





QT Cell Skin Renewal Booster hDF-CM

QT Cell Skin Serum Solution

QT Cell

KEY INGREDIENTS



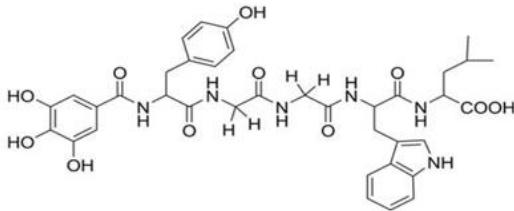
hDF-CM



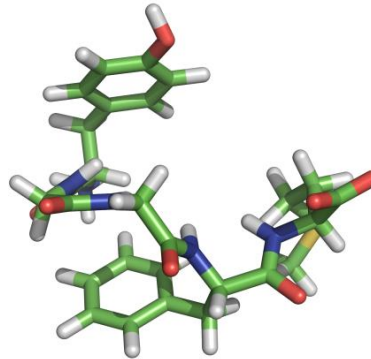
Callus Culture Extract



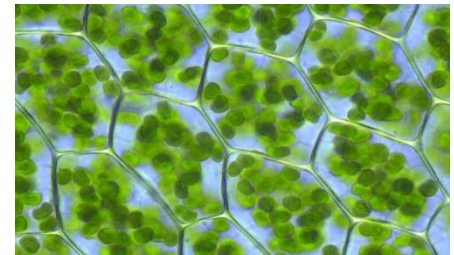
Hyaluronic acid



Galloyl Exorphin



Neuropeptide

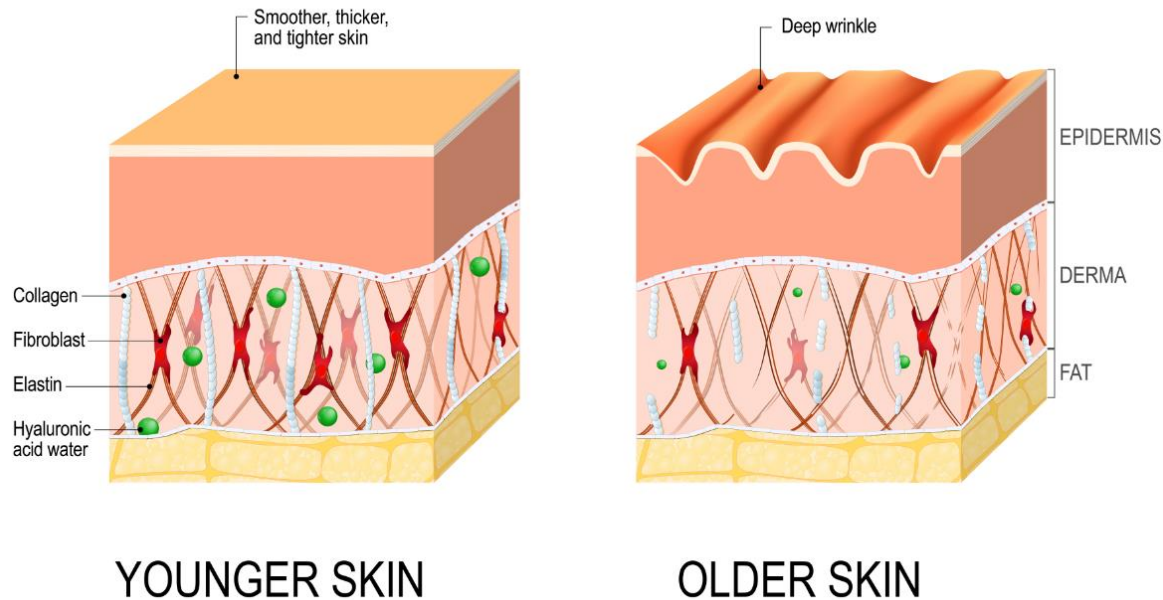


Fucoidan

Fibroblast

Fibroblast

- Basic composition of Fibroblasts production, tissue contraction, skeletal tissue maintenance
- Produces collagen
- When tissue is damaged by trauma, oxidation, and aging, fibroblasts transform into myoblasts and actively get involved in the repair process
- They are responsible for skin regeneration and collagen production. Healthy skin originates from healthy fibroblasts
- Aging and damaged skin is caused by a decrease of fibroblasts

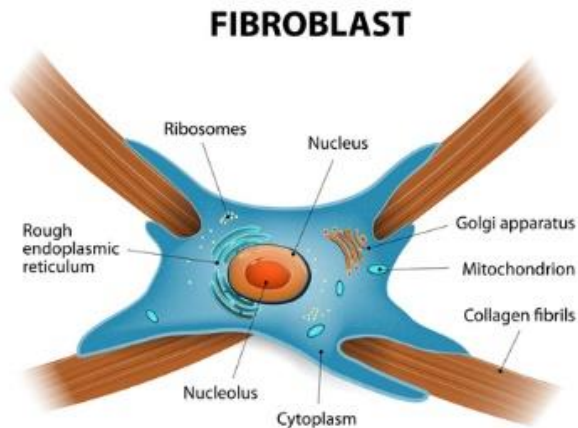


Reduction of fibroblasts-> Collagen reduction -> Dermal layer depression -> Wrinkles and skin aging

Human Dermal Fibroblast Conditioned Media

HDF-CM

: Human Dermal Fibroblast Conditioned Media



- Currently, the most widely used conditioned stem cell media is from adipose stem cells or cord blood-derived stem cell.
- QTCCell hDF-CM contains human dermal fibroblast conditioned media.
- Human dermal fibroblast conditioned media(hDF-CM) contains a variety of cytokines derived from skin stem cells. hDF-CM aids in cell proliferation, skin regeneration, wrinkle improvement and anti-inflammatory reactions.
- Reigstered on INID as a raw material (INCI15785)
- Completed nonclinical testing according to Ministry of Food and Drug Safety
- Donar eligibility check accroding to Ministry of Food and Drug Safety

