Instructions

INCI Name	Hydrolyzed Sodium Hyaluronate
Molecular weight	⩽5000 Da
Recommended dosage	0.05%~0.5%
Usage	Soluble in water, can be added directly into the water phase.
Application	microHA™ can be added in soothing, repairing products, such as skin care products, oral products, scalp care products, etc..

Reference Formula

Hyaluronic acid soothing & regenerating cream		
	INCI Name	wt%
A	Cetearyl Alcohol/Cetearyl Glucoside	3.0
	Simmondsia Chinensis (Jojoba) Seed Oil	2.0
	Butyrospermum ParkII (Shea Butter)	2.0
	Tocopheryl Acetate	0.5
	Squalane	2.0
	Dicaprylyl Carbonate	2.0
	Caprylic/Capric Triglyceride	6.0
	Cyclomethicone	2.0
B	Butylene Glycol	4.0
	Glycerin	4.0
	Sodium Hyaluronate (HA-T)	0.05-0.1
	Ammonium Acryloyldimethyltaurate/ Beheneth-25 Methacrylate Crosspolymer	0.3
	Aqua	to 100
	Hydrolyzed Sodium Hyaluronate (microHA™)	0.1-0.2
C	Phenoxyethanol/ Ethylhexylglycerin	0.8
	Fragrance	0.1

Hyaluronic acid soothing & repairing gel		
	INCI Name	wt%
A	Aqua	to 100
	Betaine	1.0
	Sodium Hyaluronate (HA-T)	0.1
	Butylene Glycol	3.0
	Glycerin	3.0
B	Acrylates/C10-30 Alkyl Acrylate Crosspolymer (Carbopol Ultrez 21)	0.5
	Aqua	5.0
C	Aminomethyl Propanol	0.25
D	Glyceryl/Glyceryl Acrylate/Acrylic Acid Copolymer/Propanediol/PVM/MA Copolymer	2.0
	Hydrolyzed Sodium Hyaluronate (microHA™)	0.1-0.2
	Panthenol	0.5
	Hexylene Glycol	1.5
	Ethylhexylglycerin	0.1

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microHA™

Super Active Hyaluronic Acid

Anti-inflammatory & Repairing

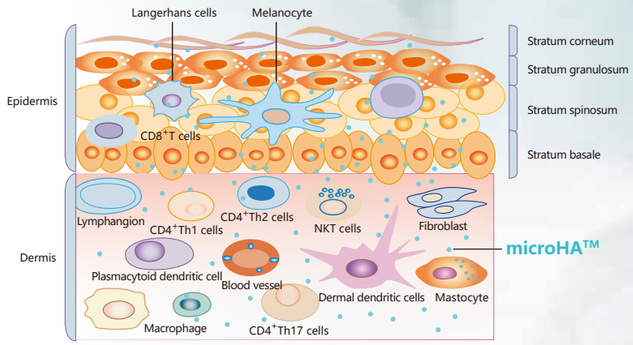
Inhibits the release of inflammatory cytokines and scavenges free radicals

Repairs skin cell damage and accelerates tissue healing

Promotes keratinocytes proliferation and enhances skin barrier function

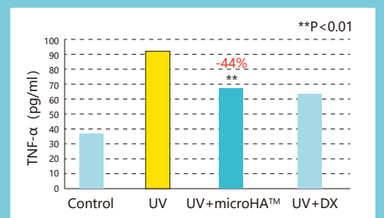
microHA™
Super Active Hyaluronic Acid

microHA™ is a super active HA produced by a patent enzymatic degradation technology with superb biological activity. microHA™ can quickly penetrate epidermis and dermis to scavenge free radicals, reduce inflammation factor activity, repair damaged cells, protect the skin against inflammation and sensitivity caused by various stimulus.



microHA™-Anti-inflammation

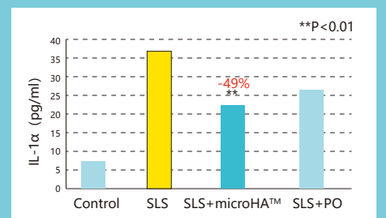
1 Inhibition of TNF-α release



Compared to the positive control group (+UV), microHA™ can significantly reduce the release of inflammatory factors (TNF-α) (p<0.01); the inhibition rate is as high as 44%. The inhibition effect of 0.125% microHA™ was comparable to that of 0.01% dexamethasone.

microHA™ (0.125%, m/V) , Dexamethasone (DX, 0.01%, m/V) , test model: "UVB-kertinocytes"
Test by Guangdong BioCell Biotechnology Co. Ltd.

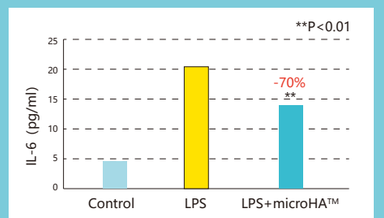
2 Inhibition of IL-1α release



Compared to SLS group, microHA™ can significantly reduce IL-1α release level (p<0.01); the inhibition rate is as high as 49%. Moreover, the inhibition effect on IL-1α was better than 0.25% PO.

microHA™ (0.125%, m/v) , Portulaca Oleracea Extract (PO, 0.25%, m/v) , test model: "SLS-Epikutis"
Test by Guangdong BioCell Biotechnology Co. Ltd.

3 Inhibition of IL-6 release



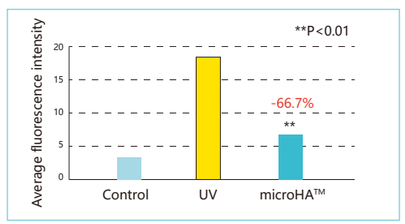
Compared to LPS (Lipopolysaccharide) group, microHA™ can significantly reduce IL-6 release level (p<0.01); the inhibition rate is as high as 70%.

microHA™ (0.4%, m/v) , test model: "LPS-Balbc 3T3"

microHA™-Repairing

1 Scavenging oxygen free radicals

When stimulated, the skin cells produce large amount of oxygen free radicals, causing inflammation, thus resulting in skin damage and color spots. microHA™ can effectively remove the UV-induced reactive oxygen free radicals and reduce the inflammatory response. microHA™ could reduce the average fluorescence intensity by 66.7% .

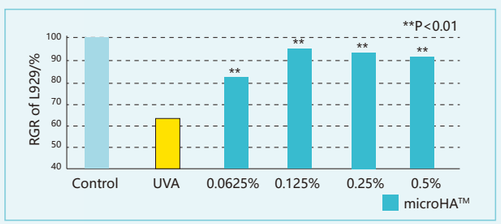


microHA™ (0.1%, m/m) , test model: "UVA-L929"

2 UV-damaged repairing

Repairing UVA-damaged fibroblast cells

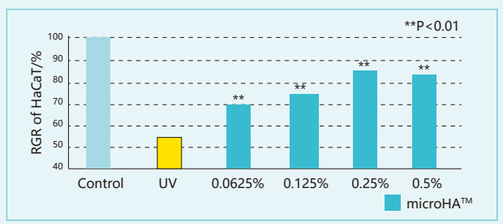
Results show that after UVA irradiation, RGR (relative growth rate) of L929 cells fell to 63%. With the addition of microHA™, the cell proliferation rate increased significantly; 0.125% microHA™ can make the cell proliferation rate increase up to 94%.



microHA™ (0.0625%-0.5%, m/m) , test model: "UVA-L929"

Repairing UV-damaged keratinocytes

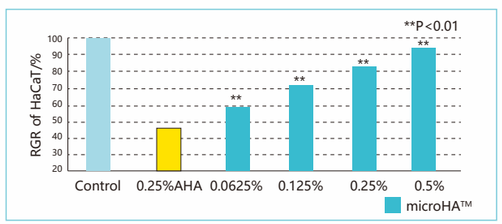
Results show that after UVA&UVB irradiation, RGR of HaCat cells fell to 54%. With the addition of microHA™, the cell proliferation rate increased significantly; 0.25% microHA™ can make the cell proliferation rate increase up to 84.7%.



microHA™ (0.0625%-0.5%, m/m) , test model: "UV-HaCaT"

3 Chemical damage repairing

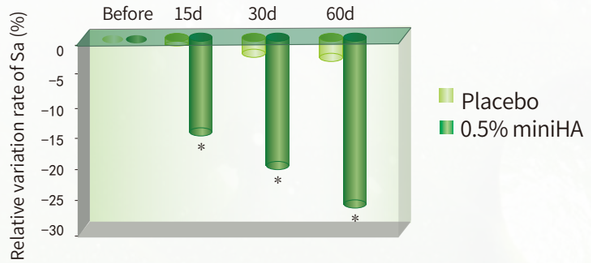
Results show that after adding AHA , RGR of HaCaT cells fell to 46%. With the addition of microHA™, the cell proliferation rate increased significantly; 0.5% microHA™ can make the cell proliferation rate increase up to 95%.



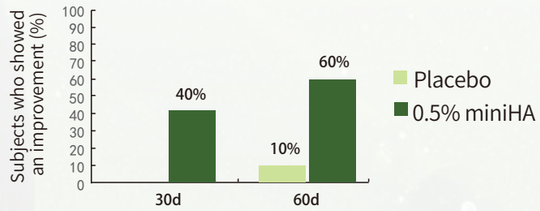
microHA™ (0.0625%-0.5%, m/m) , test model: "AHA-HaCaT"

4 Reducing skin wrinkles

The skin wrinkle depth (Sa) decreased by 16.0%, 20.3% and 25.6% after applying miniHA cream for 15 days, 30 days and 60 days respectively.



5 Clinical study



The wrinkle depth decrease was also confirmed by a dermatologist assessment after 30 days of application of a cream containing miniHA. 40% of the volunteers had obvious improvement of the wrinkle conditions. 60% of volunteers recorded obvious reduction of wrinkles depth after 60 days.

Instructions

INCI name
Hydrolyzed Sodium Hyaluronate

Recommended dosage
0.1~0.5%. Works better with common HA.

Solubility
Good solubility in water.

Application
Anti-aging, repairing and moisturizing products, such as eye cream, mask, serum, sunblock cream, BB cream, lipstick, etc..

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miniHA™

High Activity, Extremely Low Molecular Weight Sodium Hyaluronate

- *Transdermal absorption*
- *Deep moisturizing*
- *Repairing damaged cells*
- *Scavenging free radicals*
- *Anti-aging*
- *Ecocert certified*

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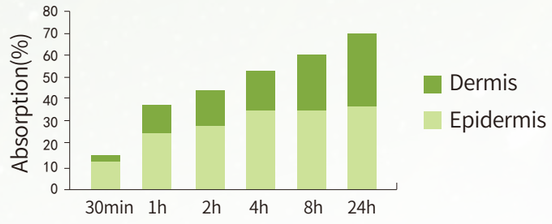
First HA-Oligo produced by patent enzymatic degradation technology

miniHA™ with molecular weight 3k~10kDa produced by patent enzymatic degradation method with natural and moderate reaction conditions can penetrate into the skin and nourish the skin deeply. It has many biological activities, such as moisturizing, repairing, anti-oxidation, etc..

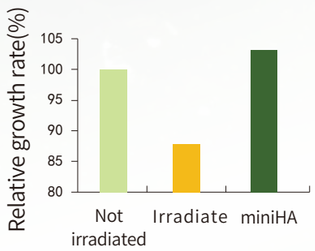
Mechanism of Action

1 Transdermal absorption

Results of absorption capability on miniHA carried out by a third party laboratory using in-vitro reconstructed human skin show that， miniHA can penetrate into the skin with an absorption rate that can reach 36.2%, 60.7%, 69.5% after 1h, 8h, 24h respectively.



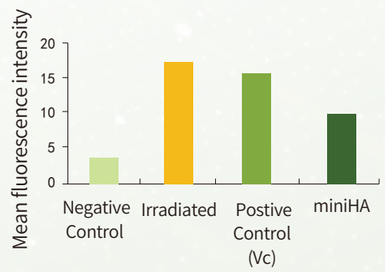
2 Repairing damaged cells



miniHA can repair the skin cells damaged by ultraviolet irradiation, increase cellular activity and cellular proliferation.

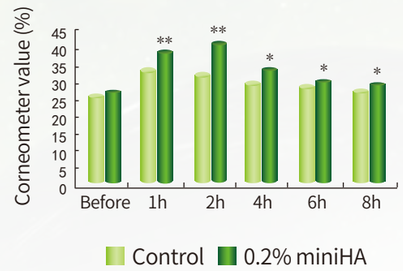
3 Scavenging free radicals

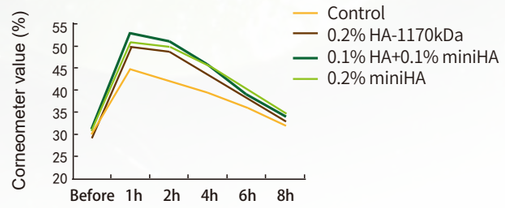
miniHA can effectively scavenge Reactive Oxygen Free Radicals (ROS) induced by ultraviolet irradiation, so it can slow down the skin aging process by good anti-oxidation capability.



Efficacy in Cosmetics

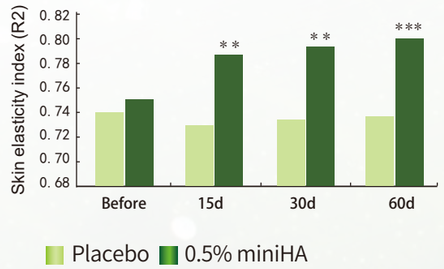
1 Deep moisturizing





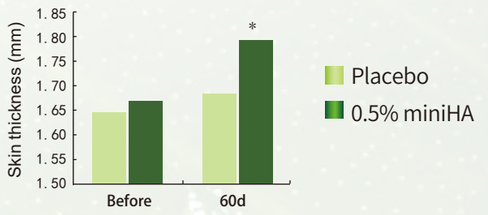
miniHA can penetrate into the skin, hydrating the epidermis and dermis. HA with high molecular weight has also good moisturizing capability by forming a film on the surface of skin. When miniHA and HA with high molecular weight are used in formulation together, a remarkable synergistic effect is observed.

2 Enhancing skin elasticity



The skin elasticity increased by 4.6%, 5.2% and 6.1% after applying miniHA cream for 15 days, 30 days and 60 days respectively. By a long-term application, miniHA can significantly tighten the skin and increase its elasticity.

3 Strengthening the skin barrier



The skin thickness increased by 8.3% after applying miniHA cream for 60 days. By a long-term application, miniHA can strengthen the barrier function of the skin.

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Ultra-high purity Ergothioneine Content ≥99%

Bioyouth™-EGT Pure

Ultrapure Ergothioneine

Mitochondria-targeting antioxidant factor
【Scavenge free radicals, anti-photoaging】

Biomanufacturing

High Purity
High Stability

Sustainability

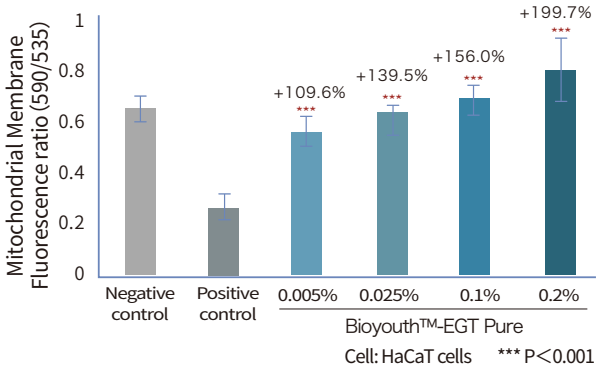
Bioyouth™-EGT Pure Ultrapure Ergothioneine is obtained through advanced biology technology, and the purity is more than 99%. Bioyouth™-EGT Pure will easily permeate into cells and mitochondria through the transporter OCTN-1 in cells membrane and mitochondria, and then directly remove reactive oxygen free radical, further, Bioyouth™-EGT Pure play a key role in anti-oxidation, anti-photoaging and protection of cells and mitochondrial DNA.

INCI Name: Ergothioneine
Natural Origin Index: 1
Recommended Dosage: 0.01-1%

Application: Anti-aging, anti-oxidant products, skin protection, skin regeneration, sun care products.
Storage: Kept airtight in in the dark, cool dry place.

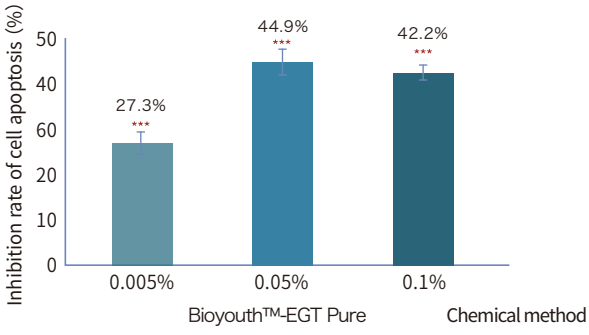
In-vitro tests

Protect mitochondria from UV damage



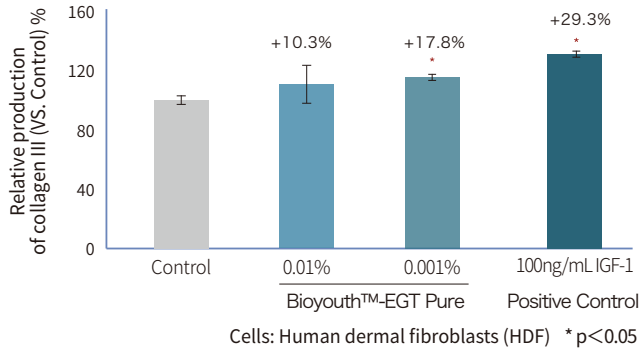
Compared with the positive control group, the MMP value of the Bioyouth ™-EGT Pure treatment group was significantly increased and had a stronger protective effect on mitochondrial, with the best effect of 0.2%.

Reduce apoptosis



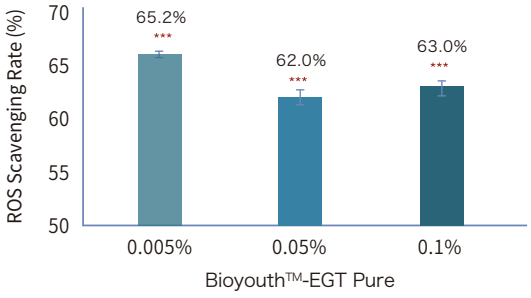
UVB can cause cell apoptosis, before UVB irradiati, treating cells with 0.05% Bioyouth™ EGT Pure can significantly reduce the proportion of cell apoptosis, indicating that Bioyouth™ EGT Pure can protect cells from cell damage caused by UVB.

Promote collagen III synthesis



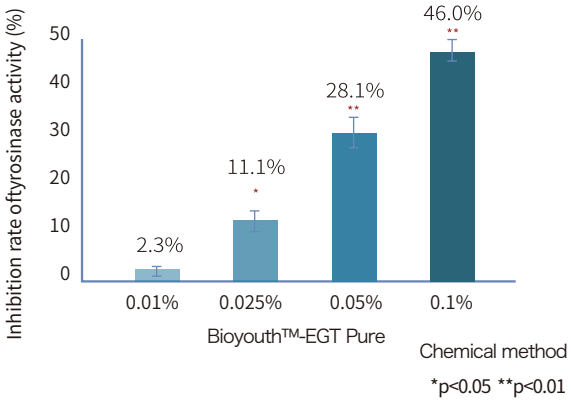
0.001% Bioyouth™-EGT Pure significantly promoted the production collagen III, which was increased by 17.8% compared with control group.

Scavenge ROS free radical



UVA+UVB will stimulate the production of ROS in cells, and 0.005% EGT Pure can remove 65.2% of ROS to reduce the oxidative damage caused by UV.

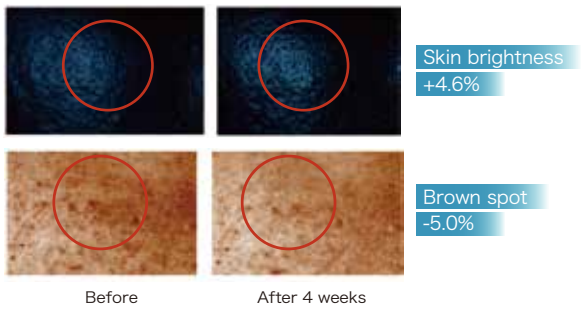
Brightening



Bioyouth™-EGT Pure with content of 0.1% significantly reduced tyrosinase activity, it is suggested that Bioyouth™-EGT Pure has a brightening effect on skin.

In-vivo tests

Improve skin brightness and brown spot



Volunteers applied the lotion containing 0.1% Bioyouth™-EGT Pure continuously for 4 weeks and experienced a significant improvement in skin radiance, and the brown spots on the skin were effectively reduced.

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『Hybloom™ Minitrue』

A New Generation of Micromolecular Hyaluronic Acid

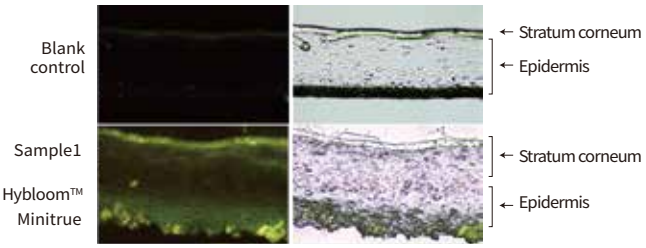
【Molecular weight＜1000 Da】

【Endogenous promotion of HA+Ceramide+Collagen】

Hybloom™ Minitrue is the new generation of micromolecular HA with molecular weight less than 1000 Da produced by a patent enzyme degradation technology.

High penetration (in-vitro)

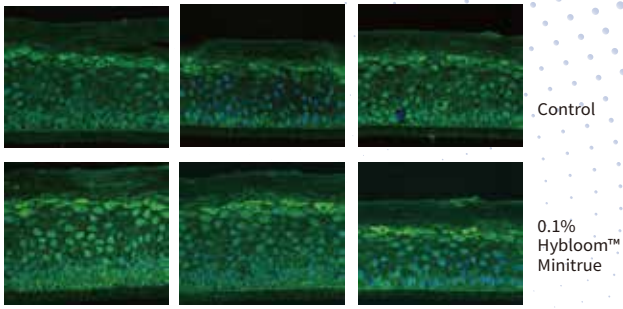
The fluorescein labeled HA transdermal test showed that Hybloom™ Minitrue could penetrate into the stratum corneum and epidermis of the skin.



Test model: 3D Skin model

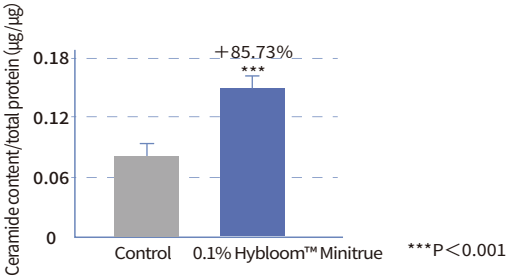
Stimulates the internal vitality (in-vitro)

1 Increasing endogenous HA content

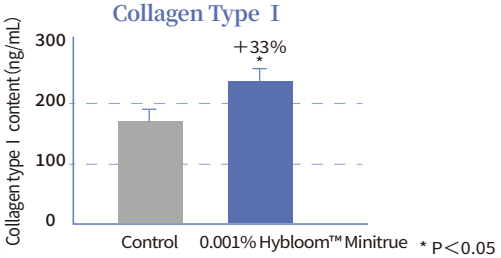


2 Increasing endogenous Ceramide and Collagen content

Ceramide

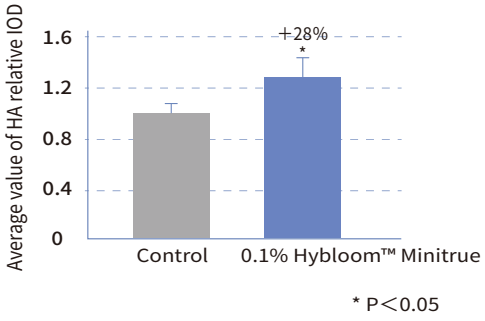


Collagen Type I



In-vitro test shows that Hybloom™ Minitrue can promote the synthesis of endogenous ceramide by 86%, collagen by 33%.

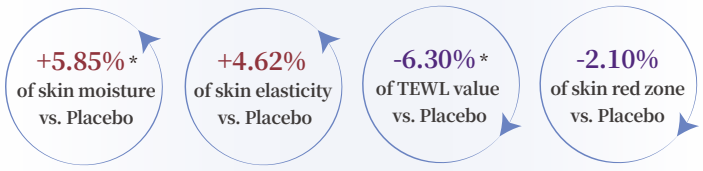
Hyaluronic Acid



in-vivo test

26 volunteers (mixed panel, double-blind, 25 to 45 year old). Twice-daily application on the faces of a serum containing Hybloom™ Minitrue at 0.1% vs. Placebo for one week.

