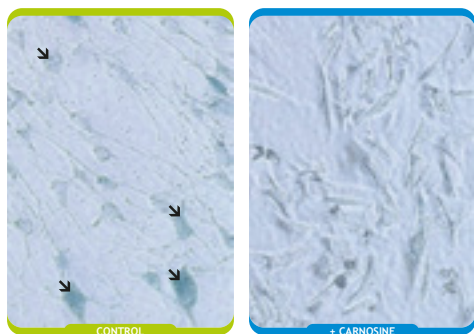
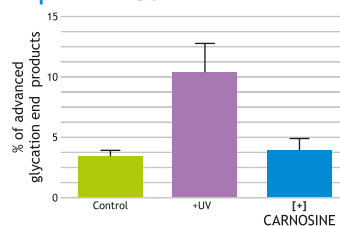


L-Carnosine is also able to reduce the effects of glycation

This process occurs naturally during ageing and produces damaged forms of proteins, called advanced glycation end products (AGEs). Collagen is among the proteins most affected by this, and its glycation may be responsible for loss of elasticity or other negative consequences of skin aging.



Carnosine inhibits the formation of advanced glycation end products in human dermal fibroblasts exposed to UV



Blue stained cells are galactosidase positive cells meaning senescent cells. After carnosine the senescent cells are reduced.

- Powder form, water soluble
Code: PPH05-03-PP004
INCI: dextran, carnosine
Recommended use level: 2-3% from 1g/l solution
- LEGAL STATUS: EU | US | CN | JP | KR | AUS

Eyebagless

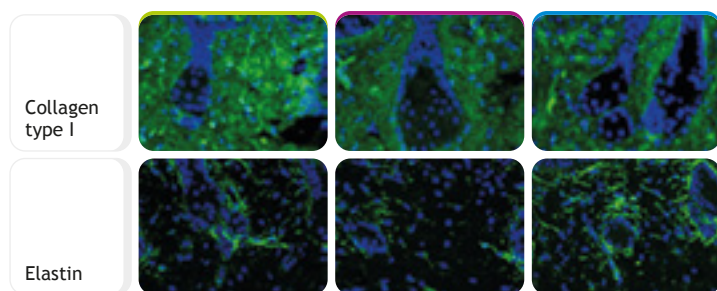
Baggy eyelids due to sagging of periorbital fat pockets is the most well-known symptom of aging in both genders

- The formation of bags under the eyes is associated to bad circulation of the blood due to hypertension
- Angiotensin I converting enzyme activity (ACE) is responsible for vasoconstriction
- ACE inhibition by peptides reduces pressure, improves blood circulation and increases lymphatic drainage

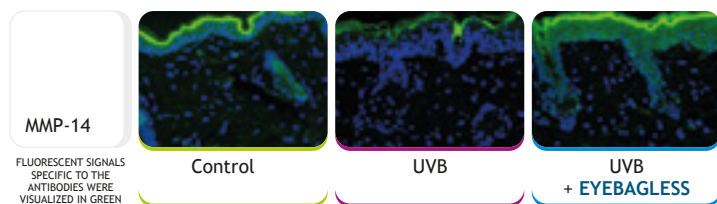


Eyebagless suppresses extracellular matrix degradation and favours skin repair

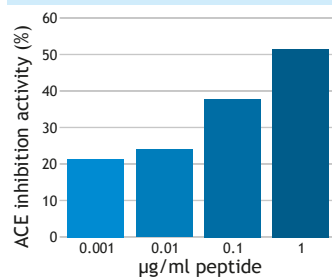
Ultraviolet B irradiation enhances ACE expression associated to collagen and elastin degradation
Skin laxity of the lower eyelid is one of the causes of dark circles and puffiness
By inhibiting ACE, it accelerates repair and restores Collagen and Elastin in skin



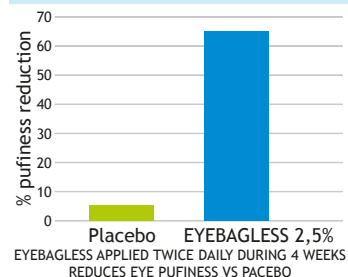
UVB decreases epidermal MMP-14 and causes failure of dermal-epidermal crosstalk needed for wrinkle repair
Eyebagless recovers normal level after UVB skin damage