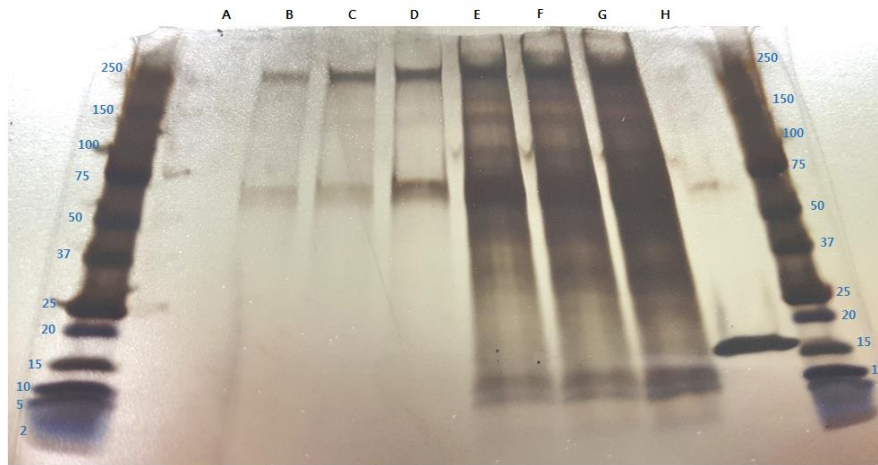
Fibroblast conditioned culture media

Active Ingredient-Collagen

: For detection of structural collagen protein responsible for skin elasticity in fibroblast conditioned media

20 different types of collagen in the body, each with its own role, distributed organization

Collagens produced by skin derived fibroblast are usually I type or III type.



PAGE analysis of human dermal fibroblast conditioned media (hDF-CM) A. Media only, B. hDF-CM (24h, 1X), C. hDF-CM (48h, 1X), D. hDF-CM (72h, 1X), E. hDF-CM (24h, 25X), F. hDF-CM (48h, 25X), G. hDF-CM (72h, 25X), H. bFGF (2ug)

Fibroblast conditioned culture media

Active Ingredient-Growth factor

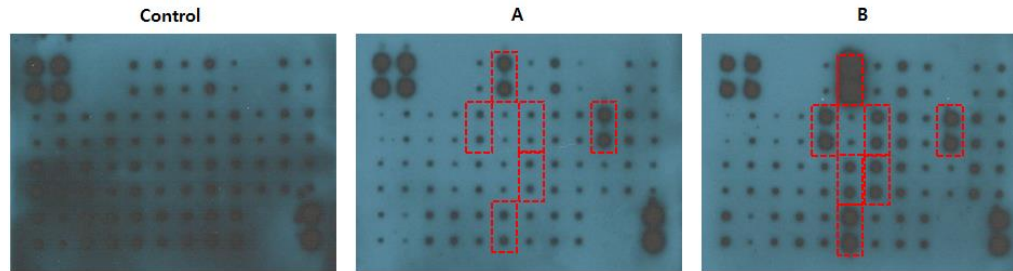
: The types and relative expression levels of various growth factors in cultured fibroblasts were examined.

The major growth factors to be detected are about 5 species.

| Growth Factors | Function | Cosmetic Function |
|--|---|--|
| FGF (Fibroblast Growth Factor) | Fibroblast mitogen Wound healing Angiogenesis | Elasticity Skin improvement (smoothness, density) Skin cell growth promotion |
| HGF (Hepatocyte Growth Factor) | Strong mitogen Wound healing Tissue regeneration | Wound treatment (skin regeneration) Alopecia treatment |
| IGFBP (Insulin-like Growth Factor Binding Protein) | Fibroblast mitogen Endothelial cell mitogen | Antioxidant effect Growth control effect |
| PDGF (Platelet derived Growth Factor) | Fibroblast mitogen Endothelial cell mitogen Smooth muscle mitogen | Wrinkle improvement Alopecia treatment |
| VEGF (Vascular Endothelial Growth Factor) | Angiogenesis Endothelial cell mitogen Endothelial cell migration | Enhancement of skin composition Alopecia treatment |

Fibroblast conditioned culture media

Active Ingredient-Growth factor



Analysis of Growth factors in human dermal fibroblast conditioned media (hDF-CM) Control. Media only, A. hDF-CM (24h, 1X), B. hDF-CM (24h, 25X)

Fibroblast growth factor FGF

Promotes skin cell growth

Skin improvement (Skin, dermal density)

Hepatocyte growth factor HGF

Induction of cell activity

Wound healing

Fibronectin

Wound healing as a part of skin

Procollagen

Maintains resilience

Vascular Endothelial Growth Factor VEGF

Cell proliferation, promotes angiogenesis

Increases skin composition

Platelet derived growth factor PDGF

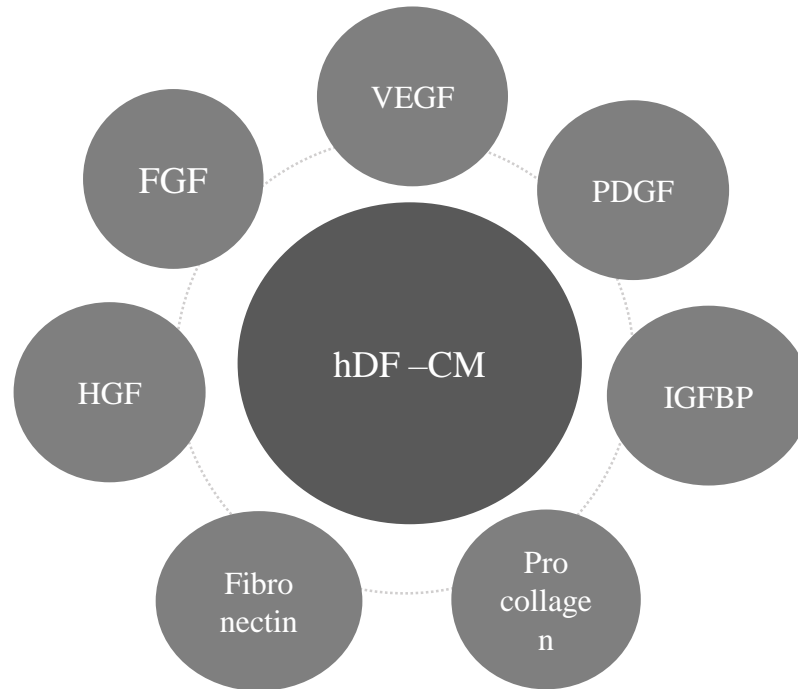
Angiogenesis and vascular tissue regeneration

