



SHINESTEM

From Dark Circles
to Brightness



Anti-dark circle
Eye contour moisturizer
Skin barrier strengthener

ACTV
BIOTECH

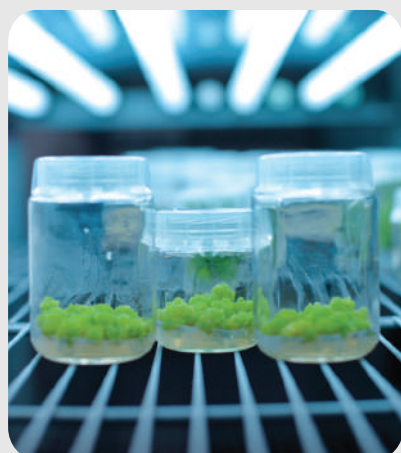
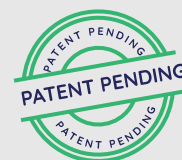
From Dark Circles to Brightness

Effects

- Provides antioxidant activity by suppressing reactive oxygen derivatives.
- Shows anti-inflammatory activity by inhibiting the production of nitric oxide (NO) and inflammatory cytokines.
- Strengthens the skin barrier by stimulating the expression of genes related to the skin barrier.
- Prevents blood leakage from vessels to tissues.
- Promotes the connective tissue by stimulating elastin synthesis.
- Suppresses excessive melanin synthesis, which causes dark circles under the eyes.

Origin

Developed from *Houttuynia cordata* (Chameleon) stem cells using PoliCell® Technology.



What is PoliCell® Technology?

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

Effect Mechanism

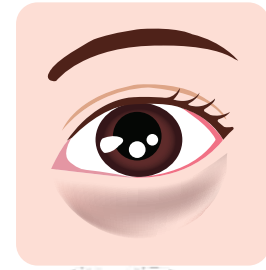
PoliCell® ShineStem contains enriched stem cell components and stem cell specific exogenous small RNAs thanks to the elicitor application.

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: Human normal fibroblast, Human normal keratinocyte, Human monocytes and Mouse melanoma cells

Test Ingredient: ProlCell ShineStem extract

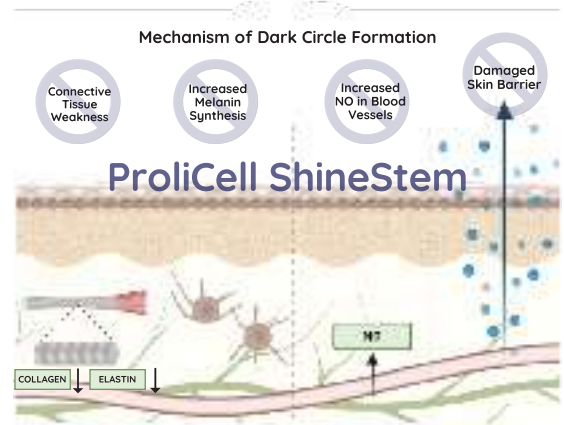
Parameters:

Determination of melanin content by in vitro melanin content assay,

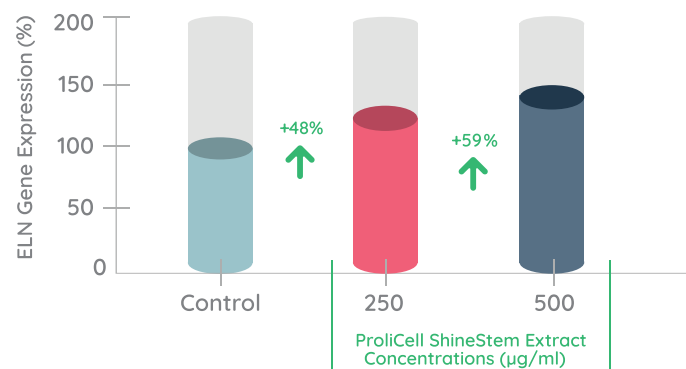
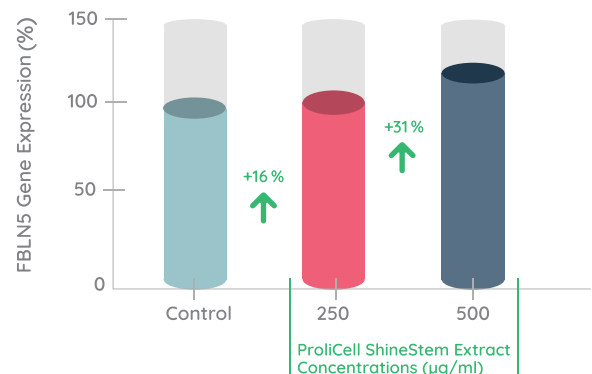
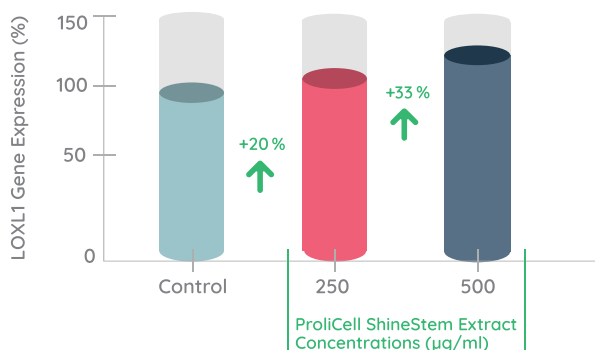
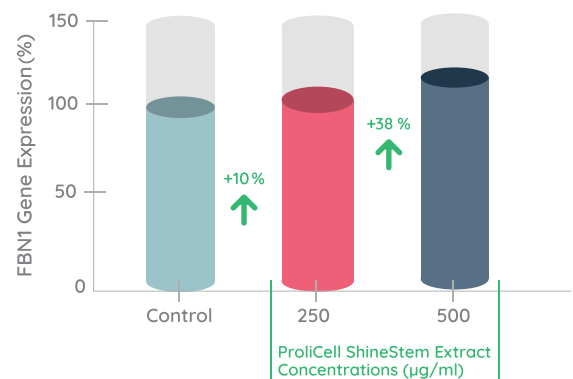
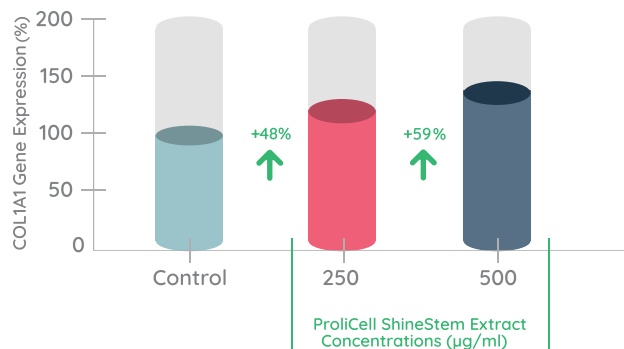
Determination of tyrosinase suppression activity by in vitro anti-tyrosinase assay.

FBLN5, FBN1, ELN, IVL, FLG, CLDN1, HAS3 and AQP3 genes by RT-qPCR,

Evaluation of nitrite oxide level with Griess test, For gene analysis, cell were incubated with ProlCell ShineStem extract concentrations for 24 hours.