* P<0.05



INCI name: Hydrolyzed Sodium Hyaluronate
Natural origin index:1
Preservative system: None
Recommended dose: 0.1%-0.5%

Regions available: APAC, EMEA, LATAM, NORAM
Solubility: Good solubility in water
Application: Moisturizing & Repairing & Anti-aging skin care; Scalp care; Hair care; Colour cosmetic.

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BLOOMAGE

Novel HA designed for Color Cosmetics

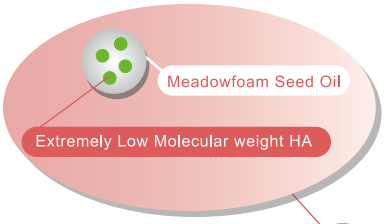
Hyacolor™-LA

Hydrating · Natural Care

Hyacolor-LA（Oil-dispersed Sodium Hyaluronate）, a new type of Sodium Hyaluronate (HA) designed for color cosmetics, is obtained by the combination of extremely low molecular weight HA and Meadowfoam seed oil through the unique HA microsphere technology. The perfect combination of HA and botanical oil will permit water soluble-HA to be easily applied into the color cosmetic formulations which are mainly based on oily ingredients. Hyacolor-LA can provide significantly moisturizing ability, and nourish the skin from inside out, then improve skin dryness and roughness.

The microsphere structure of Hyacolor-LA

Meadowfoam seed oil, as the outer component of Hyacolor-LA, owns excellent skin affinity and nourishing ability. The inside part is based on the extremely low molecular weight HA, which has good transdermal absorption, hydration and repairing ability.



Product instruction:

[INCI name] Hydrolyzed Sodium Hyaluronate, Limnanthes Alba (Meadowfoam) Seed Oil, Glyceryl Behenate

[Recommended dosage] 0.1%~2.0%

[Usage]

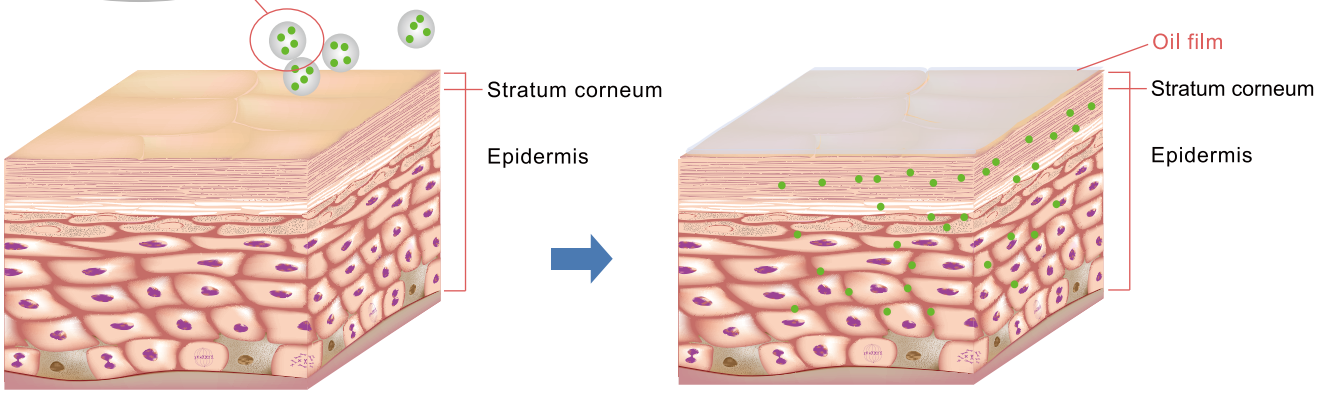
Moisturizing for Color cosmetic products such as lipstick, lip gloss, lip liner, air cushion cream, foundation, pressed powder, etc.

Especially recommended in lip-care products for moisturizing and improving the dryness and roughness of lips.

[Application]

Treat other ingredients firstly through processes such as heating, homogenizing, or emulsifying, etc., cool down to not lower than 70°C, then add the product into the formulation. Stirring is necessary in this process.

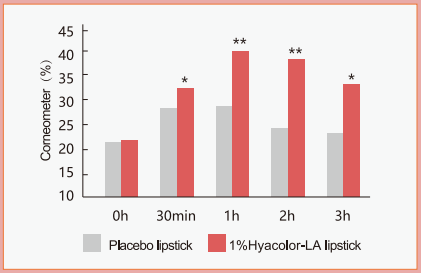
The action mechanism of Hyacolor-LA



When applied Hyacolor-LA onto the skin surface, the microsphere will easily break down, thus allowing the extremely low molecular weight HA to be released and penetrate into the skin quickly, for water-holding and water-locking, and nourish the skin from inside. The outer layer of meadowfoam seed oil can form an oil film on the skin surface to prevent water evaporation and improve moisture accumulation from inside. The double moisturizing efficacy of Hyacolor-LA can hold water from outside and bind water from inside and improve skin dryness and roughness directly from within.

Efficacy evaluation

Hydrating



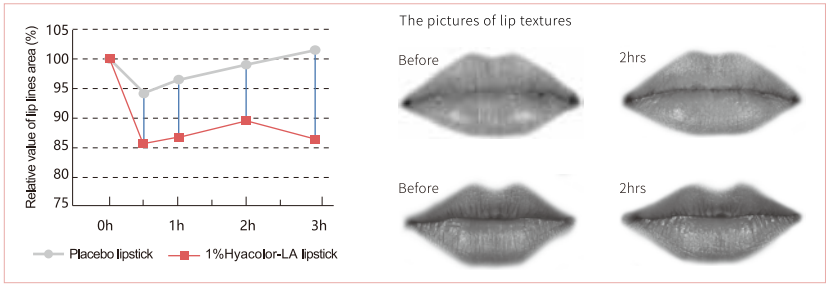
Subjects: 30 healthy women
Instrument: Corneometer CM825
Sample: Lipstick containing 1% Hyacolor-LA as trial group, not containing Hyacolor-LA as placebo group

Results show that, the skin hydration of two groups increased diversely after a short time application, and Hyacolor-LA group shows better moisturizing effect than Placebo group. The skin hydration of Hyacolor-LA group is increased by 50.7% after 30min application, increased by 85.6% after 1 hour application. Hyacolor-LA can hold and bind water quickly to increase skin hydration, while keeping skin moisturized over 3 hours.

Skin Roughness

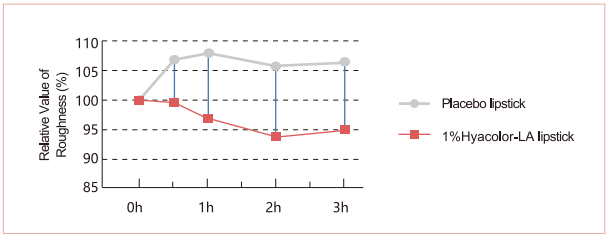
Subjects: 30 healthy women with dry/rough lips, divided to two groups.
Instrument: VISIA CR, Cutometer MPA580
Sample: One group used 1% Hyacolor-LA lipstick, the other group used placebo lipstick.

Texture evaluation



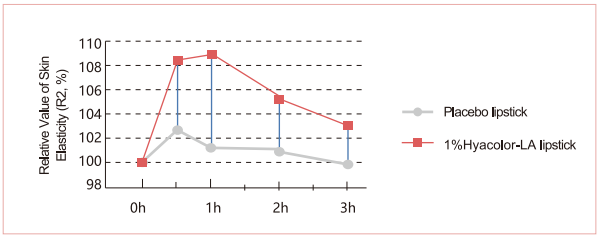
Results of the pictures and software analysis shown a marked improvement of lip textures in the test area and the lip fine lines are reduced a lot by the application of Hyacolor-LA. The relative value of lip lines area is reduced by 14% after 30min application.

Smoothness evaluation



Results show that, Hyacolor-LA can improve skin roughness and smooth the dry lips. The relative value of roughness is reduced by 6.1% after 2 hours application.

Softness evaluation



Hyacolor-LA can provide instantly hydrating ability and improve the elasticity and softness of lips. The relative value of elasticity is increased by 8.3% after 1 hour application.

Hyacolor-LA, with its high content of extremely low molecular weight HA and meadowfoam seed oil, can hold water from outside and bind water from inside. The double moisturizing efficacy of Hyacolor-LA, can improve the textures, smoothness, and softness of dry and rough lips.

Product features of Hyacolor-LA

High Stability Select one of the most stable plant oils in the wilderness
Meadowfoam seed oil contains high concentration (>95%) of triglycerides with long chain fatty acids (C20-C22), owns high oxidation stability index and does not easily show oxidative rancidity.

Excellent nourishing Synergy moisturizing effect of HA and Meadowfoam Seed Oil improve skin dryness and roughness.
Extremely low molecular weight HA can penetrate into the skin for water-holding and water-locking. Meadowfoam seed oil can form an oil film on the skin surface to improve moisture accumulation from inside.

High safety Skin patch tests show that the cutaneous reactions of 30 volunteers are all negative.
Extremely low molecular weight HA is manufactured by patented enzymatic degradation, having complete structure, high purity, and high safety. Meadowfoam seed oil is produced by cold-pressed process and has no residual chemical.

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Co-developed with the China National Engineering Research Center for Functional Food, Innovation Center on Probiotics Science and Technology of Jiangnan University —A team led by academician of the Chinese Academy of Engineering

Biobloom™ *Microecobeauty ME-3*

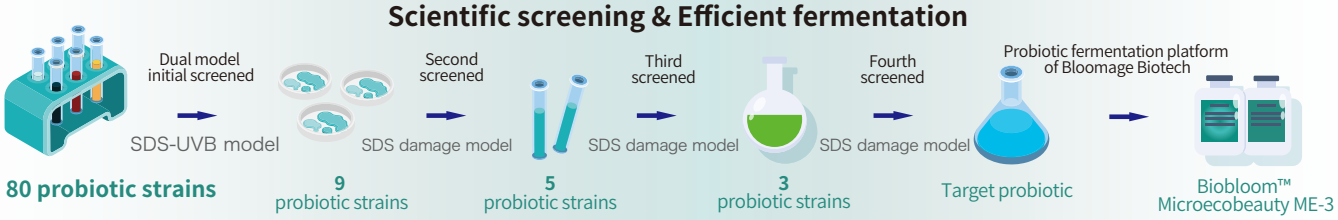
INCI name: BIFIDA FERMENT FILTRATE, COSMOS APPROVED

「Each drop contains 50 million probiotic extracts
Enhance barrier & Endogenous maintenance」

◎ Promote the expression of cornified envelop related protein and AQP3, enhance skin barrier
◎ Promote cell migration, repair damaged cells, maintain skin barrier

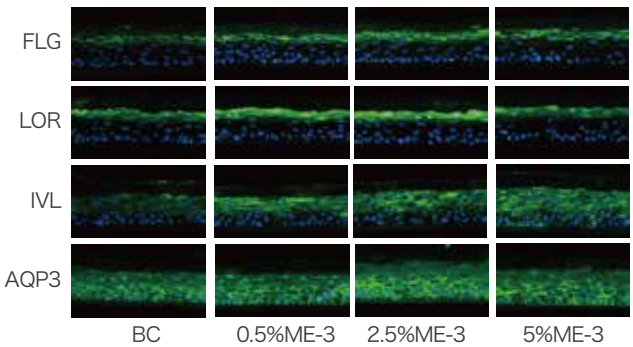
Biobloom™ ME-3 is an exciting 3rd launch from the Microecobeauty line of probiotic strains developed in conjunction with the Innovation Center on Probiotics Science and Technology of Jiangnan University. ME-3 is produced based on Bloomage Biotech's probiotic fermentation platform by *Bifidobacterium* which is screened from 80 strains in the probiotics strain library established by Innovation Center Probiotic Science and Technology with the strongest barrier repair capability .

Scientific screening & Efficient fermentation

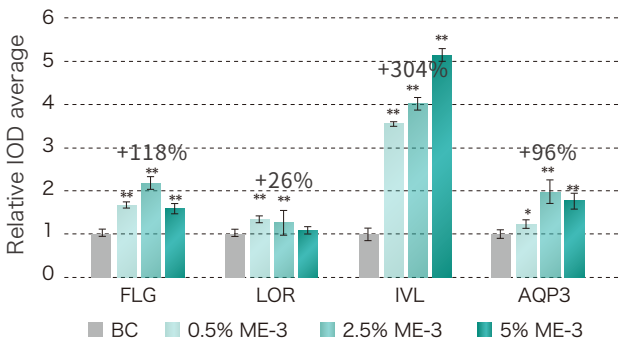


Promote the expression of cornified envelop related protein and AQP3, enhance skin barrier *(in-vitro)*

Cornified envelop is an important part of the brick wall structure of skin barrier, which directly affects the barrier function. Immunohistochemical tests showed that compared with the blank control group, 2.5% ME-3 could increase the content of cornified envelop marker protein -- filaggrin (FLG), Loricrin (LOR) and Involucrun (IVL) by 118%, 26% and 304%, respectively.
Aquaporin 3 (AQP3) can mediate the transmembrane transport of water, glycerin and other small molecules, and plays an important role in skin hydration, skin barrier function recovery and wound healing. Immunohistochemical results showed that compared with the blank control group, 0.5% and 2.5% ME-3 could increase AQP3 protein content by 22%, 96%, respectively.



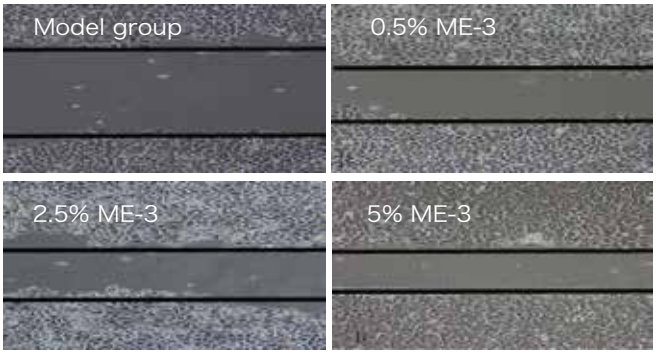
3D skin model, Immunofluorescence staining



*p<0.05 **p<0.01

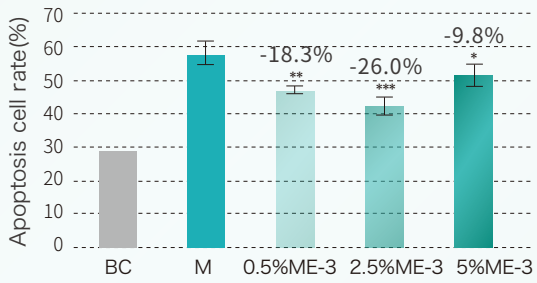
Promote cell migration, repair damaged cells, maintain skin barrier *(in-vitro)*

The cell scratch experiment showed that compared with the model group, the width of scratch decreased after ME-3 treatment, the cell migration rate increased, and the scratch healing rate increased, indicating that the cell repair capacity was enhanced.



HaCaT cell-Scratch experiment
Cell migration ability was observed after 48h

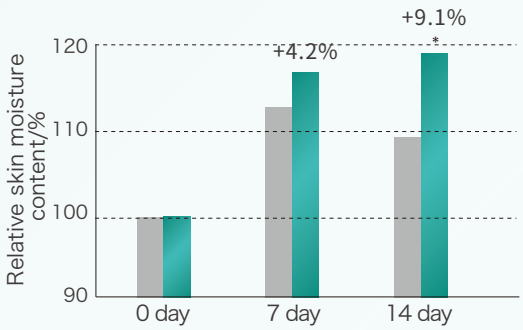
UV irradiation can induce epidermal cell apoptosis, and ME-3 can repair the epidermal cell apoptosis caused by UV irradiation. The apoptosis inhibition rate of 2.5% ME-3 cells was 26.0%

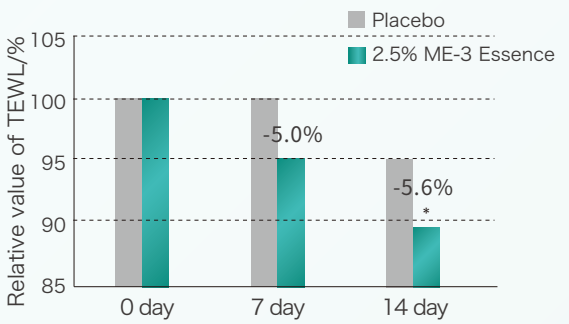


Model: HaCaT-UV model Sample: 0.5%-5%ME-3
* p<0.05, ** p<0.01, *** p<0.001

Endogenous maintenance, anti-sensitive *(in-vivo)*

A self-control study was conducted on 15 selected volunteers with sensitive skin. Subjects continuously used 2.5% ME-3 essence and placebo in the morning and evening. The results showed that compared with the placebo group, after using the 2.5% ME-3 essence for 14 days, the skin moisture content was significantly increased by 9.1%, and the TEWL was reduced by 5.6%. Therefore, ME-3 has the effect of moisturizing and barrier strengthening.





* p<0.05

Product introduction

【INCI name】BIFIDA FERMENT FILTRATE，PENTYLENE GLYCOL
【Characters】Light yellow, transparent solution
【Application】Barrier strengthening, moisturizing and other skin care products or cosmetics
【Suggested usage】0.5%-5.0%

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Instructions

INCI name: Ectoin

Appearance: White or off-white crystals or powder

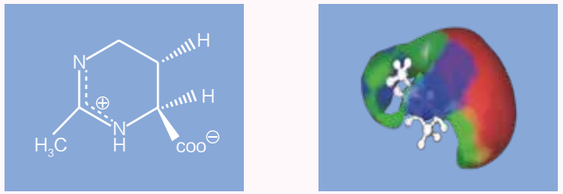
Recommended dosage: 0.1%-2%

Usage: Can be added directly to aqueous phase

Application: Skin care products, hair care products and color cosmetics. It brings functions of anti-stress, repairing, anti-inflammation, soothing, moisturizing and anti-aging.

Introduction

Bioecto™ is a highly pure Ectoine developed through a professional fermentation platform technology, with a high stability and safety profile. Ectoine is an amino acid derivative and belongs to the group of extremolytes. Tests prove that Bioecto™ has remarkable protective and repairing effects, helping the skin resist against external pressure. Bioecto™ can be widely used in personal care products such as repair, anti-pollution, sun care, anti-aging products and color cosmetic products.

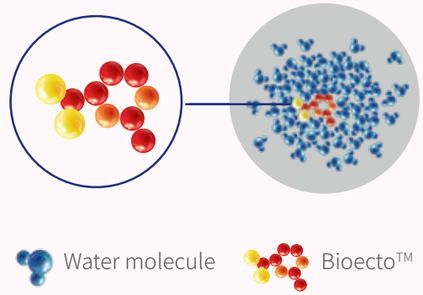


The molecular formula and electron distribution diagram of Ectoine

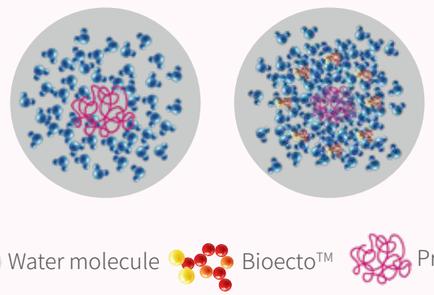
Action mechanism

Bioecto™ is easy to form hydrogen bonds with water molecules because of its great electronegativity. So Bioecto™ enhances the association of water molecules, makes water molecules orientate around them forming protection shells around cell membranes, DNAs, enzymes, proteins and other biomolecules, which is called "Kosmotropic effect".

Bioecto™ promotes the association of water molecules



Protection shell around protein

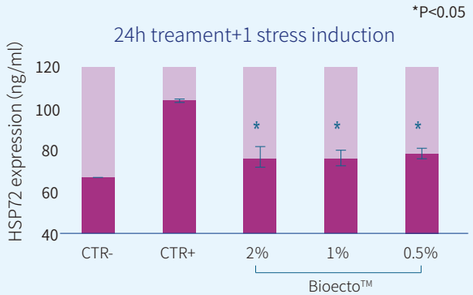


Protection & Anti-stress

1 Improves cells anti-stress ability and resists external pressure

Human skin cells produce heat-shock proteins (HSPs) when exposed to external stress like sun-radiation or other physical and chemical stress factors. When the cells were stimulated by heat, the expression of HSPs increased rapidly and gradually recovers to the normal level. The higher the final expression of HSPs, the more intense the stimulation was.

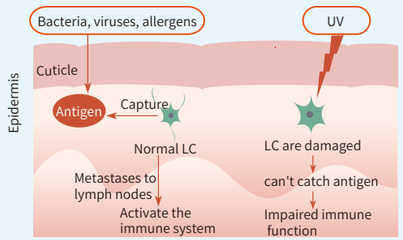
*P<0.05



The experimental results showed that the heat tolerance of cells was improved after the treatment with Bioecto™. Compared with the positive control group (CTR+), the HSP72 expression was significantly reduced.

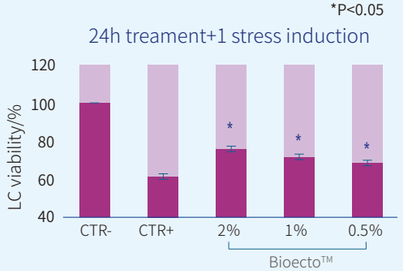
2 Protects Langerhans cell and enhances skin immunity function

Skin immune system activation mechanism



In normal skin, Langerhans cell (LC) can capture antigens and selectively induce the activation and proliferation of skin resident regulatory T cells to maintain normal skin immune tolerance. UV irradiation can reduce the number and density of LC and their ability to present antigens, resulting in a weakened skin immune function.

*P<0.05

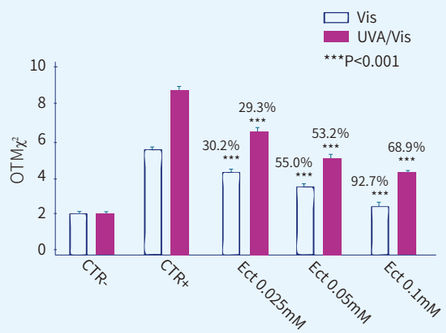


The tests showed that UV irradiation damaged Langerhans cells and reduced their activity. After the treatment with Bioecto™, the damage was significantly reduced. Compared to the positive control group, 1% Bioecto™ increased cell activity by 10.5% after 6 hours.

3 Prevents damage from UV and visible light

UV or visible light radiation can damage the DNA in skin cells to varying degrees, causing cancer in severe cases.

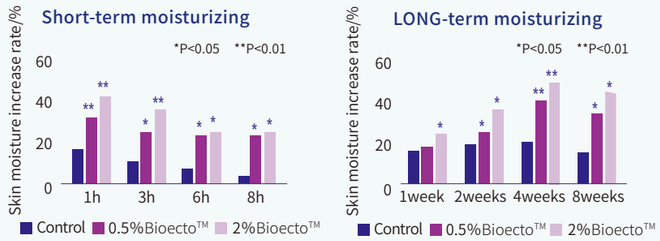
All the tested concentrations showed a highly significant level of photoprotection against UVA/visible light and visible light with a dose-response relationship. At 0.1 mM, the photoprotection levels of visible and UVA/visible irradiations correspond to 92.7% and 68.9%.



OTM: Olive tail moment, evaluation index of cell DNA damage degree

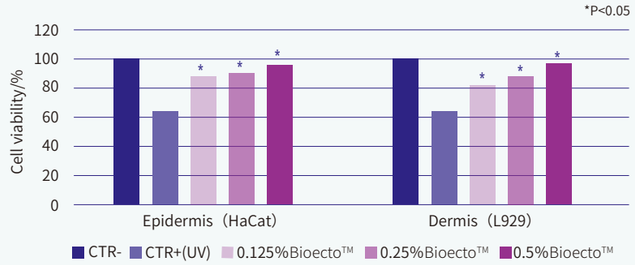
Repair & Anti-aging

1 Highly hydrophilic with long-term moisturizing ability



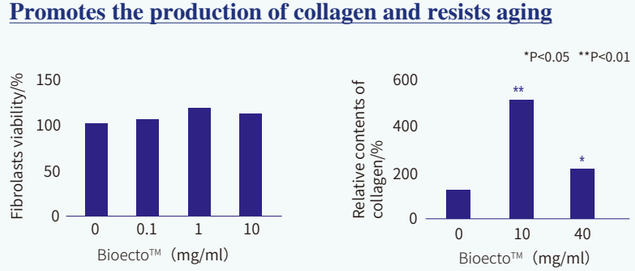
The test results showed that Bioecto™ can significantly increase the skin moisture content and has long-term moisturizing effects. After 1 hour of use 2% Bioecto™ cream, the skin moisture increased by 43.7%. After 4 weeks of continuous use 2% Bioecto™ cream, the skin moisture increased by 50.5%.

