

SCIENTIFIC REPORTS

OPEN

***Stellera chamaejasme* and its constituents induce cutaneous wound healing and anti-inflammatory activities**

Received: 22 August 2016
Accepted: 29 January 2017
Published: 23 February 2017
Myungsuk Kim^{1,2,3}, Hee Ju Lee^{4,5}, Ahmad Randy^{4,5}, Ji Ho Yun^{1,2}, Sang-Rok Choi¹ & Chu Won Nha^{1,2}

OPTBIO
OPTIMAL BIOLOGY

Stellar

Recommended dosage 1~10%

INCI Water, Butylene Glycol, Stellera Chamaejasme Extract



Skin Regeneration



**Strengthen
Skin Barrier**



Anti-Aging



Anti-Inflammation



Anti-Acne



Anti-Atopy



Brightening



Application : All for cosmetics

STELLAR

$$\begin{array}{ccccc}
 \text{Stella} & + & \text{Revitalizing Rejuvenation} & = & \text{Stellar} \\
 \text{Stellar's excellent efficacy} & & \text{With New Vitality and Youth to your skin} & & \text{Will make you Shine like a Star}
 \end{array}$$

Key Point 1

몽골산 피뿌리풀은 징키스칸이 유럽 재패 성공의 이유중 하나로 병사와 말의 상처를 치료하는데 쓰임.
치유 및 재생효과가 우수한 몽골 전통 약용 식물로 과거부터 알려짐.

Key Point 2

몽골 척박한 기후환경에서 강인한 생명력을 가지고 자라 피부의 많은 에너지를 부여함.

Key Point 3

피뿌리풀은 병풀보다 피부재생 효과가 뛰어나고 병풀이 가지고 있지 않은 효능을 추가적으로 보유하고 있음.



[Stellar]

Water, Butylene Glycol, Stellera Chamaejasme Extract

Key Features

- ✦ 몽골 전통 약용식물에서 발견한 차별화된 피부재생 및 상처치유 효능
- ✦ 피부재생과 항균 및 항염증 효능을 보유한 **Multi-Effective** 소재
- ✦ 피뿌리풀 추출물 이용 **in vitro** 및 **in vivo** 효능 검증 완료
- ✦ 기능성분 규명 및 표준화 기술 확보
- ✦ 기존 제품 대비 우위성 결과 확보 (대조군 병풀추출물)
- ✦ 몽골 원산지 표준화 자료 및 원료 대량수급 방안 확보 (현지 천연물원료 수출업체 확보)
- ✦ **국내외 출원 및 등록 완료 (해외 5개국)**
- ✦ **SCI 논문 개제**
- ✦ **PCPC 등재 완료**



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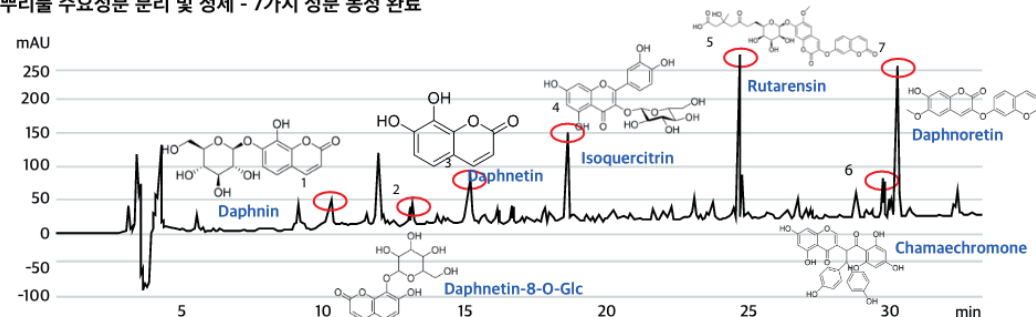
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Stellera chamaejasme and its constituents induce cutaneous wound healing and anti-inflammatory activities

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Myungsuk Kim^{1,2*}, Hee Ju Lee^{3,4}, Ahmad Randy^{1,4}, Ji Ho Yun^{1,2}, Sang-Rok Oh² & Chu Won Nho^{1,2}

피뿌리풀 주요성분 분리 및 정제 - 7가지 성분 동정 완료



Clinical trials

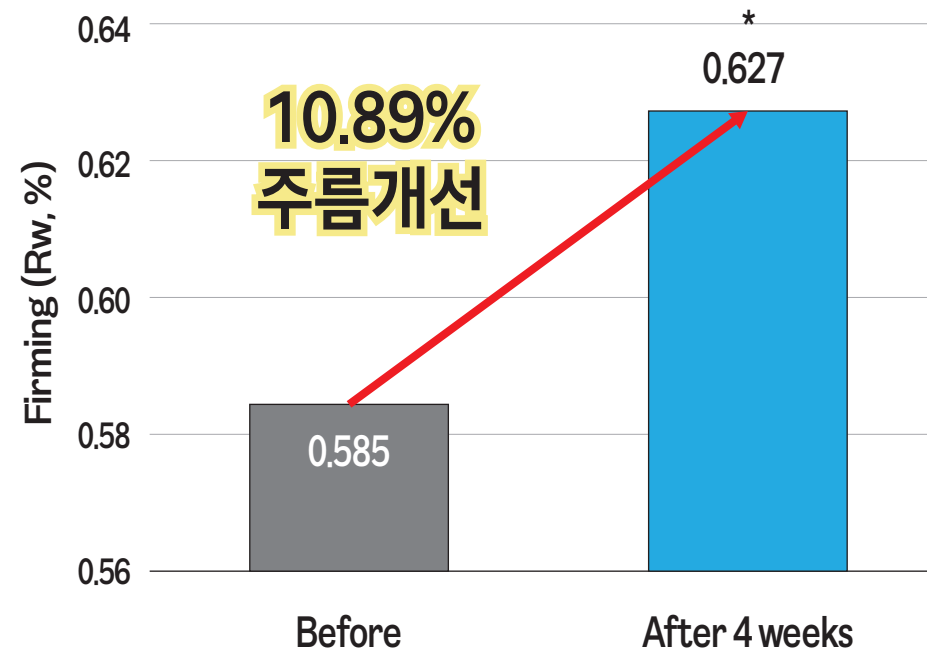
Firming

- * Test institution: OATC Skin Clinical Trial Center
- * Research period: 2023. 07. 23. ~ 2024. 08. 20. (4 weeks)
- * Test subjects: 20 Korean adult women aged 35-60

- * Research number: OATC_24_S0974_0779
- * Directions: Take an appropriate amount twice a day (morning and evening) for 4 weeks (28 days) at the serum stage and gently absorb it over the entire face.
- * Measuring Instrument: Cutometer