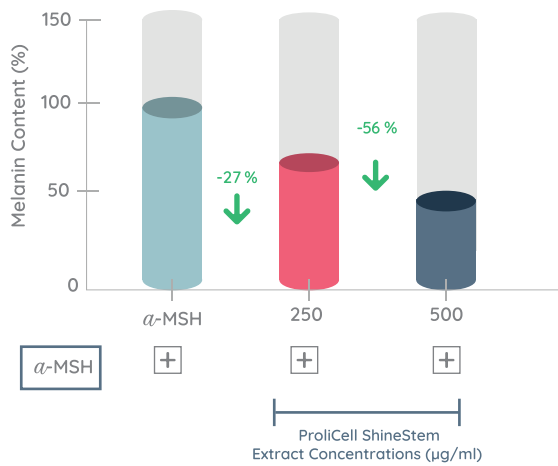


Expression Analysis of Connective Tissue Related Genes

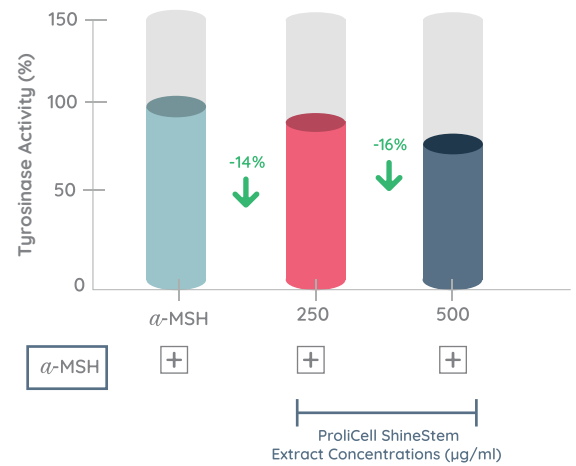


ProlCell ShineStem strengthens connective tissue on the skin by increasing the expression level of genes related to connective tissue.

Melanin Synthesis Suppression Activity

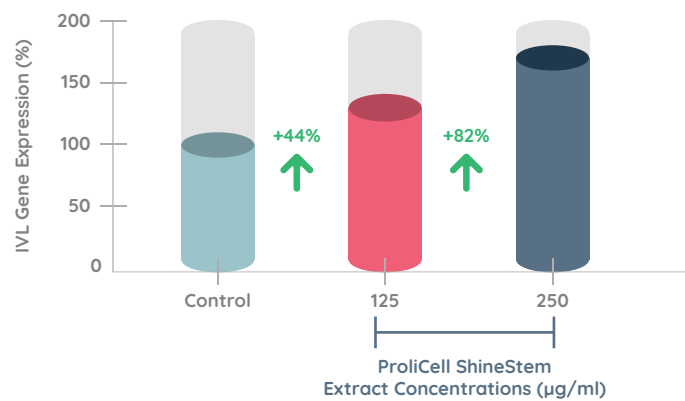
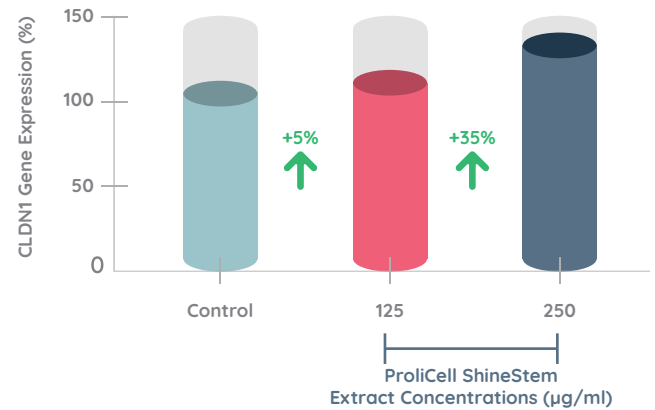
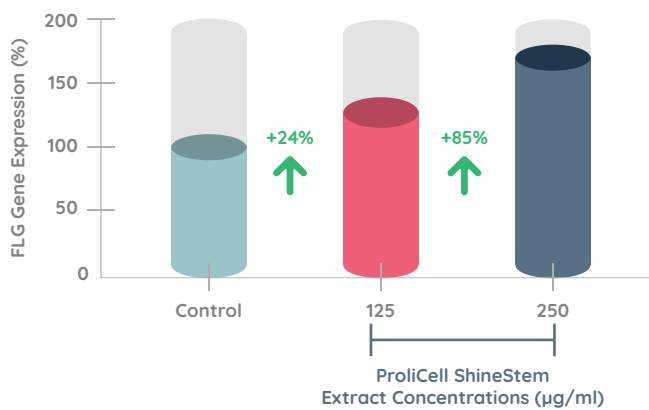


