



ISOSTEM

Molecular Solution to
Skin Blemish



Anti Spot
Skin Brightening
Skin Whitening



ACTV
BIOTECH

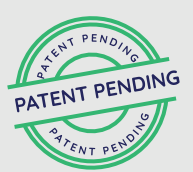
Molecular Solution to Skin Blemish

Effects

- Shows strong anti-tyrosinase activity.
- Suppresses excess melanin synthesis.
- Reduces skin blemishes.
- Balances the skin tone and brightens the skin

Origin

Developed from Glycine max (Soy) stem cells using ProlCell® Technology.



What is ProlCell® Technology?

ProlCell® Technology enables to benefit the effects of plant stem cells and small RNAs in their vesicles.

Effect Mechanism

ProlCell® IsoStem contains enriched stem cell components and stem cell specific exogenous small RNAs thanks to the elicitor application.

What is the effect of small RNA?

Small RNAs, including miRNA are non-coding RNA fragments, which regulate the post-transcriptional silencing of target genes. Plant small RNAs may exert similar functions in both humans and plants. This provides exogenous plant small RNAs to play a key role on the physiological function of the human body, including the skin.



Activity Tests

In vitro Tests

Cell line: Mouse Melanoma Cells

Test ingredient: ProliCell IsoStem extract

Parameter:

Determination of melanin content by in vitro melanin content determination test,

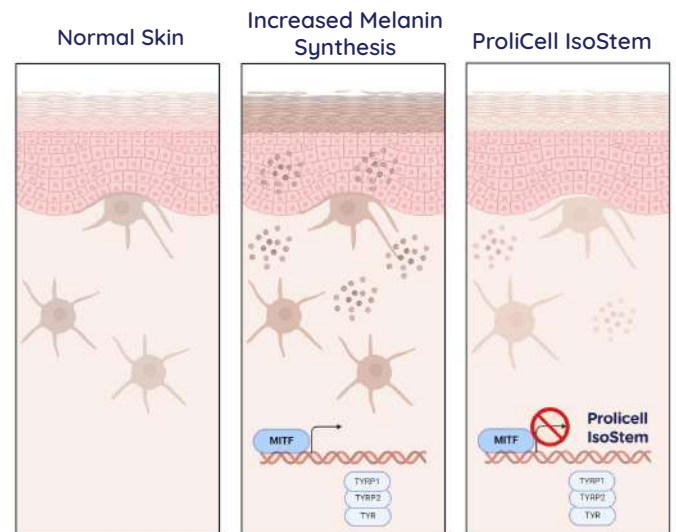
Determination of tyrosinase inhibition activity by in vitro anti-tyrosinase test,

Analysis of the expressions of TYR, TYRP1, TYRP2 and MITF genes by RT-qPCR,

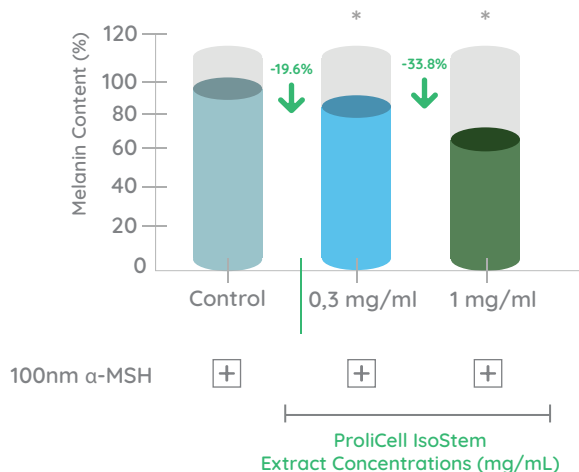
Western blot analysis of the expression of TYR, TYRP1, TYRP2 and MITF proteins.

For gene and protein expression analysis, melanoma cells were incubated with ProliCell IsoStem extract concentrations for 48 hours.