2 Repairs UV damage to skin cells



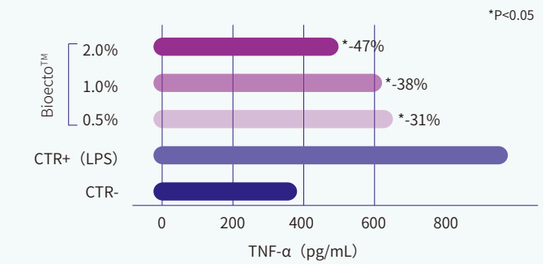
The test results showed that Bioecto™ had significant repair effect on cell damage caused by UV radiation, and the repair effect increased with the increase of concentration.

3 Promotes the production of collagen and resists aging



The test showed that a low concentration of Bioecto™ can significantly improve the activity of fibroblasts, stimulate the proliferation of fibroblasts, and promote the synthesis of collagen. 10m/gml Bioecto™ can increase the synthesis of collagen by almost five times.

4 Inhibits the release of inflammatory factor



The test showed that, Bioecto™ in the range of 0.5%-2.0% concentration had a good inhibiting effect on TNF-α, the inhibit rate of 0.5% Bioecto™ could reach to 31%.

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Bioecto™ Ectoine

Natural, found in extremophiles
Multi-functional amino acid derivate
Protection & Anti-stress
Repair & Anti-aging

Prevents damage from UV and visible light

Protects Langerhans cell to enhance skin immunity function

Improves cells anti-stress ability

Resists external pressure

Repairs skin cells damaged by UV
Inhibits the release of inflammatory factors
Promotes the synthesis of collagen, anti-aging
Keeps skin hydration constantly

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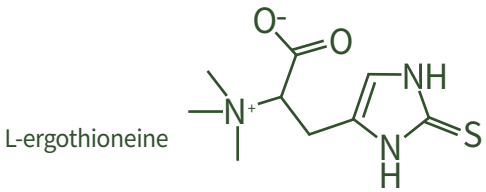
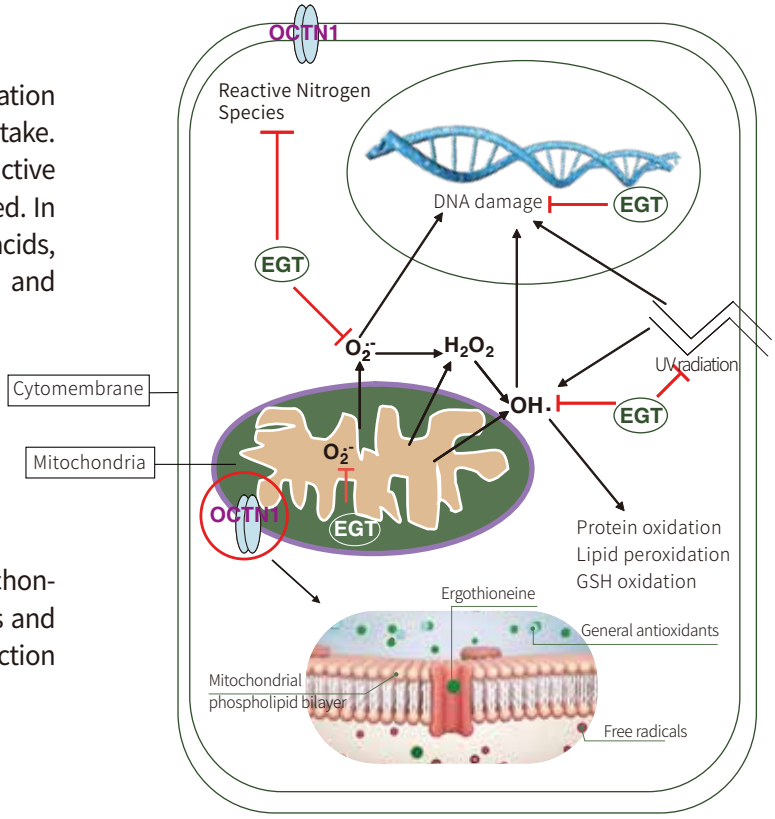
Bioyouth™-EGT

- Important active substances in human body
- Multi-Strain Fermentation
- Anti-photoaging,Anti-oxidant

Introduction

Bioyouth™-EGT is a product obtained by the fermentation and extraction process of the Tricholoma Matsutake. Through fermentation, the antioxidant active substance-ergothioneine (EGT) can be better enriched. In addition, the product also has rich dextran, amino acids, trace elements, nucleic acid derivatives, peptides and other components.





Ergothioneine(EGT) can be transferred inside mitochondria by the transporter OCTN-1 in skin keratinocytes and fibroblasts, thus playing the anti-oxidation and protection functions there.

Instruction

INCI Name:
Ergothioneine, Tricholoma Matsutake Mycelium Ferment Extract/ Tricholoma Matsutake Extract

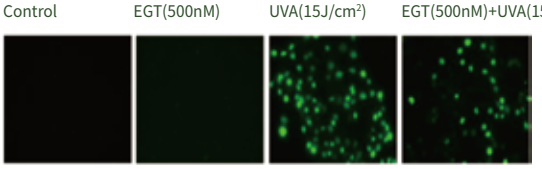
Application:
Anti-aging products, sun care products, antioxidant products, skin protection, skin regeneration.

Recommended Dosage:
0.5-2%

EGT is accumulated into different cellular compartments via its specific transporter OCTN1, abundantly expressed in mitochondria. Mitochondrial DNA is especially vulnerable to stress because unlike nuclear DNA, there are no histones to protect mitochondrial DNA. Reactive oxygen species, like superoxide O_2^- generated in the mitochondria by respiration, are directly scavenged (indicated by red lines) by EGT. EGT present in the cytoplasm also scavenges a variety of ROS and reactive nitrogen species. EGT absorbs UV radiation and prevents DNA breaks and mutations.

Efficacy

【Protect the DNA in skin cells 】 Protect against UVA-induced apoptotic DNA fragmentation



(HaCaT cells,TUNEL)

Compared to the UVA group, EGT+UVA group shows less TUNEL-positive, indicating Ergothioneine(EGT) can protect DNA from UVA damage. Ergothioneine(EGT) can be used in sun care products protecting skin cells.

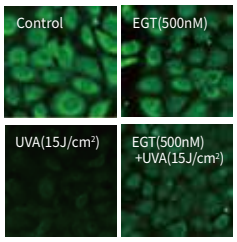
Cite this article as: You-Cheng Hseu, Heng-Wei LO, Mallikarjuna Korivi, Yu-Cheng Tsai, Meng-Ju Tang, Hsin-Ling Yang, Dermato-protective Properties of ergothioneine through induction of Nrf2/ARE-mediated antioxidant Genes in UVA-irradiated Human keratinocytes, Free Radical Biology and Medicine

【Anti-apoptosis】

Protect mitochondria from UVA damage

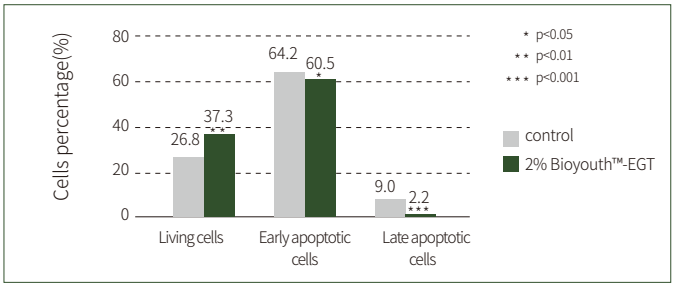
The fluorescent imaging of the mitochondria

(HaCaT cells)



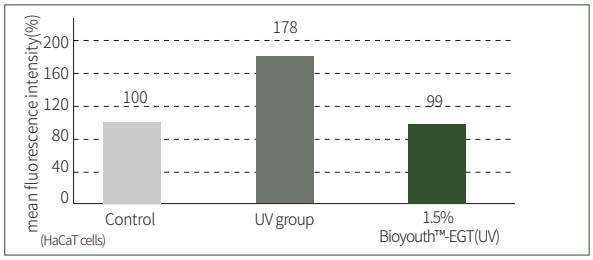
UVA leads to mitochondria damage, and in turn, causes the cell apoptosis. Results show that Ergothioneine(EGT) can protect mitochondria from UVA damage, and enhance skin cells vitality.

Decrease the cell apoptosis



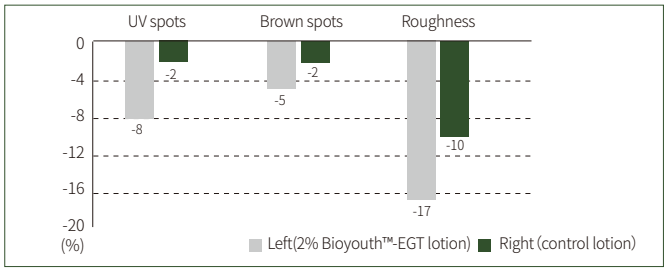
Bioyouth™-EGT can protect the human epidermal cells from apoptosis induced by UV. 2% Bioyouth™-EGT increased the proportion of living cells by 39%.

【Anti-oxidant】



Results show that Bioyouth™-EGT has a significant antioxidant activity. 1.5% Bioyouth™-EGT can almost completely eliminate the ROS free radicals produced by UV.

【Reduce pigmentation, Improve rough skin】



Results show that Bioyouth™-EGT can reduce UV spots by 8%, brown spots by 5% and roughness by 17% after 4 weeks application.

【In-vivo test】

2% Bioyouth™-EGT lotion,4weeks

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Cordyceps Prebiotics | Improve skin hypoxia | Collagen Promotion | Brightening & Firming

Bioyouth™-FCM

Cordyceps Militaris Ferment Filtrate

Cordyceps militaris is a well-known medicinal and edible fungus in China. It is rich in various active ingredients such as cordycepin, cordycepin acid, and cordyceps polysaccharide. It not only has oral health effects such as improving immunity and prolonging life, but also has antioxidant properties, firming, brightening, anti-aging and other skin care benefits. Bloomage Biotech research found that fermentation can not only fully release the active ingredients in Cordyceps militaris, but also convert macromolecular substances into easily absorbed small molecular substances, and at the same time generate new active ingredients, which greatly improves the skin care value of Cordyceps militaris.

69%

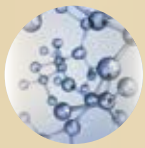
Cordycepin

2659%

Cordyceps acid

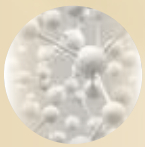
3300%

Cordyceps polysaccharide



260%

17 Amino acids



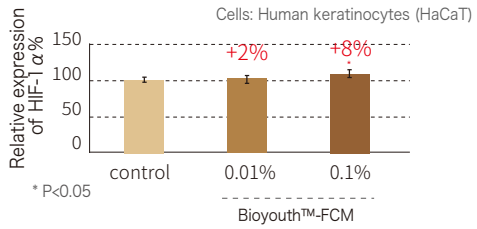
1.4 g/L

Lactic acid

Bioyouth™-FCM is based on the Bloomage Biotech's fermentation technology platform, using Cordyceps militaris as the substrate, and the active essence obtained by the fermentation of specific *Lactococcus*. Tests show that Bioyouth™-FCM can significantly promote the expression of HIF-1α and improve skin aging problems such as collagen loss, pigmentation, and reduced skin elasticity caused by hypoxia.

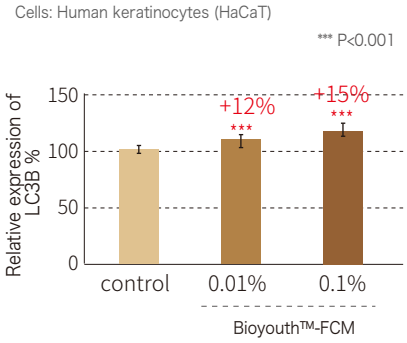
Mechanism of Action

Anti-hypoxia



HIF-1α plays a role in regulating oxygen homeostasis during cellular hypoxia. Compared with control group, the expression of HIF-1α was significantly increased by 8% with 0.1% Bioyouth™-FCM, thereby improving skin hypoxia and cell viability.

Activation of autophagy

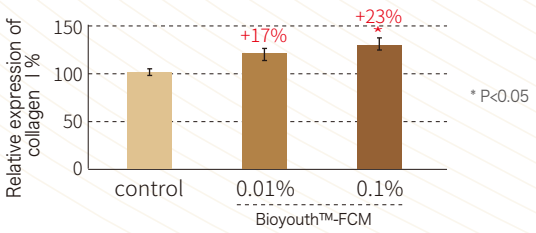


During autophagy, LC3B is involved in the formation of autophagosomes and it is an important marker protein for autophagy occurrence. 0.01% Bioyouth™-FCM up-regulated LC3B expression by 12% in cells. Thus it is indicated that Bioyouth™-FCM significantly improved cellular autophagy and promoted cellular repair and regeneration, then helping skin resist damage and aging.

Anti-aging Effects

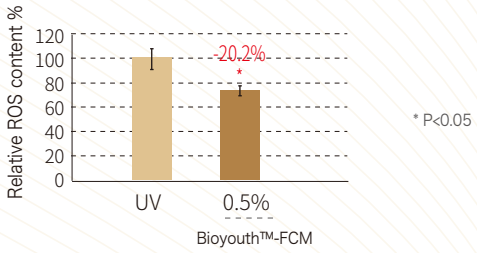
Collagen Promotion—Promote collagen synthesis and ROS clearance rate

Cells:Fibroblast (FB)



Collagen Ⅰ is the most abundant collagen in human body. Compared with control group, Bioyouth™-FCM at 0.01% and 0.1% up-regulated collagen I expression by 17% and 23%, so as to make the skin elastic.

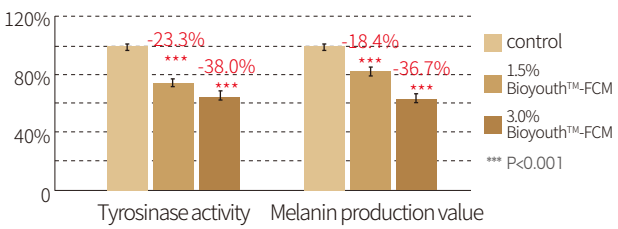
Human keratinocytes (HaCaT)-UV model



Excessive superoxide (ROS) is an important inducement of skin aging. Bioyouth™-FCM with 0.5% content could scavenge 20.2% ROS, indicating that it can reduce skin aging problems caused by ROS.

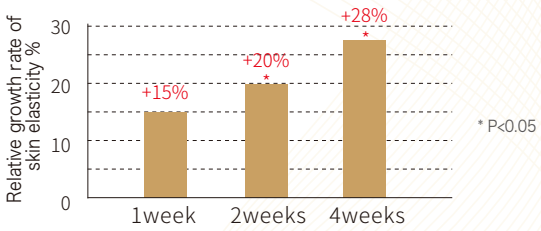
Brightening & Firming—Reduces melanin production, Improves skin elasticity

Melanoma B16 cells



Bioyouth™-FCM with content of 1.5% and 3.0% significantly reduced tyrosinase activity and melanin production, it is suggested that Bioyouth™-FCM has a brightening effect on skin.

In-vivo test



After using the serum containing 1% Bioyouth™-FCM for 4 weeks, the relative skin elasticity of the volunteers increased significantly by 28%, it is indicated that Bioyouth™-FCM helps skin to be firmer and younger.

Instructions

【INCI Name】 *Lactococcus* Ferment, Cordyceps Militaris Extract, Pentylene Glycol
【Characters】 Yellow to dark yellow, clear and transparent solution
【Suggested usage】 0.1%-3.0%
【Application】 Creams, lotions, serums, masks and body care products with anti-aging properties

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Bioyouth™-Brice

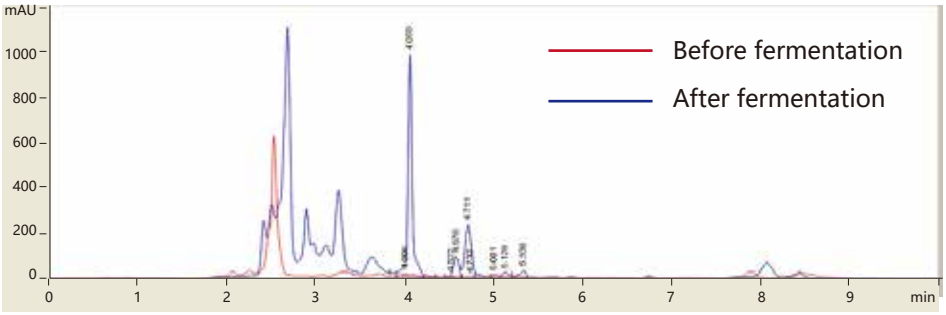
Brown Rice Ferment Filtrate

Brown rice, the complete whole grain rice, rich in dietary fibers, functional active ingredients and minerals, could improve cellular activity and immune system. Bioyouth™-Brice is developed using brown rice as the substrate and a unique yeast as fermenting strain. After fermentation, the nutrients in brown rice can be released, transformed and accumulated. Brice contains abundance of active polypeptides, amino acids and other active factors. These active factors can be quickly absorbed by the skin, increase the cell activity, repaire damaged cells, anti-aging, improve the over all skin appearance, and moisturizing.

Submerged liquid fermentation

Rich in multi-active ingredients

Significant anti-oxidant, whitening and repairing effects

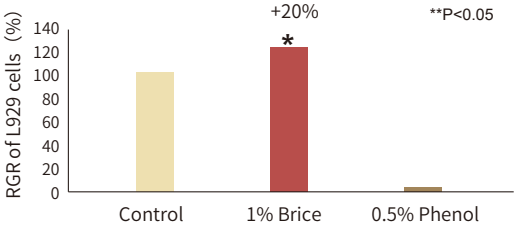


High performance liquid chromatography (HPLC) analysis on Bioyouth™-Brice

HPLC report shows that the variety of active ingredients increase sensibly, as well as their content after fermentation. Bioyouth™-Brice has high effectiveness as anti-oxidant, whitening and skin care repair.

Efficacy

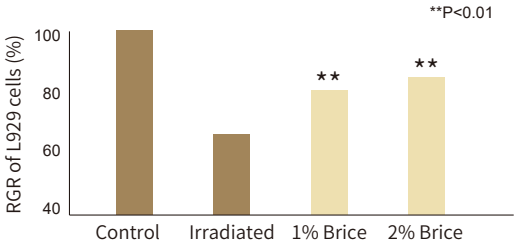
1. Increasing the cell activity



Brice can promote cell metabolism, the proliferation rate is increased by 20% with the 1% Brice.

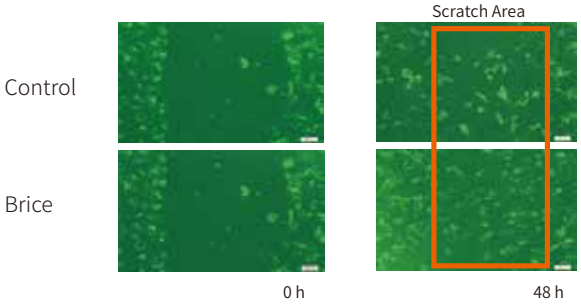
2. Repairing damaged cells

2.1 Cell damage caused by UV radiation



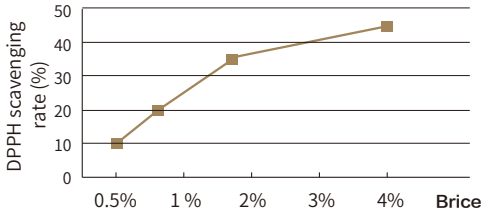
The cell proliferation rate is reduced up to 65% after UV radiation. After treatment with 2% Brice, the damaged cells proliferation rate is increased by 20% compared to the irradiated control. Therefore, Brice protects skin & cells from UV radiation.

2.2 Cell damaged by mechanical scratch



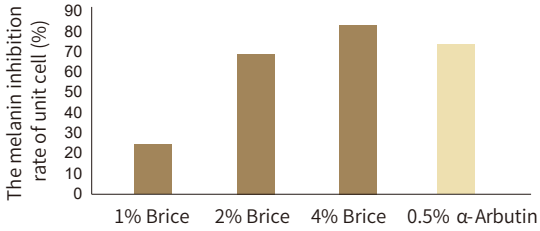
Scratch after 48 h, the cells amount when using Brice is sensibly more than control, and the cells shape is normal while is altered in the control sample. That suggests Brice has the ability to promote cell migration and recovery.

3. Anti-oxidant and delaying skin aging



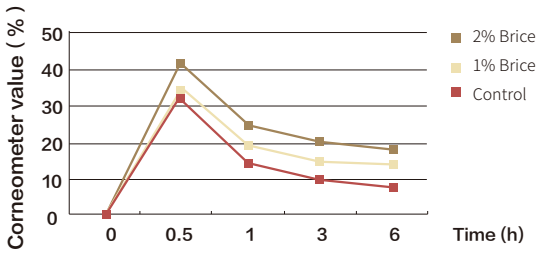
Rich in various anti-oxidant ingredients, Brice can scavenge free radicals and so it can delay the skin aging process. DPPH free radical scavenging test shows that the scavenging rate of 4% Brice is as high as 45%.

4. Significant whitening effect



Brice can help to even skin tones and improve dull skin, leave skin lustrous and whitening. The test result shows that the melanin inhibiting rate of 2% Brice is as high as 68%, which is comparable to that of 0.5% α-Arbutin.

5. Moisturizing



In the process of fermentation, many kinds of NMFs (Natural Moisturizing Factors) are released. These NMFs can be absorbed by the skin more easily and rapidly. After 30 minutes application of a Brice serum (contain 2% Brice), the skin moisture content increases 12%.

INCI name: Saccharomyces/Rice ferment filtrate
Applications: Cream, Emulsion, Serum, Facial Mask, and Hair Care Products etc.
Recommended dosage: 0.5%-4.0%.

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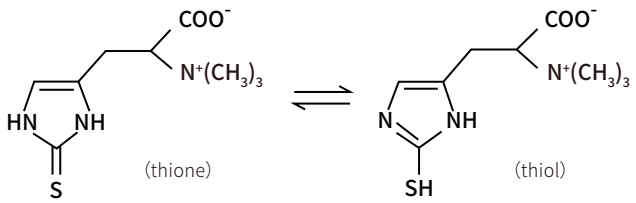
Bioyouth™-EGT Pro
Super Active Ergothioneine

- Multi-strain Fermentation
- Protect mitochondrial, Anti-oxidant, Anti-photoaging

Introduction

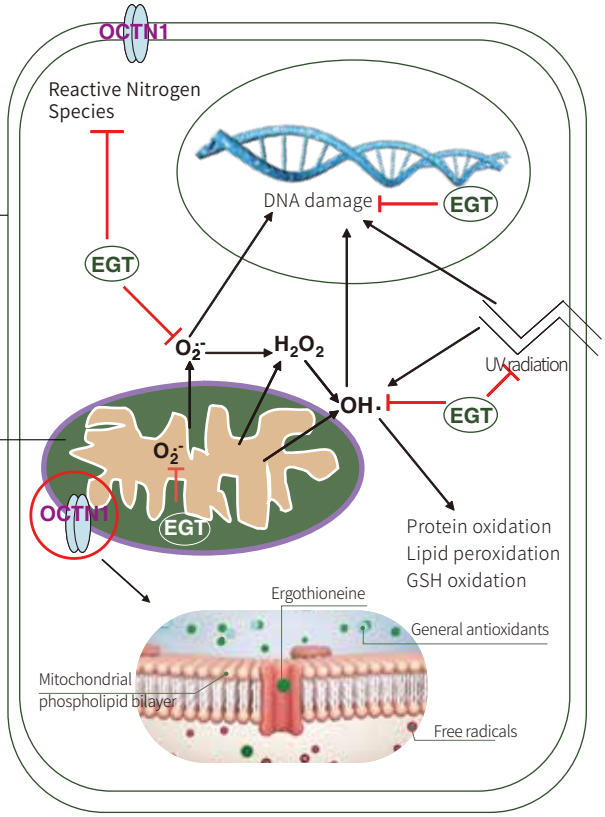
Bioyouth™-EGT Pro is obtained by fermentation of the Tricholoma Matsutake, spray dried together with microHA (Mw<5000Da) and trehalose. microHA can play a synergistic role with ergothioneine. Trehalose can protect EGT and HA and act as a moisturizer in the formulation.