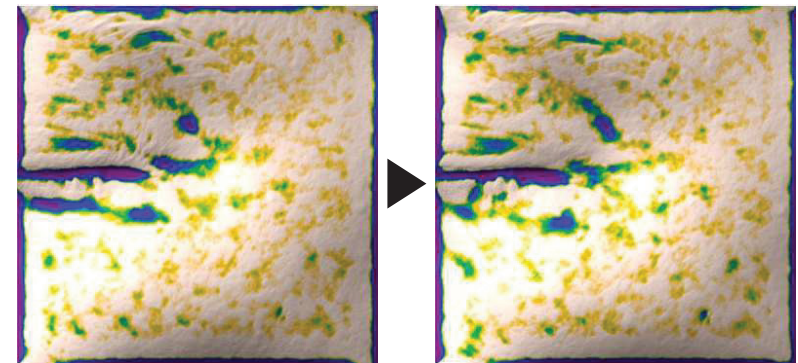
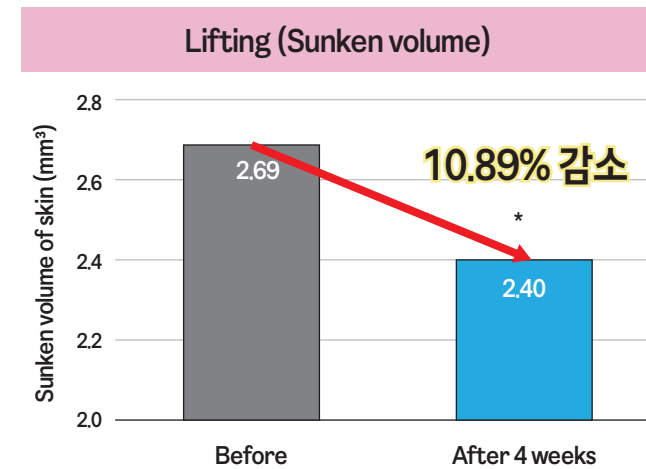
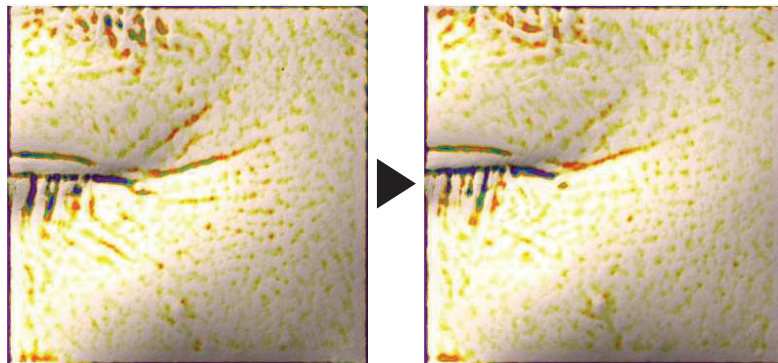
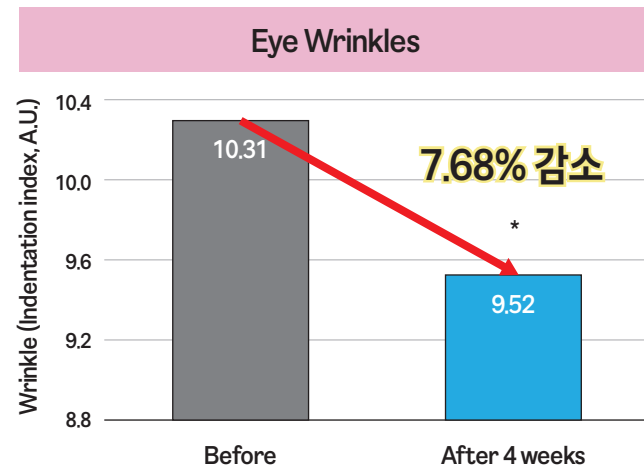
◆ Firming



Efficacy & Effect

Crow's feet

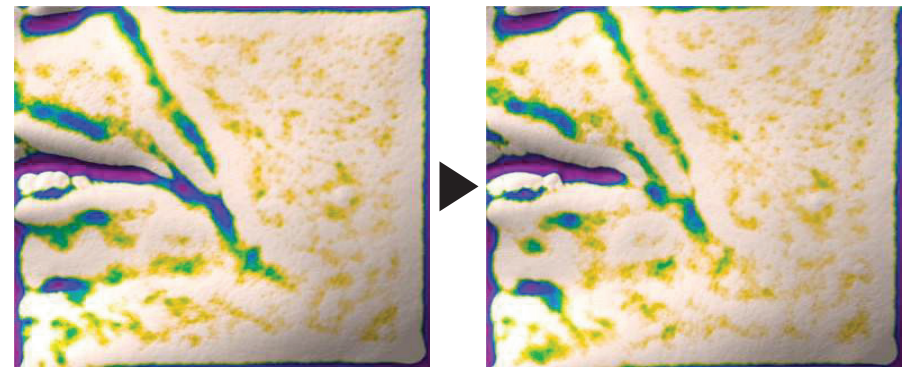
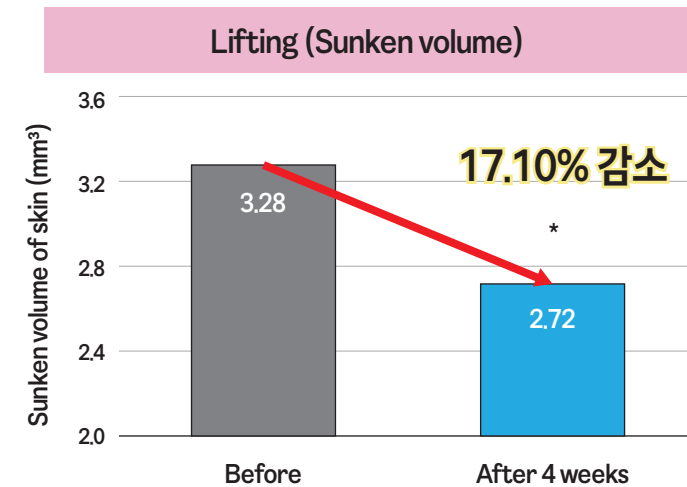
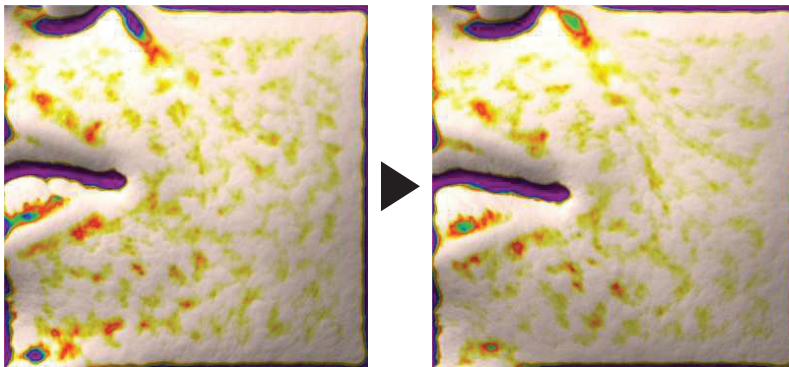
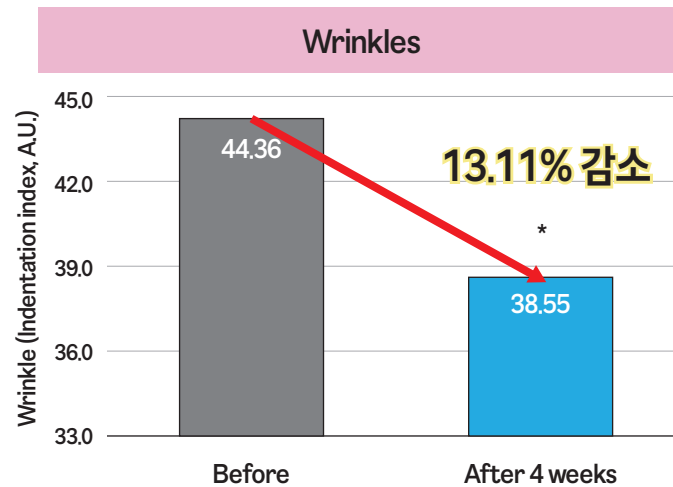
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- * Measuring Instrument: Antera 3D CS