Insulin Growth Factor Receptor Protein IGFBR

Regenerates and maintains skin epithelium

Fibroblast conditioned culture media

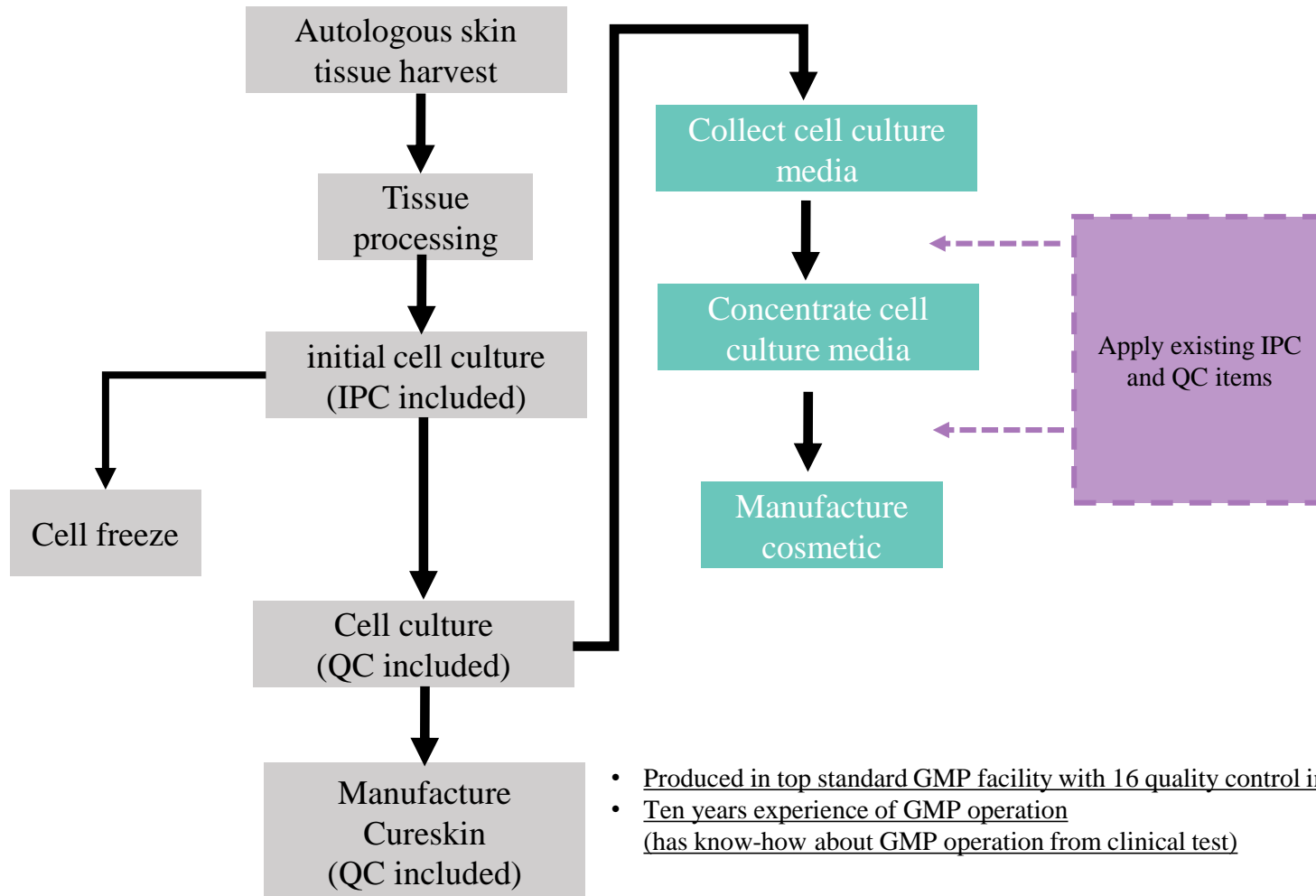
Active Ingredient-Growth factor



Contains growth-related substances such as fibroblast growth factor (FGF), skin protector and regenerators, HGF, VEGF, procollagen, and fibronectin which help to produce collagen and create youthful skin.

Fibroblast conditioned culture media

Preparation process



- Produced in top standard GMP facility with 16 quality control inspections
- Ten years experience of GMP operation
(has know-how about GMP operation from clinical test)

Leontopodium Alpinum (Edelweiss)

Callus Culture Extract

Callus is also called as the stem cell of a plant, and has a higher splitting ability than other plants which allows to produce highly effective physiologically active substances in anti-inflammation, antioxidant, anti-wrinkle whitening.

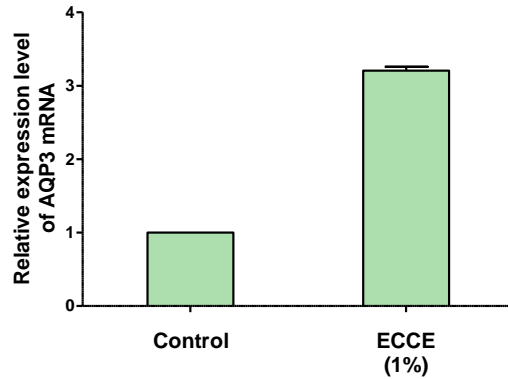


- Antioxidation
- Sun-protection
- Anti-inflammatory effect
- Skin hydration effect
- Anti-wrinkle effect

Extract of Edelweiss callus: high antioxidant effect, excellent skin regeneration and wrinkle

Edelweiss Callus Culture Extract

Skin hydration effect



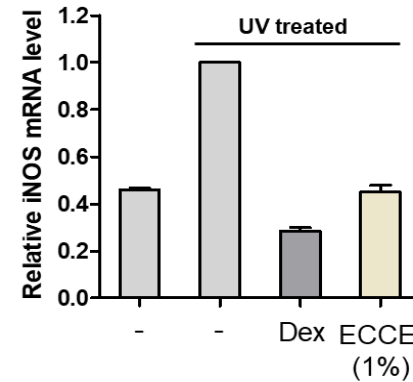
Extract of Edelweiss callus increases the expression of Aquaporin 3 in Keratinocyte

Aquaporin3

Proteins that pass water and glycerol
So that the moisture between the cells can be supplied smoothly.

