

Product Concept

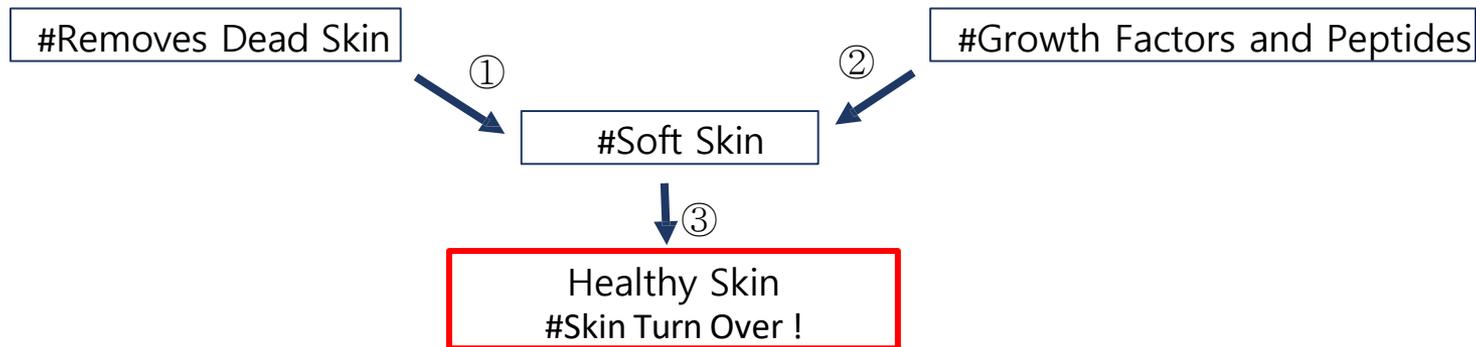
Birth of New Skin in 28days #Skin Turn Over

Skin continuously generates new cells in 28-day cycles. Dead cells like keratin and waste products shed, and new cells grow, repeating the 'Skin Turn Over' process throughout life.

However, if the 'Skin Turn Over' cycle becomes unstable due to external environments or stress, dead cells may not shed in time, leading to trouble.

The turnover cycle can be stabilized by removing keratin through peeling and then nurturing healthy skin with bio-active ingredients.

It is difficult to remove keratin inside pores with typical cleansing. Peeling uses acidic components (AHA, BHA, LHA) to dissolve and remove old keratin. This creates a foundation where other active ingredients in cosmetics can be well-absorbed into the skin. By supplying nutrients to the skin with growth factors and peptides, you can maintain clear and bright skin.



Product Description

Causes and prevention for Acne

The causes of acne are diverse, but a complete cure is not available because of the strong genetic link. Therefore, skin care should focus on creating a skin condition that prevents acne breakouts. Acne occurs when a blocked hair follicle leads to sebum production. This is influenced by genetic skin type, decreased excretion function due to weakened skin immunity, or excessive sebum discharge caused by hormonal and metabolic issues.

When skin immunity is strengthened and sebum excretion is smooth, pores do not clog, internal metabolism is smooth, and body temperature does not rise, which lowers the rate of inflammation. Therefore, it is necessary to manage keratin with AHA, BHA, and LHA ingredients, enhance skin immunity with growth factors and peptides to achieve optimal skin condition, and follow up with care to improve scars and hyperpigmentation caused by existing acne



두꺼운 피부



복합&지성 피부



과각질 피부



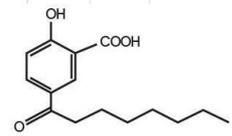
문제성 피부

**Main
Ingredients**

**ACTIVE
INGREDIENT**

**High
Molecular**

LHA 리포하이드록시산
lipo-hydroxy acid



Capryloyl Salicylic Acid



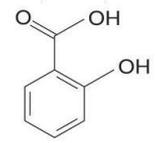
복합&지성 피부



과각질 피부

Oil Soluble

BHA 베타하이드록시산
Beta-hydroxy acid



Salicylic Acid



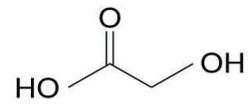
문제성 피부

**Water
soluble**



두꺼운 피부

AHA 알파하이드록시산
Alpha-hydroxy acid



Lactic Acid

**Low
Molecular**

Main Ingredients

ACTIVE INGREDIENT

1. 6 Types of Into-Cell Growth Factors
2. 9 Core Growth Factors
3. 3 Types of Biomimetic Peptides
4. Contains AHA, BHA, LHA Ingredients

