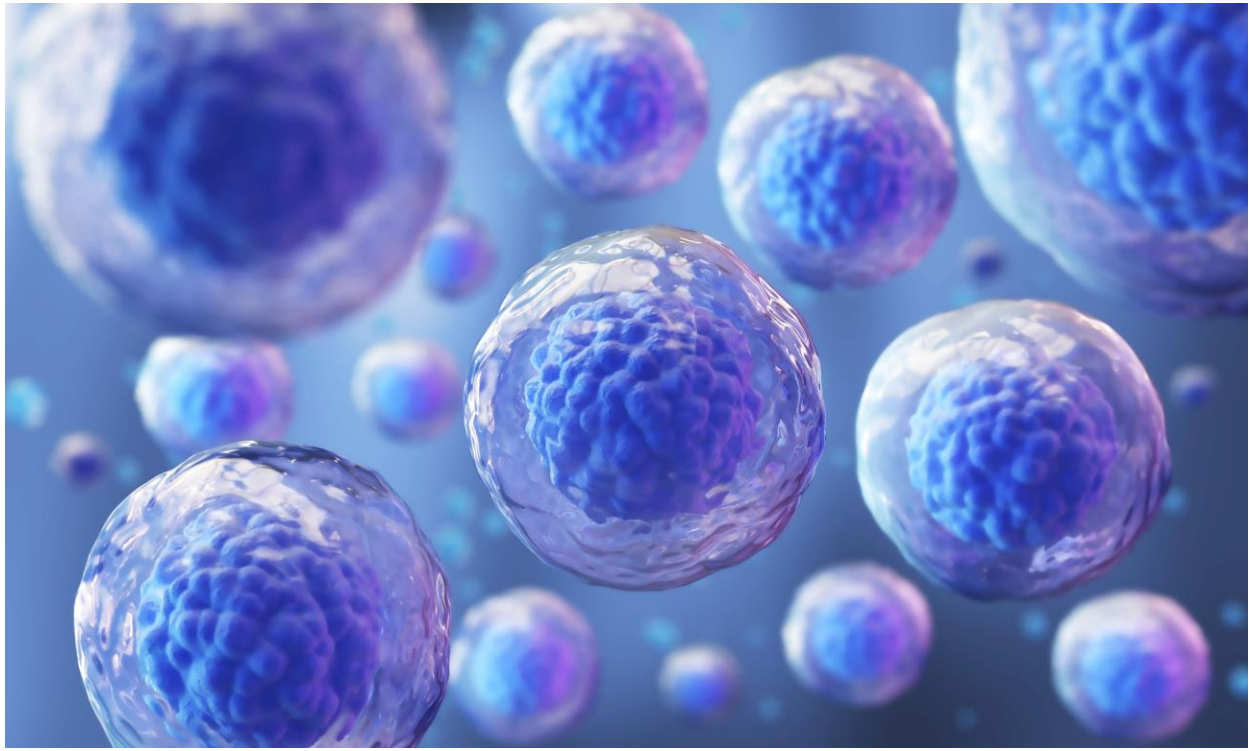
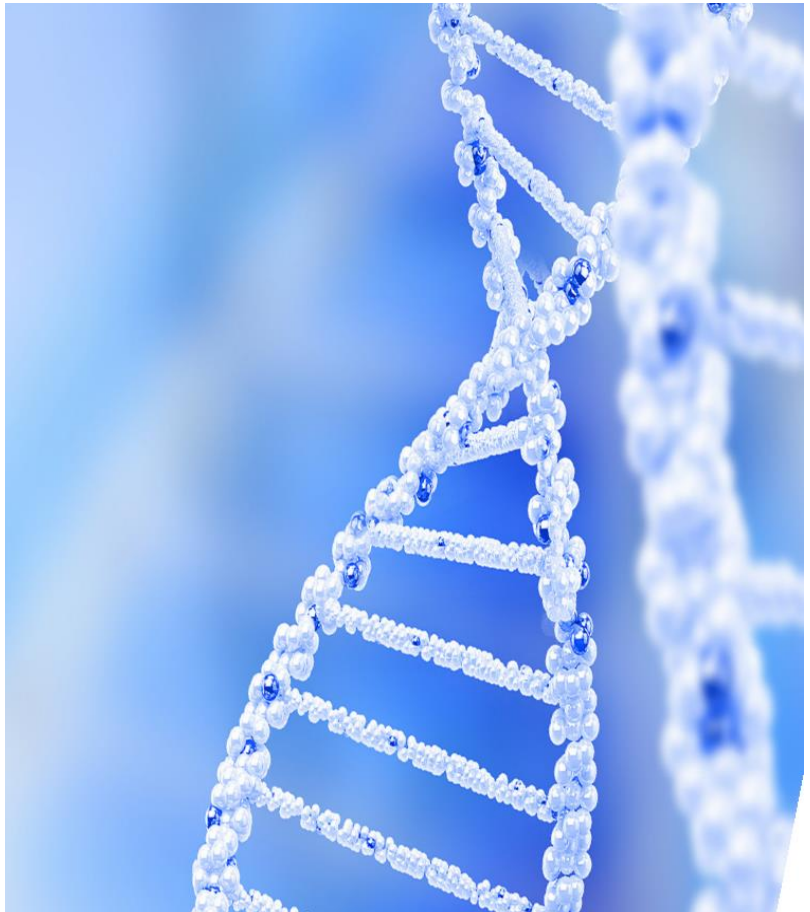
다산씨엔텍
DASAN C&Tech