Create a way to increase the moisture in your skin

Anti-inflammation effect



Controls the level of COX-2, Inos which are activated by sunlight

COX-2

Prostaglandin-producing enzyme causing inflammation, pain, fever

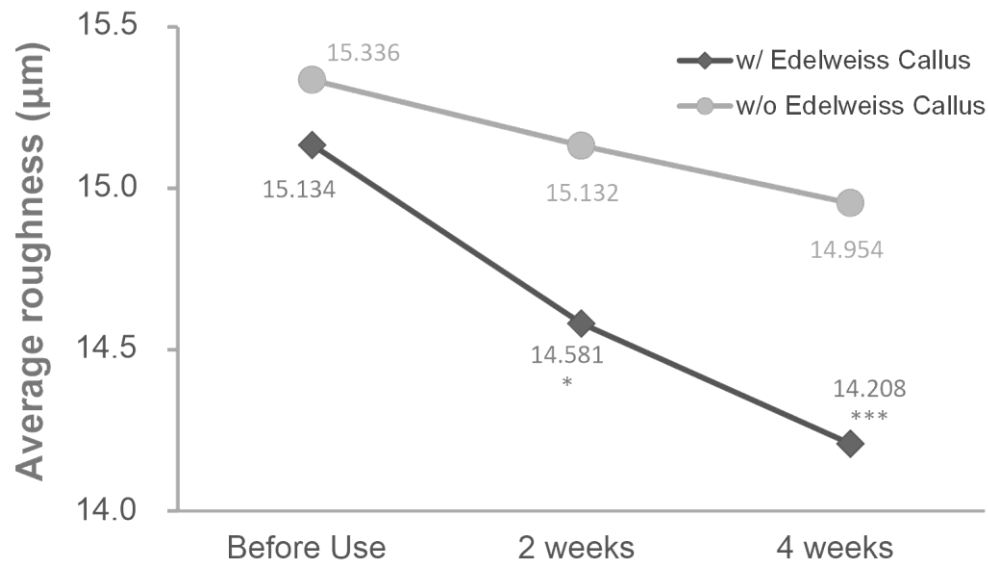
iNOS

Enzymes responsible for the production of nitrogen monoxide (NO) accompanying in vivo inflammatory reactions

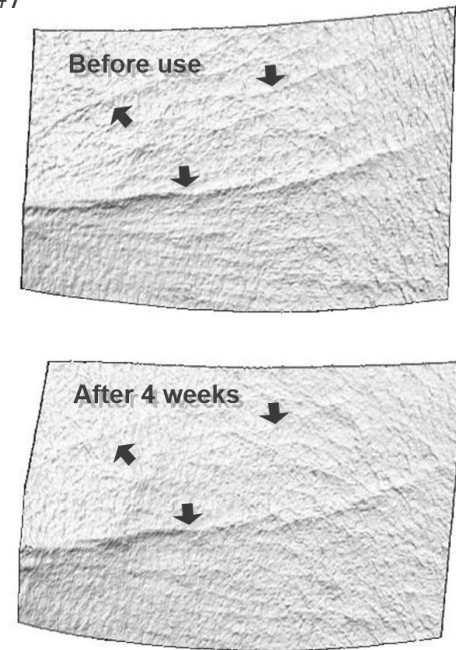
Edelweiss Callus Culture Extract

Human clinical test - Eye wrinkles

Skin surface roughness test



case #7



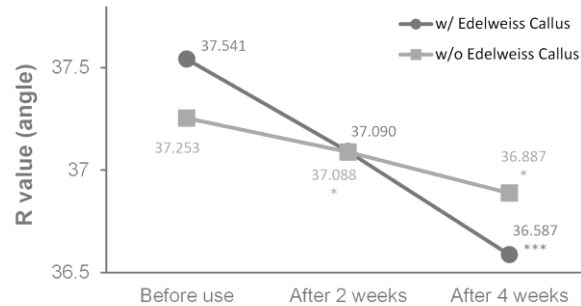
Clinical test result shows:

Compared to the control group, the wrinkles in the eyes of Edelweiss cream group decreased after 2 weeks and 4 weeks ($p < 0.05$).

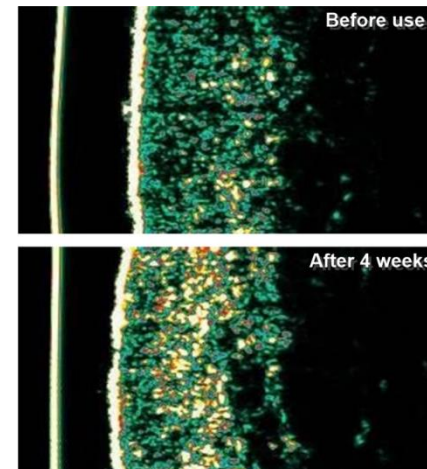
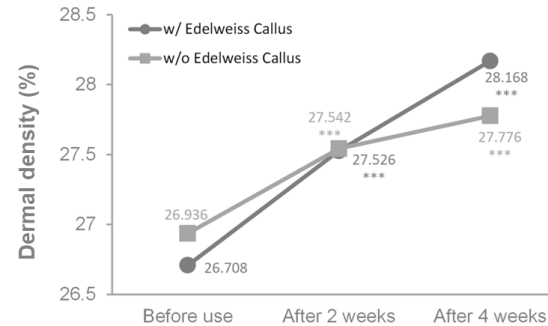
Edelweiss Callus Culture Extract

Human clinical test

Skin lifting test



Dermal density

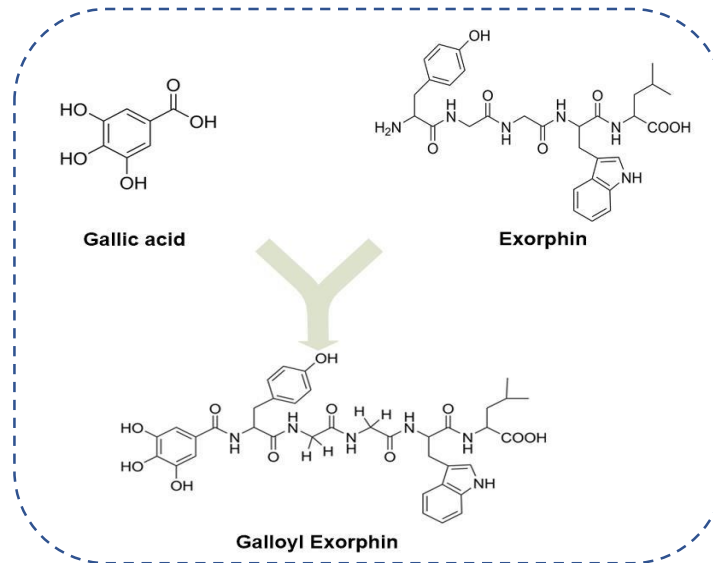


Clinical test result shows:

- The R value of the skin lifting degree decreased in the Edelweiss cream group after 2 weeks and 4 weeks compared with the control group.
- The density of dermis was increased in Edelweiss cream group after 2 weeks and 4 weeks compared to the control group..