- ✓ **Key patented ingredients, 6 types of IntoCell Growth Factors**
- ✓ **9 types of Growth Factors that promote cell growth, proliferation, and differentiation**
- ✓ **4 types of Biomimetic Peptides with excellent skin regeneration**
- ✓ **Gentle keratin care with 3 types of Acid ingredients**

1. IntoCell-Growth Factors

IntoCell PLUS-EGF, IntoCell-IGF-1, IntoCell-aFGF,
IntoCell-bFGF, IntoCell-VEGFA, IntoCell-PDGFA,

2. Growth Factors

PGF, SCF, AQP-1, NGF, KGF-1,
TGF-b1, hBD3H, SOD-1, Rantes

3. Biomimetic Peptides

Phyto-NEP, Copper Tripeptide-1, Aurein, Glutathione

4. AHA, BHA, LHA

Lactic Acid, Salicylic Acid, Capryloyl Salicylic Acid

주요 성분

ACTIVE INGREDIENT

#cellregeneration

#enhancedskin barrier

#increased blood flow

#antioxidation

#strengthenedskin

#improvedpigmentation



IntoCell-Growth Factor

IntoCell PLUS-EGF, IntoCell-IGF-1, IntoCell-bFGF	IntoCell-aFGF	IntoCell-VEGFA, IntoCell-PDGFA			
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Growth Factor

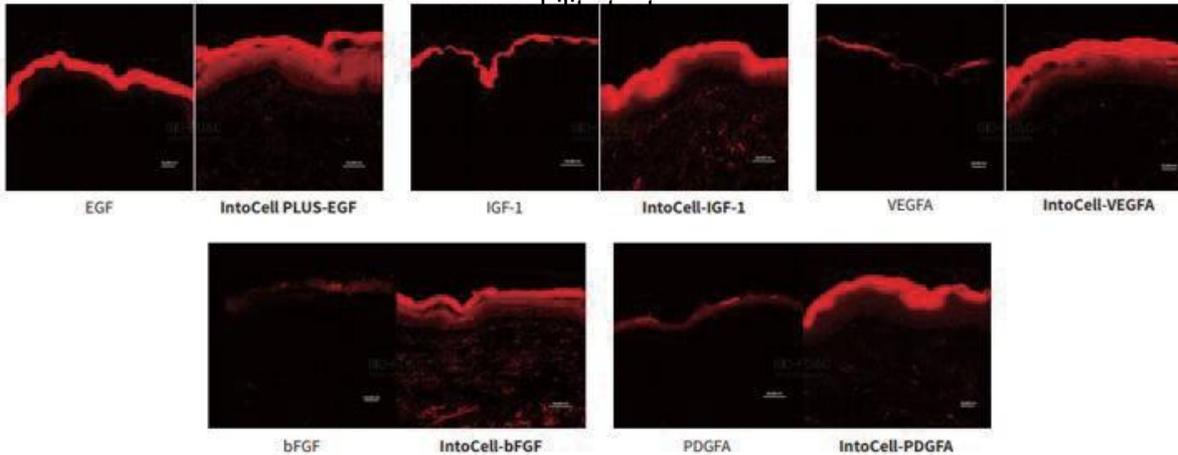
AQP-1	PGF, TGF-1,	SOD-1	SCF, NGF, hBD3H, Rantes	KGF-1
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Biomimetic Peptides

cu-GHK			Phyto-NEP, Aurein	Glutathione
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In vivo skin tissue



IntoCell-Growth Factors are patented ingredients uniquely developed by BIO-FD&C Co., Ltd. that exhibit significantly superior skin permeability compared to conventional growth factors.

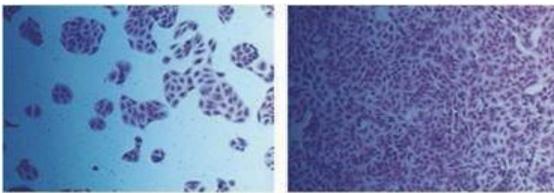
Ref. BIO-FD&C Medicinal nanomaterial institute tested.