ACE inhibitory activity by peptides, in vitro

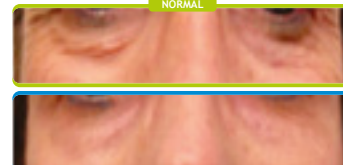
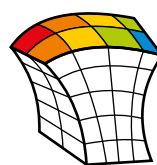


Eyebagless: the best option for eye puffiness



Eyebagless in vivo 3D morphometric study

EYEBAGLESS REDUCES MORE THAN 65% PUFFINESS AFTER 4 WEEKS OF TWICE DAILY APPLICATION

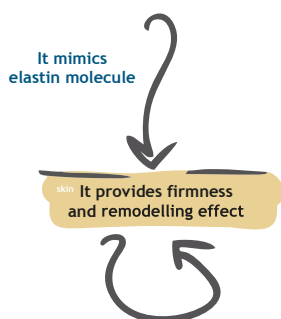


The software measures the distance between the surface of the bag before treatment and the surface of the bag after application

- Powder form
Code: PPH05-03-PP001
INCI: Dextran, Acetyl-tetrapeptide-5
Water soluble
- **Recommended dose: 2-3% from 1g/L solution**
LEGAL STATUS: EU|US|CN

Rejuglic New

- Powerful anti-aging synergy that stimulates the production of Collagen, Elastin and Hyaluronic Acid and make it ideal for skin sagging
- It improves firmness, elasticity, tone, flaccidity and reduces the appearance of wrinkles and expression lines with a visible remodeling effect

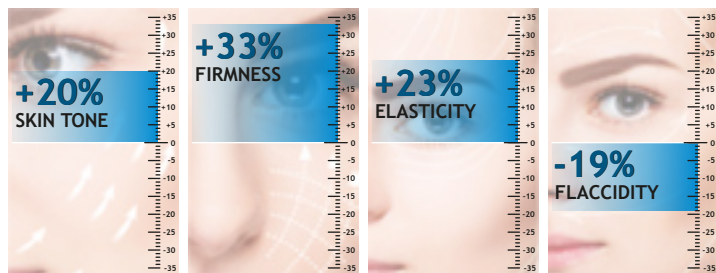


IDEAL FOR
SKIN SAGGING
WITH
REMODELLING
EFFECT



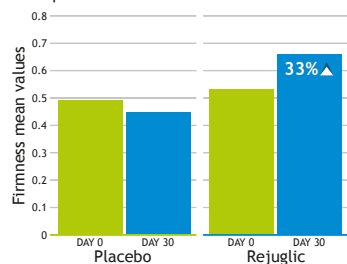
Benefits after application a cream containing 2% Rejuglic

A six aminoacids peptide improves firmness and skin tone
Its sequence is also called "spring fragment" and is repeated six times in the elastin molecule



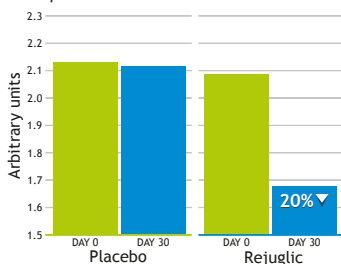
In vivo skin firmness variation

after twice daily application of a cream containing Rejuglic 2% for 30 days in 20 panelists

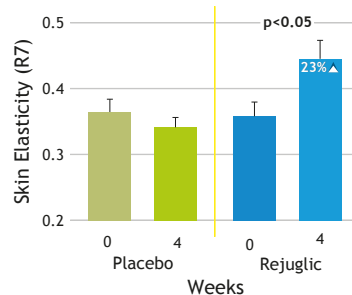


In vivo flaccidity variation

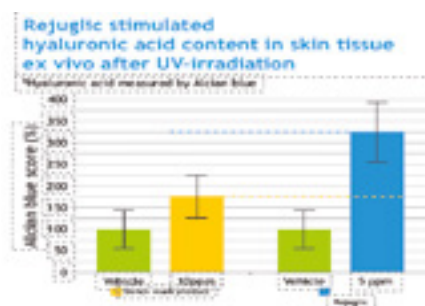
after twice daily application of a cream containing Rejuglic 2% for 30 days in 20 panelists