Galloyl Exorphin

INCI:Galloyl pentapeptide-33



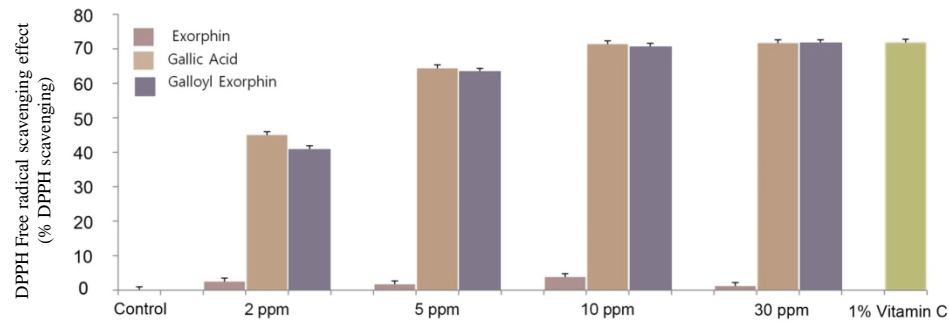
Gallic Acid + Plant derived Exorphin binded peptide

- Anti-oxidation effect
- Anti-inflammatory effect
- Skin firming effect
- Wrinkle improvement

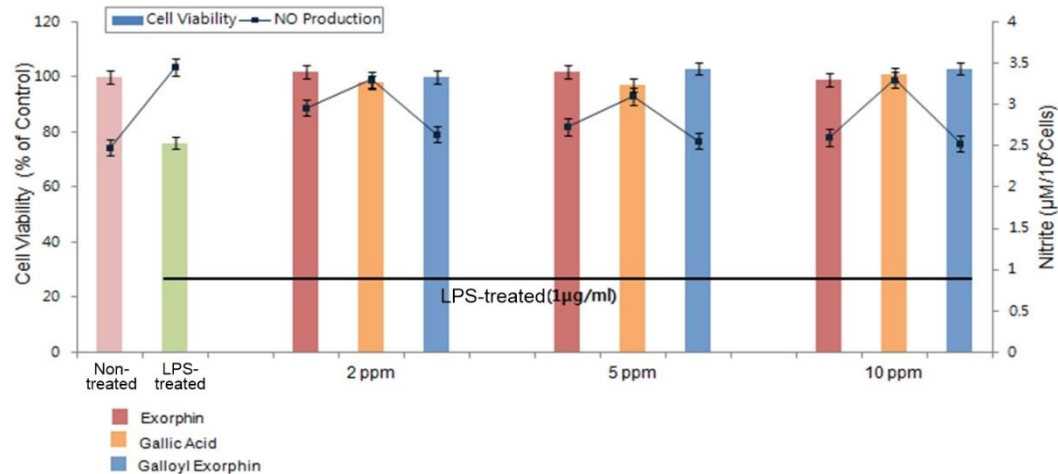
Galloyl Exorphin

Anti-oxidation effect

DPPH Free radical scavenging effect

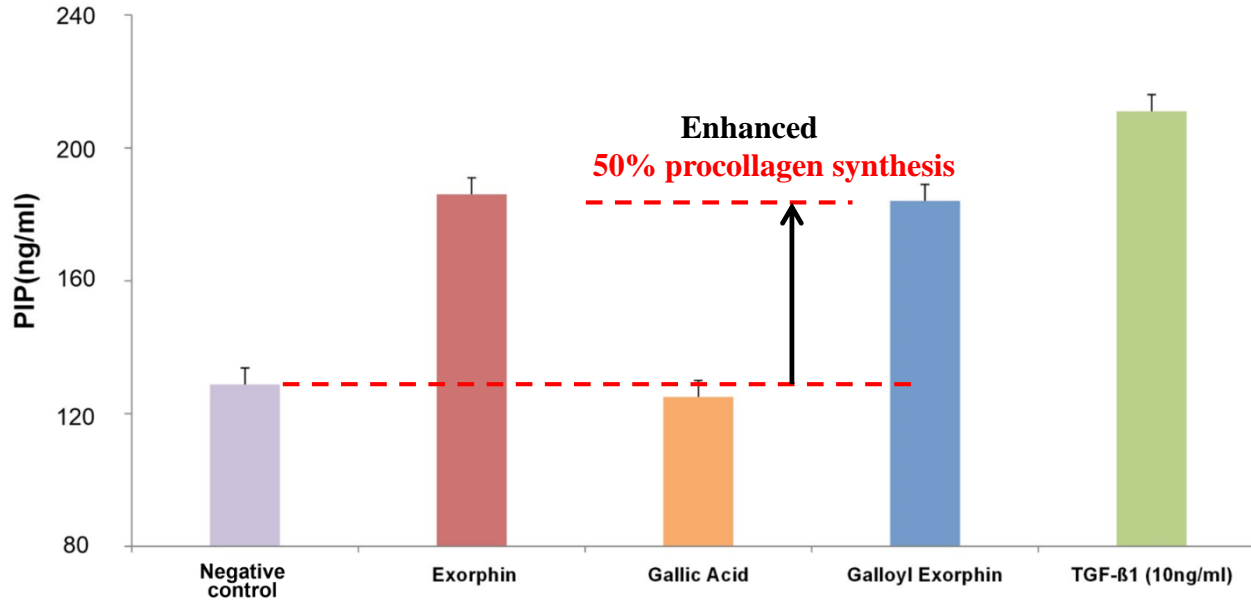


Anti-inflammation effect



Galloyl Exorphin

Skin elasticity: Increase Procollagen Synthesis



- Treatment of Galloyl Exorphin converts to mature collagen I
Procollagen improves production of type I C-peptide (PIP)

NC : Negative control

PC : Positive control (TGF-β1 10ng/ml)