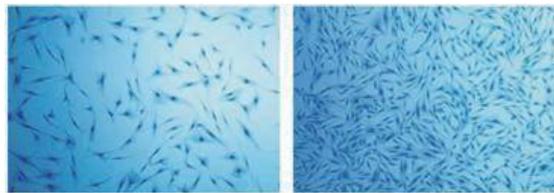
IntoCell PLUS-EGF

r-(sh-Oligopeptide-75 sh-Oligopeptide-1)

As we age, EGF in the skin decreases, slowing the ability to improve skin and the speed of damage recovery, which leads to decreased skin elasticity. Supplying EGF helps restore skin health by strengthening the skin barrier and promotes the proliferation of epithelial cells as an epidermal growth factor. It also helps facilitate the skin regeneration cycle. It is expected to show faster effects by improving permeability by more than 2 times compared to their own patented ingredient, IntoCell-EGF.

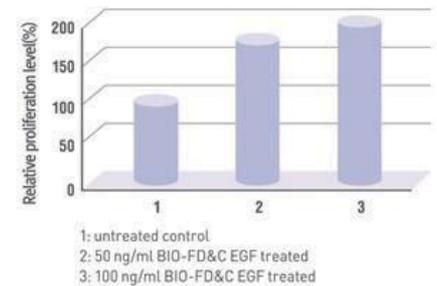


EGF를 처리한 우측에서Keratinocyte 생장이 촉진됨



EGF를 처리한 우측에서 Fibroblast 생장이 촉진됨

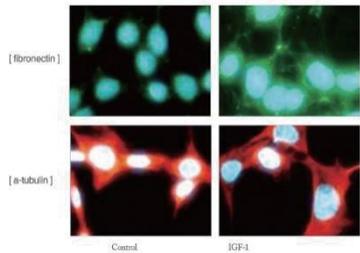
Ref. : BIO-FD&C Medicinal nanomaterial Institute



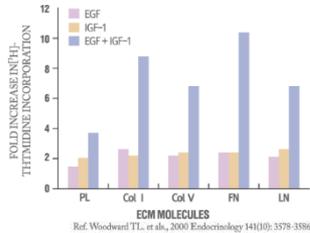
IntoCell-IGF-1

sr-Rainbow Trout Oligopeptide-1 sh-Oligopeptide-2

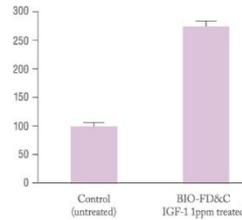
As an Insulin-like Growth Factor, it promotes the regeneration of skin-composing cells such as fibroblasts and keratinocytes. It inhibits Tyrosinase activity, which is involved in pigment expression, thereby suppressing hyperpigmentation. When treated together with EGF, it shows a synergistic effect, promoting the production of proteins that constitute the ECM (Extracellular Matrix/skin cell barrier) by about 2-3 times more than individual treatment.



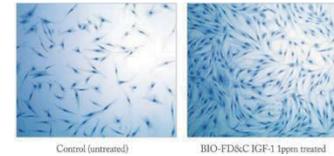
Fibronectin과 같은 ECM구성 물질 발현 증가



EGF + IGF-1 시너지 효과



Fibroblast 섬유아세포 성장 촉진

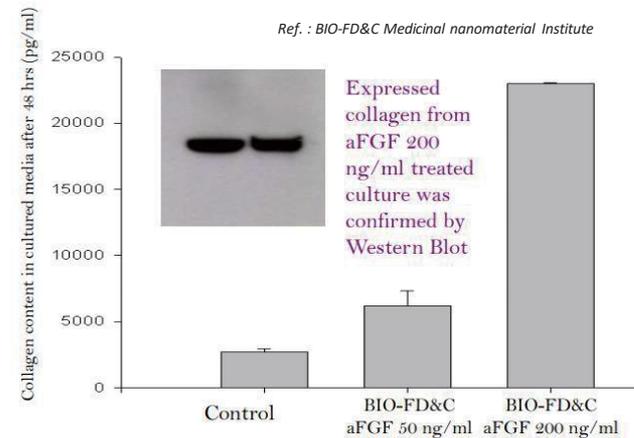
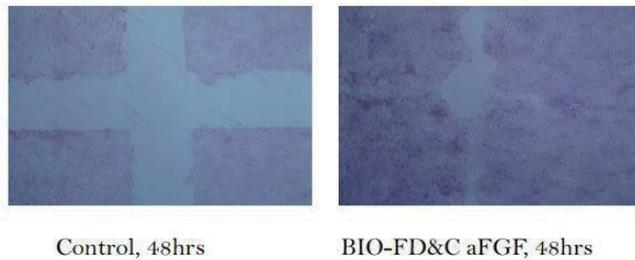