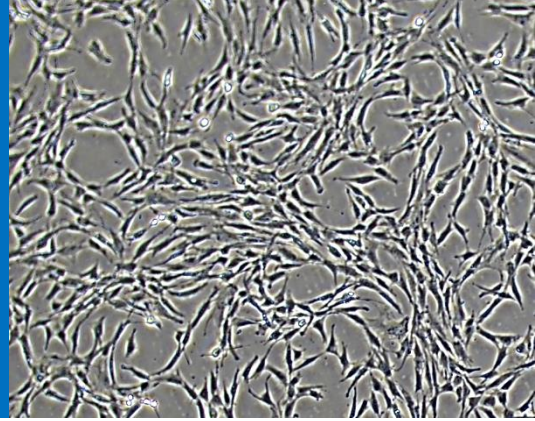
Human Stem Cell Conditioned Media (STEMAXELL® & STEMAXELL-Exosome®)





Stem cell conditioned media & exosomes

(STEMAXELL® & STEMAXELL-Exosome®)



Stem cell conditioned media refers to a liquid or solution produced when stem cells are cultured.
It contains various physiologically active molecules (growth factors, cytokines, proteins, antioxidants and extracellular vesicles etc.) secreted during the growth and development of stem cells.

These bioactive molecules in stem cell conditioned media comprehensively promote skin cell activation as well as skin regeneration, which improves skin elasticity and gloss.

In order to develop a powerful cosmetic raw material - human stem cell conditioned media that can promote the activation of human skin cells, We used **human platelet lysates (hPLs)** to not only have maximized the growth and survival rate of stem cells overall in vitro culturing but also have fundamentally eliminated in the risk of xenogeneic infection.

STEMAXELL® (developed DASAN C&Tech R&D center, **Patent: 10-2136172)** have been verified for cellular effects as follows.

STEMAXELL® can reduce wrinkles by stimulating collagen and elastin production. And also growth factors and antioxidants prevent aging by protecting the skin from free radicals. STEMAXELL® contains anti-inflammatory components that alleviate skin irritation, while its growth factors support wound healing and skin repair. STEMAXELL® can enhance skin elasticity by the production of collagen and elastin. It can improve skin tone and brightness by suppressing melanin production.

Stem cell-derived exosomes

are nano-sized vesicles that secreted from stem cells. The small size of exosomes enables them to penetrate the skin surface and reach deep skin cells. These exosomes carry a diverse cargo of bioactive molecules (such as proteins, lipids, and microRNAs, etc). These factors can stimulate the production of collagen and elastin, which are essential for maintaining skin elasticity and reducing wrinkles.

Inflammation is a common factor in skin aging and various skin troubles. Exosomes, with their anti-inflammatory contents, can potentially help manage skin redness, irritation, and sensitivity by reducing inflammation.

STEMAXELL-Exosome® is a patented cosmetic raw material **(Patent: 10-2284517)** with superior cellular efficacy compared to STEMAXELL®.

STEMAXELL®

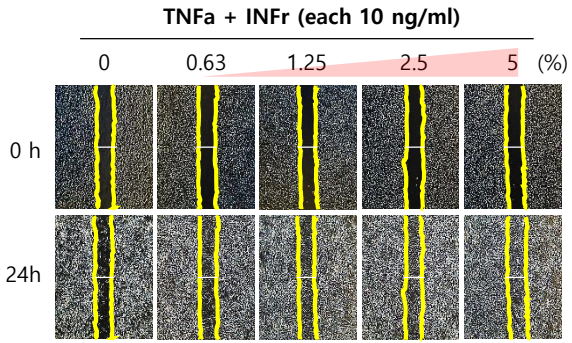
INCI : Human Stem Cell Conditioned Media
Patent (10-2136172) : Method for production of human stem cell conditioned medium comprising cell growth-regulating proteins

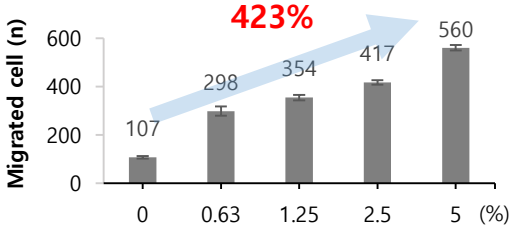
- Promotes cell proliferation & migration in inflammasome-induced keratinocytes (HaCaT).
- Downregulates the expression of pro-inflammatory cytokines in inflammasome-induced keratinocytes (HaCaT).
- Active ability to remove DPPH free radicals
- Inhibits cellular melanin production in melanocytes (B16F10).
- Increases cell proliferation in dermal papilla cells (HDPC).

In vitro test

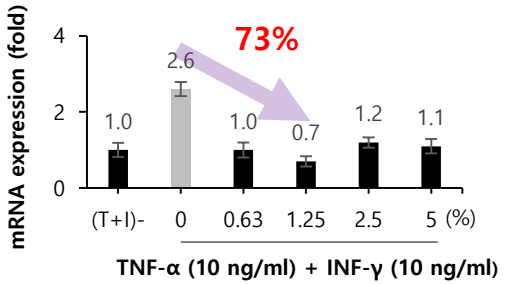
Enhancement of cytokine & growth factor production

Wound healing effect
Scratch assay in Fibroblast (D551)