Skin Elasticity In vivo study with 2% Rejuglic Solution



Treatment with a 2% containing cream twice daily

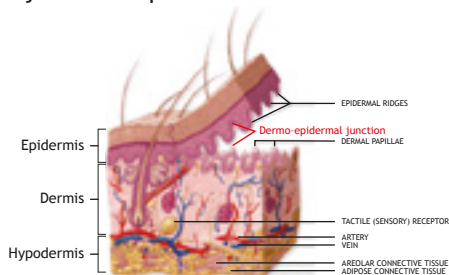


- Powder form, water soluble
Code: PPH05-02-PP006N
INCI: dextran, palmitoyl hexapeptide -12, palmitoyl tripeptide-1
- Recommended use level: 2-3% from 1g/L solution
LEGAL STATUS: EU | US | CN | JP | KR | AUS

Junctioline

- Significantly stimulates Laminin V, Collagens IV, VII and XVII, and Integrin B4, all at once
- Improves molecular communication and structural integrity

By increasing the amount of these proteins, the whole structure of the Dermis-Epidermis junction is improved



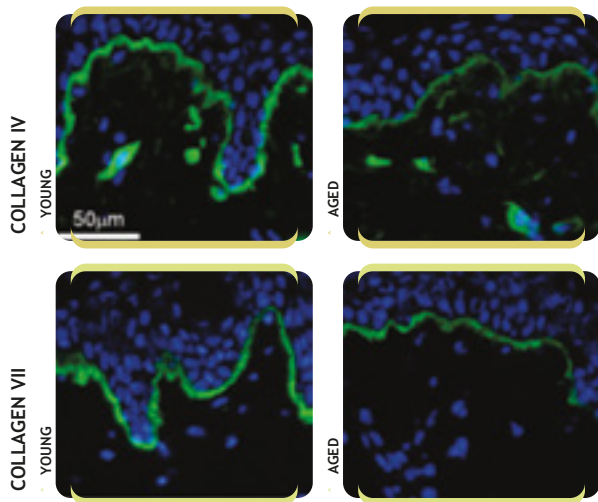
The Dermis-Epidermis junction provides structural and functional integrity to the skin and starts to weaken at around the age of 30.

The functionality of the dermal-epidermal junction depends strongly on the activity of specific structural proteins, in particular various Collagen types, Laminins, and Integrins.

Junctioline significantly stimulates Laminin V, Collagens IV, VII and XVII and Integrin

Immunohistochemical staining of DEJ components

Performed using antibodies raised against collagen IV (a-c, d-e), collagen VII

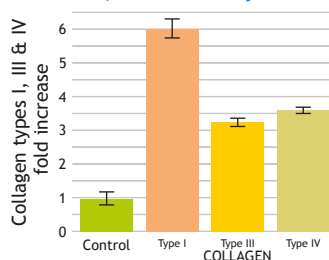


In skin from young volunteers, abundant staining for each DEJ component was observed

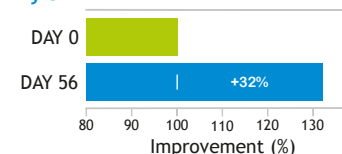
However, analysis of skin samples from intrinsically aged volunteers identified significant diminution of signal for each of the markers

ANTI-AGING
ANTI WRINKLE
FIRMING
LIFTING
SKIN CONDITIONING

Increases in collagen synthesis by Junctioline in human dermal fibroblast, in vitro study



Effect on skin tonicity by Junctioline at 2%



The residual elongation decreases by using Junctioline. This indicates a strong improvement in terms of skin tonicity by 32%.

Study performed in a panel of 15 women for 56 days USING A CUTO-METER THE EFFECT ON THE SKIN TONICITY HAS BEEN DEMONSTRATED

Junctioline dipeptide stimulates Integrin, Laminin and Collagen types IV, VII and XVII

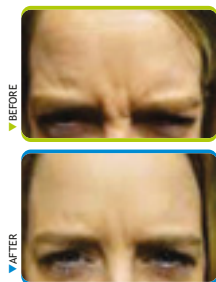


- Powder form, water soluble.
Code: PPH05-02-PP002
INCI: dextran, dipeptide-5
- Recommended use level: 2-3% from 1g/L solution
LEGAL STATUS: EU | US | CA | AUS

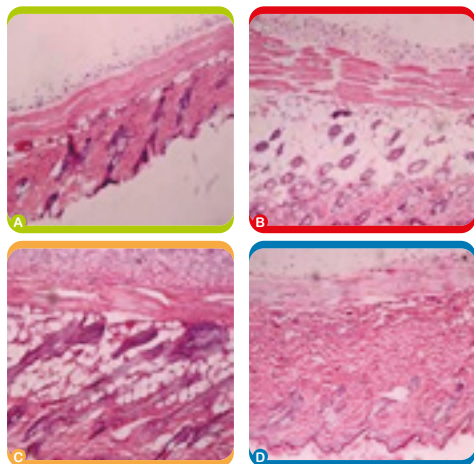
Reliduo

*Ideal combination of two botox-like peptides:
hexapeptide-3 and acetyl hexapeptide-8 that
stops wrinkles and expression lines formation*

- Peptides acting in a synergistic manner significantly inhibit formation of the SNARE complex
- This combination inhibits calcium-induced norepinephrine release in chromaffin cells and increases type I and III collagens, improving skin thickness.