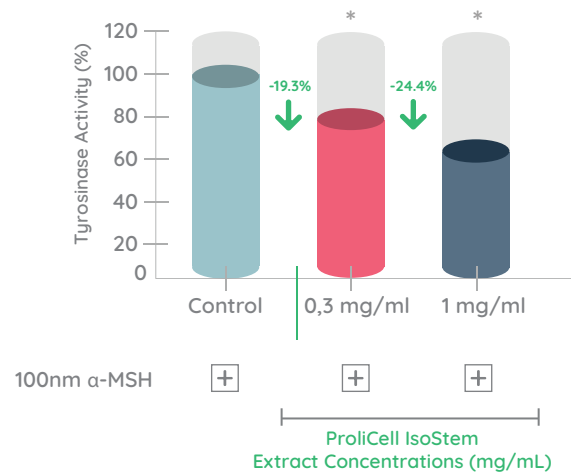
Effect Mechanism



Effect on Melanin Content

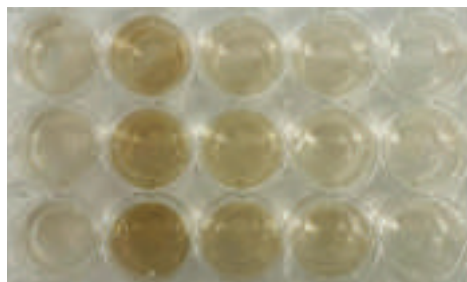


Effect on Tyrosinase Activity



*: It represents a significant change compared to the control group ($p < 0.001$).

ProliCell IsoStem significantly suppressed melanin synthesis in melanoma cells and showed strong anti-tyrosinase activity in a concentration-dependent manner.

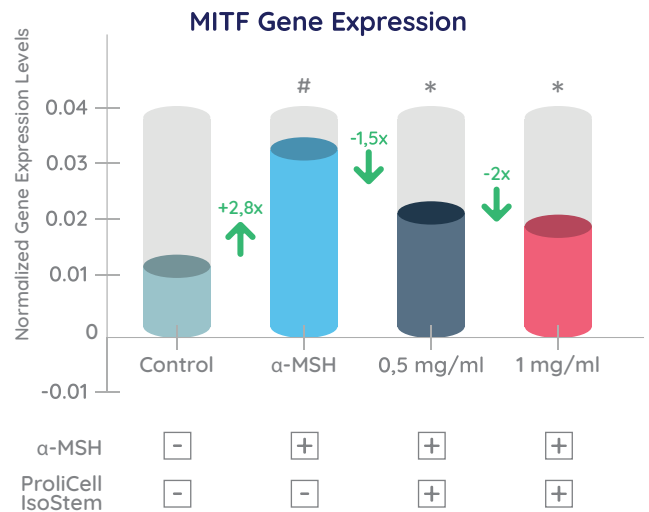
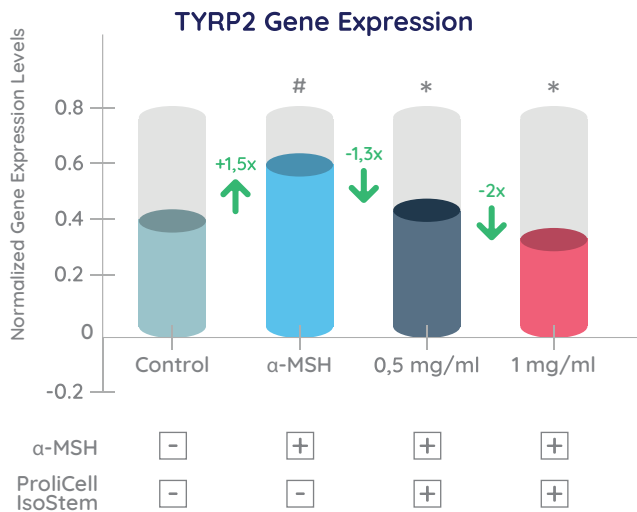
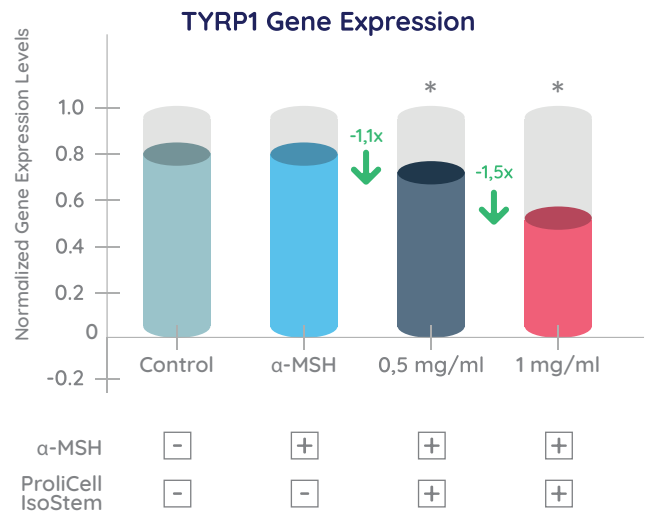
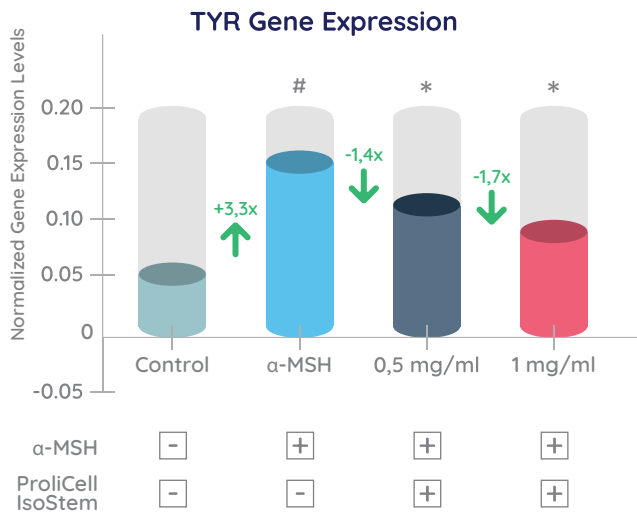