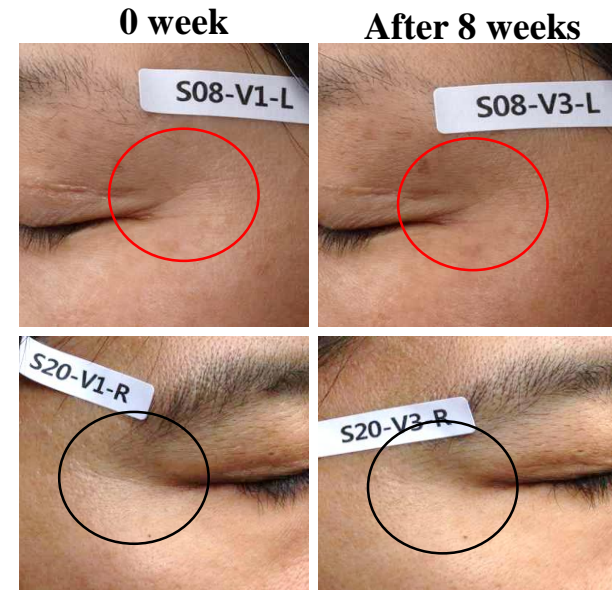
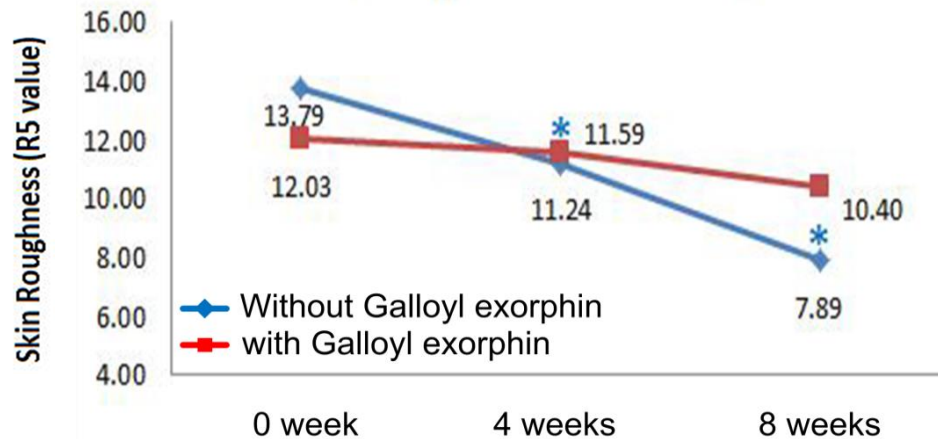
- Cell strain : human fibroblast (CCD-986sk)

- Procollagen Type-I C-peptide : C-terminus of procollagen (precursor of collagen)

Galloyl Exorphin

Human clinical test

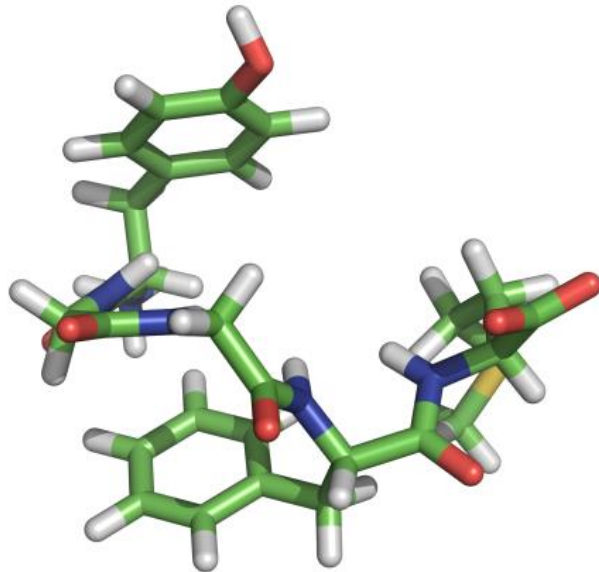
Improvement of eye wrinkles



Clinical test result shows:

Compared with the control group, the wrinkles in the eyes of Galloyl Exorphin cream decreased after 4 weeks and 8 weeks ($p < 0.05$).

Neuropeptide

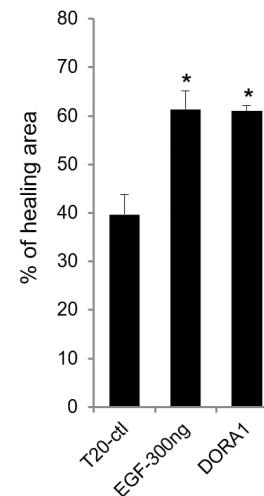
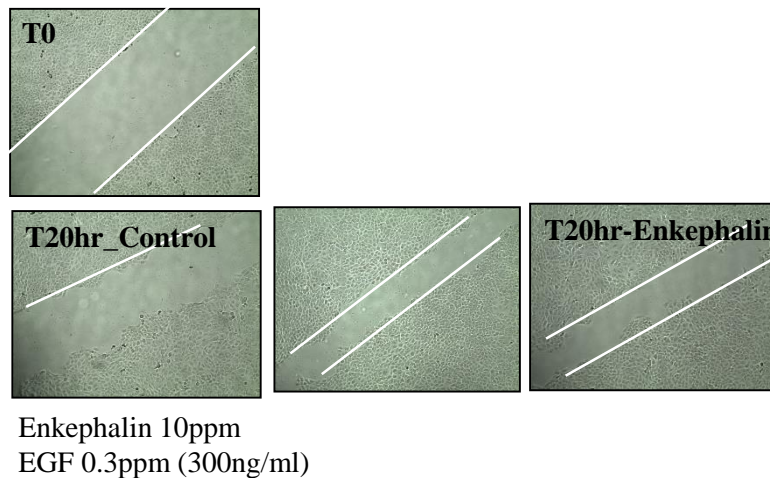
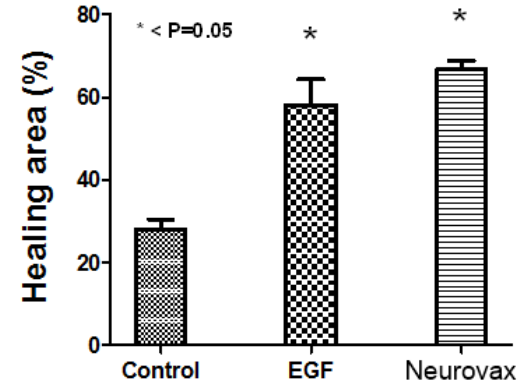
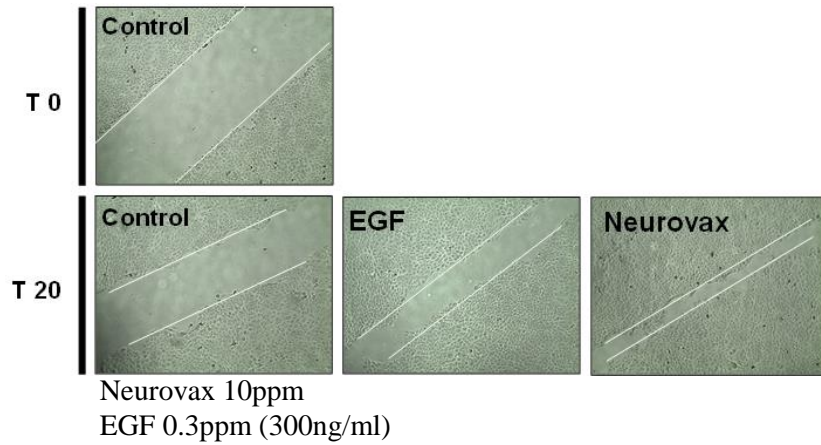