EGT is a histidine derivative containing sulfur, has two structural tautomers of thiol and thione in the dissolved state. EGT is a very stable antioxidant compared with other naturally occurring thiols, and is less likely to spontaneously oxidize at physiological pH.



Two tautomers of EGT

Mechanism



Instruction

INCI Name: Ergothioneine, Tricholoma Matsutake Mycelium Ferment Extract/Tricholoma Matsutake Extract, Hydrolyzed Sodium Hyaluronate, Trehalose

Recommended Dosage: 0.1%-0.5%

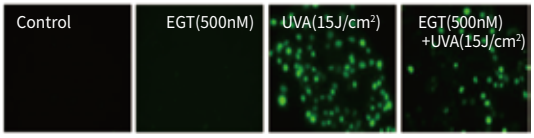
Application:
Anti-aging products, antioxidant products, sun care products, skin protection and skin regeneration.

Mitochondria are known as the " powerhouse" of the cell, the main sites of energy production and aerobic respiration. When mitochondria produce energy, they produce a large number of free radicals. Excessive free radicals lead to mitochondrial apoptosis, which will lead to cell death and skin aging. Studies have found that few natural antioxidants can penetrate mitochondria, while EGT can enter cells and mitochondria through the transporter OCTN-1 in keratinocytes and fibroblasts, directly scavenging ROS, and playing the role of anti-oxidation and protection of the mitochondria.

Efficacy

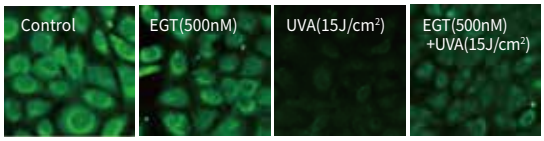
【Protect the DNA in Skin Cells】*

TUNEL can label DNA fragments in apoptotic cells. Weak fluorescence intensity represents less damaged DNA. Compared with the UVA group, the fluorescence intensity of EGT+UVA group was lower, indicating that EGT could protect DNA from UVA damage.



【Protect Mitochondria in Skin Cells】*

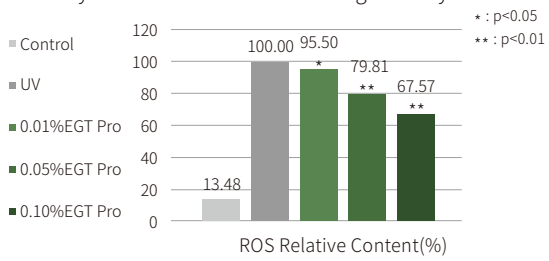
Mito-Tracker Green accumulates in the mitochondria. Right green fluorescence indicates a strong mitochondrial membrane potential. Compared with the UVA group, the fluorescence intensity of EGT+UVA group was stronger, indicating that EGT could protect DNA from UVA damage.



*: You-Cheng Hseu, Heng-Wei LO, Mallikarjuna Korivi, Yu-Cheng Tsai, Meng-Ju Tang, Hsin-Ling Yang, Dermato-protective Properties of ergothioneine through induction of Nrf2/ARE-mediated antioxidant Genes in UVA-irradiated Human keratinocytes, Free Radical Biology and Medicine

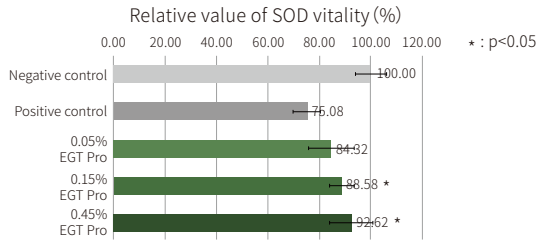
【Antioxidant – Scavenge ROS】

UV induced HaCaT cells to produce ROS. Test showed that 0.1% Bioyouth™-EGT Pro could scavenge ROS by 32%.



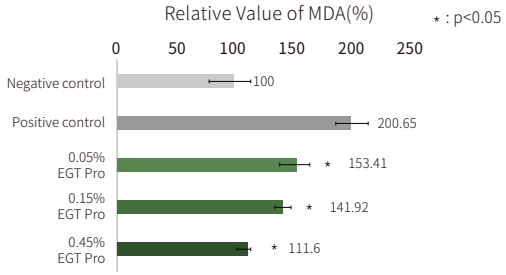
【Antioxidant – Improve the Activity of SOD】

Superoxide dismutase (SOD) is considered as an important antioxidant defense in nearly all living cells exposed to oxygen. Compared to positive control, 0.45% Bioyouth™-EGT Pro could increase the activity of SOD by 23%.



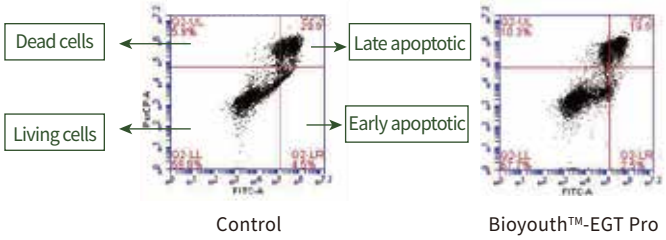
【Antioxidant –Inhibit Lipid Peroxidation】

Lipid peroxidation (LPO) is one of the cell damage reactions mediated by free radicals. Malondialdehyde (MDA) is a major by-product of LPO. Compared to positive control, 0.45% Bioyouth™-EGT Pro could decrease the content of MDA by 44%.



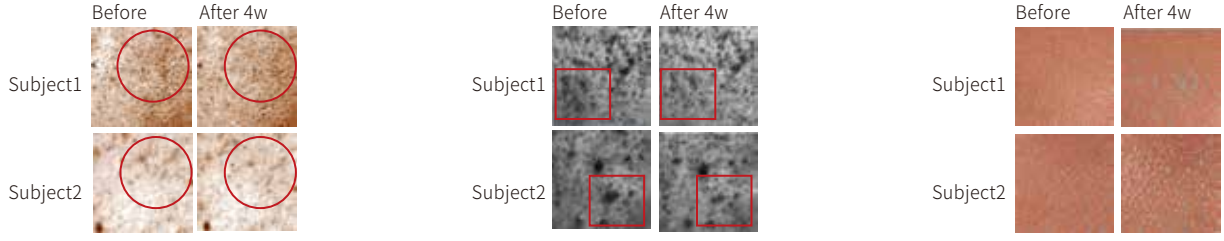
【Increase Cell Activity】

Cells tend to start its apoptosis because it senses cell stress or gets signals from other cells, such as irradiation, high temperature and ROS etc. UVB irradiation induced HaCaT cell apoptosis. 0.1% Bioyouth™-EGT Pro could reduce the apoptosis rate by 34%.



【Reduce pigmentation，Anti-aging】

After 4 weeks' application, Bioyouth™-EGT Pro can reduce the subjects' brown spots by 10%, UV spots by 7%, fishtail lines by 8%, improve skin moisture by 15%, improve skin elasticity by 20%.



Compared to control group, Bioyouth™-EGT Pro can reduce brown spots by 10% , UV spots by 7% , fishtail lines by 8%.

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China NMPA: 20220026

Bioyouth™-NANA

N-Acetylneuraminic Acid

Cell "antenna"

Amino sugars that occur naturally in the human body

The main functional ingredient of bird's nest

Skin protectant

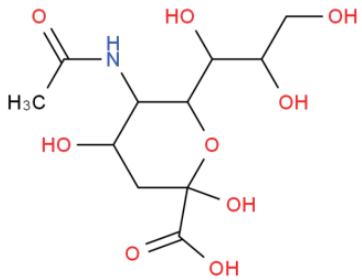
Anti-wrinkle

Humectant

Antioxidant

Introduction

N-Acetylneuraminic Acid (NANA), also known as sialic acid, was first isolated from bovine submandibular gland mucoprotein by Blix et al. in 1957. NANA is a naturally occurring amino sugar found primarily in the central nervous system and breast milk of humans. It is essential for the development of the nervous system and brain, playing a crucial role in regulating synaptic formation, neurogenesis, cell proliferation and migration, cell adhesion and axon guidance, as well as modulating innate immune function.

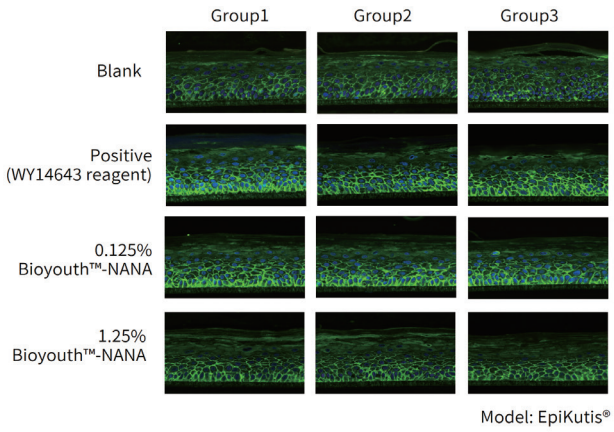


N-Acetylneuraminic Acid Structural Formula

Bird's nest, known as the "Eastern Caviar," is a health food ingredient with medicinal properties. It is beneficial for nourishing the skin, moisturizing the lungs, and has antioxidant, immune-enhancing, anti-aging, antiviral, and gut microbiota-regulating effects. Additionally, the Compendium of Materia Medica records the medicinal effects and medical value of bird's nest.

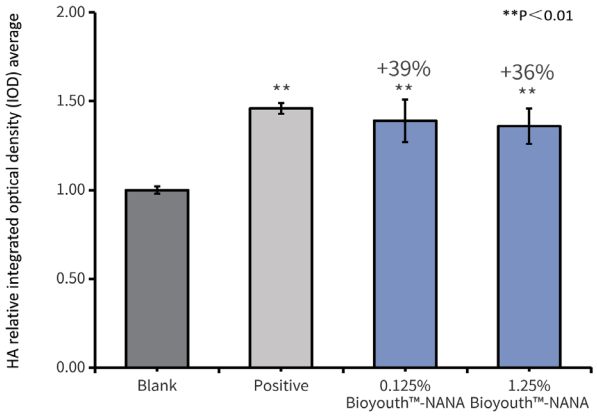
In bird's nests, N-Acetylneuraminic Acid (NANA) is the main active ingredient and is also a key indicator of the quality of bird's nests.

Promotes the expression of CD44 *(in-vitro)*



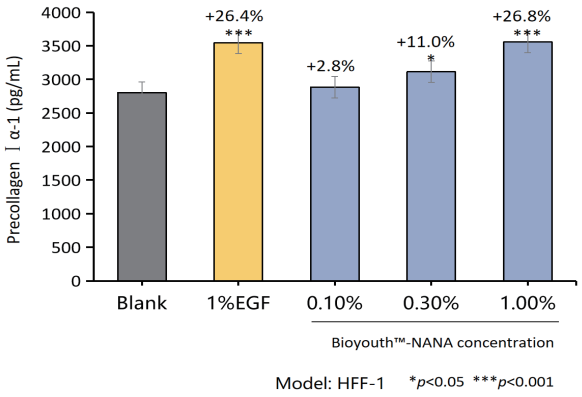
The CD44 protein is a receptor for hyaluronic acid in the human body and plays a crucial role in the skin as a key control factor in cell differentiation, barrier development, and skin hydration.
Compared to the blank control group, concentrations of 0.125% and 1.25% of Bioyouth™-NANA can significantly increase the CD44 content in the skin.

Promotes the content of HA *(in-vitro)*



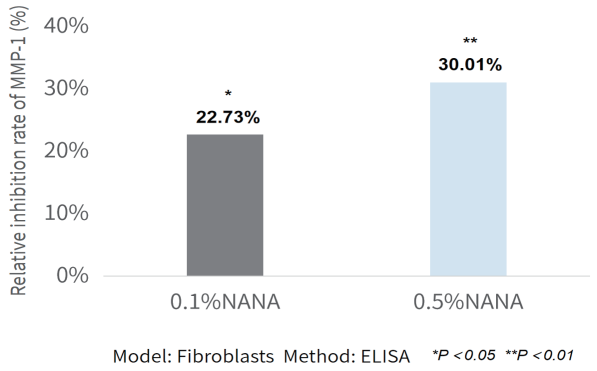
Compared to the blank control group, Bioyouth™-NANA at concentrations of 0.125% and 1.25% can significantly increase the content of Hyaluronic Acid (HA) in the skin. This enhances skin hydration, skin elasticity, and combats wrinkles.

Promotes the secretion of precollagen I α-1 *(in-vitro)*



0.3% and 1% Bioyouth-NANA™ N-Acetylneuraminic Acid can significantly promote the secretion of precollagen by skin fibroblasts, and have firming and anti-wrinkle effects.

Inhibits MMP-1 activity and delays skin aging *(in-vitro)*



After UVA stimulation of human dermal fibroblasts, the content of matrix metalloproteinase 1 (MMP-1) significantly increased. The experiment showed that Bioyouth™-NANA at 0.1% and 0.5% exerted significant inhibitory effects on MMP-1, with relative inhibition rates of 22.73% and 30.01% respectively.

【Description】

INCI name:
N-acetylneuraminicacid
Appearance: white powder
Recommended dosage:
0.1%-2.0%

Add method:
1. Soluble in water, can be directly added to the aqueous phase;
2. It is recommended to use an alkaline pH adjuster to neutralize N-acetylneuraminic acid to pH neutral and add it to the formula system, it is recommended to use regulators: triethanolamine, aminomethylpropanol, etc;
3. Add in the cooling process (at 45°C).
Applications: lotion, cream, essence, mask, facial cleanser, toothpaste, mouthwash, shampoo and other products

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cationHA™-Clear 1

Substantive Sodium Hyaluronate

A moisturizer designed especially for hair care that can improve the barrier function of the scalp.

【Introduction】

cationHA™-Clear 1, as a conditioning moisturizer, is a complex association between cationic Polyquaternium-10 and Sodium Hyaluronate (HA) with different molecular weights.

【Advantages】

► High Substantivity

It creates a synergistic polymer composite that improves and expands the main properties of two polymers and the substantivity of HA on the hair and skin. It shows higher substantivity to the hair and is suitable for rinse-off products.

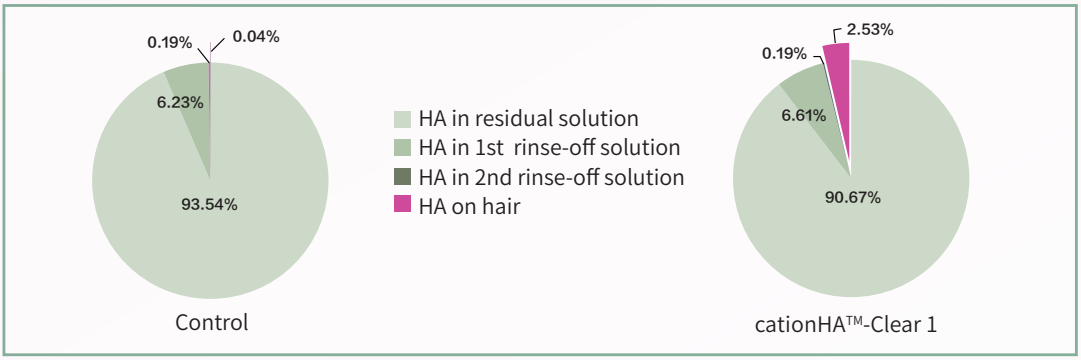

Fig.1 cationHA™-Clear 1 Resident Test

► Transdermal Repairing in Scalp Care

cationHA™-Clear 1, containing the special extremely low molecular weight Hydrolyzed Sodium Hyaluronate with high activity, shows transdermal absorption and repairing damaged scalp cells activity. It can repair and regenerate the self-protection of scalp to be healthy again.

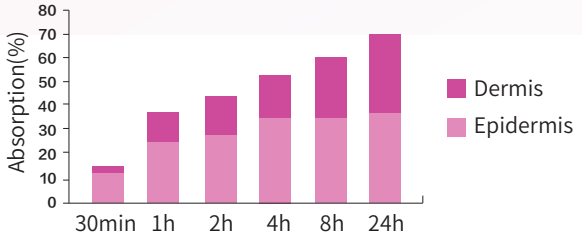

Fig.2 Transdermal absorption Test

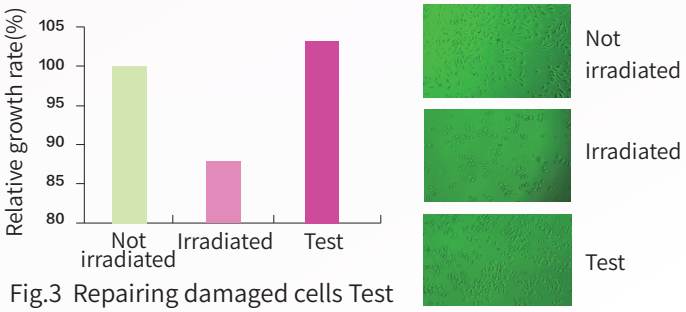

Fig.3 Repairing damaged cells Test

Reduction of the Irritancy

It helps to reduce the inflammation of the skin caused by surfactants present in the formulas. Test performed by a professional third party lab indicates that HA, especially the low molecular weight type, can reduce significantly the irritancy of the skin caused by SLS.

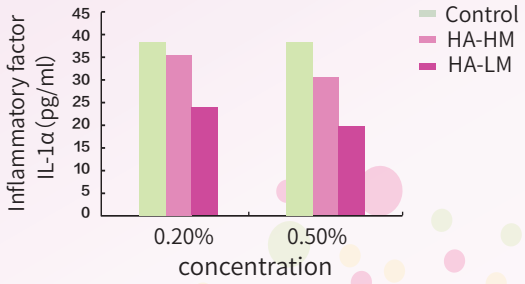

Fig.4 Reconstructed Human Skin Model Anti-irritation Test

The long-term protection and the barrier function of the scalp

The test has been carried on 30 volunteers. Considering the specificity of the scalp, the skin of the forearm flexor side has been treated; It was cleaned once every two days for four consecutive weeks with a shampoo containing 1% cationHA™-Clear 1.

The test indicates that after applying cationHA™-Clear 1 on the skin, the barrier function of the scalp has been sensibly improved.

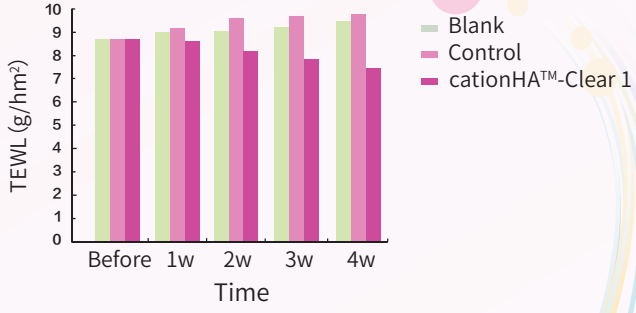

Fig.5 The Test of the Barrier Function of the Scalp

Foam Improving

Foaming property of shampoos with cationHA™-Clear 1 has been tested and showed that foams are finer.

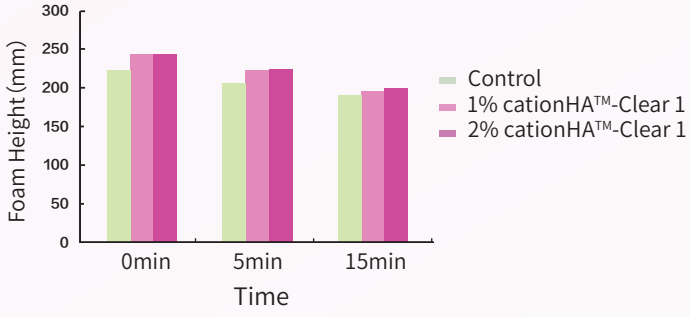

Fig.6 Shampoo Foam Test

【 Instructions 】

INCI Name: Hydrolyzed Sodium Hyaluronate/ Sodium Hyaluronate/ Polyquaternium-10/ Glycerin/ Phenoxyethanol/ Ethylhexylglycerin /Aqua

Applications: Shampoos, Conditioners, Cleansers, Body care products

Usage: Add cationHA™-Clear 1 at the last phase of formulation

Recommended dosage: 0.5%~1.0%

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Bioyouth™-Natto

Natto Extract

- Submerged liquid fermentation
- Rich in multi-active ingredients
- Increase the activity of the skin cells, anti-inflammation and anti-aging

Known as China tempeh, Natto has been more and more popular in recent years, not only because of its unique flavor, but also because of its healthy nutrition for human beings.

Natto Extract (Bioyouth™-Natto) simulates the natural fermentation process, using the non-GMO soybean as the main substrate.

Bioyouth™-Natto is rich in plant collagen, soybean peptides, amino acids, lactic acid, isoflavone, vitamins, coenzyme Q10 , and Superoxide Dismutase (SOD), etc., which could be easily absorbed by skin cells, and then help protect the skin barrier, increase the activity of the skin cells, enhance microcirculation, scavenge free radicals and anti-aging, maintain the skin elasticity, and thus improve the skin textures.

Recommended dosage: 0.5% - 2.0%.

INCI name: Bacillus/Soybean Ferment Extract

Applications: Cream, Emulsion, Serum, Facial Mask, Cleanser, Hair Care Products, etc.

Efficacy

1 Protecting the skin barrier

Bioyouth™-Natto is rich in plant collagen with different molecular weights, a variety of amino acids, minerals, lactic acid and other Natural Moisturizing Factors (NMFs), can effectively moisture the skin and protect the skin barrier.

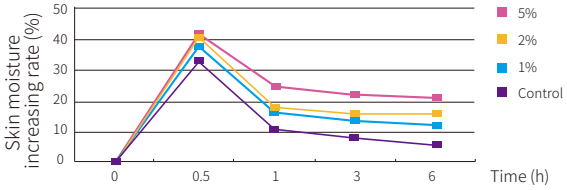

Fig. 1 Skin moisturizing test

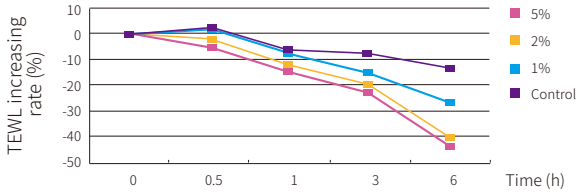

Fig. 2 Transepidermal water loss (TEWL) test

2 Increasing cell activity

The soybean polypeptide and polysaccharides in Bioyouth™-Natto can activate the skin cells efficiently. The test result shows that the cellular proliferation and activity are improved, while the accumulation of lipofuscin and cell senescence are delayed.

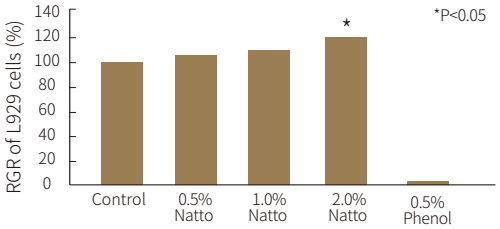

Fig. 3 Fibroblasts cells viability test

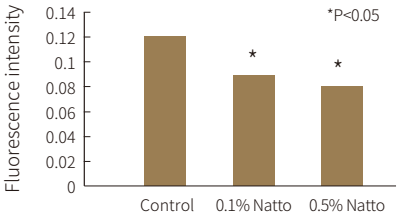

Fig. 4 Lipofuscin accumulation test

3 Anti-inflammation and anti-aging

Bioyouth™-Natto is rich in soybean polypeptides, isoflavone, vitamin B, E, K_2, coenzyme Q_{10} and Superoxide Dismutase (SOD), which not only inhibit the release of inflammatory factors effectively, soothing the skin, but also could help to scavenge the free radicals, improve the ability of anti-oxidation and anti-aging.

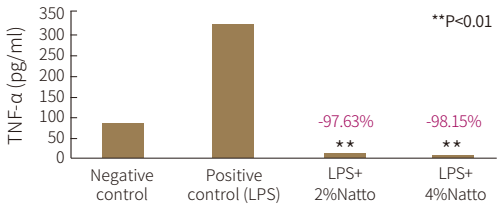

Fig. 5 Anti-inflammation test

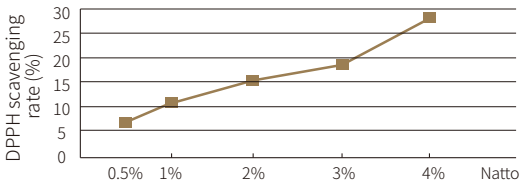

Fig. 6 Scavenging free radicals test

4 Increasing skin elasticity

Bioactive factors with multi-functions can penetrate into the skin and nourish the deeper cells, which helps to enhance the skin elasticity.