Ref. : BIO-FD&C Medicinal nanomaterial Institute

IntoCell-aFGF

sr-Rainbow Trout Oligopeptide-1 sh-Polypeptide-11

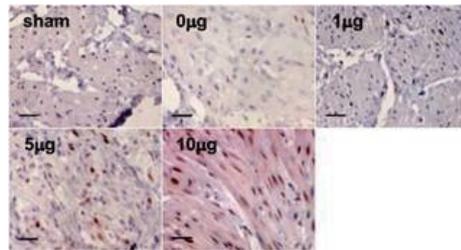
Fibroblasts, which biosynthesize skin components such as collagen, elastin, and hyaluronic acid, are closely related to skin elasticity and wrinkles. aFGF is an important protein that promotes the proliferation and activation of fibroblasts in the dermal layer of the skin. In addition, it also helps with the proliferation and activation of keratinocytes and is involved in skin cell regeneration and anti-aging.



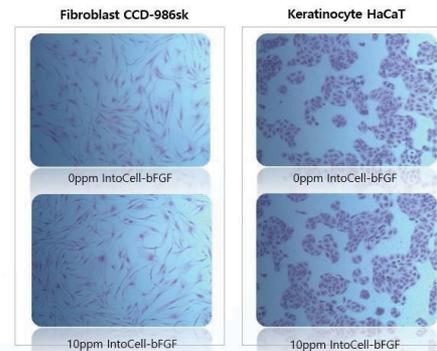
IntoCell-bFGF

sr-Rainbow Trout Oligopeptide-1 sh-Polypeptide-1

bFGF increases Type 3 collagen, a component of the skin, and shows powerful cell proliferation capabilities . bFGF specifically helps with anti-aging, wrinkle improvement, and wound healing through actions such as fibroblast production, collagen production, and induction of cell proliferation.



Ref : Am J.Physiol.Renal Physiol. 293: F1007-F1017



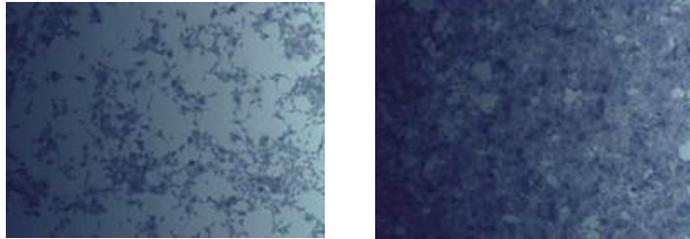
Ref : BIO-FD&C Medicinal nanomaterial Institute

IntoCell-VEGFA

sr-Rainbow Trout Oligopeptide-1 sh-Polypeptide-9

VEGFA is a vascular endothelial growth factor, a protein that specifically acts on vascular endothelial cells to promote cell proliferation and the growth of new blood vessels. Healthy new blood vessels increase the supply of oxygen and nutrients to the skin and promote blood circulation, thereby preventing aging.

Ref. : BIO-FD&C Medicinal nanomaterial Institute

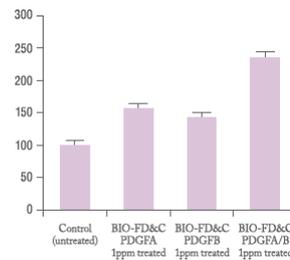
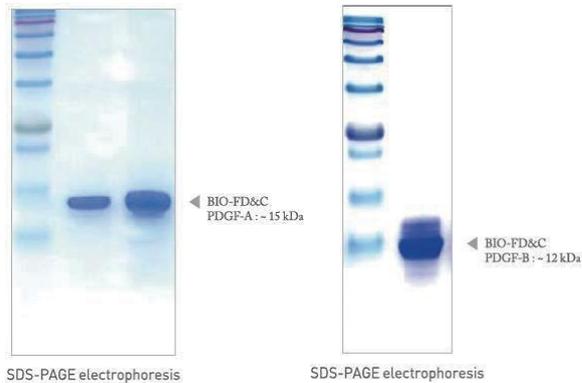


[좌] 대조군 [우] VEGFA 처리 Keratinocyte 성장 촉진이 확인된다.