Tyrosinase Enzyme Inhibitory Activity



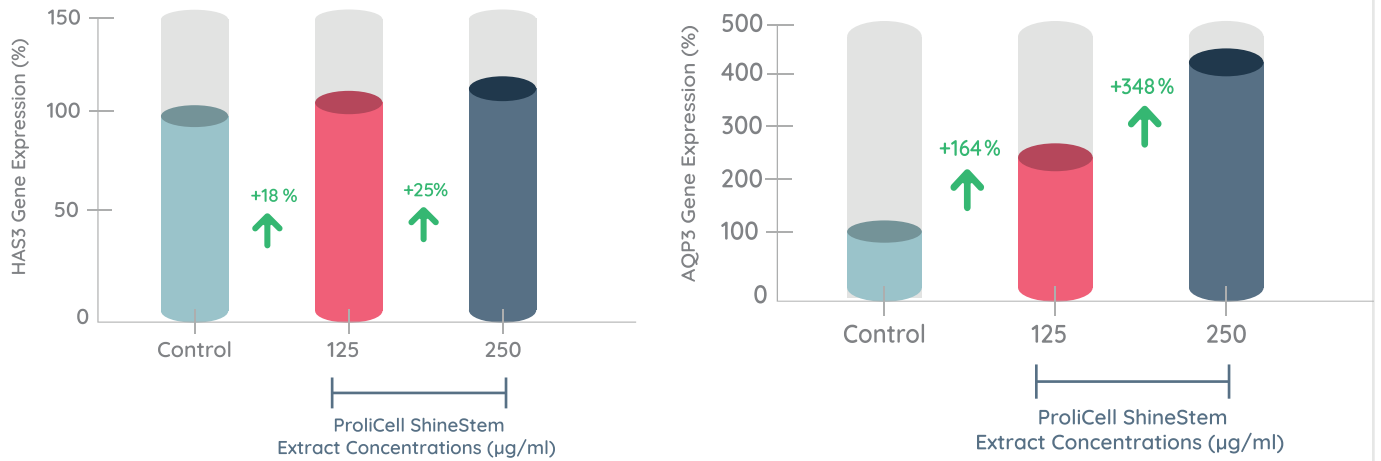
ProlCell ShineStem significantly provides melanin inhibition in melanoma cells in a concentration-dependent manner and shows strong anti-tyrosinase activity.

Expression Analyses of Skin Barrier Related Genes



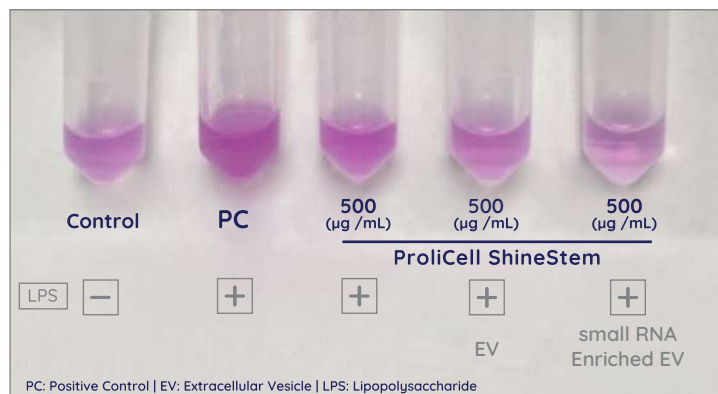
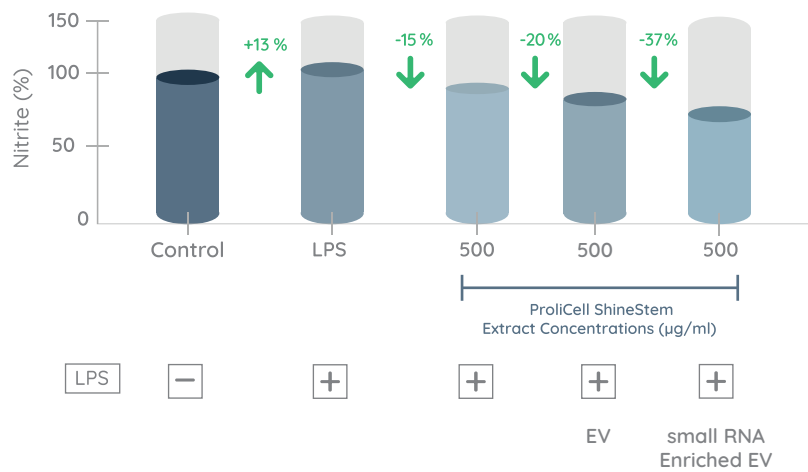
ProlCell ShineStem strengthens the skin barrier by increasing the synthesis of IVL, FLG and CLDN1.