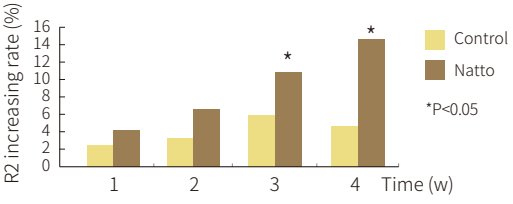

Fig. 7 Skin elasticity test

5 Improving the skin texture

Test results on volunteers using the cream for 30 days, show that the cream containing 1% Bioyouth™-Natto improves the skin texture effectively. It can promote microcirculation and recover elastic and even skin tone, leave the skin healthy energetic and smooth.

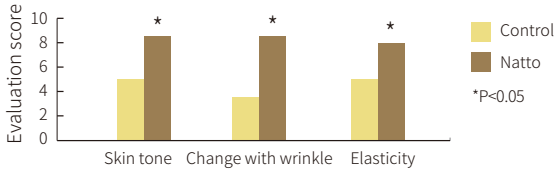

Fig. 8 The sensory evaluation

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Efficacy evaluation

2 Smooth skin

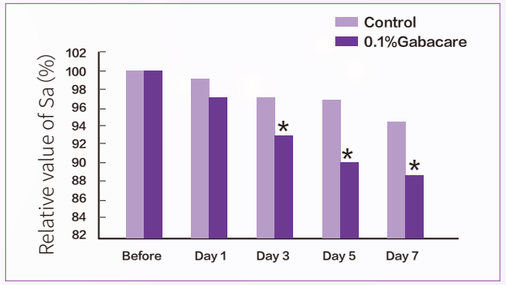

Fig.6 Anti-wrinkle effects of 0.1%Gabacare facial mask

Facial masks containing 0.1% Gabacare were applied for a week evaluating the average wrinkles depth every two days. The results show that the anti-wrinkle effect is very significant with the facial skin becoming smoother and more elastic.

3 Increase skin elasticity

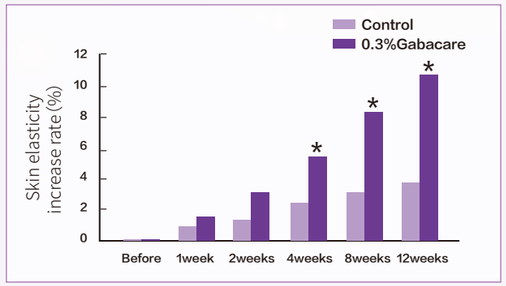

Fig.7 Comparison of skin elasticity variation

After 12 weeks of continuous use of the cream containing 0.3% Gabacare, the skin elasticity was significantly increased by roughly 10%. Skin appeared younger, more moisturized and tighter.

4 Sensory evaluation

Gabacare containing cream has obvious anti-aging effects. When volunteers used the eye cream for 30 days, the fine lines around the eyes disappeared, deep wrinkles reduced and the skin elasticity increased. As a main effect, the skin became smooth, pigmentation became weak and skin radiance increased.

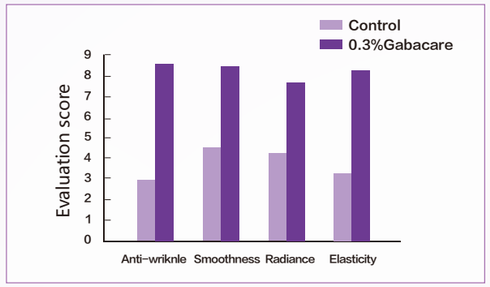

Fig.8 Performance comparison

Instructions

INCI name	Aminobutyric acid
CAS No.	56-12-2
Appearance	White or nearly white crystal or powder
Recommended dosage	0.05%~0.3%
Usage	Soluble in water, add directly to the aqueous phase
Application	Suitable for face and body care anti-aging products

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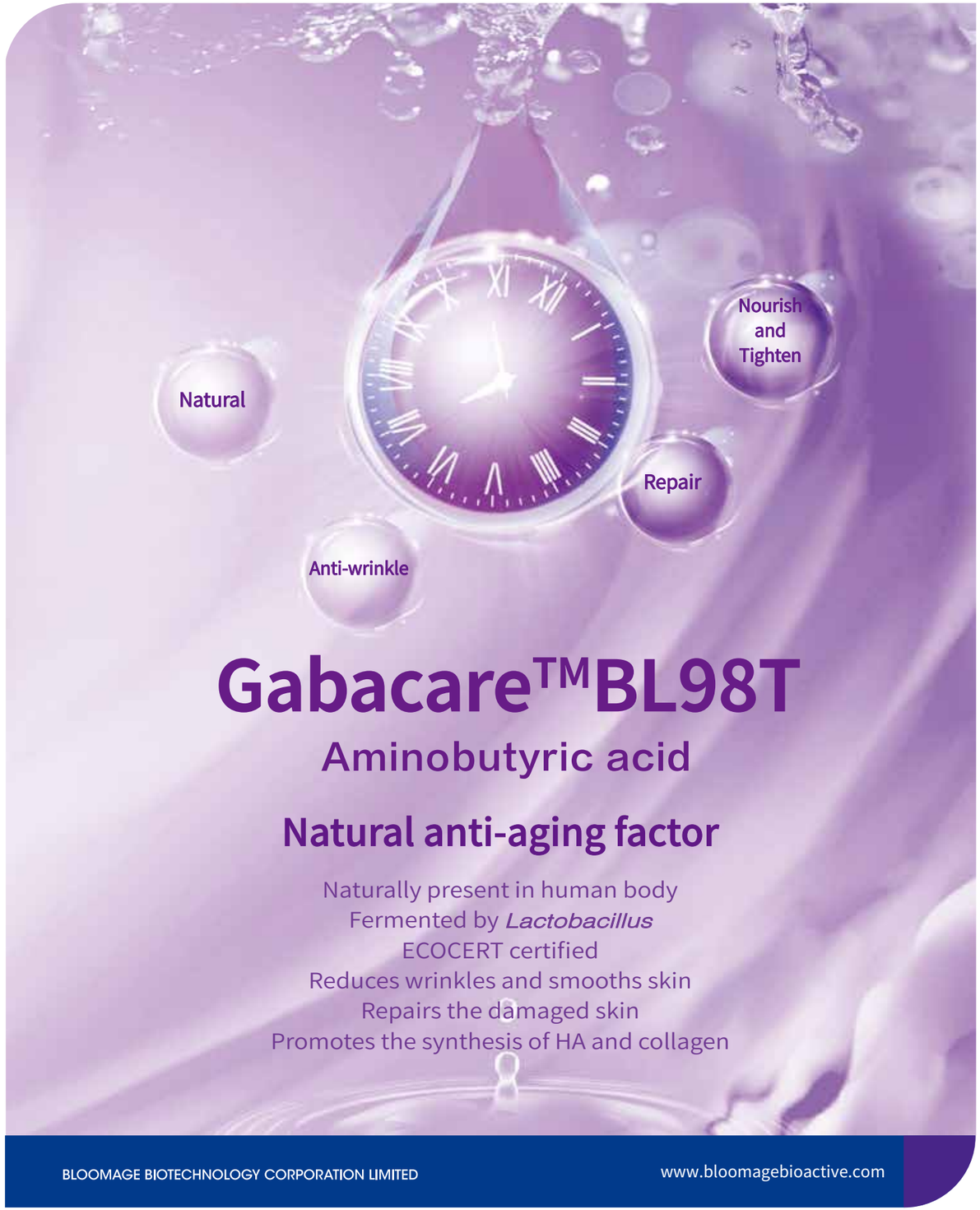

Gabacare™BL98T

Aminobutyric acid

Natural anti-aging factor

Naturally present in human body
Fermented by *Lactobacillus*
ECOCERT certified
Reduces wrinkles and smooths skin
Repairs the damaged skin
Promotes the synthesis of HA and collagen

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THE SECRET TO STAYING YOUNG

Anti-aging mechanism of GABA

Introduction

Gabacare™BL98T also known as γ-Aminobutyric Acid(GABA), a non-protein amino acid, is widely distributed in plants and animals, and plays an irreplaceable role for the regulation of the organisms' life activities.

With the lack of GABA, there will be a tendency for negative emotions. The most direct impacts of negative emotions on physical performance are on the skin that would gray and lose elasticity thus forming wrinkles, and so on.

1 Reduce wrinkles

There are $GABA_A$ receptors on the skin surface. The inhibitory or excitability of $GABA_A$ receptors controls the relaxation and tension of the expression muscles. GABA can quickly penetrate into the skin and activate the $GABA_A$ receptors, thus the tense expression muscles are relaxed so the expression lines are stretched.

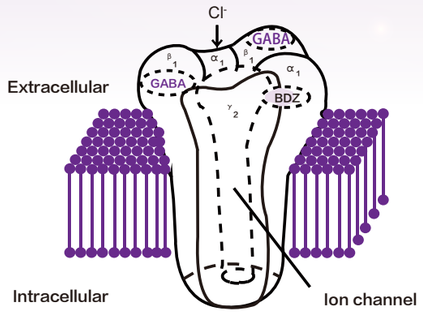
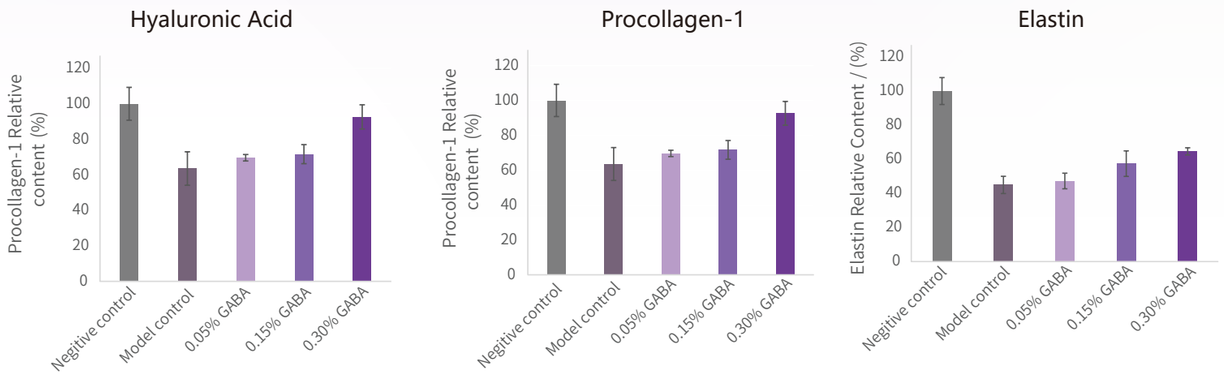


Fig.1 $GABA_A$ receptor

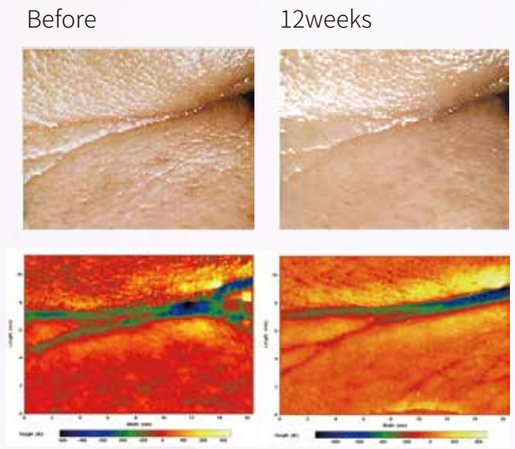
2 Promote the synthesis of HA, collagen and elastin (in-vitro)



By H_2O_2 induced aging test model, 0.3% Gabacare can greatly promote fibroblast to synthesize HA, procollegan-1 and elastin by 35.5%, 45.8% and 43.8% respectively, compared with model control group.

Efficacy evaluation

1 Reduce wrinkles



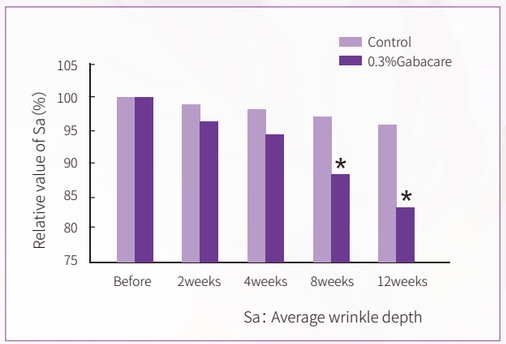


Fig.5 Anti-wrinkle effects of 0.3%Gabacare eye cream

The anti-wrinkle effect was obvious. The regular use of the eye cream for 8 weeks, the wrinkles reduced significantly. After 8 weeks, average depth of wrinkles can be reduced by 12%. After 12 weeks, average depth of wrinkles can be reduced by 17%.

★ *Note: The only difference between control and test samples is the formula of test samples contains Gabacare.*

BLOOMAGE

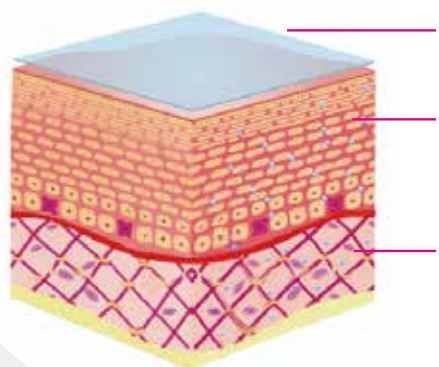
Hyacolor™-3D

Oil-dispersed Sodium Hyaluronate

- *3D Hydration*
- *Significantly Smoother*

Hyacolor-3D is made of different molecular weights HA and botanical oils through a special and proprietary technological process. The three different molecular weights of HA are evenly dispersed in oil phase in the form of microspheres. Hyacolor-3D has the benefit of 3D hydrating and smoothing activities, it can also reduce the presence of fine lines. It can be easily used in color cosmetic products such as foundation, lipstick, lip gross, etc..

Mechanism



Mechanism of Action

Large molecular HA- Forms a protective layer of hydration film on the skin surface, reduces water evaporation of cuticle, and prevents pollution and ultraviolet invasion.

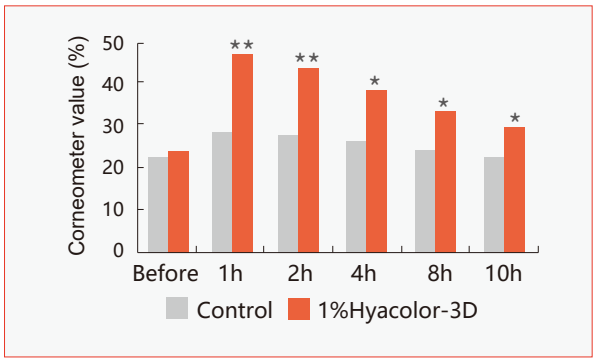
Medium molecular HA- Softens the cuticle by binding water, and nourishes the skin.

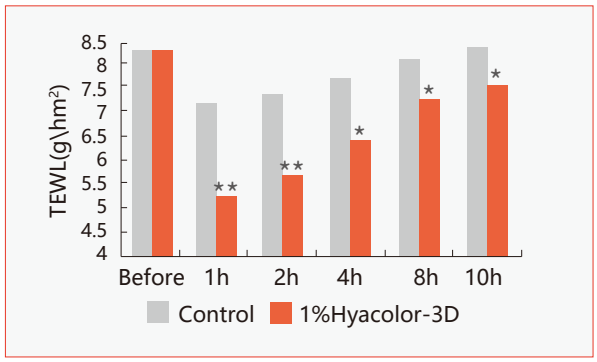
Small molecular HA- Shows good transdermal absorption, penetrates into the skin, captures water inside, and makes skin plumped and full.

The presence of different molecular weights HA gives Hyacolor-3D the ability to make lips intensely hydrated, smoothed, plumped and full.

3D Hydration

Hycolor-3D helps capture and seal-in hydration and make lips feel continuously moisturized throughout the day. Compared with control group, the skin hydration of subjects using Hyacolor-3D is increased by 95.6% after 1h and 21.7% after 10h. The TEWL of Hyacolor-3D group is reduced by 37.8% after 1h and 9.7% after 10h. Results show that Hyacolor-3D can nourish and hydrate the lips for at least 10 hours.





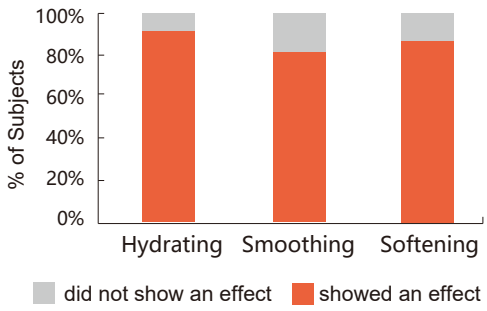
Instrument: Corneometer CM825 *Subjects: 30 healthy women* *Sample: Lipstick containing 1% Hyacolor-3D*

Significantly Smoother

Hyacolor-3D can smooth the lips significantly and reduce the look of fine lines. Results show that the majority of subjects record a significant hydrating, smoothing, and softening lips for up to 10 hours.

Before application After 1h application

Instruments: Visia-CR (Facial imaging system for clinical research)
Subjects: 30 healthy women *Sample: Lipstick containing 1% Hyacolor-3D*



Instruction

INCI name: Sodium Hyaluronate, Hydrolyzed Sodium Hyaluronate, Ricinus Communis (Castor) Seed Oil, Hydrogenated Castor Oil

Description: Ivory white to light yellow, ointment

Melting range: 65~80°C

Function: 3D Hydration, smoothness

Recommended dosage: 0.1%~2.0%

Usage: Color cosmetic products such as lipstick, lip gross, foundation, etc..

Application: Treat other ingredients at first through processes such as heating, homogenizing, or emulsifying, etc., cool it to temperature of not lower than 72°C (melting point of product), and then add the product into the system. Stirring is necessary in this process.

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——Hyaluronic Acid Scrub Solutions (Designed for Sensitive Skin)

Hyacross™ Hyaluronic Acid Microbeads TG300

Crystal HA microbeads with high elasticity,
Gentle exfoliating, easy to clean
Replace plastic microbeads with degradable and sustainable source
Customize the microbeads size and cross-linking degree

Hyacross™TG300 is a kind of swelled but water insoluble sodium hyaluronate crosspolymer, obtained from natural sodium hyaluronate by applying the patented cross-linking technology. Hyacross™TG300 can turn into crystal and highly elastic HA microbeads after swelling, which is able to replace the traditional plastic microbeads. It can be used in an exfoliating scrub to smooth skin and promote skin blood circulation, especially suitable for sensitive skin.

Swelling Degree

TG300 can reach the equilibrium swelled state in enough water after 5 minutes. The swelling degree is 12.5mL/g.

Particle size comparison before and after swelling

Before Swelling: 16μm

After Swelling: 418μm

Efficacy

【Exfoliate and brighten skin（*in-vivo*）】

We recruited 15 healthy volunteers aged 24 to 35 years for a randomized, double-blind, half-face control test. They applied TG300 and TG300-free scrub creams on their left and right sides of face, then massage the area for 5 min before rinsing with water. We tested the skin after 30 mins and found that scrub cream containing 1% and 3% TG300 can increase skin glossiness by 4.2% and 10.6% respectively compared with the blank group. The results show that TG300 has significant exfoliating and smoothing efficacy.

3% TG300 Scrub Cream

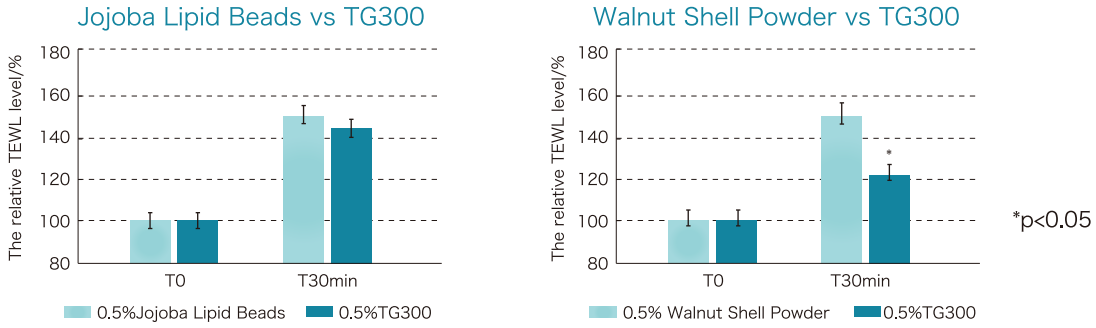
Normal Scrub Cream

Before using the scrub cream

After using the scrub cream

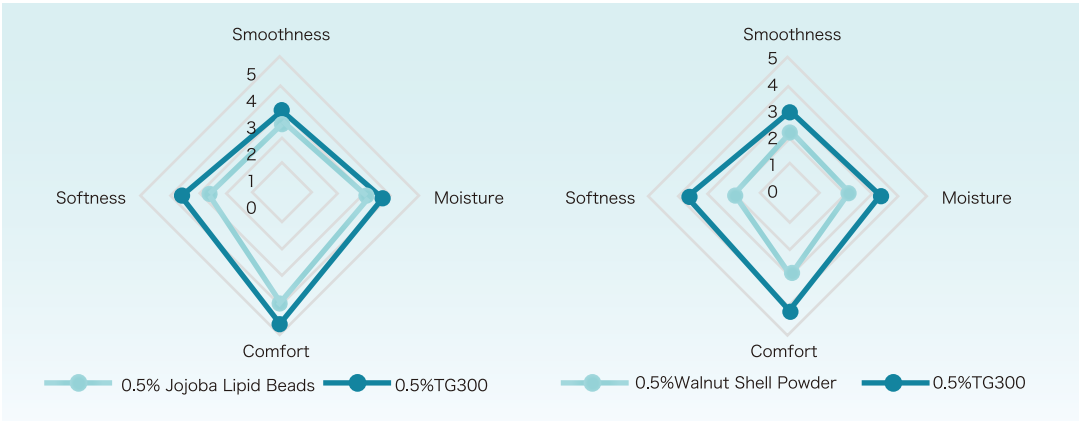
【Soft and hydrated, skin friendly】

Transepidermal water loss increases after using the scrub cream, which means that the skin barrier has been damaged to some extent. Compared with the same concentration of jojoba lipid beads and walnut shell powder, the TEWL in TG300 group was respectively decreased by 5.40% and 19.43%. So TG300 can moisturize the skin and reduce cuticle barrier damage caused by the scrub.



【Sensory Evaluation】

Compared with the control group, the skin smoothness, moisture, firmness, and softness were improved after the application of TG300-containing scrub cream. Subjects particularly liked the feelings of softness and elasticity that TG300 brought.



Biodegradable

According to OECD 301 F <MANOMETRIC RESPIROMETRY TEST>, TG300 is biodegradable and corresponds to sustainable development trend.

Specification

INCI name	Sodium Hyaluronate Crosspolymer
Appearance	White or almost white granules
Particle size	Distribution within 0.05 mm-0.4 mm ⩾ 60%
Recommended Dosage	Facial scrub products: 0.3-3%; Body scrub products: 1-5%
Usage	For non-emulsifying system, directly add swelled TG300 to the formula; for emulsifying system, add swelled TG300 during cooling stage of the emulsification.
Application	Scrub products, such as scrub body lotion, exfoliating cleanser/gel, etc. Clean massage products, such as body massage cream, scalp massage essence, etc.

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Instructions

Type	TL100	TG100
INCI name	Sodium Hyaluronate Crosspolymer, Pentylene Glycol, Aqua	
Character	Colorless and transparent aqueous gel	Colorless and transparent aqueous gel containing soft particles
Recommended Dosage	1%-5%	0.05%-2%
Usage	It can be added directly to the water phase, stirring till completely dissolved.	The particles are visible, like “HA droplet”. They are still present in the solution after this product is dissolved in the aqueous phase. The particles will become smaller even disappear during the homogenization process.
Application	It can be used in moisturizing, anti-aging and anti-pollution products with different forms, such as cream, emulsion, essence, mask, etc.	