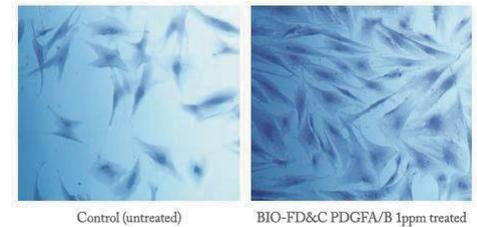
IntoCell-PDGF-A

sr-Rainbow Trout Oligopeptide-1 sh-Polypeptide-8

It is involved in angiogenesis with VEGF , helps restore aged skin to a healthy state , and aids in wound healing of damaged skin. PDGF is known to promote anti-aging and skin regeneration in the skin, as well as hair follicle formation and growth on the scalp.



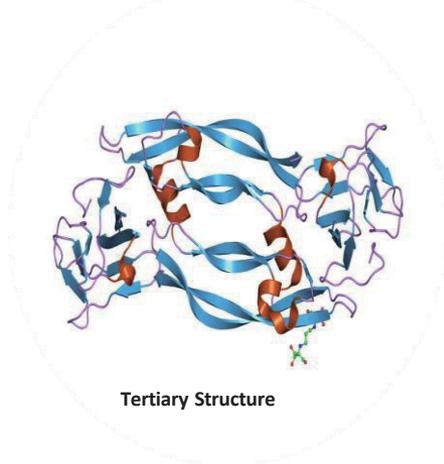
Ref. : BIO-FD&C Medicinal nanomaterial Institute



PGF

sh-Polypeptide-16

Placental Growth Factor is a protein encoded by the human PGF (Placental Growth Factor) gene and is a member of VEGF, which forms new blood vessels. It acts as a key component of angiogenesis and vasculogenesis, especially during embryonic development in pregnancy, and is generated in the trophoblast. Healthy new blood vessels increase the supply of oxygen and nutrients to the skin and promote blood circulation, thereby preventing aging.



Functions of PLACENTA

- ① protection
- ② nutrition
- ③ respiration
- ④ excretion
- ⑤ growth factors & hormone production

붉은부분: 태반 © 위키피디아 Public Domain

SCF

sh-Polypeptide-4

SCF (Stem Cell Factor) is a key growth factor that exhibits physiological regulating activity. HSC (Hematopoietic Stem Cells) play an important role in the body and can only perform their function when combined with SCF. HSCs combined with SCF are involved in hematopoiesis, sperm formation, and melanin formation. SCF is an essential element for activating stem cells present in almost all tissues, including the skin. It is known to prevent aging in the skin and promote new hair follicle formation in the hair.

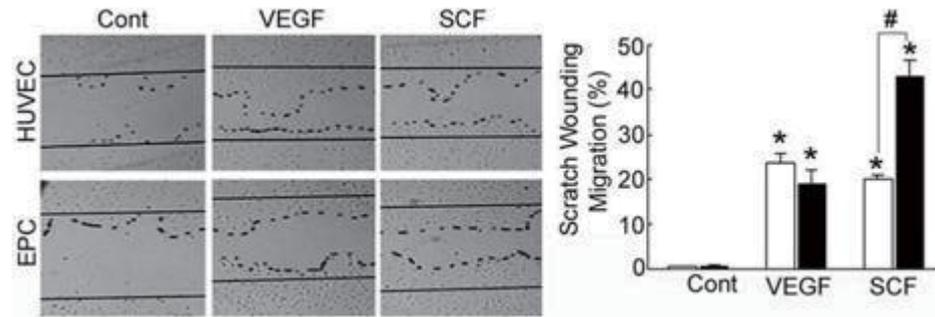
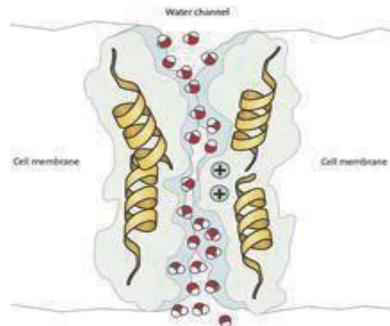


Figure. SCF markedly increases in vitro neovascularization activity of EPCs but has moderate effects on mature endothelial cells.
Ref. *Cardiovascular Research* (2011) 92, 132–140

AQP

sh-Polypeptide-64

AQP is a water channel present in the cell membrane of human cells, serving as a direct pathway for extracellular water molecules to enter the cell. The increase in these water channels aids in intracellular moisturization, maintaining supple skin, and promoting the growth and activity of healthy cells. To commercialize cell membrane channel proteins, highly advanced technology is required in biotechnology and protein chemistry. The AQP from BIO-FD&C is made with unique recombinant protein technology globally, boasting the highest quality.