Clinical trials

Marionette lines

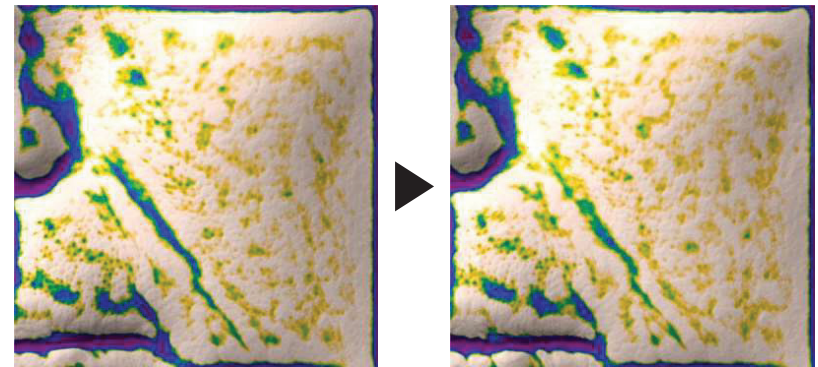
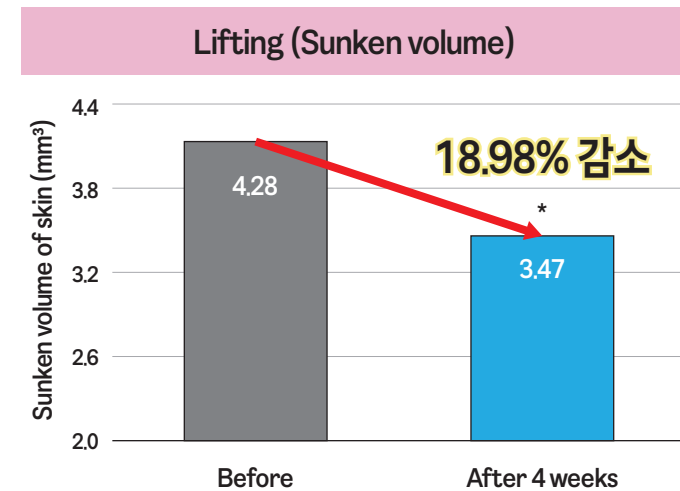
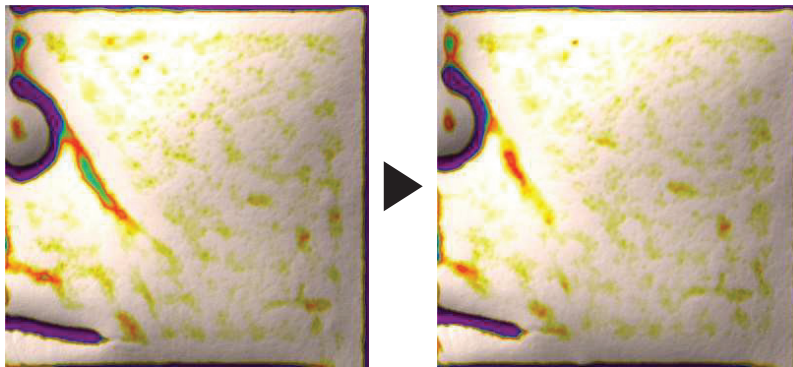
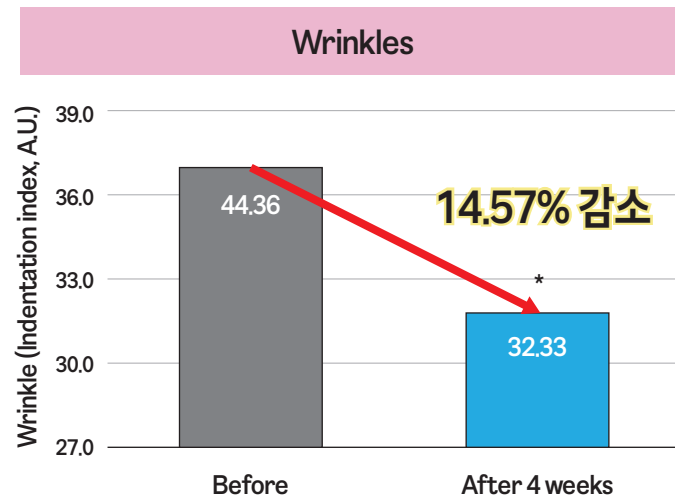
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- * Measuring Instrument: Antera 3D CS