Reference Formula

Multiple HA Moisturizing Essence

INCI NAME	wt/%
Aqua	To 100
Allantoin	0.2
Sodium Hyaluronate (HA-T)	0.05
Sodium Hyaluronate (HA-TLM)	0.1
Hydrolyzed Sodium Hyaluronate(miniHA)	0.2
Aminobutyric Acid(GabacareBL98T)	0.1
Butylene Glycol	5.0
Sodium Hyaluronate Crosspolymer (Hyacross TL100)	3.0
Carnosine	0.2
Pentylene Glycol	3.0

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Hyacross™

Hyaluronic Acid Elastomer

Excellent protective network with long-lasting moisturizing effect on the skin

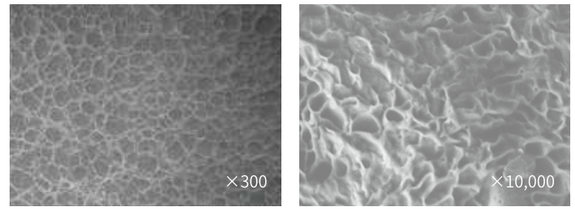
- Smooth and not sticky feeling
- Forms a crosslinked network on the skin surface
- Long-lasting moisturizing effect
- Protects skin against UV and air pollution

Hyacross™ Hyaluronic Acid Elastomer

Hyacross is a crosslinked polymer derived from natural Hyaluronic Acid (HA). Hyacross appears like an elastic gel with high viscosity able to form invisible biological film on the skin surface with various effects, such as moisturizing, protection, slow release, etc.

Spongeous Structure

The Hyacross microstructure was studied by using scanning electron microscopy. Hyacross can form a 3D “breathable” layer on the surface of the skin that improves the skin barrier function, reduces the water evaporation from cuticle and prevents the skin damage caused by external aggressions like UV ray, pollution, etc.

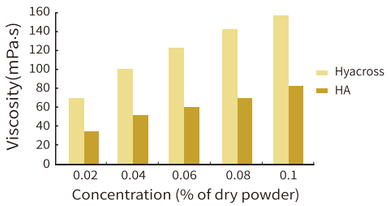


Hyacross microstructure

1 Long-lasting moisturizing effect

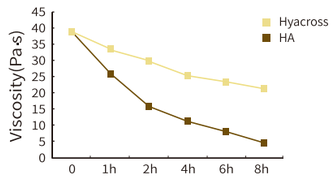
Excellent water-binding capacity

The viscosity of a Hyacross solution is 2-3 times that of HA solution at the same concentration, which indicates that Hyacross can bind more water molecules because of its crosslinked structure. Hyacross behaves like a “micro reservoir” delivering continuously water to the skin.

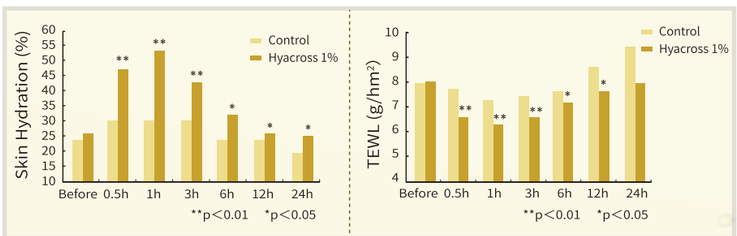


Good resistance to Hyaluronidase

Hyacross shows better resistance to Hyaluronidase than common HA, so the film formed by Hyacross on the skin surface is more stable and durable.



24 hours of long-lasting moisturizing effect

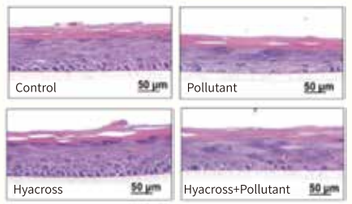


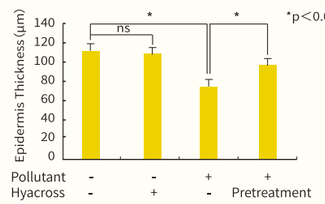
Hyacross can keep cuticle moisturized because of its excellent water binding capacity and decrease the evaporation of the deeper skin moisture by forming a dense film on the skin surface. Compared to the control group, the skin hydration of Hyacross group was increased by 85% after 0.5h and 110% after 1h; the skin TEWL of Hyacross group was reduced by 18% after 0.5h and by 22% after 1h.

2 Protects skin against environmental pollution

Hyacross can protect skin against particulate matter (PM) pollution

1 Hyacross can reduce the skin damage caused by pollutants

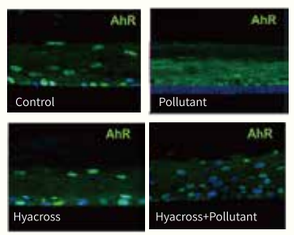


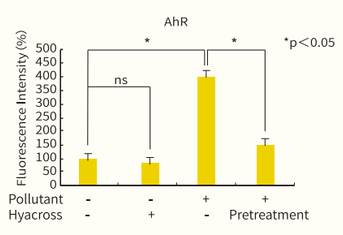


The skin tissue of the pollutant group showed abnormal morphology and the skin thickness decreased 38.6μm compared with the control group. The skin tissue damage was reduced by pretreatment with Hyacross and the thickness of skin tissue increased 20.97μm compared to the pollutant treated group.

2 Hyacross can significantly reduce the expression of AhR and CYP1A1

● The expression decrease of AhR (Aryl hydrocarbon receptor, Green)

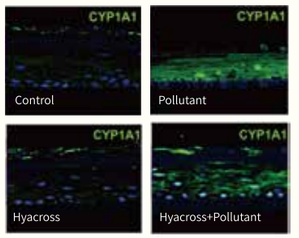


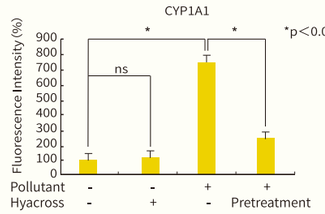


AhR can mediate the toxicity of PAHs.

When Hyacross was pretreated 24 hours prior to the treatment of pollutant, and then cultured for 24 hours with pollutant treatment, the expression of AhR was reduced by 63.26%.

● The expression decrease of CYP1A1 (Aryl hydrocarbon hydroxyla, Green)

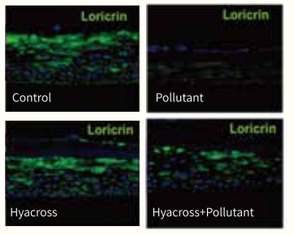


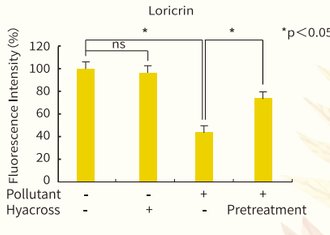


CYP1A1 could catalysis the oxidation of carcinogens from PAHs.

When Hyacross was pretreated 24 hours prior to the treatment of pollutant, and then cultured for 24 hours with pollutant treatment, the expression of CYP1A1 was reduced by 71.44%.

3 Hyacross can significantly increase the expression of loricrin





Loricrin could regulate skin barrier function, Green

The expression of loricrin involved in the skin barrier function increased by 64.93% compared to the pollutant treated tissue group.

The above data are all from a third-party institution.

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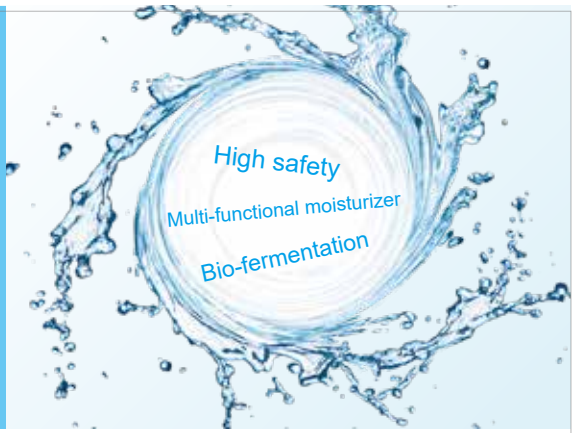
Hyafactor™-NAG

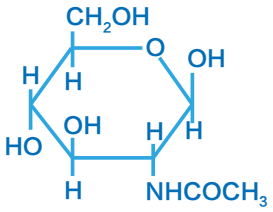
INCI Name: Acetyl glucosamine



【Introduction】

Acetyl glucosamine (NAG), a basic component unit of numerous polysaccharides in cells, has many important physiological functions in organisms. Hyafactor™-NAG is a small amino monosaccharide molecule obtained by bio-fermentation. It possesses excellent transdermal absorption and can improve the skin hydration. In addition, NAG as a high-quality and multi-functional moisturizer has been widely used in various cosmetic formulations.

Structural formula:



Molecular formula: $C_8H_{15}NO_6$

【Efficacy】

1 High-quality moisturizer

The excellent transdermal absorption ability of NAG can improve the skin hydration to make it a high-quality moisturizer; as confirmed by the moisturizing experiment (Fig. 1).

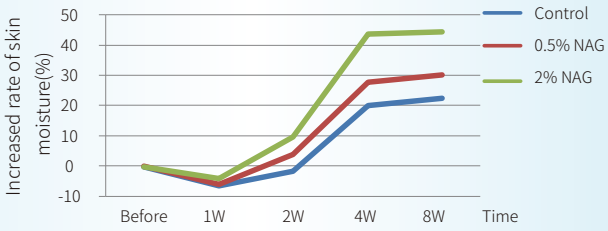


Fig. 1 The moisturizing effect of NAG

2 Promoting HA synthesis

NAG can enhance the activity of hyaluronic acid synthase (HAS) promoting the synthesis and secretion of hyaluronic acid by the keratinocytes and fibroblast cells, thus improving the hyaluronic acid content of the skin.

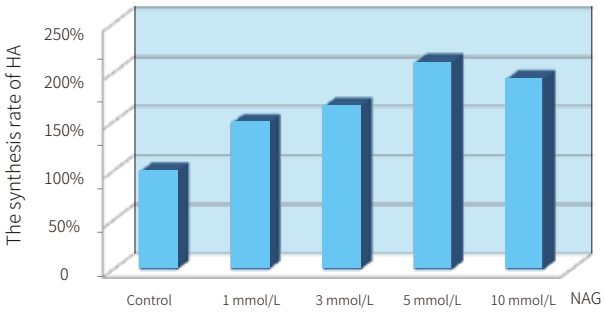
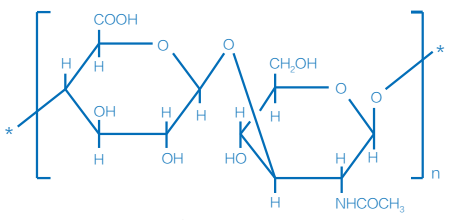


Fig. 2 NAG can promote HA synthesis



Structure of Hyaluronic Acid

HA is a linear high molecular weight mucopolysaccharide composed by thousands of repeating disaccharides units of D-glucuronic acid and Acetyl glucosamine.

3 Natural exfoliating regulator

NAG is a natural exfoliating regulator during the metabolism of keratinocytes. The glycoprotein present on the surface of keratinocytes will cause these keratinized keratinocytes bond together and hard to peel off when in presence of an abnormal metabolism. NAG on the contrary can improve and maintain the metabolism of glycoprotein on the surface of keratinocytes in the way that the natural exfoliation of cutin makes the skin smoother and delicate.

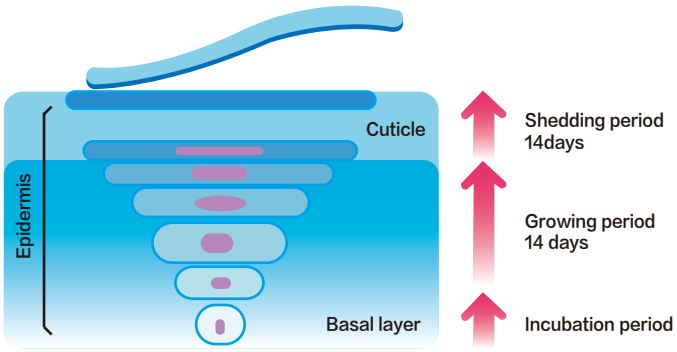


Fig. 3 The metabolism of corneous cells

4 Whitening skin

NAG can inhibit the tyrosinase activity leading to the reduction of melanin synthesis. What's more, the synergy effect of NAG and nicotinamide can reduce the skin pigmentation, fade skin color spot and reduce the phenomenon of uneven complexion caused by UV radiation, showing a beautiful and charming skin.

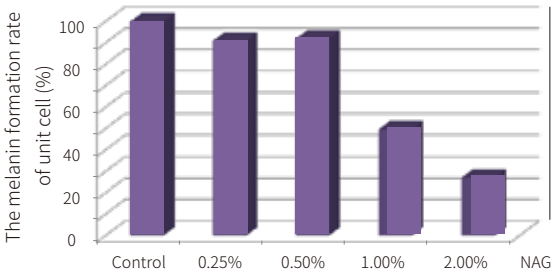


Fig. 4 The effect of NAG on the formation of melanin in unit cell

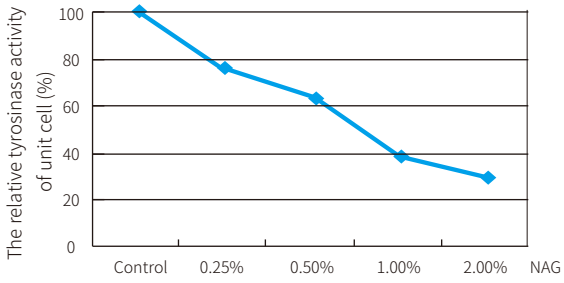


Fig. 5 The effect of NAG on tyrosinase activity in unit cell

5 Scavenging free radicals

NAG can reduce free radicals damage occurred to the skin by scavenging free radicals, and it is able to enhance the anti-wrinkle, anti-aging and skin tissue repairing ability as well.

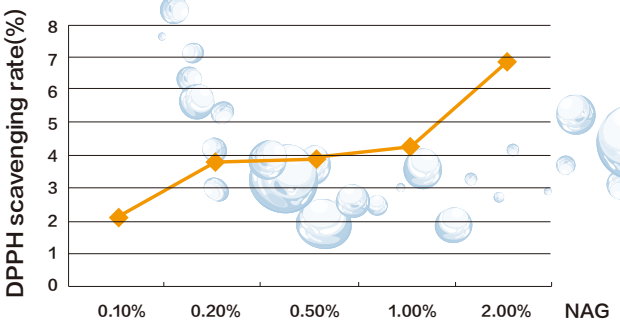


Fig. 6 The ability of scavenging free radicals

【Application】

Cream, Emulsion, Serum, Mask, etc..

【Recommended dosage】0.5% -2.0%

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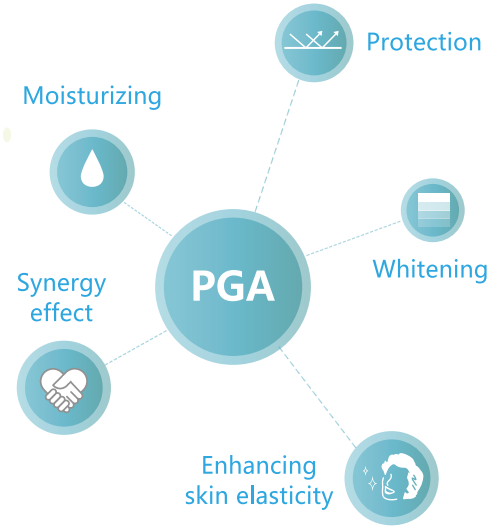
Hyafactor™-PGA

Sodium polyglutamate

【Introduction】

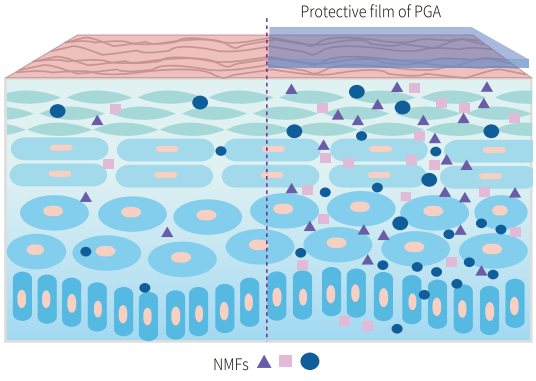
Polyglutamic acid (PGA) which exists frequently in nature in the form of sodium polyglutamate, is usually a sticky anionic amino acids polymer. Initially, it was found in a traditional food 'natto', which is also called γ-polyglutamic acid (γ-PGA). The polymer is an isomorphism type of polypeptide biopolymers with glutamic acid as a structural unit and connected by amide bond formed through α-amino and γ-carboxyl group. Since each of the structural unit of glutamic acid contains a plurality of hydrophilic groups, a large amount of hydrogen bonds can be formed inside or between the polymer chains, so PGA can effectively capture and retain moisture, enhance skin elasticity, and be regarded as a good natural moisturizing ingredient widely used in personal care products. Our Hyafactor™-PGA is produced by fermentation with a superior strain of *Bacillus subtilis*. Its INCI name is sodium polyglutamate.



【Efficacy】

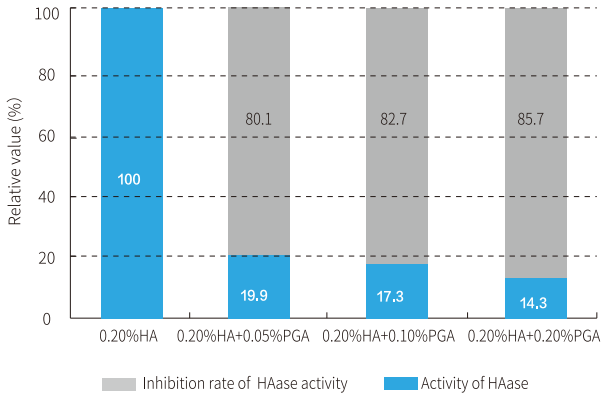
1 Promote the accumulation of NMFs

PGA has excellent biocompatibility and film-forming properties, it can protect the skin effectively and maintain skin in the healthy pH environment. Also, it can promote the skin's natural moisturizing ingredients accumulation and increase the level of natural moisturizing factors (NMFs) in the skin culture.



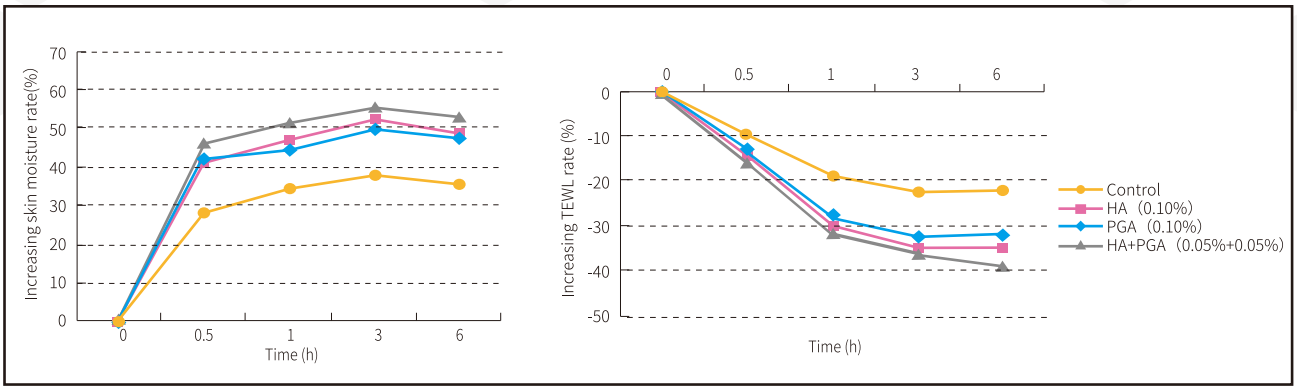
2 Reduction of hyaluronic acid (HA) degradation

HA is a high-quality natural moisturizing factor, however HA can be hydrolyzed quickly by hyaluronidase (HAase). PGA can effectively inhibit the activity of HAase, increasing and maintaining the level of HA in the skin culture while leaving the skin more healthy and youthful.



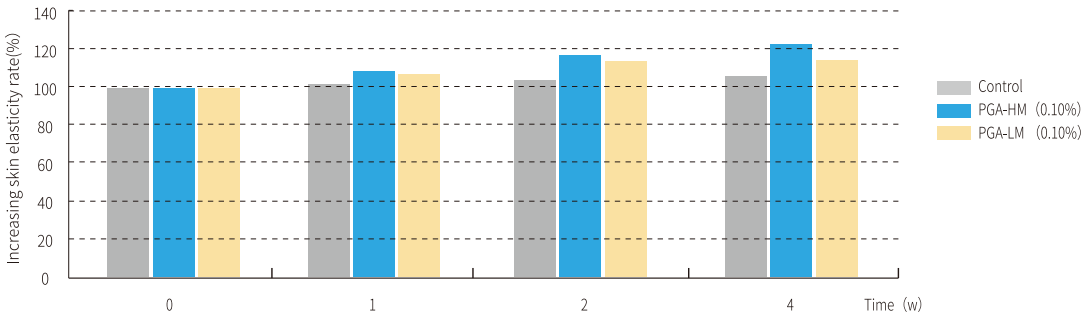
3 Enhance hydrating and moisturizing capacity of skin

PGA can reshape the skin self-moist system, further improve the skin hydrating and moisturizing capacity. In addition, PGA can penetrate and humidify the corneous layer, leaving the skin smooth and moist.



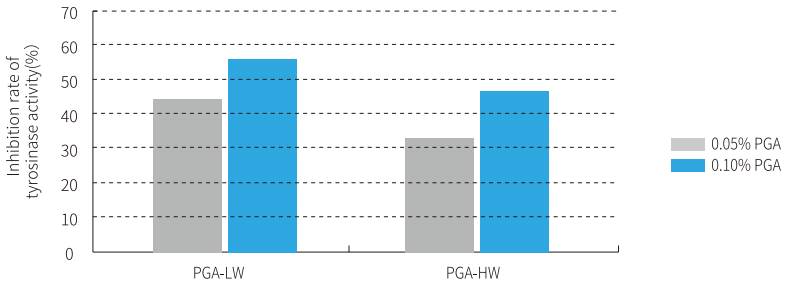
4 Improve elasticity and softness of the skin

PGA can effectively activate cells and promote the skin fibroblasts to synthetize more elastin and collagen, thereby improving skin elasticity and softness, fading fine lines and delaying skin aging.



5 Inhibition of melanin production

PGA can inhibit the activity of tyrosinase, so that it can reduce the production of melanin and improve skin tone, leaving the skin whitening.



6 Effect of synergy with other ingredients

PGA can not only efficiently increase the moisture of the skin but also provide better skin feeling, smoothness and silkiness when used in combination with HA or other cosmetics ingredients. PGA builds a good embedded delivery system by its anionic groups and then control the release of nutrients and moisture continuously. In turn the active ingredients and nutrients will perform more effectively. By forming a protective film, it can help the skin to resist from external aggressions and soothes the response of allergy and inflammatory.

【Application】 Cream, Emulsion, Serum, Mask, Cleanser and Hair care products, etc.

【Recommended dosage】 0.05% - 1%.

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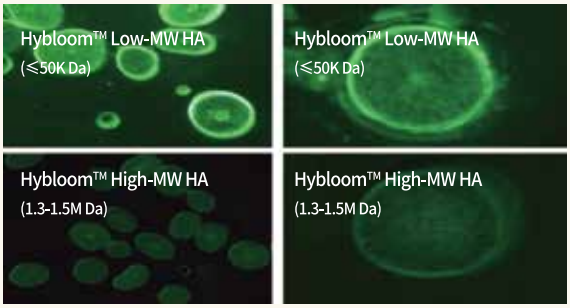
Mechanism-Penetrates into Hair Core

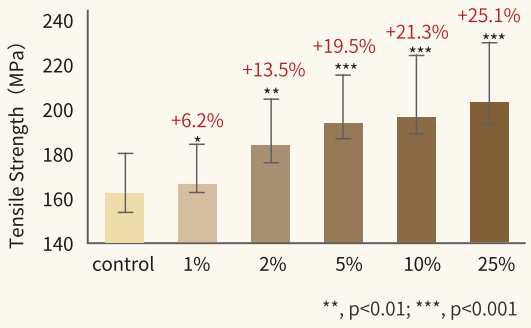
Hair was labeled with Fluorescein Isothiocyanate (FITC) after HA treatment, and cross sections of hair strands were obtained by freezing section and observed. The results showed that the fluorescence intensity of low-MW HA-treated hair was significantly higher than that of high-MW HA-treated hair, which means the high-MW HA was difficult to effectively enter the hair, while the low-MW HA could effectively penetrate into all parts of the hair, even deep into the cortex, providing a theoretical basis for the improvement of the mechanical properties of hair.