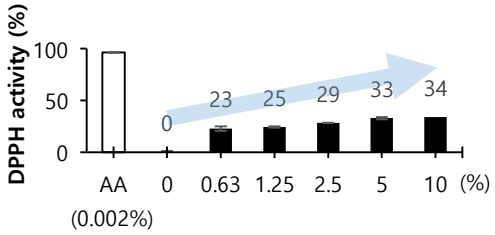




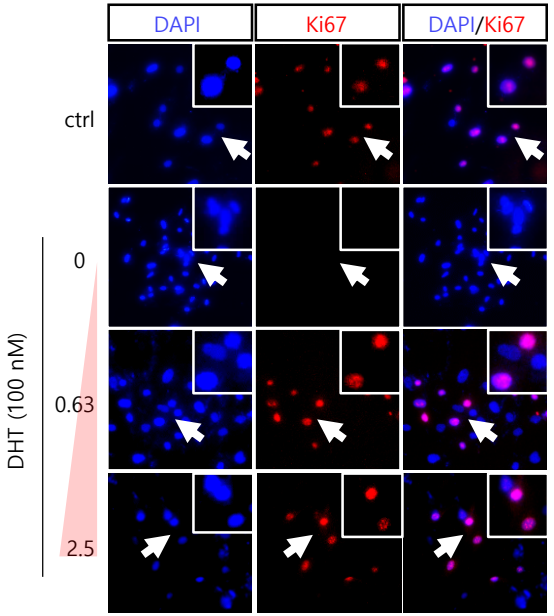
TNFa gene expression activity
in Keratinocytes (HaCaT)

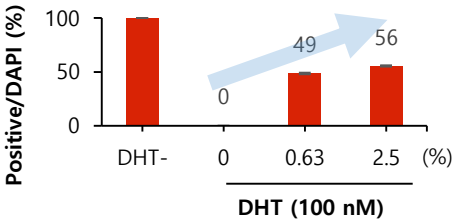


Anti-oxidant effect
DPPH radical scavenging activity

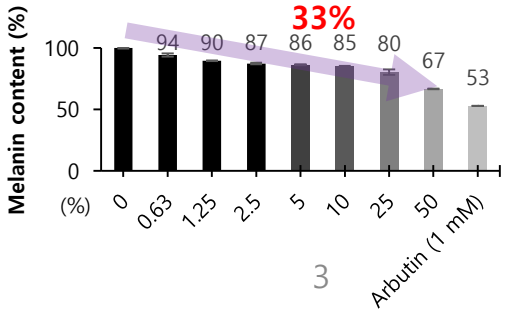


Ki67 protein expression activity in Dermal papilla cells (HDPC)





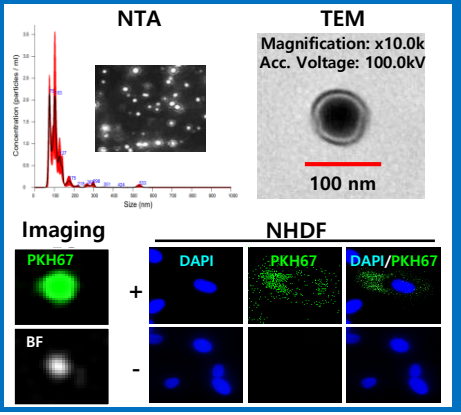
Melanin synthesis inhibition
activity in Melanocytes (B16F10)



STEMAXELL-Exosome®

INCI : Human Stem Cell Conditioned Media
Patent (10-2461487) : Composition for inhibiting photoaging

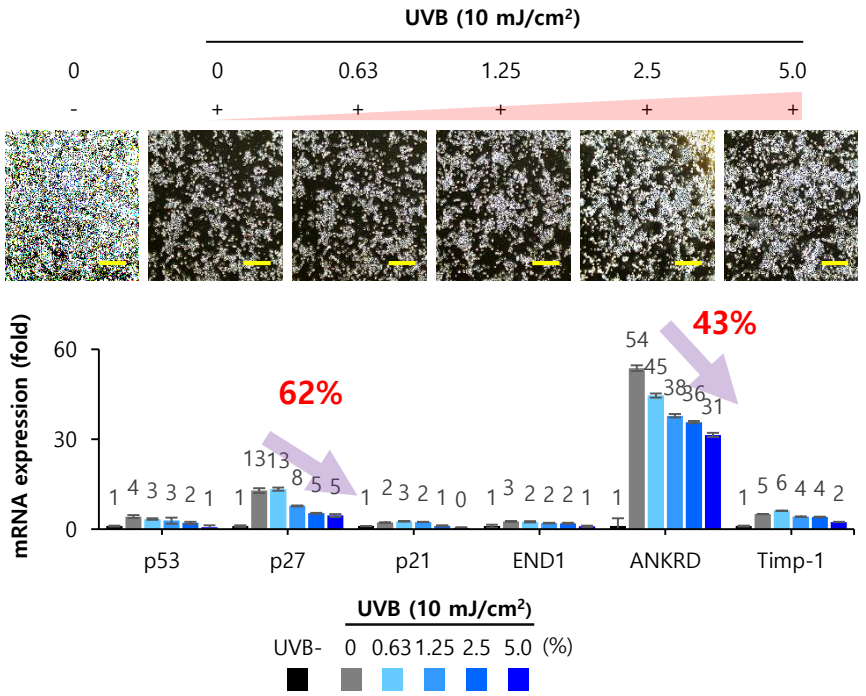
- Downregulates the expression of cell cycle inhibitory and aging-related genes in UVB-treated keratinocytes (HaCaT).
- Downregulates the expression of apoptotic gene and upregulates anti-apoptotic gene in UVB-treated keratinocytes (HaCaT).
- Downregulates the expression of pro-inflammatory cytokines in UVB-treated keratinocytes (HaCaT).