Clinical trials

Laugh lines

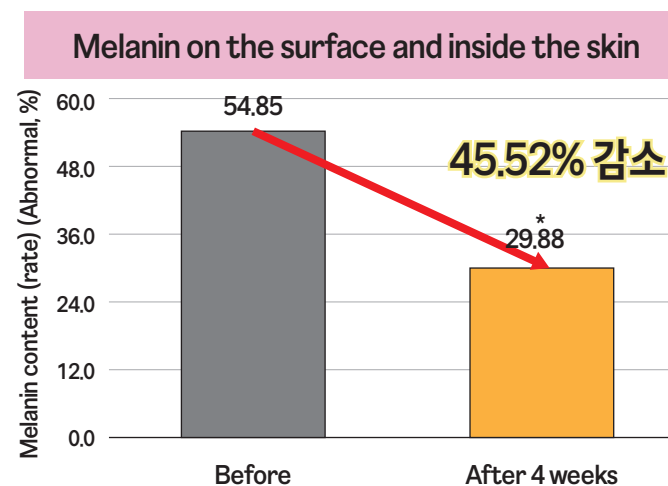
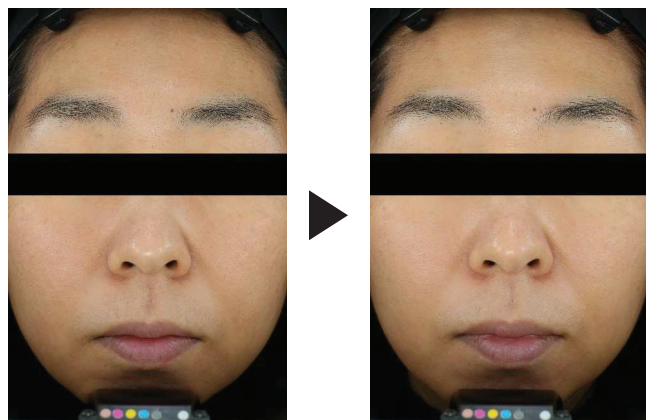
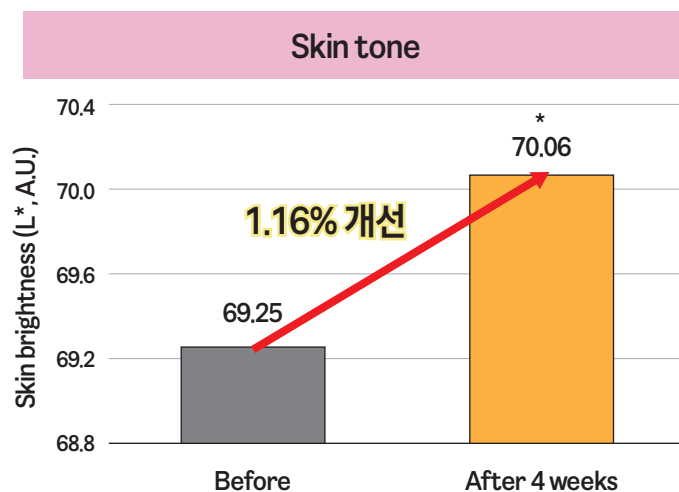
- * Test institution: OATC Skin Clinical Trial Center
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- * Measuring Instrument: Antera 3D CS



Clinical trials

Skin Brightening

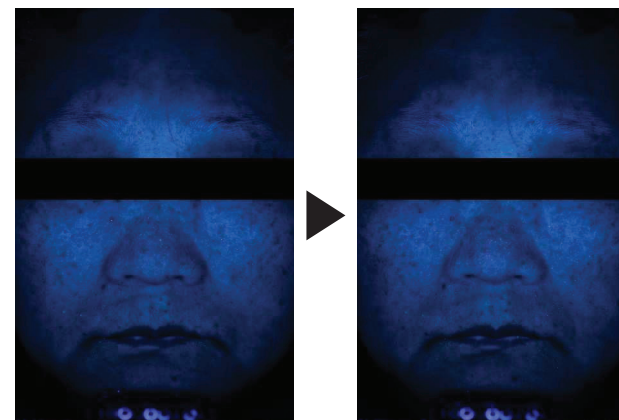
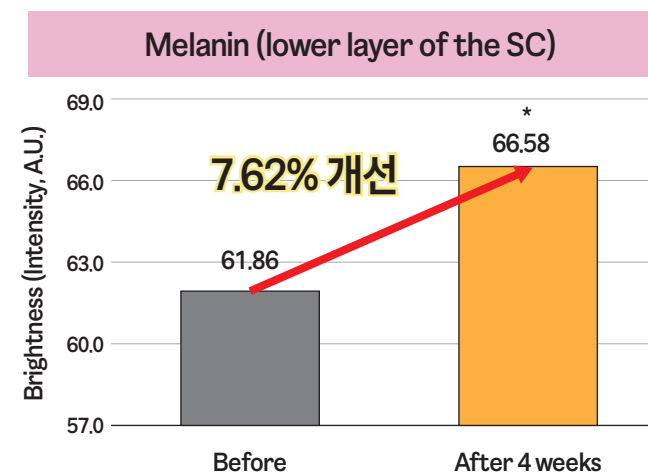
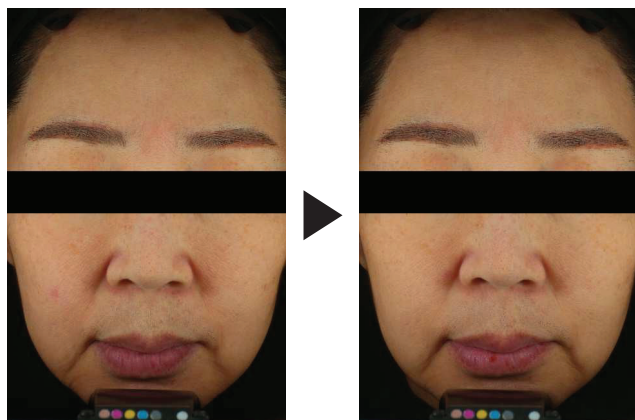
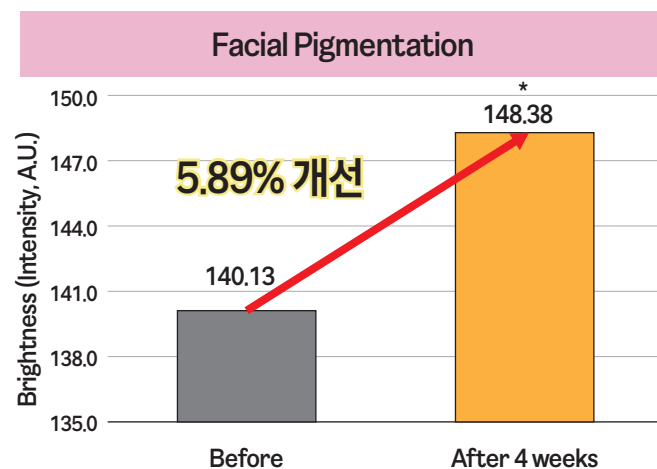
- * Test institution: OATC Skin Clinical Trial Center
- * Research period: 2023. 07. 23. ~ 2024. 08. 20. (4 weeks)
- * Test subjects: 20 Korean adult women aged 35-60
- * Research number: OATC_24_S0974_0779
- * Directions: Take an appropriate amount twice a day (morning and evening) for 4 weeks (28 days) at the serum stage and gently absorb it over the entire face.
- * Measuring Instrument: VISIA-CR, Image Pro 10, Dermaview