Cross sections of hair treated with FITC-HA
Green fluorescence represents HA distribution,
the brighter the fluorescence, the higher HA content

Mechanism-Locks the weak binding water, strengthen the hydrogen bond

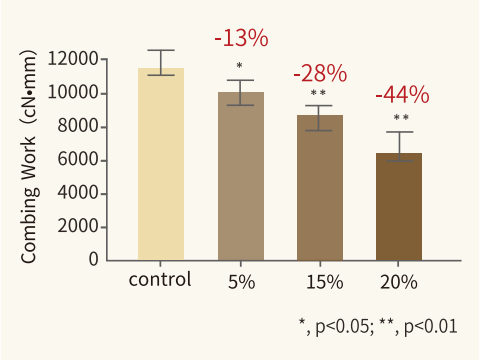
The active molecular weight of Hyanutra™-RH ranges from 100 to 1000, and contains rich moisturizing groups, which can strengthen the hydrogen bond inside the hair and enhance the binding strength of water, thus strengthening the hair. The strength of Hyanutra™-RH is concentration-dependent, so a high level use is recommended for maximum effect, then followed by lower for maintenance.



Control group: water; Experimental group: 1%-25% Hyanutra™

Hydrates & lubricates Smooth, Reduces Frizz

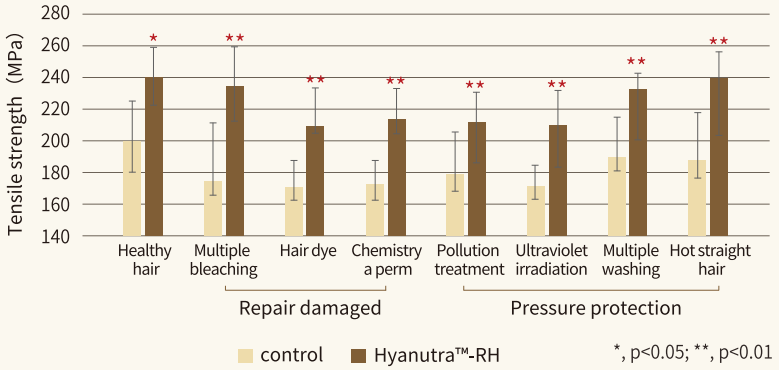
Hyanutra™ contains a polysaccharide polymer of different molecular weights. High MW Hyaluronic acid is film forming and lubricates hair surface for improved smoothness. The experiment shows that Hyanutra™ can effectively reduce the hair combing work.



Control group: clean water; Experimental group:
5%-20% Hyanutra™

Repairs, Resists Damage

Daily stressors on hair can result in dry, frizzy, and brittle weak hair prone to breakage. A tensile strength test shows that Hyanutra™ repairs hair damage caused by chemical treatment (such as bleaching, ironing, and dyeing), and also protects hair from environmental aggressors (such as pollution, UV damage, multiple washings, and high temperatures) providing a nourishing shield chock full of amino acids, vitamins and minerals delivered by fermented brown rice.



Control group: clean water; Experimental group: 20% Hyanutra™.
Damaged repair: The hair is damaged first, and then repaired with Hyanutra™.
Pressure protection: the hair is first treated with Hyanutra™, and then exposed to environmental pressure

Product Description

[INCI name] Hydrolyzed Sodium Hyaluronate, Sodium Hyaluronate, Saccharomyces/ Rice Ferment Filtrate

[Appearance] Yellow or light yellow transparent liquid

[Application] For ironing damaged hair, it can be added to leave-in conditioner, hair mask, hair sprays and scalp essence

[Suggested Use Levels] 1%~30%

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Jointly developed with Cosmetics Innovation Center of Jiangnan University

Hyanutra™-RH
Hair Nourishing Shield

Hair core H_2O-locked repair

Smooth shine, healthy root-to-end

Hyanutra™-RH is a natural moisturizing conditioner designed for damaged hair, which is composed of hyaluronic acid (HA) and brown rice ferment filtrate. By building a 3D water-locking repair system, the product enables the active substance to penetrate into the hair core to lock water, strengthen chemical bonds and consolidate keratin, making the hair smooth and strong from the root.

Daily brush, Chemical treatment, Environmental stress → Water-binding capacity reduced Hair mechanical strength decreased → Dry, Frizz, Breakage

【Patented to create a 3D water-locking repair system】

Synergistic multi-level against external damage, mild and friendly to scalp

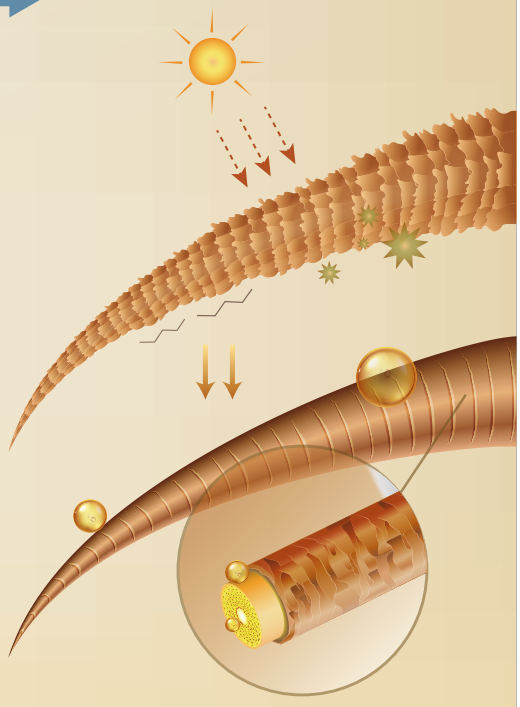
HA with different molecular weights

Lubricate hair, reduce combing work, smooth shine
Deep into the hair core to improve strength and resist damage

+

Brown Rice Ferment Filtrate

Rich in amino acids, peptides and other active ingredients
Nourishing hair and scalp, root repair



3D water locking system

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Hyafactor™-PGA

Super High Molecular Weight Sodium Polyglutamate (PGA-SHM)

COSMOS certified · Probiotics fermentation · Super high molecular weight
Silky skin feeling · Film-forming & Protection · Skin barrier improvement · Generation of NMF

Introduction

The super high molecular weight Sodium Polyglutamate (PGA-SHM) is a polypeptide biopolymer produced through the fermentation of the probiotic "Natto *Bacillus*". The molecular weight of PGA-SHM is more than 2 MDa (GPC-MALLS method), which is 7 times higher than PGA-HM, so PGA-SHM has a nice silky skin feeling and a better film-forming ability which protect the skin barrier from pollution damage. By a series of researches, it has been found that PGA-SHM can effectively promote the maturation of the Cornified Envelope (CE), the generation of Natural Moisturizing Factor (NMF), thus enhancing significantly the skin barrier function.

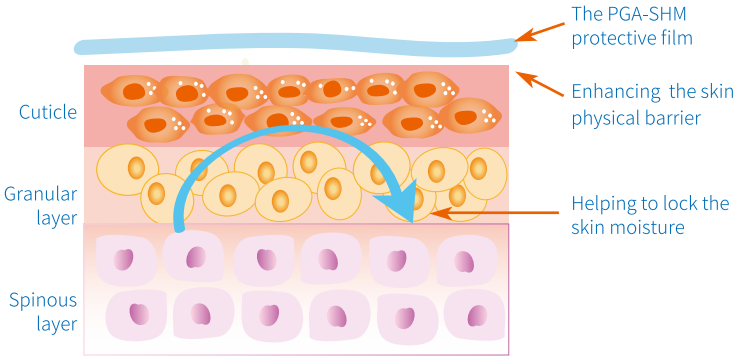
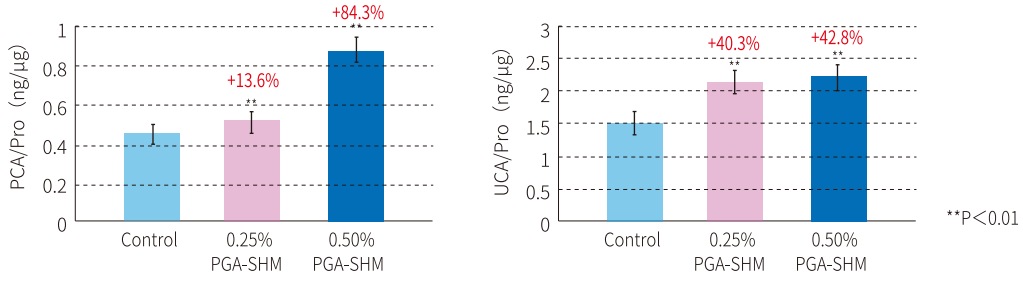


Fig.1 The skin care scheme for PGA-SHM

Efficacy

【Promote the generation of NMF】

NMF are water-soluble substances with a nice hydration ability; Pyrrolidone Carboxylic Acid (PCA) and Urocanic Acid (UCA) are the representative components of NMF. From our studies, the PCA and UCA values are increased by 84.3% and 42.8% respectively when PGA-SHM is used at 0.5% (Fig. 2), this result suggests that PGA-SHM can promote the generation of NMF significantly.



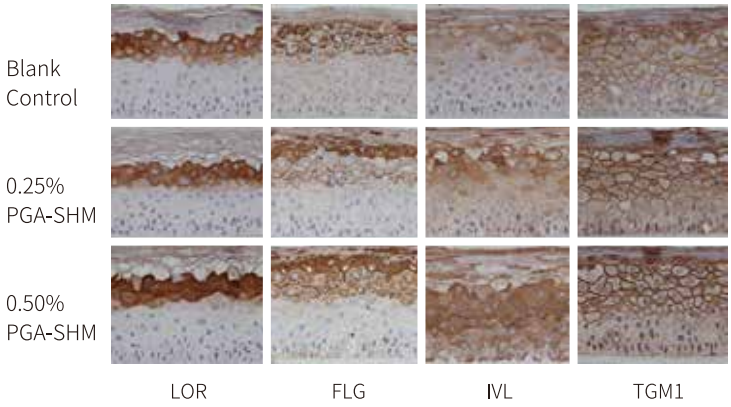
The quantitative determination of PCA　　The quantitative determination of UCA

Three-dimensional (3D) skin model, HPLC analysis. PCA/Pro or UCA/Pro represent the PCA or UCA value in every unit protein.

Fig. 2 The influence of PGA-SHM on NMF value

【Improve the skin barrier】

1.Promote the maturation of the cornified envelope



Three-dimensional (3D) skin model, Immunohistochemistry (IHC) analysis.

Fig. 3 The IHC results of protein markers

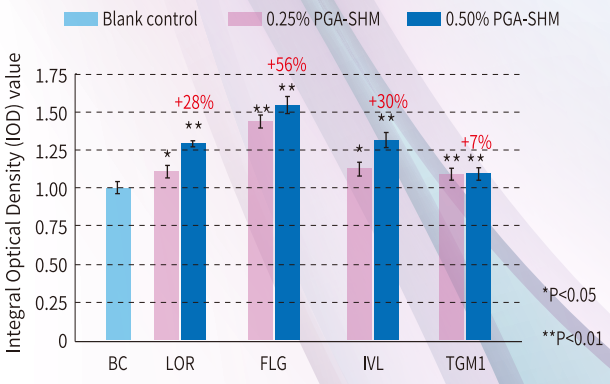
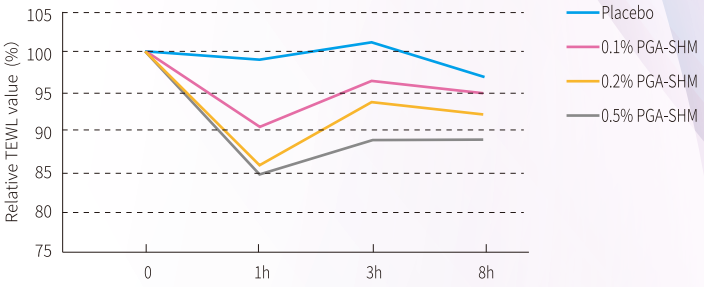


Fig. 4 The IHC quantitative analysis of protein markers

Cornified Envelope (CE) is an important component of the skin barrier and its presence is directly related to the barrier function. Our studies show that the main protein markers related to CE, like Loricrin (LOR), Filaggrin (FLG), Involucrin (IVL) and Transglutaminase 1 (TGM1) are up-regulated by 28%, 56%, 30% and 7% respectively (Fig. 4) by using 0.5% PGA-SHM. These results indicate that PGA-SHM can promote the maturation of CE, thus the skin barrier is strengthened significantly.

2.Reduce the TEWL value

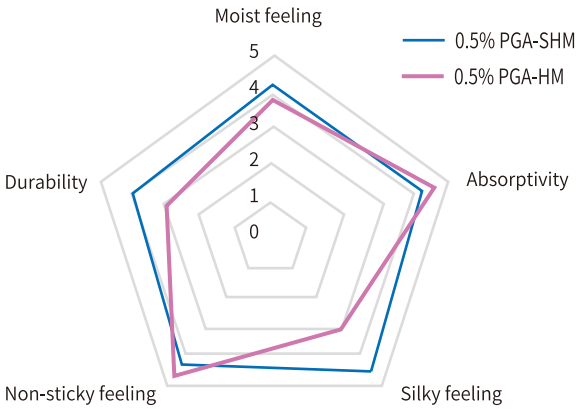
Compared with placebo, the Transepidermal Water Loss (TEWL) is reduced by 9% after 1 hour by using 0.1% PGA-SHM; in addition, the higher the concentration, the lower the TEWL will be. In fact, the TEWL decreased by 15% after 1 hour by using 0.5% PGA-SHM. These results also suggest that the skin barrier is enhanced by using PGA-SHM.



Double-blind, randomized, Tewanmeter TM300

Fig. 5 The influence of PGA-SHM on the TEWL value

【Silky skin feeling】



Double-blind, Randomized, Sensorial Evaluation

Fig 6 Sensorial Evaluation of PGA-SHM and PGA-HM

The skin feeling of PGA-SHM is better than PGA-HM in relation to smoothness, durability and moisturization.

【Application】

Cream, Emulsion, Serum, Mask, Cleanser and Hair care products, etc.

【Recommended dosage】

0.1% - 1.0%

BLOOMAGE

CREATIVE TECHNOLOGY FOR VIBRANT LIFE

BLOOMAGE BIOTECHNOLOGY CORPORATION LIMITED

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Hybloom™

HA-TLM3-5

Small Hyaluronic Acid

HA-TLM3-5 is a small molecule of Hyaluronic Acid (HA), with molecular weight in the range 37k-56kDa. It has not only good moisturizing property, but also activities such as transdermal absorption capability, nourishing the skin deeply, etc. It can restore youthful skin by withholding water, improving skin elasticity and decreasing skin wrinkles.

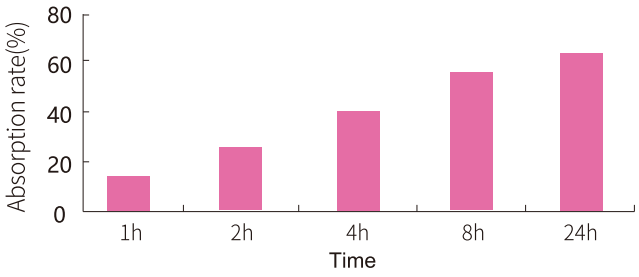
Anti-aging Activity

Transdermal absorption
Hydrating deeply
Improving skin elasticity
Decreasing skin wrinkles

In-vitro

Transdermal Absorption

HA-TLM3-5 can penetrate into the skin and nourish the skin deeply. The absorption rate can reach 55% and 61% after 8h and 24h respectively.

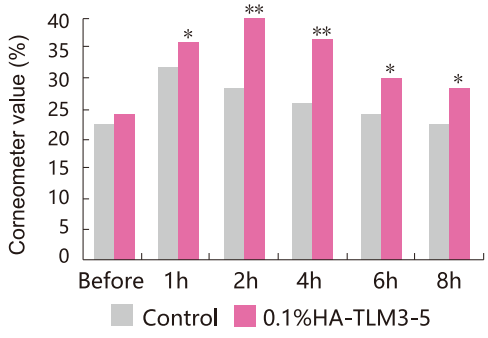


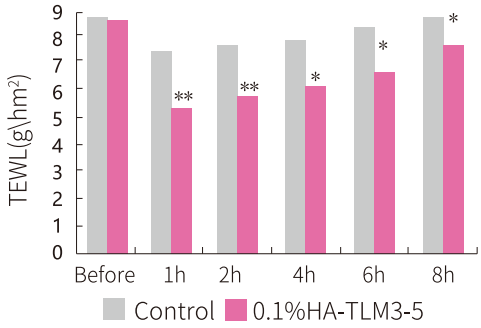
Sample: 0.1% HA-TLM 3-5 solution
Instruments: Side-Bi-Side Cell (PermeGear)

In-vivo

Water-holding & Water-locking

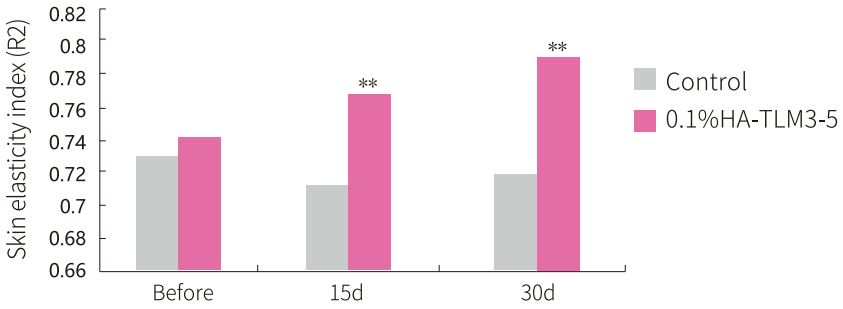
HA-TLM3-5 can increase the skin hydration and reduce the skin water loss acting like a "water-reservoir" inside the skin: Skin is moisturized constantly.



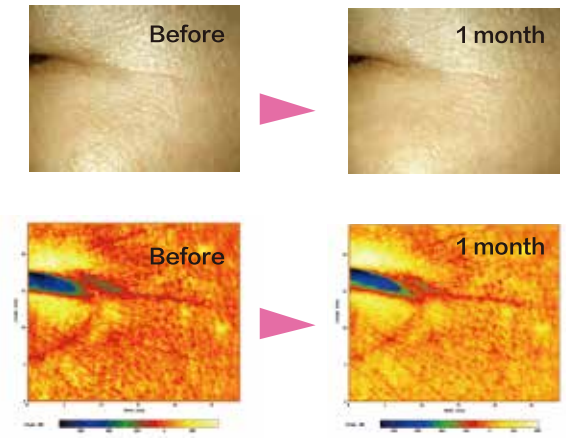


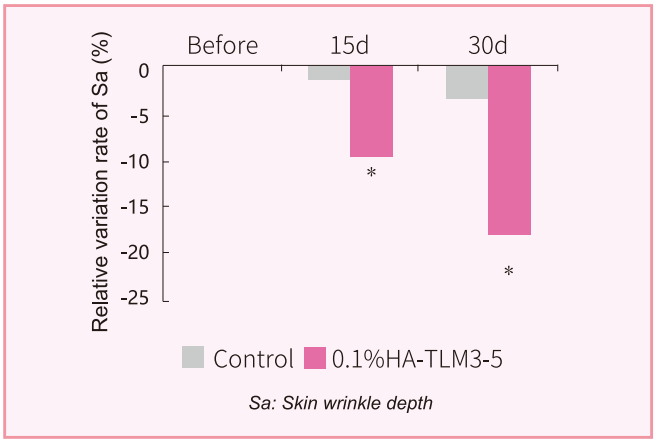
Elasticity-improving

After 30 days application, HA-TLM3-5 can improve skin elasticity, and efficiently restore youthful skin.



Wrinkle-decreasing

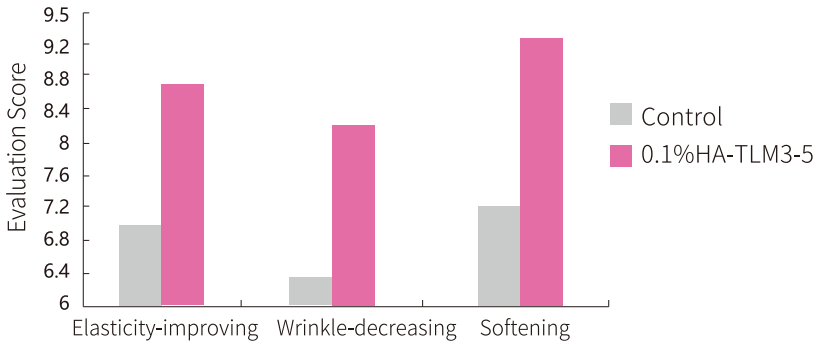




After 30 days application, HA-TLM3-5 can decrease skin wrinkles and make skin smooth.

Clinical Evaluation

The skin of the volunteers becomes soft, elastic and shows improvement of wrinkle conditions after applying an HA-TLM3-5 cream for 30 days.
HA-TLM3-5 can decrease the skin roughness by bounding water and softening the cuticles.



30 healthy volunteers of 25-55 years old

Usage

Application

Easy to handle with. It can be used in anti-aging, moisturizing, repairing skin care products.

Recommended dosage

0.1%-0.5%

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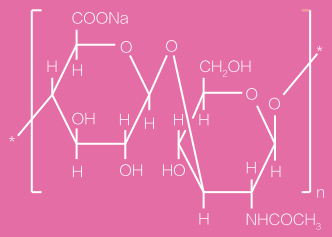
Hybloom™

Cosmetic Grade Sodium Hyaluronate

Sodium Hyaluronate (Hyaluronic Acid, HA), the sodium salt of hyaluronic acid, is a linear high molecular weight mucopolysaccharide composed by thousands of repeating disaccharide units of D-glucuronic acid and *N*-acetyl-D-glucosamine.



Structural formula of HA

1 Advantages

- **High safety**
  COSMOS certified
  Bacterial fermentation
  A series of safety tests carried out by authorized testing organizations
- **High purity**
  Very low impurities (such as protein, nucleic acid and heavy metal)
  No pollution of other unknown impurities and pathogenic microorganism in production process assured by strict production management and advanced equipments
- **Professional Service**
  Customerized products available
  All-around technical support for HA application in cosmetic

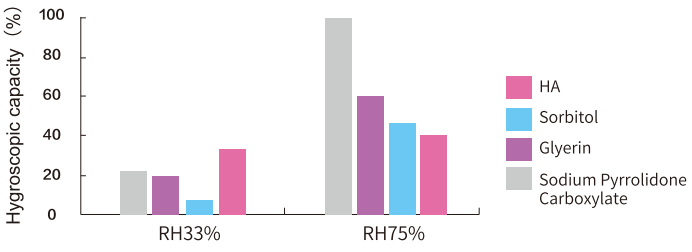
2 Functions

The molecular weight range of HA is 1 kDa-3 MDa. HA with different molecular weight has different function in cosmetics.

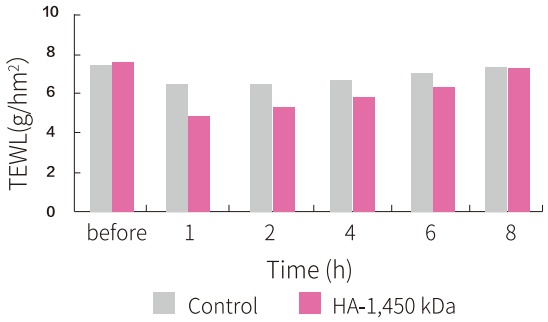
Types	Molecular weight	Functions
HA	⩾1 MDa	Lubricating and film-forming, moisturizing, preventing skin damage, thickening and keeping emulsion stable
Low molecular weight HA	10 kDa ~ 1 MDa	Nourishing the skin, long-lasting moisturizing
Oligo HA	＜10 kDa	Trans-dermal absorption, deep hydrating, anti-ageing, repairing skin damage

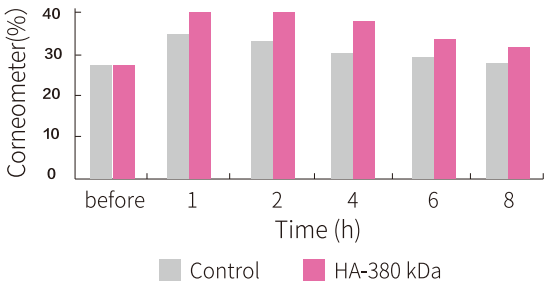
3 Efficacy

Compared with other humectants, HA is less effected by the environment, as it has the highest hygroscopic capacity in a relatively low humidity, while has the lowest hygroscopic capacity in a relatively high humidity. HA is widely well known in the cosmetic industry as an excellent moisturizer and is called the "Ideal Natural Moisturizing Factor".