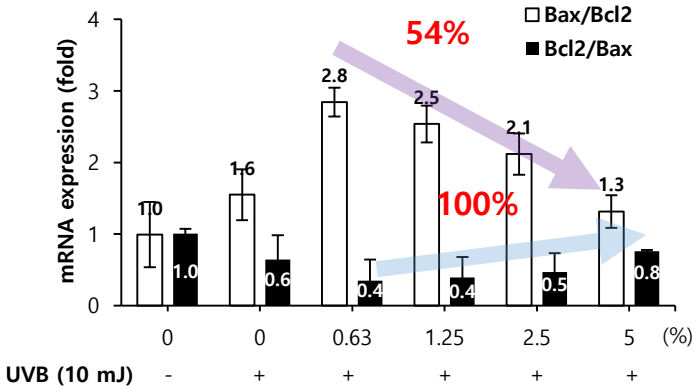
In vitro test

Anti-photoaging

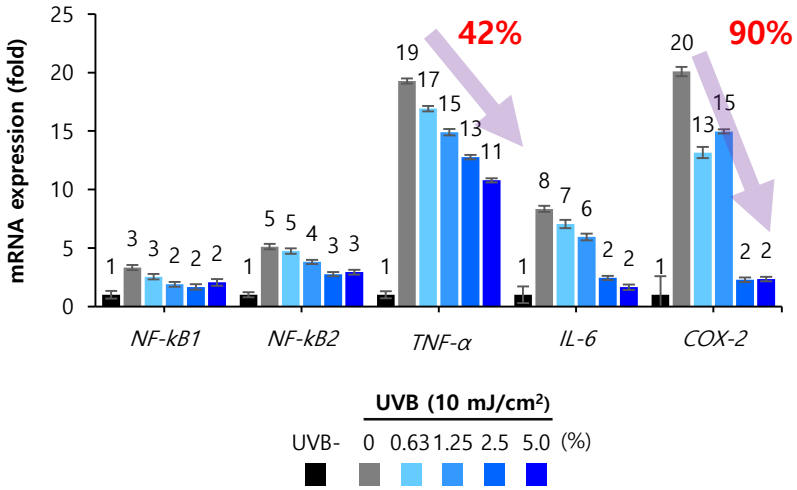
Cell proliferation activity In UVB-treated Keratinocytes (HaCaT)



Bax gene expression inhibition activity in UVB-treated Keratinocytes (HaCaT)



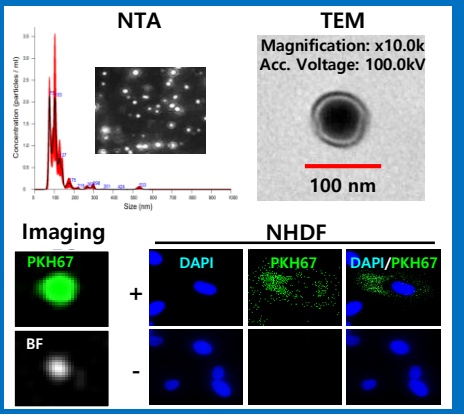
NFkB1,2, TNFa, IL6, COX2 gene expression activity in UVB-treated Keratinocytes (HaCaT)



STEMAXELL-Exosome®

INCI : Human Stem Cell Conditioned Media
Patent (10-2461488) : Composition for activating hair follicle dermal papilla cells

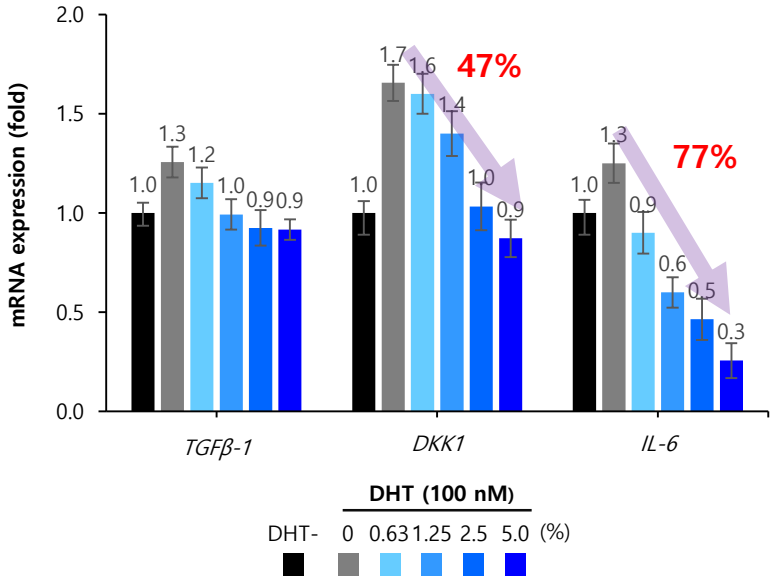
- Downregulates the expression of cell growth inhibitory genes in DHT-treated dermal papilla cells (HDPC).
- Upregulates the expression of cell growth promoting genes in dermal papilla cells (HDPC).
- Suppresses the generation of ROS in UVB-treated dermal papilla cells (HDPC).