Clinical trials

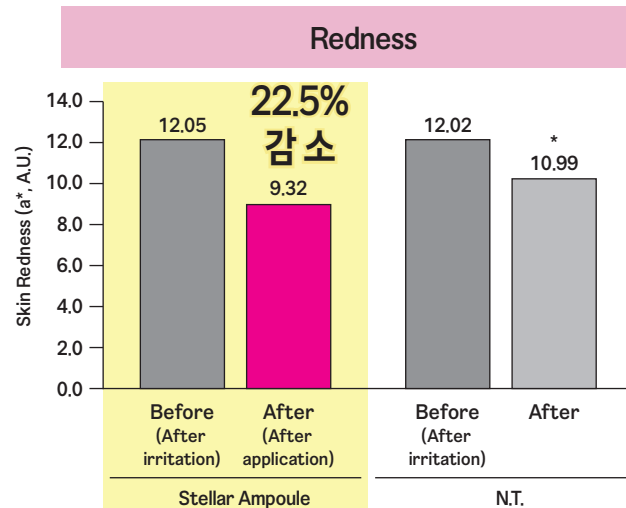
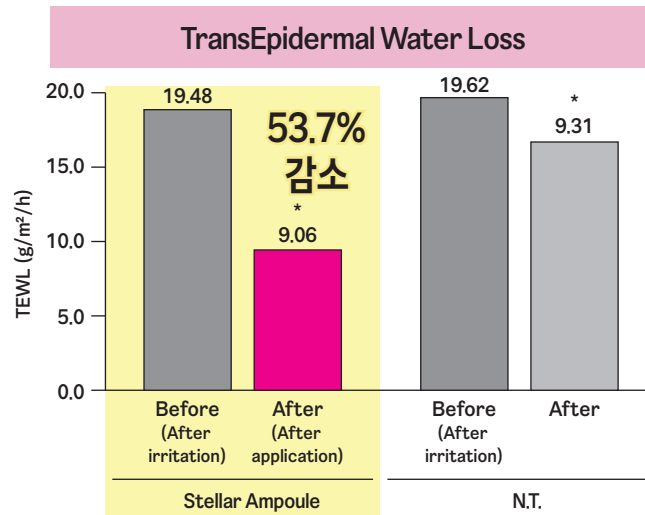
Color intensity (Brightness)

- * Test institution: OATC Skin Clinical Trial Center
- * Research period: 2023. 07. 23. ~ 2024. 08. 20. (4 weeks)
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- * Measuring Instrument: VISIA-CR, Image Pro 10, Dermaview



Clinical trials

Skin barrier function



- * Test institution: OATC Skin Clinical Trial Center
- * Research period: 2023. 07. 23. ~ 2024. 08. 20. (4 weeks)
- * Test subjects: 20 Korean adult women aged 35-60
- * Research number: OATC_24_S0974_0779
- * Directions: Apply the product after physical stimulation to measure changes in the skin
- * Measuring Instrument: Vapometer, Antera 3D CS

Sub. N.	Stellar Ampoule		N.T.	
	Before (after irritations)	After (after application)	Before (after irritations)	After (after application)
S01				
S18				
S19				

Efficacy & Effect

Skin Regeneration

- Cell: HaCaT (Human Keratinocytes)
- Comparative group: Centella Asiatica

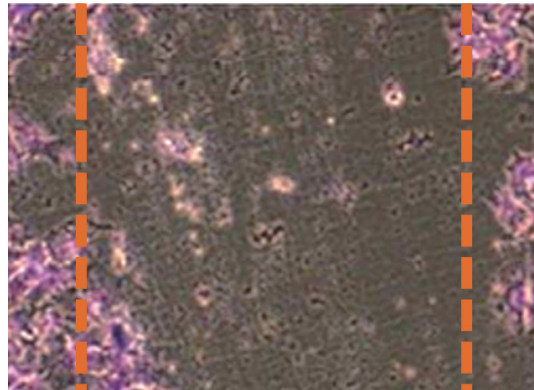
- Assay: Cell migration assay (Wound healing assay)

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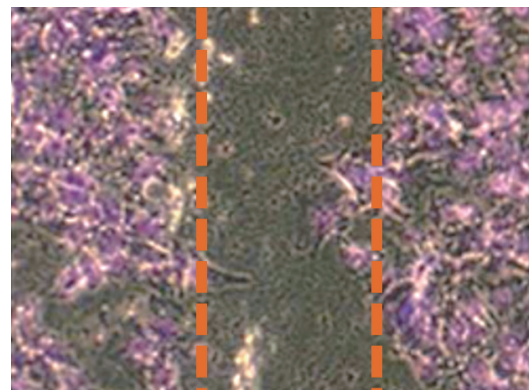
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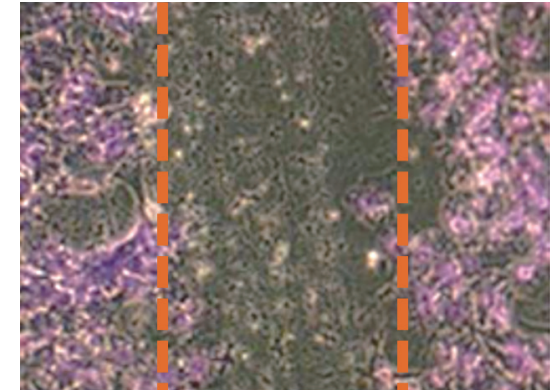
Myounguk Kim^{1,2}, Hee Ju Lee¹, Ahmad Randy³, Ji Ho Yun⁴, Sang Rok Oh⁵ & Chul Won Kim¹