Expression of Hydration - Related Genes



ProlCell ShineStem provides the skin with a moist and radiant appearance by increasing the synthesis of HAS3 and AQP3 genes.

Determination of Nitric Oxide Level

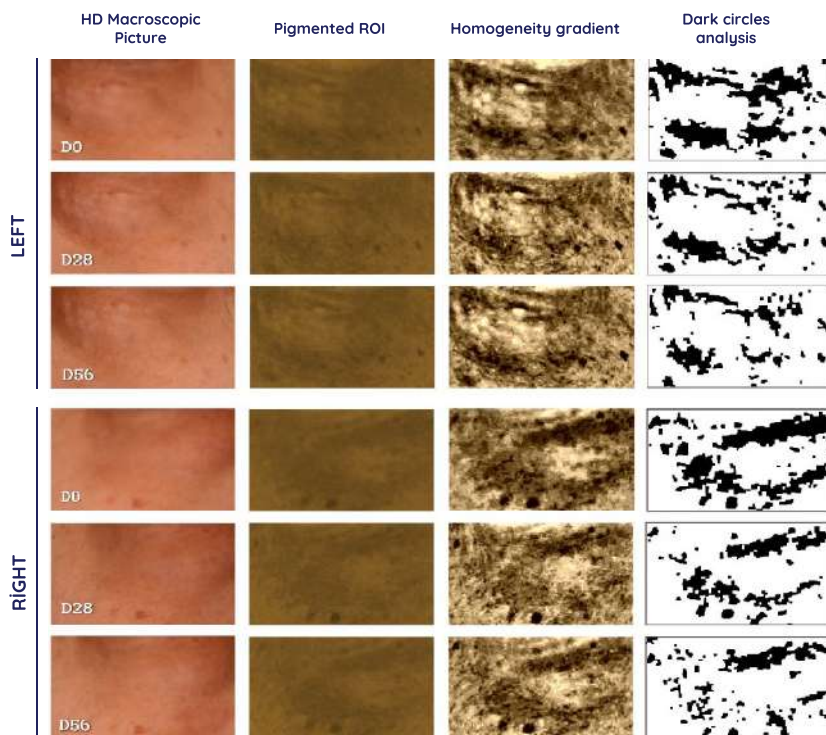


ProlCell ShineStem helps to eliminate the appearance of dark circles significantly reducing nitric oxide levels. It was concluded that when ProlCell ShineStem and EVs were used together, the effect increased depending on the small RNA concentration.