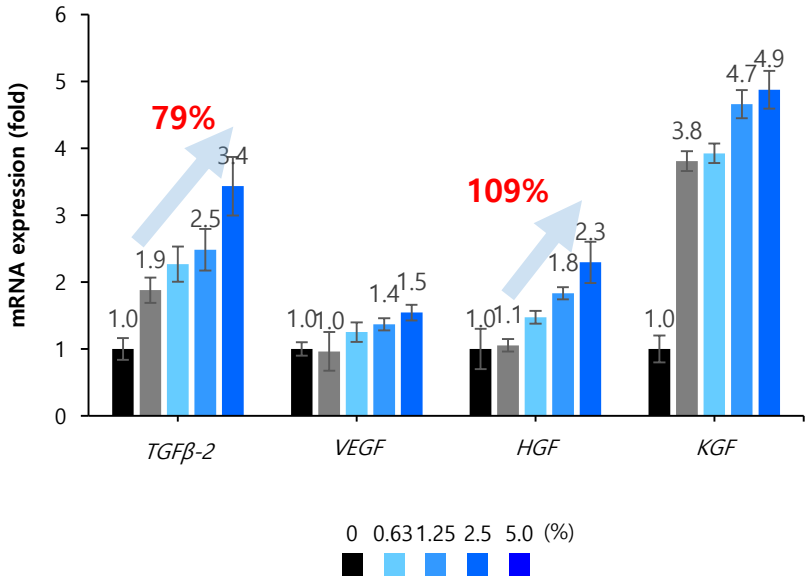
In vitro test

Hair cell growth effect

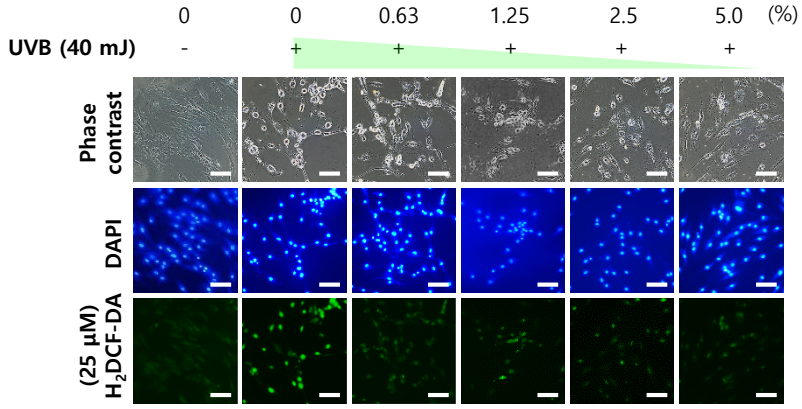
TGFb1, DKK1, IL6 gene expression inhibition activity in Dermal papilla cells (HDPC)



TGFb2, VEGF, HGF, KGF gene expression activity in Dermal papilla cells (HDPC)



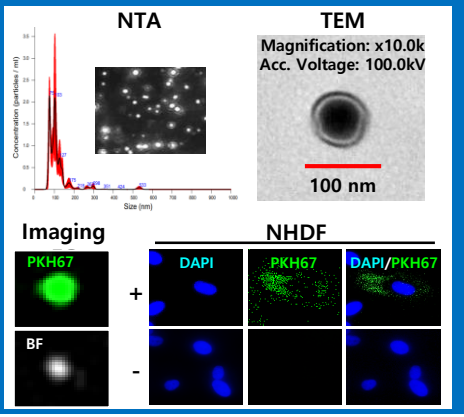
ROS production inhibition activity in Dermal papilla cells (HDPC)



STEMAXELL-Exosome®

INCI : Human Stem Cell Conditioned Media
Patent (10-2561672) : Composition for anti-inflammation or preventing or treating Atopic dermatitis

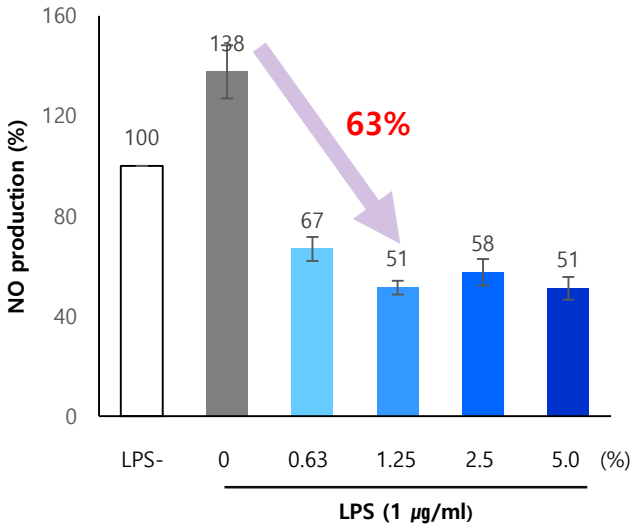
- Suppresses the generation of NO in LPS-treated macrophages (Raw 264.7).
- Downregulates the expression of pro-inflammatory cytokines in inflammasome-induced keratinocytes (HaCaT).
- Downregulates the expression of pro-inflammatory cytokines in histamine-releasing stimulator-induced mast cells (HMC-1).