control



Stellar



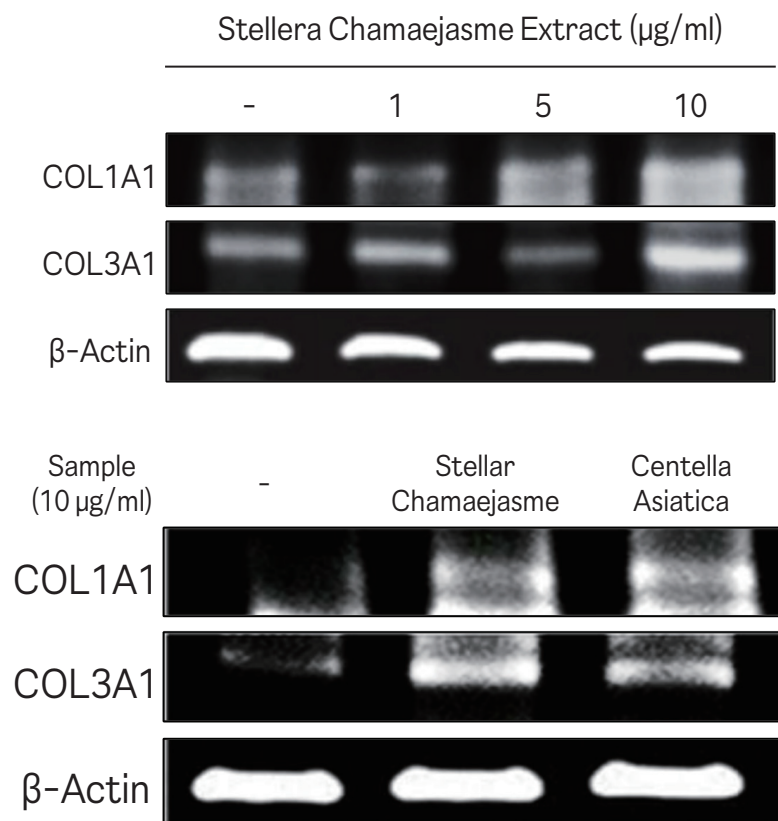
Centella Asiatica

▶ Centella Asiatica(병풀)보다 피부 재생 효과가 더 뛰어남.

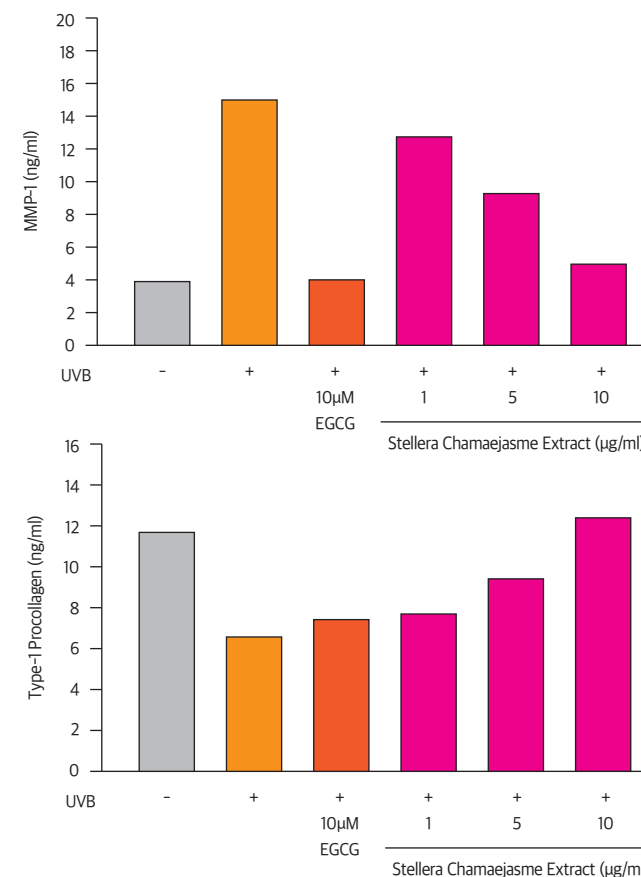
Efficacy & Effect

Anti-aging

- Cell: Human Fibroblasts
- Assay: Gene Expression assay by RT-PCR
Protein Expression assay by Western blot



- Cell: Human Fibroblasts
- Inducer: UVB
- Assay: ELISA



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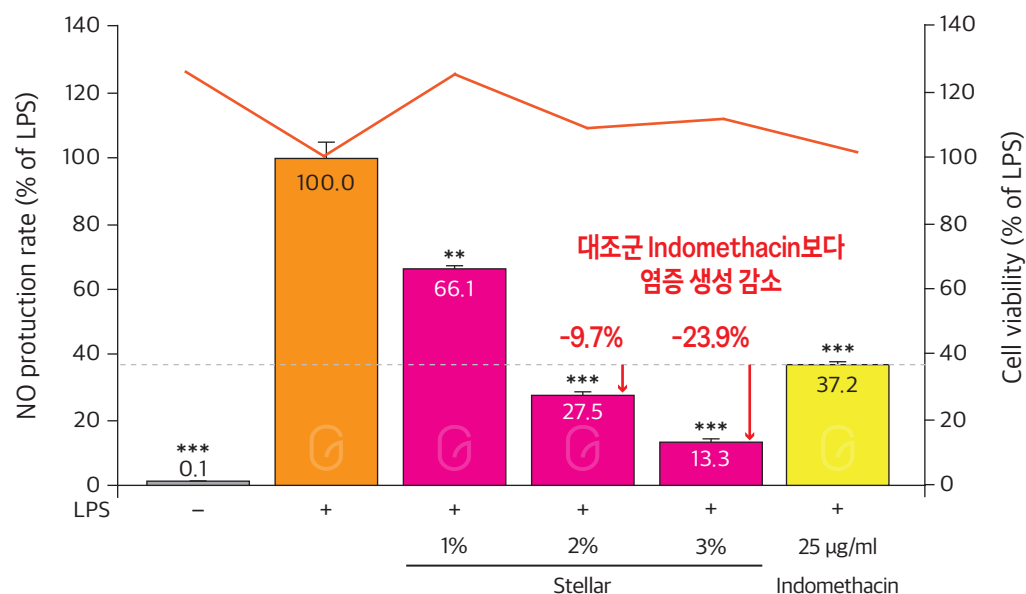
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Efficacy & Effect

Anti-inflammation

- Cell: Raw264.7 (Mouse macrophage)
- Assay: NO assay & Gene Expression assay by RT-PCR
- Inducer: LPS

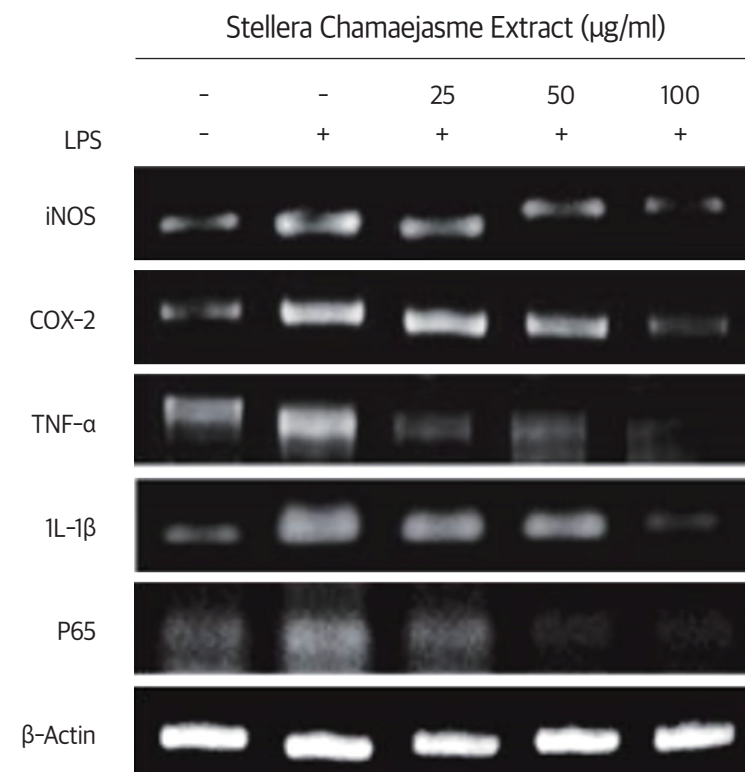


▶ Stellar에 의해 LPS로 유도된 NO 생성 및 염증 인자의 발현이 감소함으로써 염증완화 효능을 보임.