- Type of Neuropeptide,
delta opioid receptor (DOR) agonist
- Skin homeostasis
- Anti-inflammation
- Wound healing

Neuropeptide-1 is a major neuropeptide that stimulates the survival and activity of human neurons, Enkephalin and a new peptide linked to GHK, the major cell-activating peptide of Cu²⁺ + -tripeptide (GHK). Neuropeptides that stimulate reactivity of an aged skin cell and GHK that stimulate the growth and bioactivity of skin cells undergo mutual synergism which enables anti-aging and anti-wrinkle skin improvement and induces excellent wound regeneration.

Neuropeptide

Wound healing test

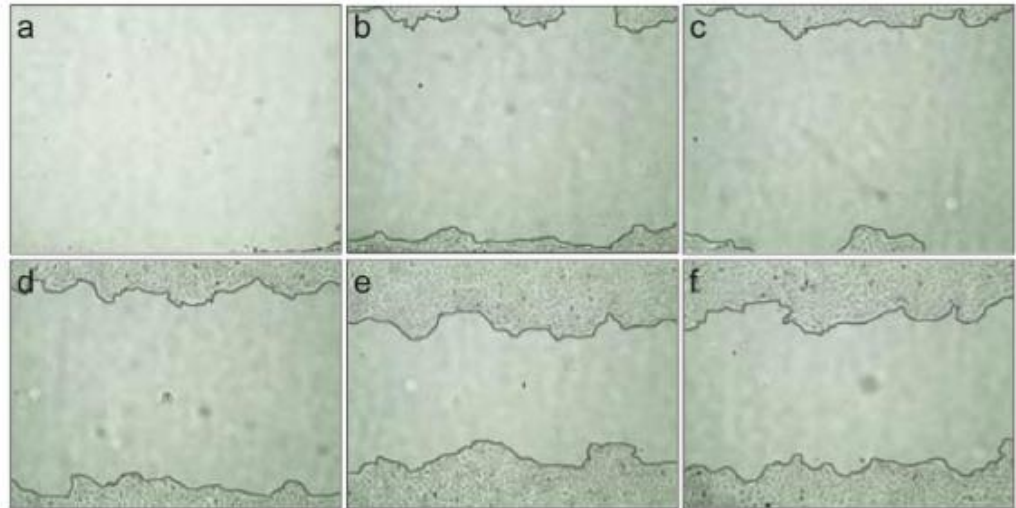
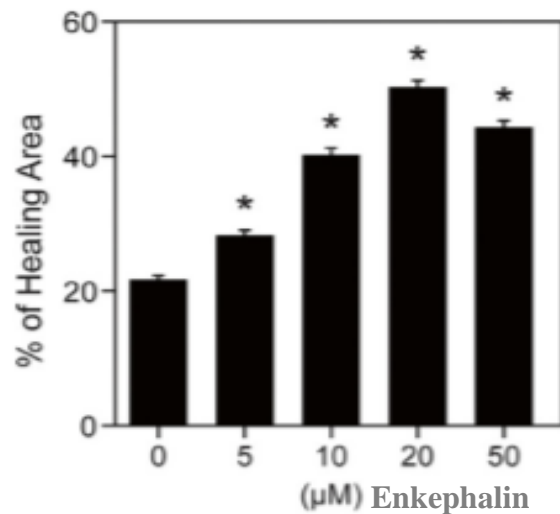


DORA1: Enkephalin 10ppm

Neuropeptide

Wound healing test

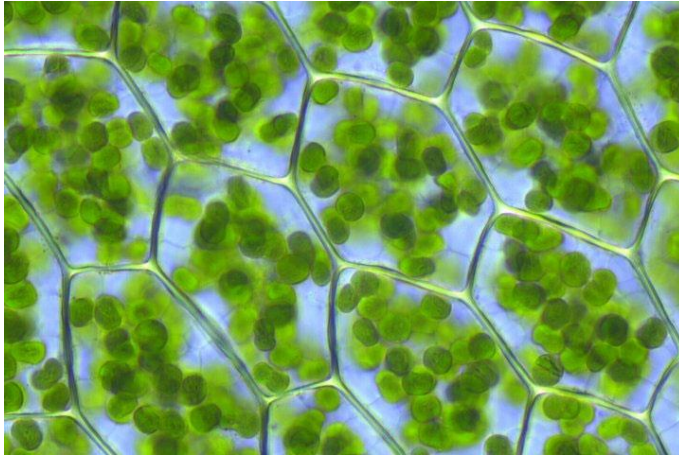
In vitro wound healing Assay



a. Control, b, c, d, e, f: 0, 5, 10, 20, 50 uM Enkephalin concentration Enkephalin 20uM=11ppm

- Neurovax activates the wound healing process just like EGF
- Enkephalin induced keratinocyte migration and collagen proliferation
Excellent wound healing efficacy

Fucoidan – Marine polyphenol



- Anti-aging
- Anti-oxidation
- : Free radical scavenging
- Skin Brightening

Polysaccharides contained in brown algae

Superior moisture retention on skin

Effective antioxidative action to protect skin from harmful oxygen and normalize sebaceous activity of skin