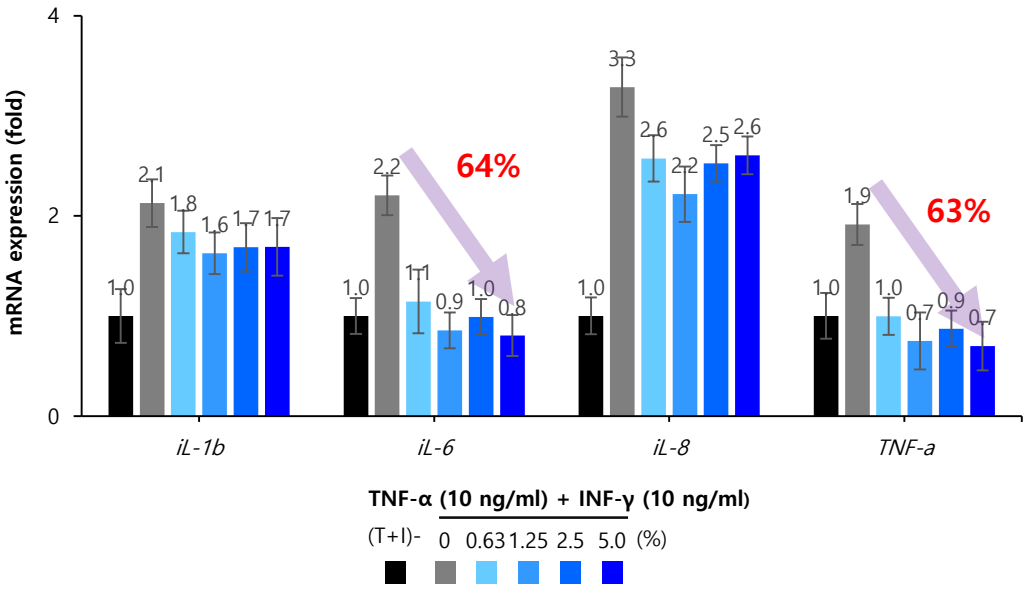
In vitro test

Anti-inflammation or prevention of Atopic dermatitis

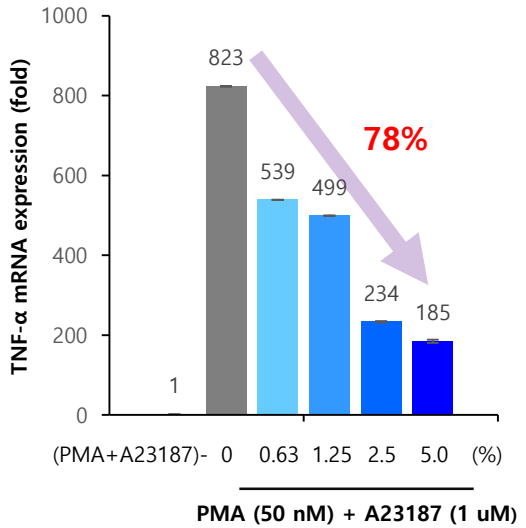
NO synthesis inhibition activity in Macrophages (Raw 264.7)



IL1b, IL6, IL8, TNF-α gene expression inhibition activity in Keratinocytes (HaCaT)



TNF-α gene expression inhibition activity in Mast cells (HMC-1)

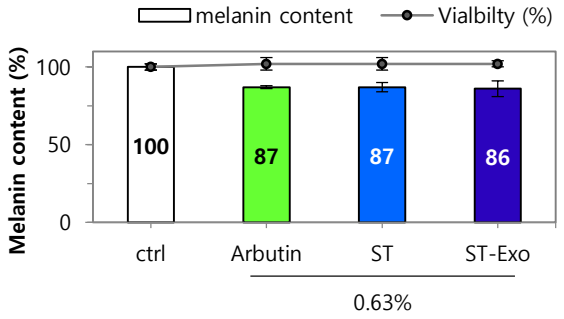


Stem Cell Conditioned Media vs Active ingredients
(STEMAXELL®, STEMAXELL-Exosome® vs Arbutin, Ascorbic acid or Adenosine)

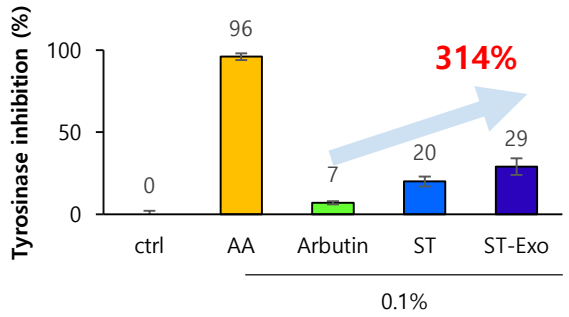
- Cellular melanin synthesis inhibition in Melanocyte (B16F10): Arbutin, STEMAXELL & STEMAXELL-Exosome (0.63%).
- Tyrosinase activity inhibition: Arbutin, Ascorbic acid, STEMAXELL & STEMAXELL-Exosome (0.1%).
- Wound healing effects: Adenosine (0.05 mM), STEMAXELL & STEMAXELL-Exosome (0.63%).

In vitro test

Melanin synthesis inhibition activity in Melanocytes (B16F10)