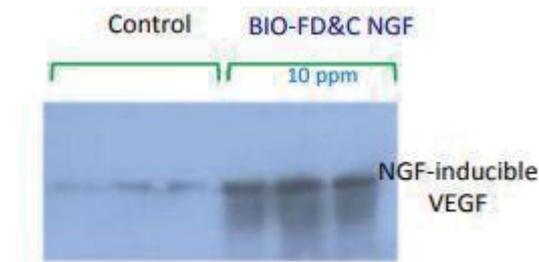
Aquaporin channel

Ref. Science 17 October 2003: Vol. 302, no. 5644, pp. 383 – 384)

NGF

sh-Polypeptide-14

NGF (Nerve Growth Factor) is an important signaling molecule for the growth, maintenance, and survival of nerve cells. Because the growth of skin cells and hair is regulated by the nervous system, NGF is a necessary element for skin anti-aging and hair growth.



NGF treated on the wound site promotes cell proliferation and tissue repair, significantly increasing NGF-inducible VEGF.

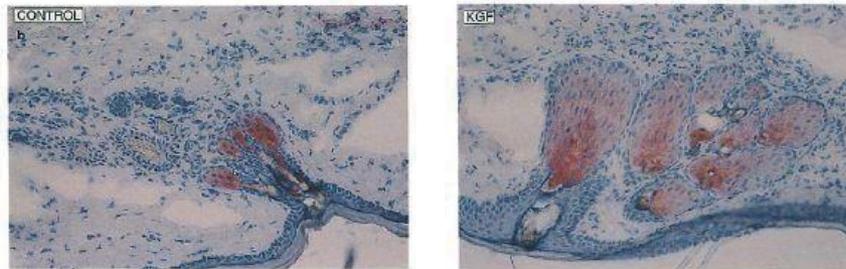
Ref. : BIO-FD&C Medicinal nanomaterial Institute



KGF - 1

sh-Polypeptide-3

KGF is the abbreviation for Keratinocyte Growth Factor-1, and it plays a role in speeding up the regeneration rate in the epithelial cells of the skin. Comparing the control group on the left and the KGF-treated group on the right in the picture below, it can be confirmed that KGF can induce the proliferation and differentiation of specific epithelial progenitor cell lineages in the skin, making it an important element for skin regeneration.



Ref: J Exp Med. 1994 Mar 1;179(3):831-40.

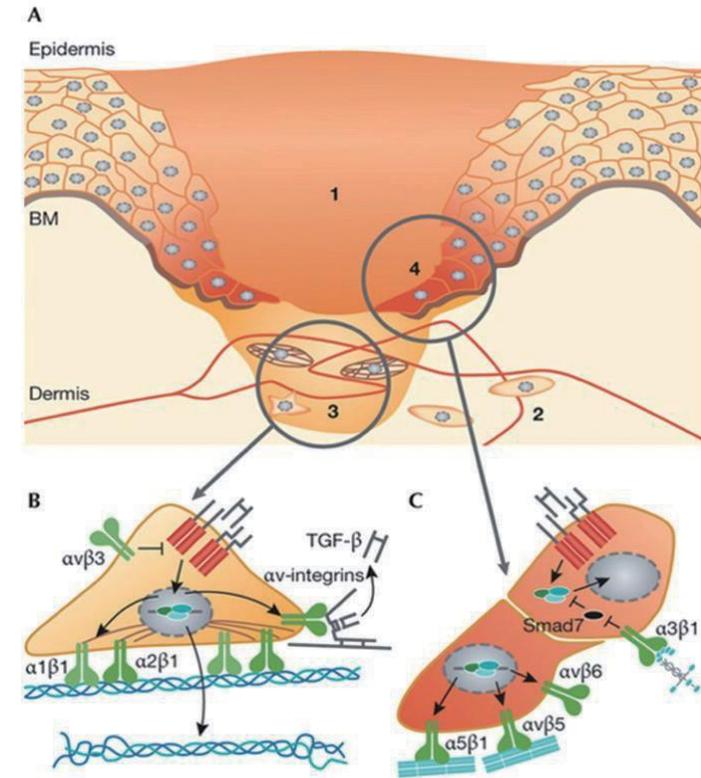
TGF- β 1 (Transforming Growth Factor Beta1) is a growth factor involved in tissue formation