Fucoidan – Marine polyphenol

Table 3. Extract elastase, tyrosinase and collagenase inhibition results (percent inhibition).

| Extract | Elastase Inhibition | Elastase Inhibition EC ₅₀ | Tyrosinase Inhibition | Tyrosinase Inhibition EC ₅₀ | Collagenase | Collagenase IC ₅₀ |
|------------------------------------|---------------------|--------------------------------------|-----------------------|--|------------------|------------------------------|
| <i>Fucus vesiculosus</i> extract | 99% at 0.1 mg/mL | 76 µg/mL | 99% at 0.02 mg/mL | 33 µg/mL | 99% at 0.1 mg/mL | 60 µg/mL |
| <i>Undaria pinnatifida</i> extract | 99% at 0.1 mg/mL | 68 µg/mL | 5% at 1 mg/mL | n/a | 99% at 0.1 mg/mL | 55 µg/mL |

- *Fucus vesiculosus* extract , *Undaria pinnatifida* act as inhibitor of elastase , collagenase , tyrosinase

Elastase : Elastin dissolving enzyme Collagenase : Collagen decomposing enzyme tyrosinase : Tyrosine oxidating enzyme

Table 4. Extract glycation inhibition results (percent inhibition).

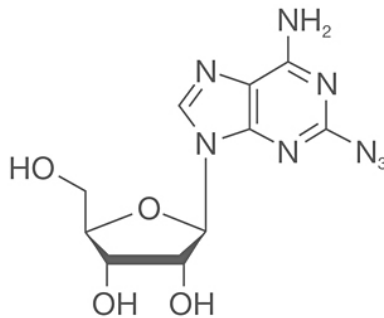
| Compound | Concentration | Glycation Inhibition |
|------------------------------------|---------------|----------------------|
| <i>Fucus vesiculosus</i> extract | 0.1 mg/mL | 31% |
| | 0.2 mg/mL | 45% |
| <i>Undaria pinnatifida</i> extract | 0.1 mg/mL | 33% |
| | 0.2 mg/mL | 50% |
| Aminoguanidine | 0.1 mg/mL | 24% |
| | 0.2 mg/mL | 50% |

- Effectively inhibits Glycation involved in aging

QT CELL Benefits

Dual functional Cosmetic for Whitening and Anti- Wrinkle treatment

- Adenosine

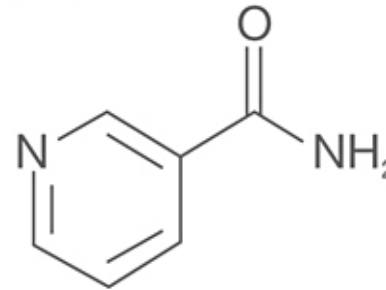


Nucleoside involved in signal transduction outside the cell

Enhances Fibroblast proliferation in dermis, Increases Collagen synthesis,
Improves wrinkles, restores skin elasticity

Anti-inflammatory for wound-healing effect

- Niacin amide

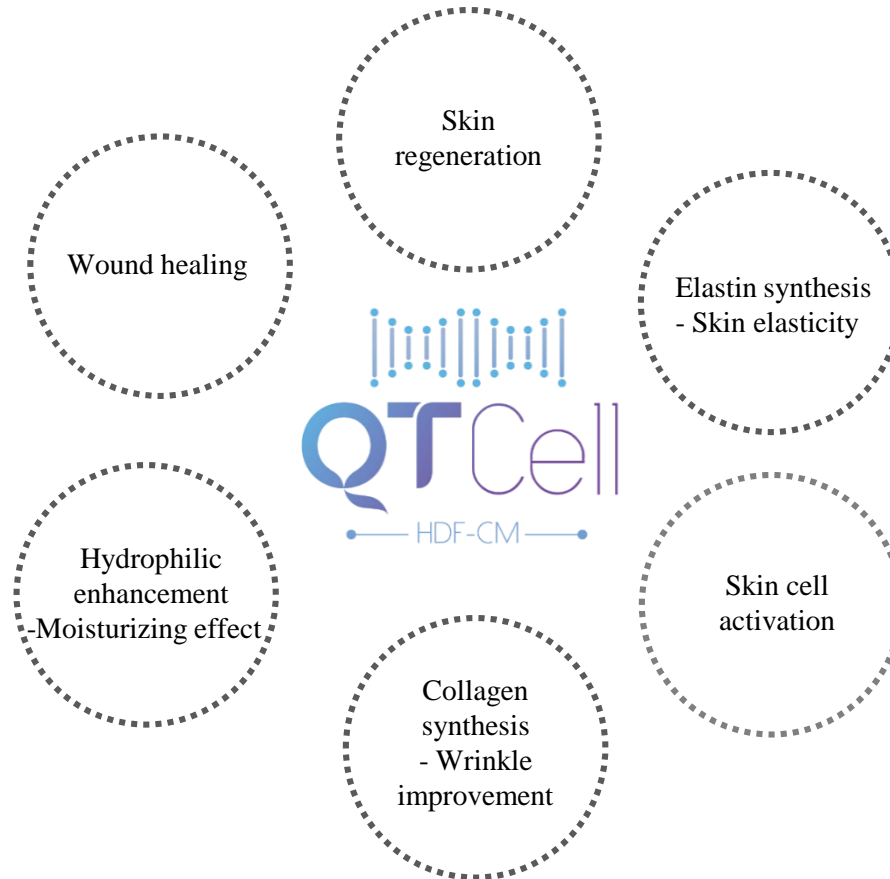


Water-soluble vitamin B3

Inhibition of melanin synthesis, reduction of melanin migration

Increases ceramide and fatty acid in skin, prevent moisture loss and keep skin moist

QT CELL Benefits



QT CELL Benefits



- Contains 150,000 PPM fibroblast conditioned culture media
- Uses concentrated, high purity fibroblast culture media obtained from the manufacture of our approved medical product (Cureskin)
- Uses fibroblast culture media as a key ingredient which is well known for preventing and improving skin damage, giving skin vitality
- Along with the multi-growth factors in fibroblast conditioned culture media, high functional ingredients such as plant stem cell, peptide, HA create a synergy effect.
- Improves skin regeneration by activation of skin metabolism