	Control	PC	1 mg/ml PIE	1 mg/ml PIE	1 mg/ml PIE
100 nm α-MSH	-	+	+	+	+
			EV	small RNA	Enriched EV

EV: Extracellular Vesicle | PC: Positive Control | PIE: ProliCell IsoStem Extract

It was determined that when ProliCell IsoStem and EVs were applied together, melanin synthesis was significantly suppressed, depending on the small RNA concentration.

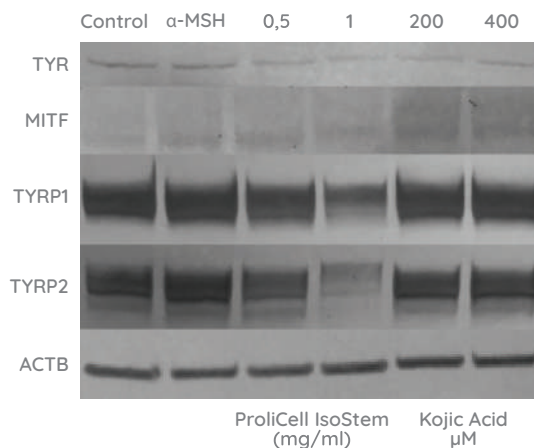
Activity Tests



#: It represents the significant change compared to the control group.
*: represents significant change compared to the α-MSH group ($p < 0.001$)

ProliCell IsoStem, compared to the alpha MSH (α-MSH) group, significantly reduced the expression of Melanogenesis-related TYR, TYRP1, TYRP2 and MITF genes.

Effect on Expression of Melanogenesis-Related Proteins



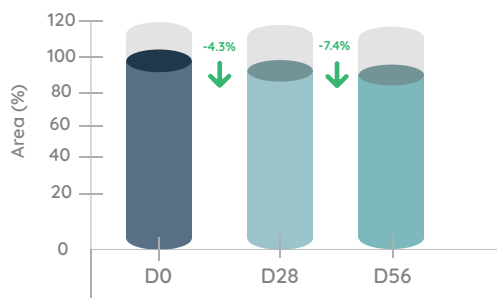
ProliCell IsoStem decreased the expression of melanogenesis-related proteins in a concentration-dependent manner.

In Vivo Efficacy Tests

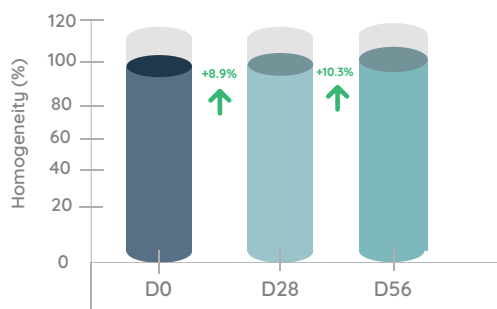
Anti-dark Spot Activity

- A clinical evaluation with the test treatment was initially carried out on 22 volunteers, aged from 34 to 62 years (mean 48.5 ± 7.9).
- Volunteers were female between the ages of 30 and 65, presenting moderate to very severe hyperpigmentation spots in face.
- Anti-Dark Spot Cream (containing 2% ProliCell ShineStem) was applied to the volunteers' face area twice a day for 56 days.
- Measurements were recorded before starting treatment (D0), after 4 weeks of treatment (D28) and after 8 weeks of treatment (D56).