RELIDUO recovers skin youth

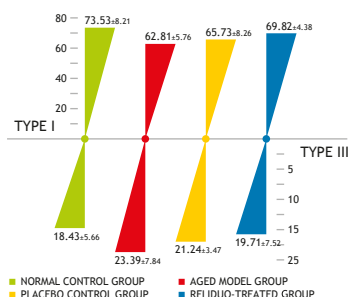


In the aged model group, the skin was thinner, the amount of collagen fibers in dermis was significantly decreased, and the fibers bound more loosely compared to those of the normal control group.

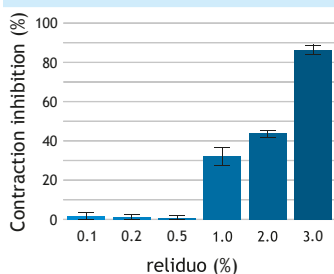
Compared with the aged model group, the skin of the RELIDUO-treated group was thicker with a greater number of collagen fibers, and the fibers were dense and compact.

SKIN TISSUE SECTION STAINED BY HEMATOXYLIN-EOSIN
A: NORMAL CONTROL GROUP B: AGED MODEL GROUP
C: PLACEBO CONTROL GROUP D: RELIDUO-TREATED GROUP

Reliduo 2% also increases type I and type III collagens content



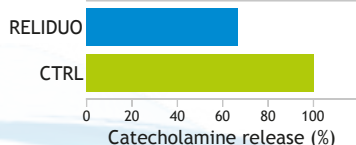
Reliduo treatment inhibited muscle contraction in *C. elegans*



The release of catecholamines is a clear indicator of the potent anti-wrinkle activity of peptide combination ▶

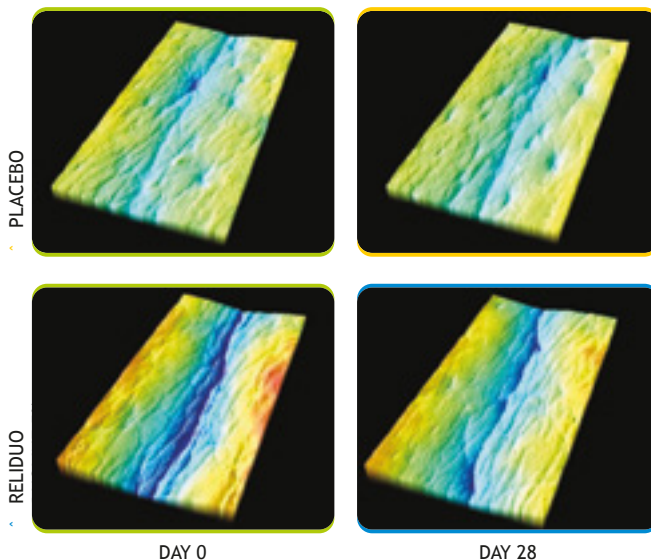
Chromaffin cells are often used as models for study of neural properties and processes, for instance, exocytosis and catecholamines release is equivalent of acetylcholine being secreted from nerve cells.

Chromaffin cells were incubated with tritiated noradrenaline/adrenaline and RELIDUO



Reliduo significantly reduces wrinkles in vivo

Representative images of the silicon replicas before and after 28 day treatment with a cream containing 2% Reliduo

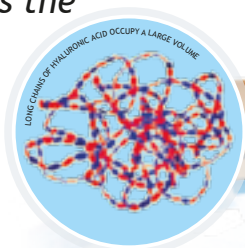


- Powder form, water soluble
Code: PPH05-01-PP023
INCI: dextran, hexapeptide-3, acetyl hexapeptide-8
- Recommended use level: 2-3% from 1g/L solution
LEGAL STATUS: EU | US | CN | JP | KR | AUS