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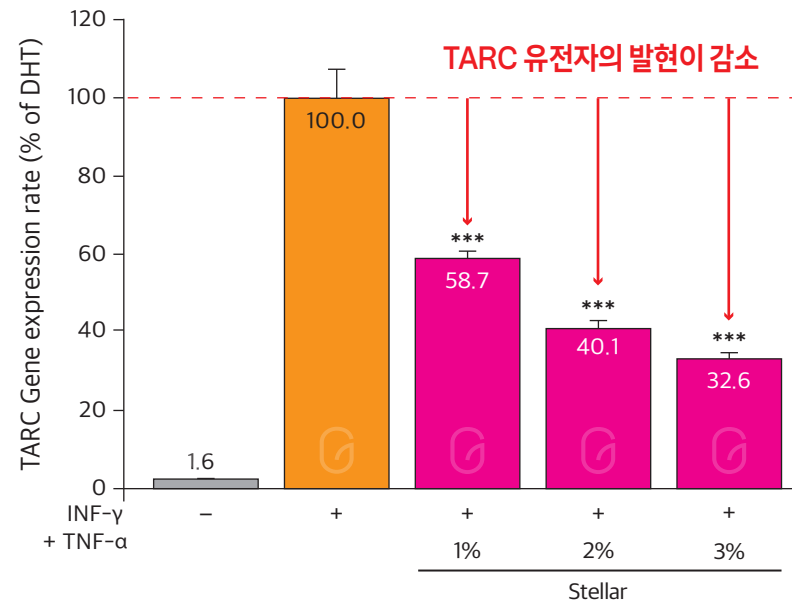
Efficacy & Effect

Anti-Atopy

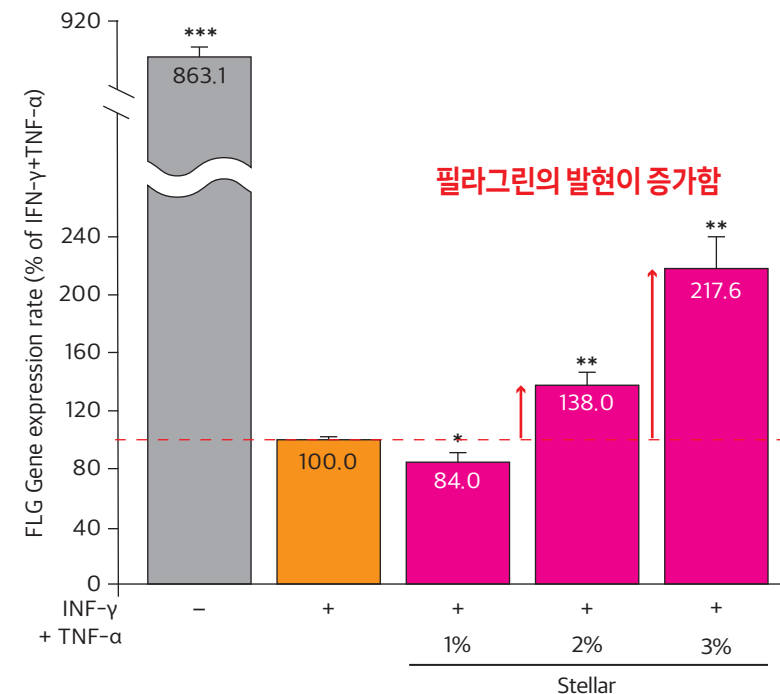
- Cell: HaCaT (Human Keratinocytes)
- Inducer: IFN- γ + TNF- α

- Assay: Gene Expression assay by RT-PCR

Itching: TARC



Skin barrier & Moisture: Filaggrin



- ▶ IFN- γ 및 TNF- α 로 유도된 아토피 피부 모델에서 Stellar에 의해 가려움증 관련 **TARC 유전자의 발현이 감소**하고, 천연보습인자로 작용하는 **필라그린의 발현이 증가함**으로써 가려움증 완화 및 피부장벽 개선, 보습에 효능을 보임.