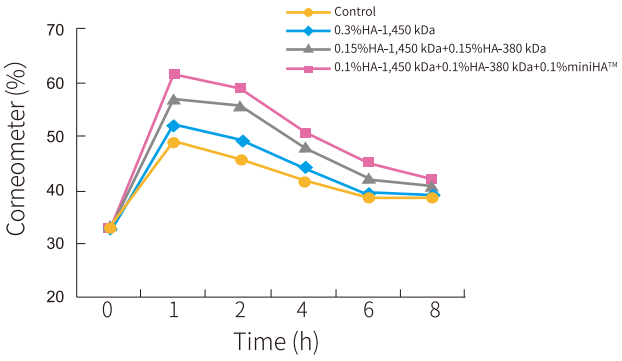
Hygroscopic capacity of HA compared with other humectants

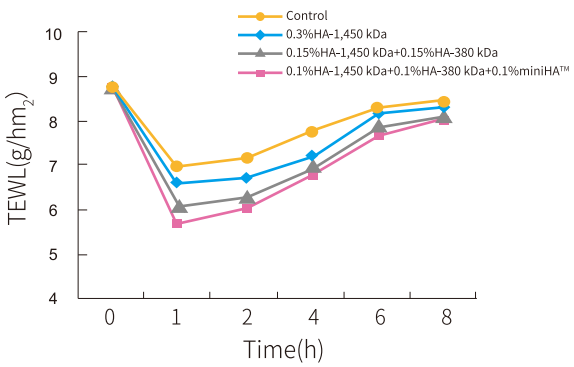




▶ High molecular weight HA has good lubricity and film-forming properties. When applying cosmetic containing high molecular weight HA to skin, the trans-epidermal water loss (TEWL) is reduced and skin becomes tender and glossy.

▶ Low molecular weight HA can partly penetrate into the skin and nourish it from inside.





▶ When different molecular weights HA are used simultaneously in the same cosmetic formulation, it can have synergetic effects, to activate global moisturizing and multiple skin care function. More skin moisture and less trans-epidermal water loss keep the skin beautiful and healthy.

4 Applications

Application	Products	Recommended Dosage	Usage
Skin care	cream, emulsion, essence, lotion, gel, facial mask, etc.	0.1% ~ 0.5% for HA powder 10% ~ 50% for HA solution	Soluble in water. Heating can accelerate the dissolution of HA.
Makeup	lipstick, eye shadow, foundation, etc.		
Cleansing	facial cleaner, body wash, etc.		
Hair care	shampoo, hair conditioner, styling gel, hair restorer, etc.		

5 Package

HA powder: 100g/bottle；500g/bag；1kg/bag
HA solution: 1kg/bottle；20kg/drum

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BLOOMAGE

—— Novel Hyaluronic Acid

Hybloom™

Zinc Hyaluronate (HA-Zn)

1 Moisturizing 3 Soothing

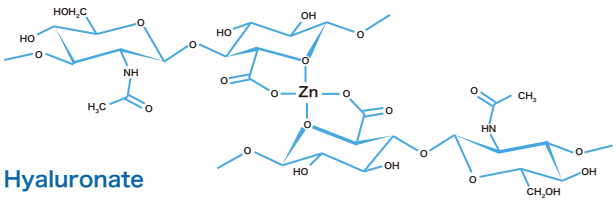
2 Bacteriostatic 4 Repairing

Approved by China NMPA: **国妆原备字20220008**

Zinc (Zn) is an essential trace element for human body and widely distributed in various tissues. Skin is the tissue with the third highest zinc content.

As a cofactor for more than 1,000 enzymatic reactions and 2,000 transcription factors, zinc is widely involved in nucleic acid and protein synthesis, cell differentiation and other physiological activities, and plays an important role in skin diseases, immune function, wound healing, etc.

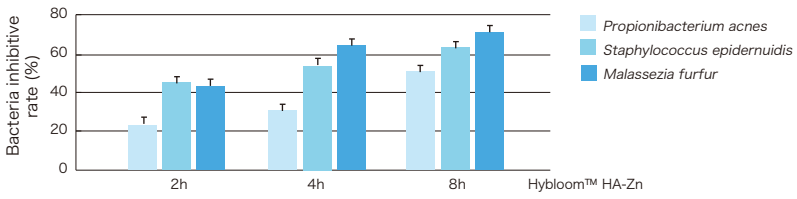
Hybloom™ Zinc Hyaluronate(HA-Zn) is the perfect combination of HA and zinc with both efficacies which is developed by a patented technology. It not only has the characteristics of moisturizing, repairing and nourishing of HA, but also has the functions of anti-oxidation and soothing of Zinc. Hybloom™ Zinc Hyaluronate(HA-Zn) has passed the registration of new cosmetic raw materials of the NMPA on April 23, 2022 and has the characteristics of high zinc content and low sodium residue.



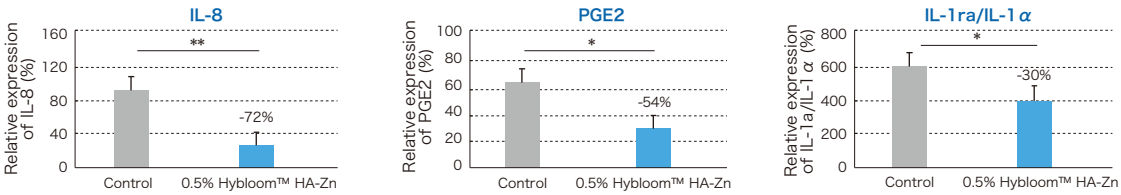
Structure of Zinc Hyaluronate

Suppress bacterial overgrowth (in-vitro)

Based on the test results, it is suggested that 0.5% HA-Zn can effectively inhibit the overgrowth of bacteria *Propionibacterium acnes*, *Staphylococcus epidernuidis* and *Malassezia furfur*.



Decrease the expression of inflammatory factor (in-vivo)

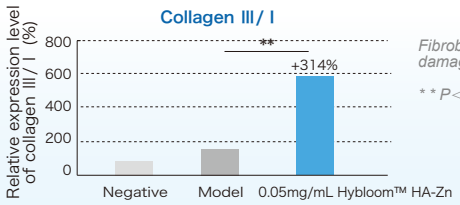


Skin damaged model (in-vivo)

** P＜0.05*
*** P＜0.01*

After the skin is stimulated, the expression of inflammatory factors are up-regulated. HA-Zn can significantly reduce the expression of inflammatory factors IL-8 and PGE2, and the ratio of IL-1ra/IL-1α is significantly down-regulated. Results indicated that HA-Zn has a soothing effect on the damaged skin.

Up-regulate the ratio of collagen Ⅲ/Ⅰ to reduce scar formation (in-vitro)

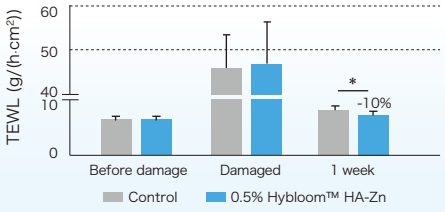


Fibroblasts —TGF-β damage model (in-vitro)

*** P＜0.01*

Scar is the result of the repair process of damaged skin. During the process of scar formation, the ratio of collagen Ⅲ/Ⅰ is greatly reduced, eventually leads to scar formation. Compared with the model group, HA-Zn can significantly increase the ratio of collagen Ⅲ/Ⅰ, so as to reduce the scar formation.

Strengthen the skin barrier (in-vivo)

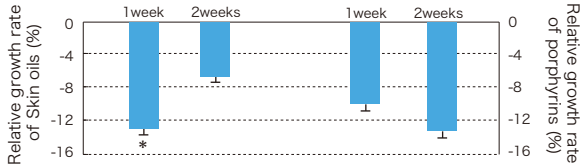


Skin damaged model (in-vivo)

** P＜0.05*

Transepidermal Water Loss (TEWL) value is an important indicator for evaluating the skin barrier function. When skin barrier is damaged, TEWL values increase. HA-Zn can significantly reduce the TEWL value and strengthen the skin barrier.

Reduce excessive secretion of oils and porphyrins (in-vivo)

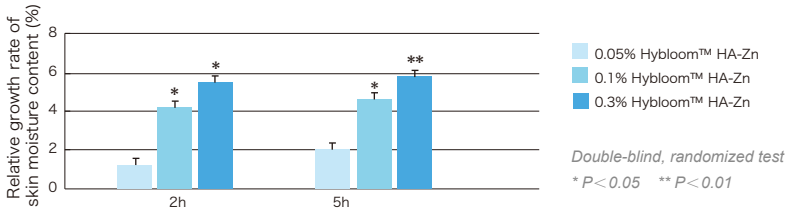


Double-blind, randomized test

** P＜0.05*

Compared with the placebo group (HA-Zn free lotion), after using the lotion containing 0.5% HA-Zn, excessive secretion of skin oils and porphyrins were reduced.

Enhance Hydration capacity (in-vivo)



Double-blind, randomized test

** P＜0.05 ** P＜0.01*

In-vivo test have shown that the essence containing HA-Zn can significantly increase the skin moisture content. The higher the HA-Zn concentration, the more the moisture content increases.

INCI Name: Zinc Hydrolyzed Hyaluronate

Recommended dosage: 0.1%-0.5%

Solubility: Easily soluble in water

Application: Lotion, Cream, Essence, Mask, Facial cleansers, Toothpaste, Mouthwash, Shampoo and other products with efficacy requirements such as Humectant and Skin protectant.

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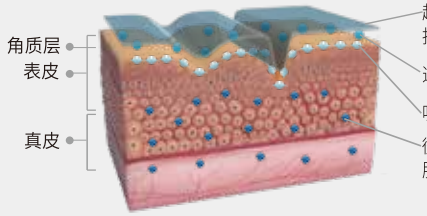
华熙生物
BLOOMAGE BIOTECH

肌肤水活因子

Hymagic-4D，采用4重水活科技，构建立体储水海绵层，精准定位皮肤的不同层次，外层补水，内层锁水，层层保湿，肌肤由内而外水润亮泽。

Hymagic™-4D
4D透明质酸



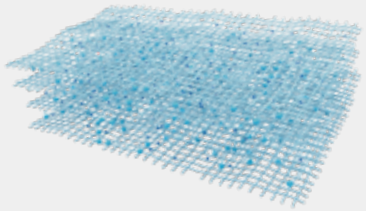
超大分子透明质酸钠，24h超长效保湿生物防护膜，减少水分流失，抵抗PM2.5/UV

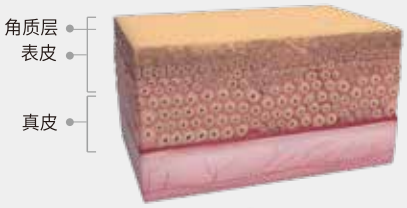
透明质酸钠，可在肌肤表面锁水、补水，营养角质层

吸附型透明质酸钠，牢牢吸附角质层，双倍保水，修复受损角质层

微分子透明质酸钠，快速透皮吸收，直达表皮和真皮层，深层保湿，肌底修护

Hymagic-4D结构图

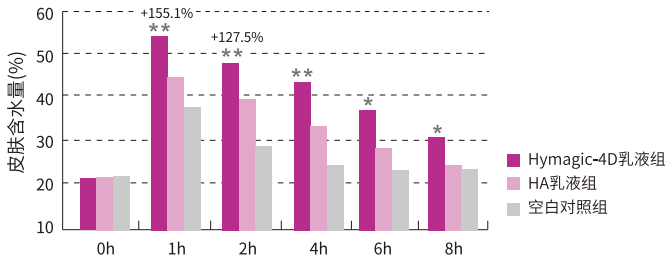




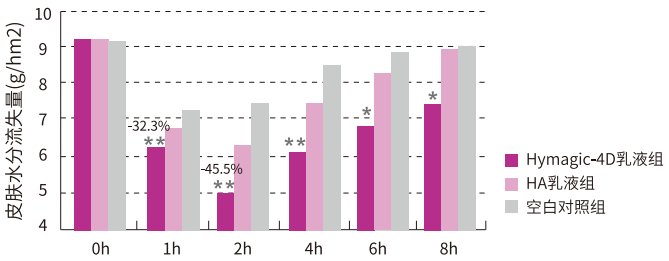
构建立体储水海绵层　　精准定位皮肤不同层次　　肌肤水润有弹性

[外层补水，内层锁水，立体保湿]

▶ 皮肤含水量



▶ 皮肤水分流失量



Hymagic-4D，储水＆锁水的分子海绵，可发挥立体保湿功效，为肌肤源源不断补充水分，提高皮肤内部水分蓄积，使肌肤满水复活，柔软有弹性。

[产品说明]

INCI名称：透明质酸钠交联聚合物、透明质酸钠、乙酰化透明质酸钠、水解透明质酸钠、1,2-戊二醇、乙基己基甘油、水

应用范围：护肤产品、发用产品等　　**推荐用量：**1%~10%

让每个生命都是鲜活的
CREATIVE TECHNOLOGY FOR VIBRANT LIFE

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E-mail:customer@bloomagebioactive.com

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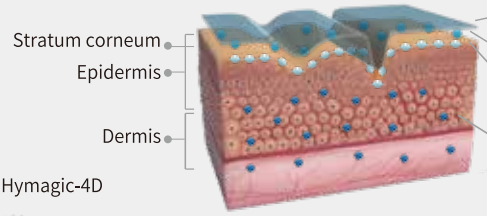
The Secret for Skin Moisturizing

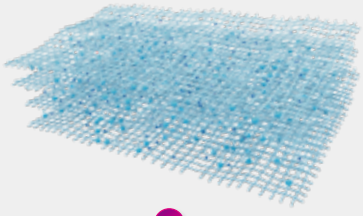
Hymagic-4D, a combination of four kinds of Sodium Hyaluronate (HA) with different properties, can build up and form a three-dimensional network and accurately target the different layers of the skin, to replenish water from outside and hold water from inside. In this way skin is moisturized and hydrated completely and improves in elasticity directly from within.

Hymagic™-4D

4D Hyaluronic Acid



The structure of Hymagic-4D

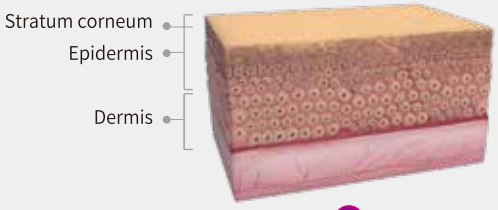


Ultra High Molecular Sodium Hyaluronate forms a protective dense film on the skin surface reducing the water loss from inside while also providing 24h moisturization and anti-pollution/anti-UV abilities

Sodium Hyaluronate holds water on the skin surface nourishing the corneum

Adsorptional Sodium Hyaluronate firmly adheres to the stratum corneum, providing superb hydration and repairing the damaged corneum

Extremely Low Molecular Sodium Hyaluronate rapidly penetrates into the epidermis and dermis, hydrating and restoring the skin from inside



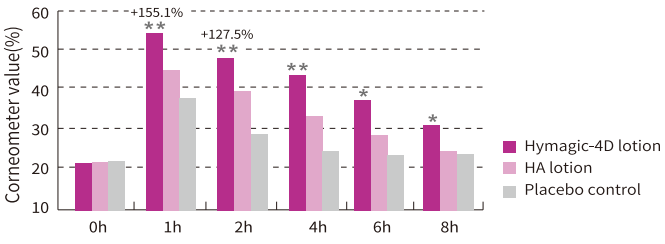
Three-dimensional network for water-holding

Accurately targeting the different layers of the skin

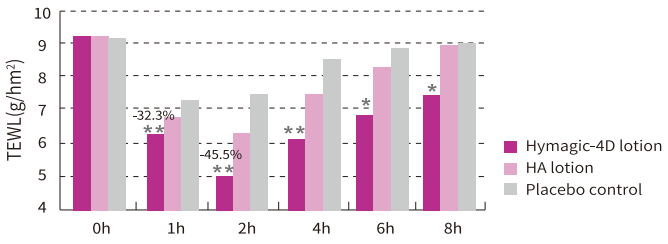
Skin is hydrated and full of elasticity

[Three-dimensional moisturizing]

► Increase skin hydration



► Reduce water evaporation



Hymagic-4D, the molecular sponge for water-replenishing and water retention, can provide instantly three-dimensional moisturizing efficacy, and keep skin hydrated continuously while improving skin moisture enhancement from inside and making skin smooth and elastic.

[Introduction]

INCI name: Sodium Hyaluronate Crosspolymer, Sodium Hyaluronate, Sodium Acetylated Hyaluronate, Hydrolyzed Sodium Hyaluronate, Pentylene Glycol, Ethylhexylglycerin, Aqua

Application: Skin care, Hair care products, etc. **Recommended dosage:** 1%~10%

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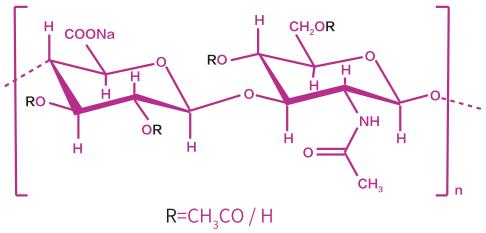
BLOOMAGE

Hymagic™-AcHA

Sodium Acetylated Hyaluronate

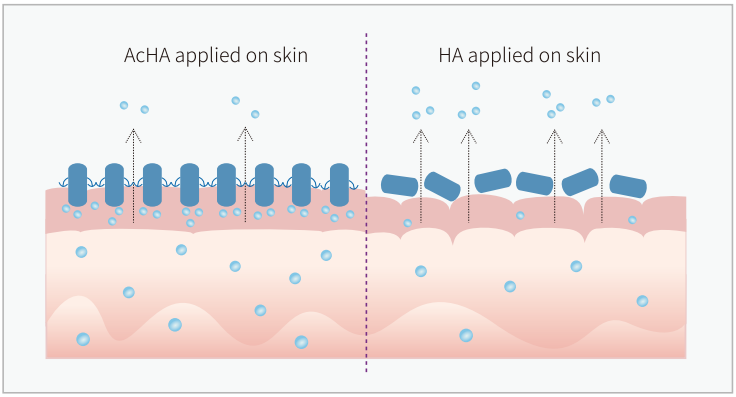
Sodium Acetylated Hyaluronate (AcHA), is a special HA derivative which is synthesized with the Natural Moisturizing Factor Sodium Hyaluronate (HA) by acetylation reaction. The hydroxyl group of HA is partially replaced with acetyl group; it owns both lipophilic and hydrophilic properties. This helps to promote high affinity and adsorption properties for skin. AcHA has a fresh and not-sticky feeling that can provide superb moisturizing, repair skin barrier, improve skin elasticity, and leave skin smooth. It can be widely applied in repairing, moisturizing, anti-aging cosmetic products, such as essence, mask, cream, etc.

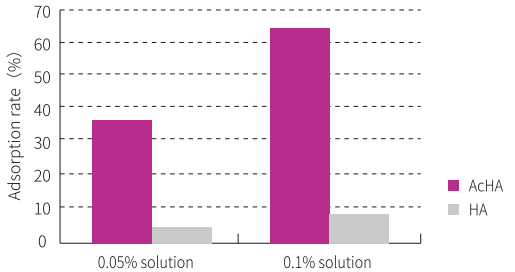


R=CH_3CO / H

【High affinity & adsorption】

The acetyl group which is highly lipophilic, can help AcHA adhere firmly to the skin surface. Its small molecular weight allows AcHA to penetrate into stratum corneum rapidly. Thus, AcHA can stay on epidermis very tightly with a semi-submerged structure (As shown below). This prevents water evaporation and improves moisture accumulation from inside, while penetrating skin to bind water and softening stratum corneum. AcHA can remarkably reduce skin dryness and roughness and enhance the elasticity.



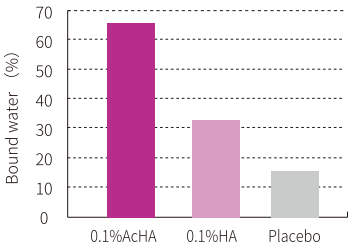


First apply AcHA/HA aqueous solution onto the skin, then detect the adsorption rate after washing. Result shows that, when the concentration is 0.05%, the adsorption rate of AcHA group is 35.42%, compared with 5.32% of HA group. When the concentration is 0.1%, the adsorption rate of AcHA group is 64.77%, compared with 8.29% of HA group.

AcHA can adhere firmly on skin surface even after washing, indicating that AcHA owns high affinity to epidermis providing long-lasting moisturizing and softening efficacies.

【Superb moisturization】

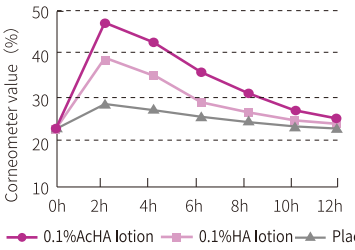
▶ Water-binding ability in stratum corneum



First treat skin materials with AcHA/HA aqueous solution, then test the amount of water bound in stratum corneum through measuring the loss on drying. Results show that, AcHA group has bound almost twice as much water as HA group.

Compared to HA group, AcHA has higher water-binding ability and can provide a substantial hydrating effect to stratum corneum.

▶ Increase skin hydration



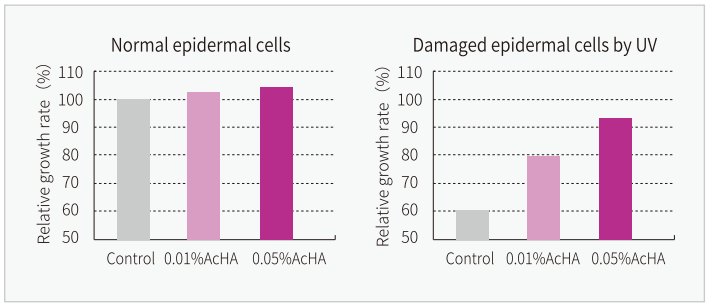
After 2hrs application, the skin hydration of AcHA group is increased quickly by 103.4%, compared with 65.3% of HA group and 29.6% of placebo group. AcHA can keep skin moisturized and last for 12 hours.

AcHA binds water quickly to increase skin hydration while keeping the skin moisturized during the day.

【Repair skin barrier】

▶ Promote epidermal cellular proliferation

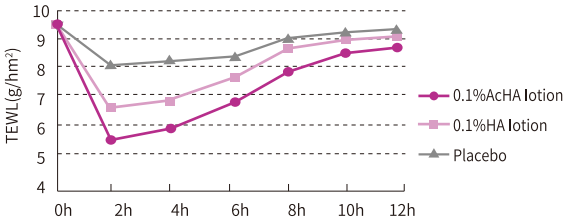
AcHA can promote cellular proliferation and repair damaged epidermal cells, thus strengthen the barrier function of stratum corneum.



Cells: Human keratinocytes (HaCaT)

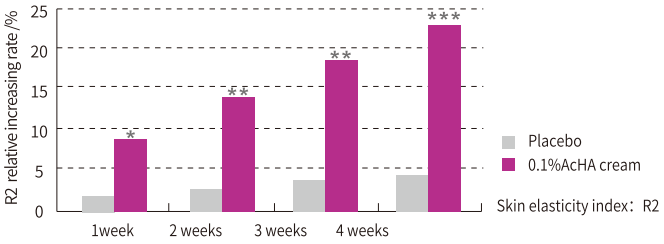
▶ Reduce water evaporation

AcHA can repair skin barrier function and effectively reduce water evaporation from inside, thus improving the skin dryness and roughness.



After 2hrs application, the skin TEWL of AcHA group is reduced by 40.5%, compared with 26.9% of HA group and 12.6% of placebo group. AcHA can reduce skin evaporation and last for 12 hours.

【Improve skin elasticity】



After 4 weeks of continuous application of a facial cream containing 0.1% AcHA, the skin elasticity of volunteers has significantly increased by 22.8% and skin is softened.

Introduction

INCI name: Sodium Acetylated Hyaluronate

Recommended dosage: 0.01~0.1%

Usage: Good solubility in water, easy to handle.

Application: Repairing, moisturizing, anti-aging cosmetic products, such as essence, mask, cream, etc.

Formulation Recommendation

Double HA Softening Toner

Ingredients	Wt/%
Butylene Glycol	2.0
Glycerin	2.0
Sodium Acetylated Hyaluronate (Hymagic-AcHA)	0.05
Sodium Hyaluronate	0.05
Allantoin	0.2
Creatine	0.3
Panthenol	0.5
Betaine	0.5
Glyceryl Polymethacrylate/ Propylene Glycol	1.0
Phenoxyethanol/Ethylhexyl Glycerin	0.8
Matricaria Chamomilla Extract	1.0
Acrylates/C10-30 Alkyl Acrylate Crosspolymer	0.05
Triethanolamine /AminomethylPropanol	0.05/0.025
Aqua	To 100

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