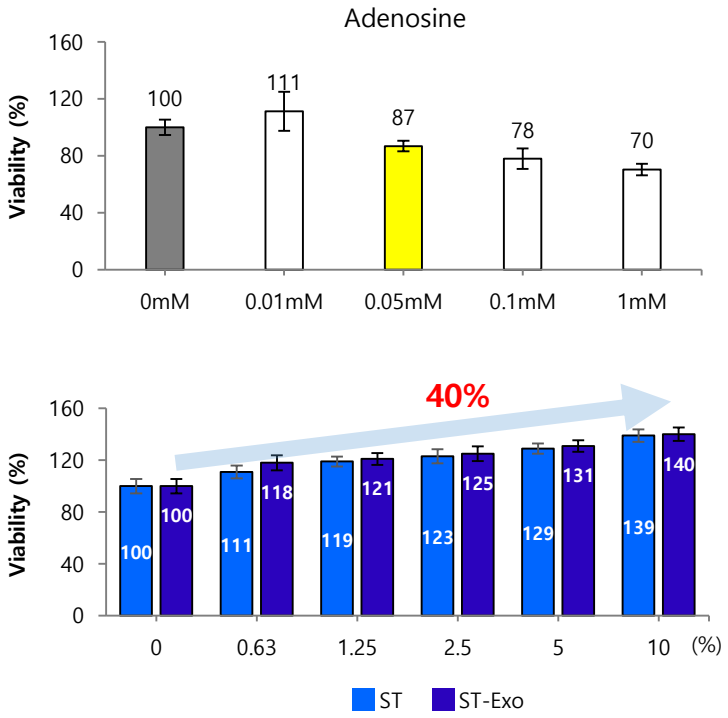


Tyrosinase inhibition activity

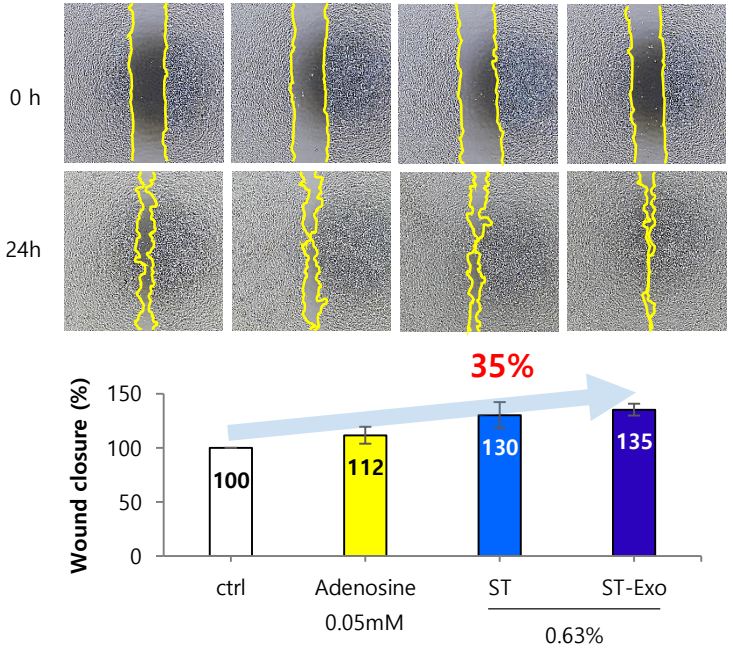


The effect of skin brightening & wound healing

Cell viability in Keratinocytes (HaCaT)
(Adenosine, STEMAXELL & STEMAXELL-Exosome)



Wound healing effect
Scratch assay in Keratinocytes (HaCaT)



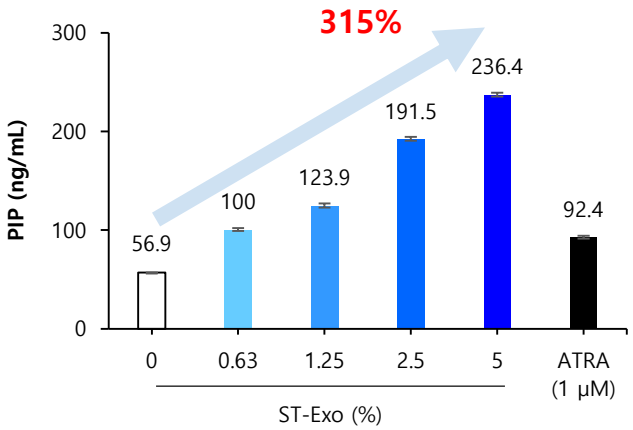
Stem Cell Conditioned Media vs Active ingredients
(STEMAXELL-Exosome® vs ATRA)

- Procollagen synthesis increases in skin fibroblast (NHDF): ATRA & STEMAXELL-Exosome (0.63~5%).
- Collagen gene expression increases in skin fibroblast (NHDF): ATRA & STEMAXELL-Exosome (0.63~1.25%).
- Elastin gene expression increases in skin fibroblast (NHDF) : ATRA & STEMAXELL-Exosome (0.63~5%).