Dark Spots - Area

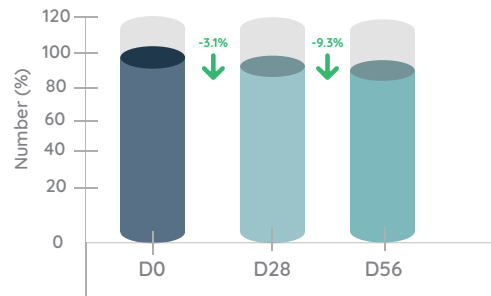


Skin Uniformity - Homogeneity

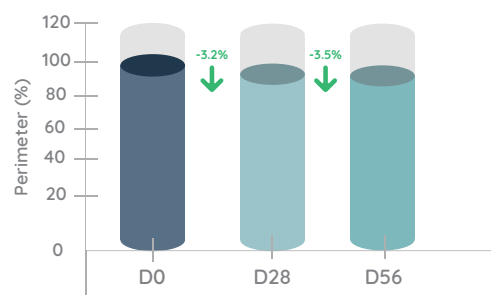


Effects of Anti-Dark Spot Cream on dark spots and skin uniformity.

Dark Spots - Number



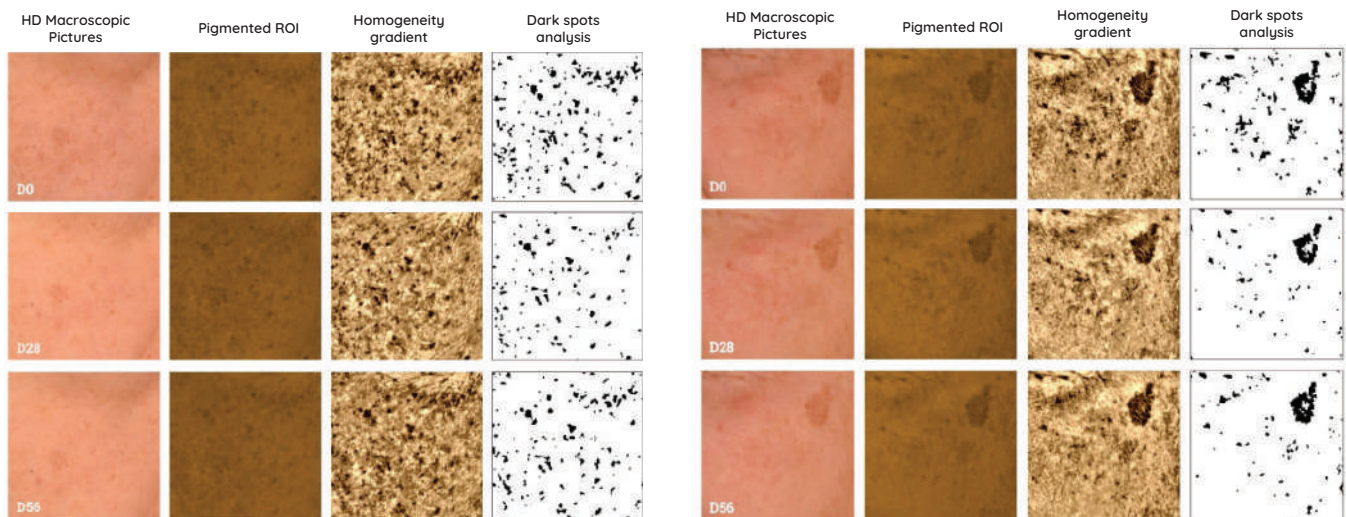
Dark Spots - Perimeter



Effects of Anti-Dark Spot Cream on dark spots and skin uniformity.

The topical treatment with containing ProliCell IsoStem displays anti-dark spots and skin uniformity capabilities, substantiated instatistically significant reductions of dark spots and skin contrast, together with asignificant improvement of skin homogeneity, compared to baseline values before the start of the treatment.

These results were subjectively confirmed by 81.4% of volunteers through a self-assessment questionnaire.



Effects of Anti-Dark Spot Cream in dark spots and skin uniformity for Volunteers



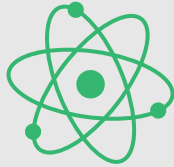
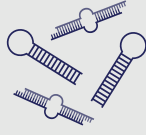
Effects of Anti-Dark Spot Cream for Volunteers. HD macroscopic HD pictures obtained at the different timepoints of treatment.

Molecular Solution to Skin Blemish



Effect Mechanisms

- Anti-blemish
- Skin whitening



Cosmetic Uses

- Anti-blemish Products
(Face and Skin Care Products)
- Skin Lightening Products
(Face and Skin Care Products)



ProlCell IsoStem DW (Disperses in water)
INCI Name: Glycerin, Glycine Max Extract,
Xanthan Gum

ProlCell IsoStem WS (Water-soluble)
INCI Name: Glycerin, Glycine Max Extract,
Sodium benzoate, Potassium sorbate
Usage rate: 2-5%
pH: 4.0-7.0



Features

Origin: Herbal
Appearance: Viscous cell lysate suspension
Color: Yellow-Brown
Odor: Characteristic
Usage: Add below 40°C in cold-hot
processes.