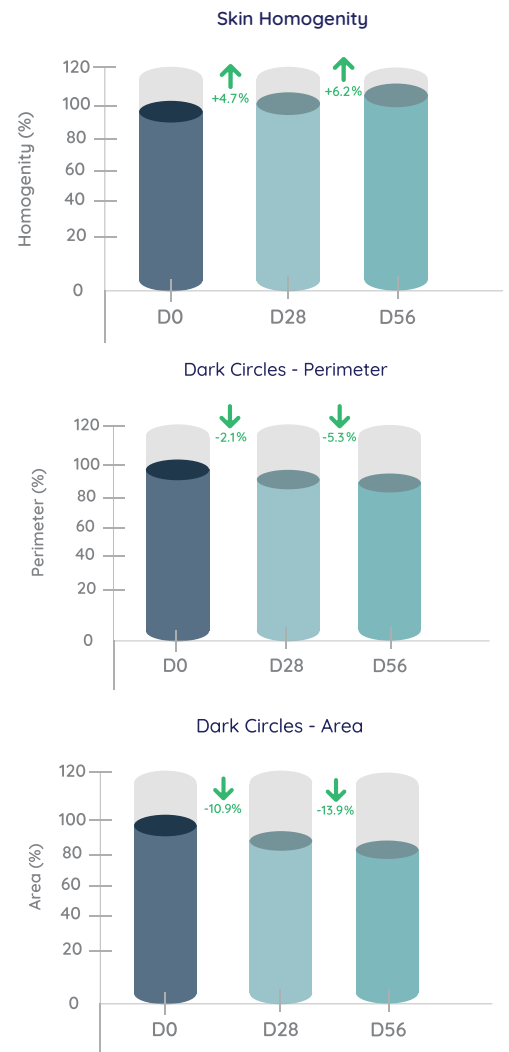
In vivo Efficacy Tests

Anti-dark Circle Activity

- A clinical evaluation with the test treatment was initially carried out on 22 volunteers, aged from 22 to 61 years (mean 33.3 ± 10.2).
- The volunteers were required to be female, between 25 and 60 years, presenting mild to severe dark discoloration in dark circles.
- Anti-Dark Circle Cream (containing 2% ProlCell ShineStem) was applied to the volunteers' under eye 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).

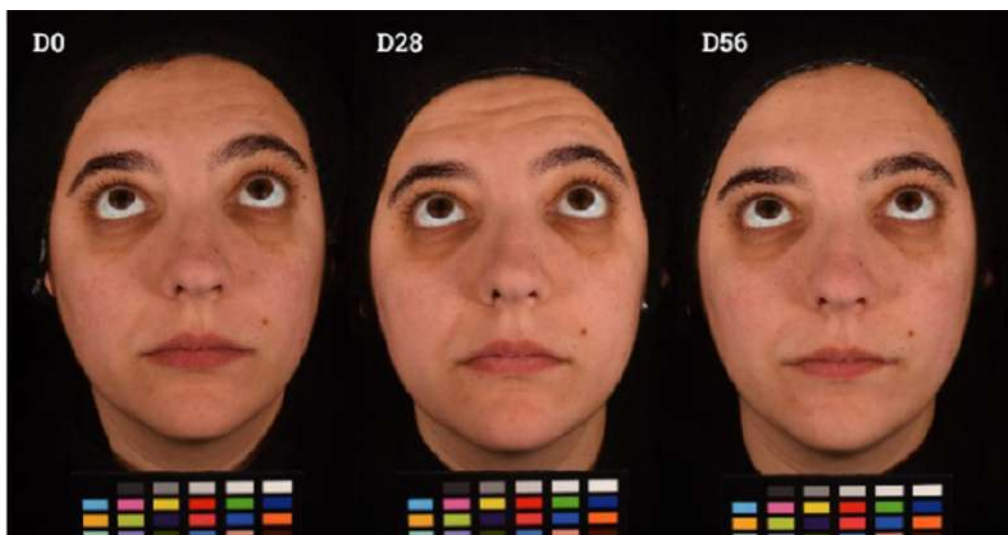


Effects of Anti-Dark Circle Cream in dark circles and skin uniformity for Volunteer



Topical treatment with Anti-Dark Circle Cream containing %2 ProlCell ShineStem protection against dark circles and provides skin homogeneity.

Volunteers stated that the under-eye area achieved a 76% improvement in appearance.



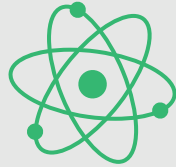
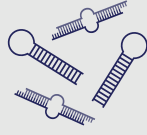
Effects of Anti-Dark Circle Cream for Volunteer



From Dark to Brightness

Effect Mechanism

- Anti-dark circle
- Skin whitening
- Eye contour moisturizer



Cosmetic Uses

- Anti-dark circle products (Face and Skin Care Products)
- Eye area care products
- Skin brightening Products (Face and Skin care Products)



ProlCell ShineStem DW (Dispersible in water)
INCI name: Glycerin, Houttuynia cordata Extract, Xanthan Gum

ProlCell ShineStem WS (Water-soluble)
INCI name: Glycerin, Houttuynia cordata Extract, Sodium benzoate, Potassium sorbate

Usage rate: 2-5%
pH: 4.0-7.0



Features

Origin: Herbal

Appearance: Viscous cell lysate suspension

Color: Brown

Fragrance: Characteristic

Usage: Usage: Add below 40°C in cold-hot processes.