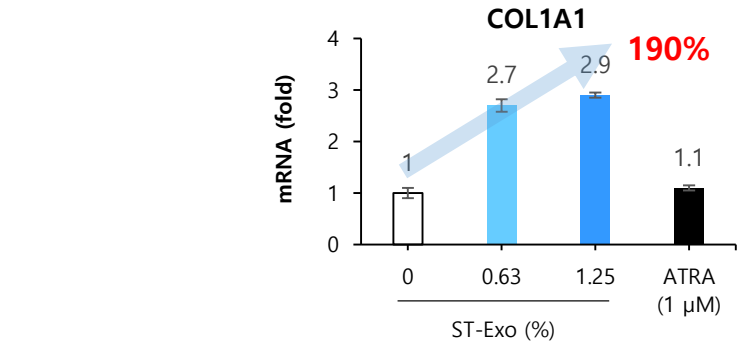
In vitro test

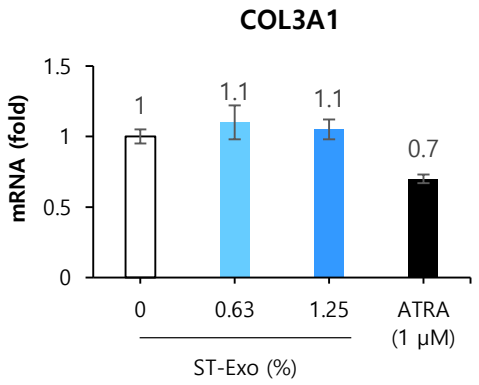
Promotes collagen & elastin production

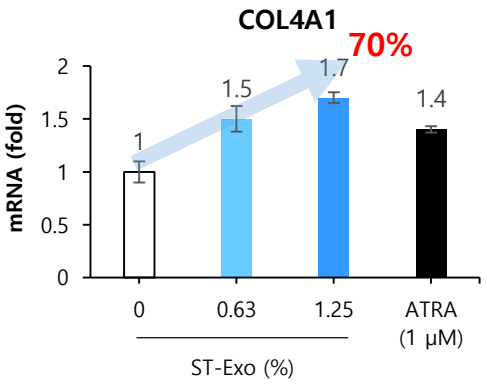
Procollagen synthesis
in skin fibroblast (NHDF)



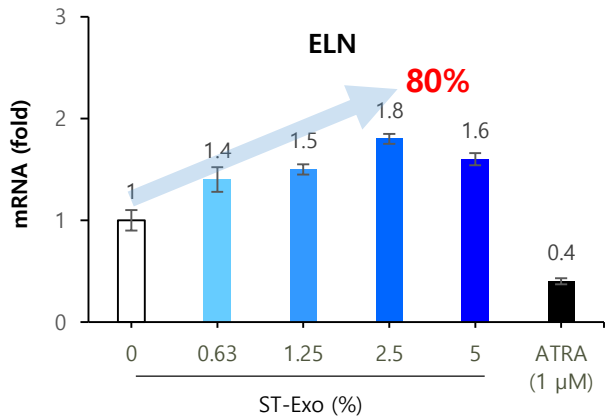
Collagen mRNA expression
in skin fibroblast (NHDF)







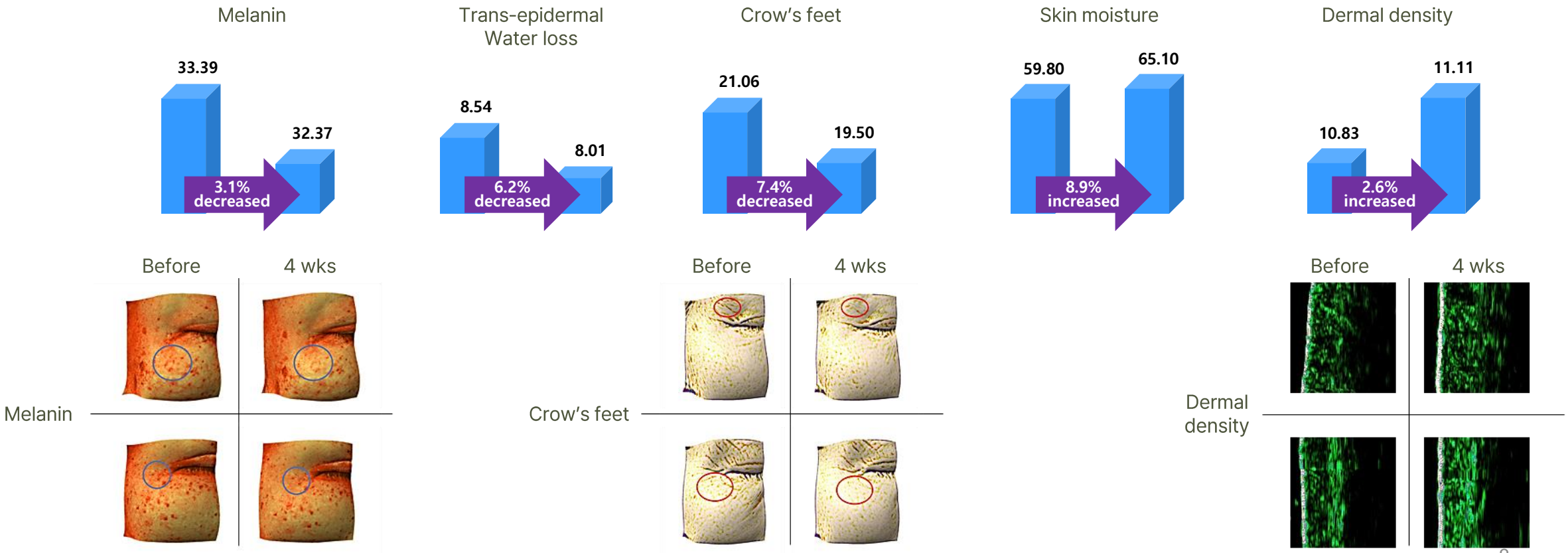
Elastin mRNA expression
in skin fibroblast (NHDF)



Stem Cell Conditioned Media (STEMAXELL-Exosome®)

- **Patent (10-2284517) : Method for promoting the production of exosomes and/or EVs derived from hMSC & method for producing a medium for promoting the production thereof**
- **Patent (10-2461487) : Composition for inhibiting photoaging**
- **Patent (10-2461488) : Composition for activating hair follicle dermal papilla cells**
- **Patent (10-2561672) : Composition for anti-inflammation or preventing or treating Atopic dermatitis**
- **Patent (10-2433268) : Composition comprising exosome for improving skin beauty**

In vivo test (20% Ampoule) : The total of 10 women in their 40S to 50S, 21.09.09 ~ 21.10.22



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줄기세포배양액 & 엑소좀

Human Stem Cell Conditioned Media (STEMAXELL® & STEMAXELL-Exosome®)

CONTACT US