Efficacy & Effect

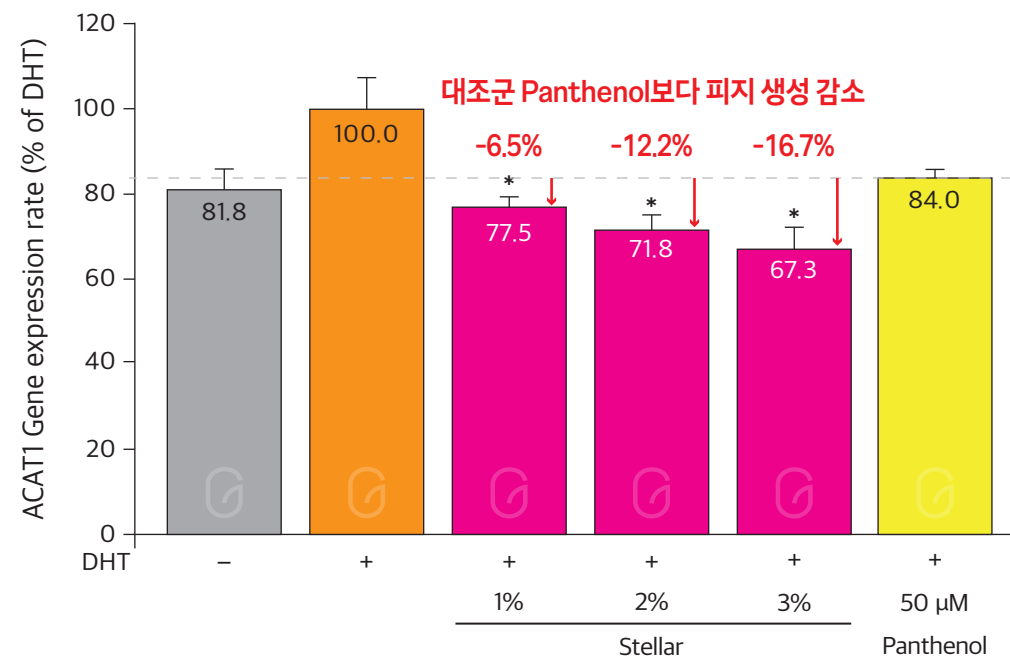
Anti-Acne

• Cell: Human Sebocyte

• Assay: Gene Expression assay by RT-PCR

• Inducer: DHT

Sebum control: ACAT1



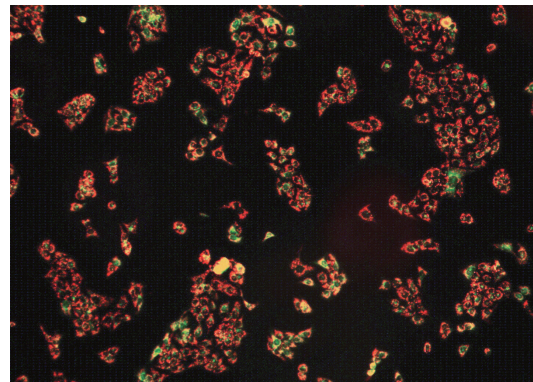
▶ Stellar에 의해 DHT로 유도된 **피지 생성 관련 유전자의 발현이 감소**함으로써 **항여드름 효능**을 보임.

Efficacy & Effect

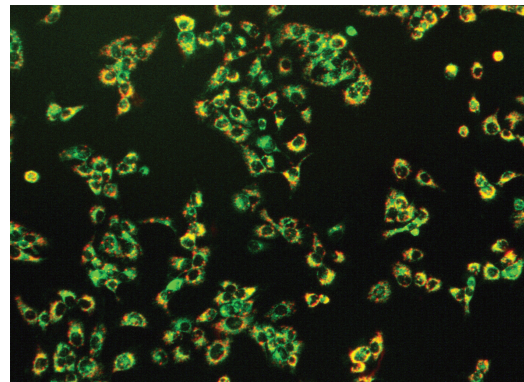
Skin revitalizing (Protect from UVB)

- Cell: HaCaT (Human Keratinocytes)
- Inducer: UVB

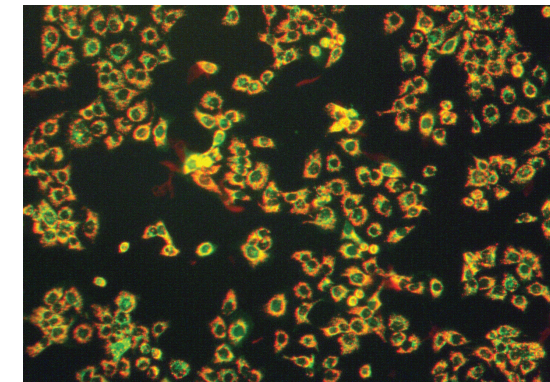
- Assay: JC-1 staining



(-) UVB



(+) UVB 30 mJ/cm²



(+) UVB + Stellar 3%

JC-1 dimers (Red): Healthy mitochondria
JC-1 monomers (Green): Damaged mitochondria

▶ Stellar가 UVB에 의한 DNA 손상을 막아줌으로써 UV에 의한 피부 보호 효능을 보임.

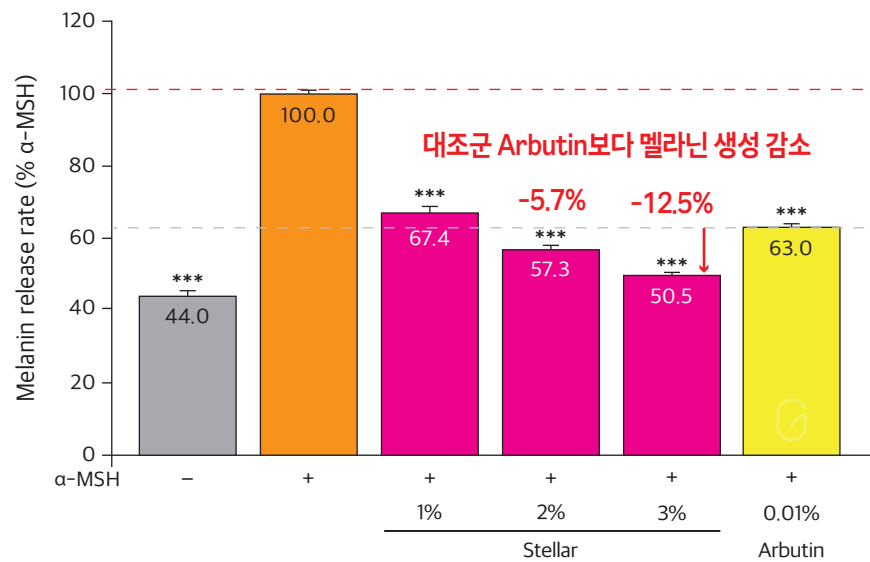
Efficacy & Effect

Brightening

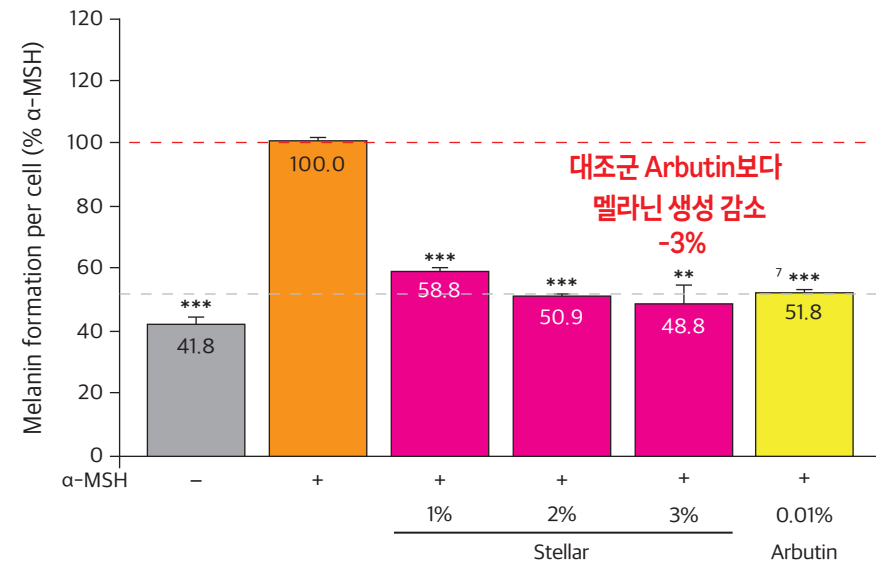
- Cell: B16 mouse melanome
- Inducer: α -MSH

- Assay: Melanogenesis assay

Melanin release



Melanin formation



▶ Stellar가 α -MSH로 과발현된 멜라닌 생성을 농도의존적으로 감소시켜 미백 효능을 보임.



ABSOLUTE SOLUTION *for* BEAUTY & HEALTH CARE

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