Growth Factors

TGF- β 1

sh-Polypeptide-22

TGF- β 1 (Transforming Growth Factor Beta1) is a growth factor involved in tissue formation such as bone, muscle, and nerve. It helps create new blood vessels, improving cell regenerative power, and promotes the proliferation of keratinocytes.



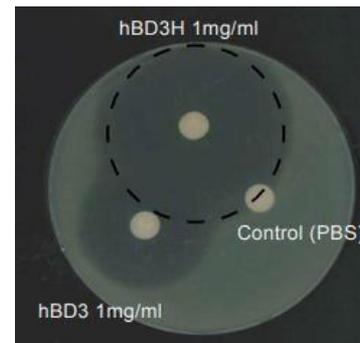
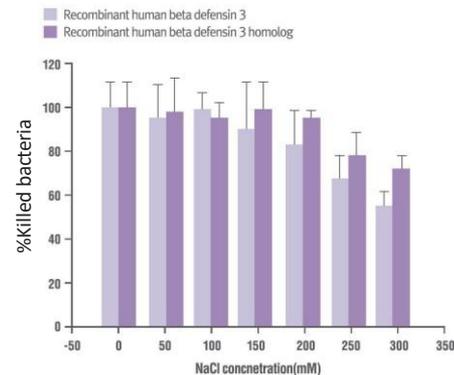
Overview of proposed integrin-TGF-beta interactions during wound healing.
Ref: *EMBO reports* (2010) 11, 97 – 105

hBD3H

sh-Oligopeptide-33

hBD3H (human Beta Defensin3 Homolog) performs a bactericidal activity (lytic activity) by dissolving bacteria. It also acts as a signaling molecule that activates mitogens, which are substances that induce lymphocyte activation. It is a small biological protein and a class of cationic protein molecules that constitute the inherent immune system of organisms. It has a strong antibacterial effect against pathogenic microorganisms, but it is known not to cause resistance in the human body.

Furthermore, it is a molecule with excellent biocompatibility and applicability as a source for next-generation antibiotics or new antimicrobial substances.



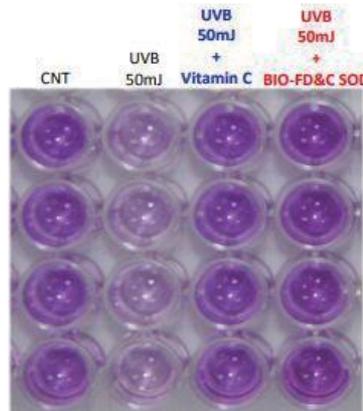
The experiment confirmed the strong antibacterial action of hBD3H. Ref.: BIO-FD&C Medicinal nanomaterial Institute. Ref.: BIO-FD&C Medicinal nanomaterial Institute

SOD-1

sh-Polypeptide-60

Skin lipids can be easily oxidized by UV rays. Peroxidized lipids lose the function of the skin barrier, creating gaps in the lipid matrix, which leads to loss of elasticity and wrinkle formation, eventually becoming signs of aging

SOD-1 (Superoxide dismutase-1) prevents this skin lipid peroxidation. Furthermore, it is an enzyme that protects cells from DNA damage and mitochondrial damage caused by harmful environments such as reactive oxygen species. The oxygen replaced by SOD-1 becomes hydrogen peroxide, which is finally decomposed into water and oxygen and utilized in human metabolism.



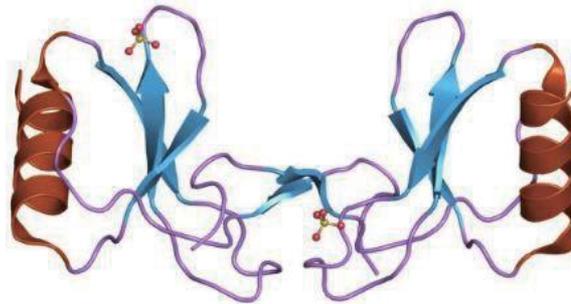
SOD exhibits an antioxidant effect by protecting cells from UVB. .