Ricepeptide

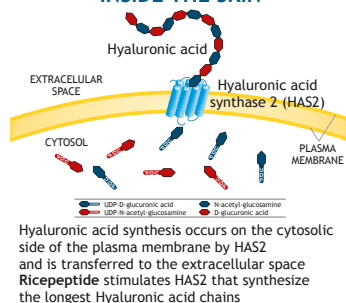
A natural peptide from black rice stimulates Hyaluronic acid (HA) from within

- Bioactive peptides from natural sources help to promote cell regeneration for supple, radiant skin
- Black rice (*Oryza sativa* L.) has been used in folk medicine in Asia. Hydrolysis of rice proteins leads to Ricepeptide that induces Hyaluronic acid synthesis in keratinocytes
- Hyaluronic acid holds water, maintains the extracellular space and facilitates ion solutes transport and nutrients
- Hyaluronic acid content decline with age which contribute to wrinkle formation and decrease of elasticity

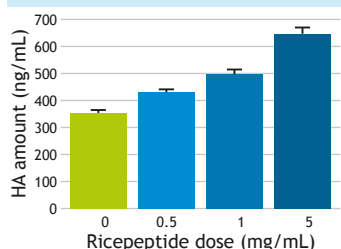


FIRMING
MOISTURIZING
SKIN CONDITIONER
ANTI-AGING

RICEPEPTIDE STIMULATES HAS2 INSIDE THE SKIN



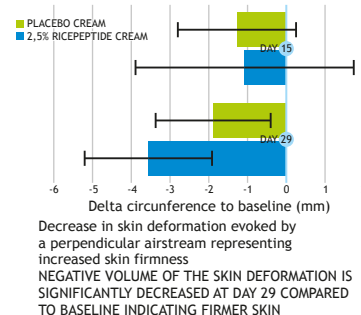
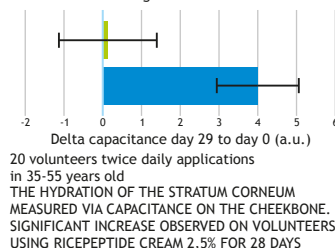
Effect on the amount of HA released by HaCaT keratinocytes



IN VITRO STUDY: CELLS WERE TREATED WITH RICEPEPTIDE FOR 24H. HYALURONIC ACID WAS DETERMINED IN THE CULTURE MEDIUM BY ELISA

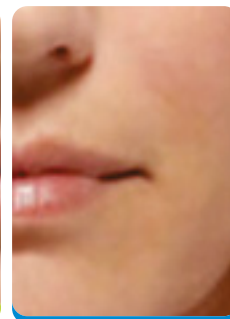
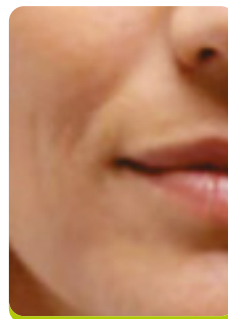
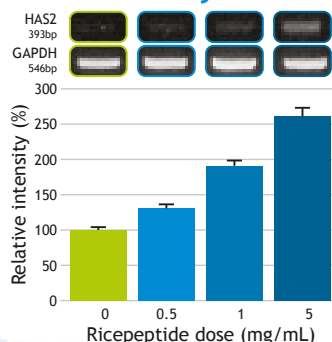
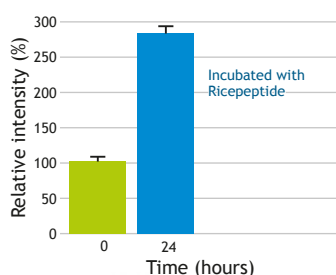
Ricepeptide efficacy; in vivo study

One of the main results of age-dependent ECM degradation is the loss of HA. HA provides the skin with moisture by binding several times its weight in water.



Ricepeptide stimulates the expression of the key enzyme for Hyaluronic acid synthesis

HAS2 expression in HaCaT keratinocytes



AFTER 4 WEEKS

Ricepeptide increases endogenous HA supply
DEEP HYDRATATION | FIRMER SKIN



Ricepeptide containing cream was applied twice daily for 28 days in 35-55 years old

- Powder form Code: PPH05-01-PP009
- INCI: Dextran, Hydrolyzed rice protein
- Water soluble
- Recommended dose: 2-3% from 1g/L solution
- LEGAL STATUS: EU|US|CN



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Worldwide Distributor

info@innovingredients.com
www.innovingredients.com