Ref. : BIO-FD&C Medicinal nanomaterial Institute

Rantes

sh-Oligopeptide-14

TGF- β 1 (Transforming Growth Factor Beta1) is a growth factor involved in tissue formation such as bone, muscle, and nerve. It helps create new blood vessels, improving cell regenerative power, and promotes the proliferation of keratinocytes



3rd Structure of Rantes

Phyto-NEP

Caffeoyl sh-Decapeptide-9

Phyto-NEP significantly reduces cytokines such as IL-5, IL-10, and IL-13, which are causes of immune imbalance, showing a local therapeutic effect and helping to alleviate sensitive skin.

시험자 식별코드	0주	4주
12020-A1-13		
12020-A1-14		

시험제목	피부 자극도에 의한 가려움증 완화에 관한 Phyto-NEP (Caffeoyl Decapeptide-17, 3000nmol)의 인체효능평가
성명	최현희* 김필준* 
연구책임자	소속
	최현희* 피부임상연구센터(주) 중앙대학교 의생명 대학원

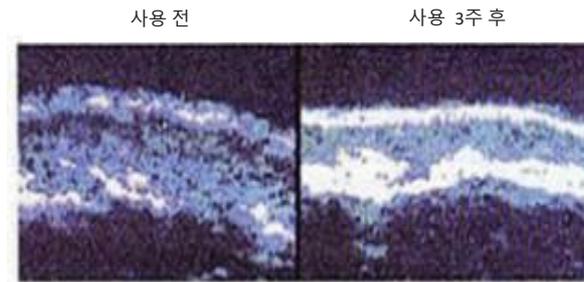
For Skin Irritation
Phyto-NEP의 인체효능평가

Ref. : BIO-FD&C Medicinal nanomaterial Institute

cu- GHK

Copper Tripeptide-1

Copper Tripeptide-1 (cu-GHK) increases the activity of Metalloproteinase in the skin, inducing the biosynthesis of new collagen and elastin. You can expect the effect of promoting skin regeneration by increasing the production of collagen and elastin.



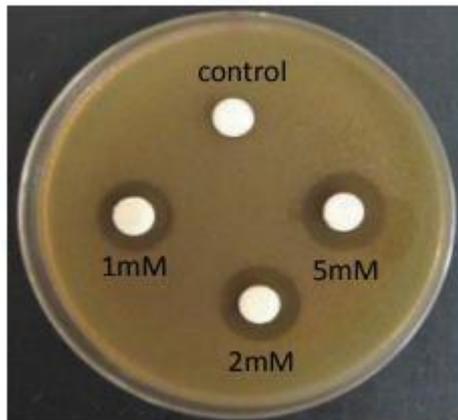
Ref : Cosmetics & Medicine (Russia) April 2004

cu-GHK significantly increases collagen production, showing the effect of promoting skin regeneration. (White area: collagen)

Aurein

Oligopeptide-76

Aurein is a peptide isolated from skin secretions, typically formed by 13 to 25 amino acids. As an antimicrobial peptide, it has an antibacterial effect against microorganisms that cause skin infections. Aurein is developed with the highest quality as a cosmetic ingredient and is excellent for skin protection.



Anti-microbial effect (*P. acnes*) of Aurein

Agent	Minimal inhibitory concentration (MIC) ($\mu\text{g/ml}$) <i>Candida albicans</i> (18)		
	Range	50%	90%
Aurein 1.2	16–64	16	32
Citropin 1.1	8–256	64	128
Temporin A	16–256	64	128
Uperin 3.6	4–128	16	32
Iseganan	2–128	64	128
Omiganan	32–128	64	128
Pexiganan	16–512	128	256
Amphotericin	0.125–4	0.5	1
Nystatin	0.25–8	2	4

The activity of antimicrobial peptides and conventional antifungals against *C. albicans* strains

Ref. : *In vitro* Activity of Synthetic Antimicrobial Peptides Against *Candida*., polish journal of Microbiology, 2006, Vol.55, No 4, 303-307

GLUTANEX

AHA BHA LHA ACNE CARE AMPOULE

Thank You