



SYMSTEM

Professional Skin
Repair



Skin Smoothness
Wound Healing
Anti-Redness

ACTV
BIOTECH

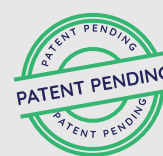
Professional Skin Repair

Effects

- Reduces redness by restoring the skin barrier
- High antioxidant activity protects the skin from oxidative stress and its effects.
- Shows effective wound healing activity.
- Prevents the formation of scars.
- Increases the moisture rate of the skin by stimulating the synthesis of hyaluronic acid.
- Reduces the appearance of wrinkles by stimulating the production of new collagen and elastin.
- Increases the smoothness of the skin.

Origin

Developed from Symphytum officinale (Comfrey) 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® SymStem 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 Cell

Test Components: 100 ve 200 µg/ml ProlCell SymStem bioactive

Parameter:

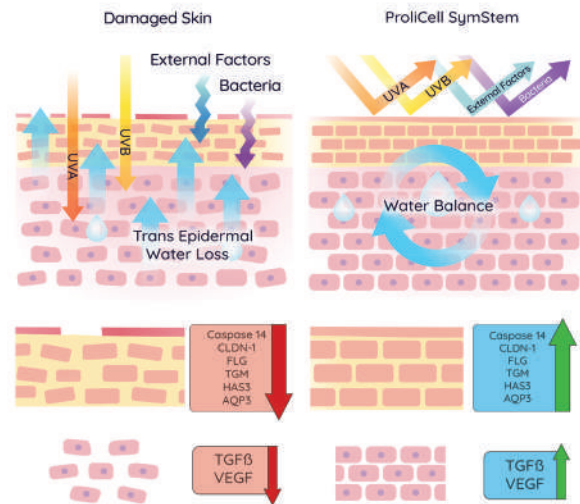
Analysis of AQP3, HAS3, IL1α, FLG, TGM, CLDN1, CASPASE 14, COL1A1, ELN, VEGF and TGFβ genes expression by RT-qPCR,

Scratch Assay Analysis,

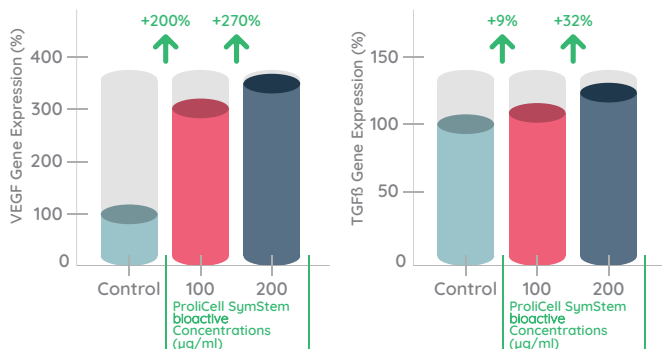
Pro-Collagen Type 1-C Synthesis

For gene and protein expression assays, fibroblast cells were incubated with ProlCell SymStem bioactive concentrations for 24 hours.

Mechanism of effect

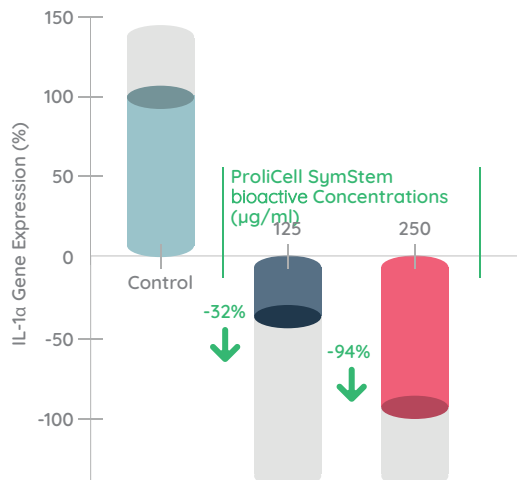


Expression Analysis of Hydration and Proliferation Associated Genes



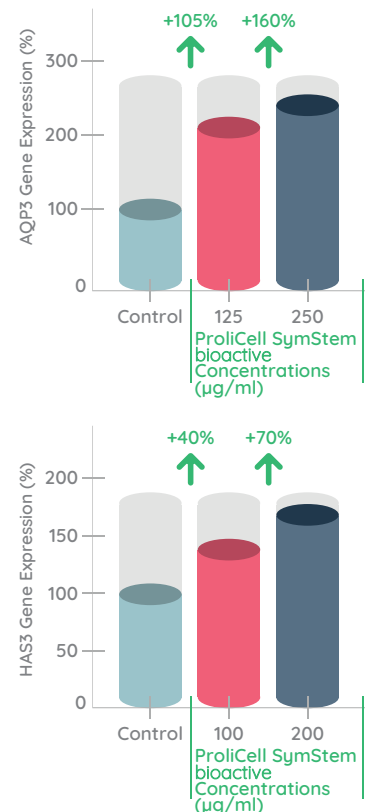
ProlCell SymStem accelerates wound healing by increasing VEGF and TGFβ gene expressions.

Gene Expression Analysis Associated with Skin Smoothness



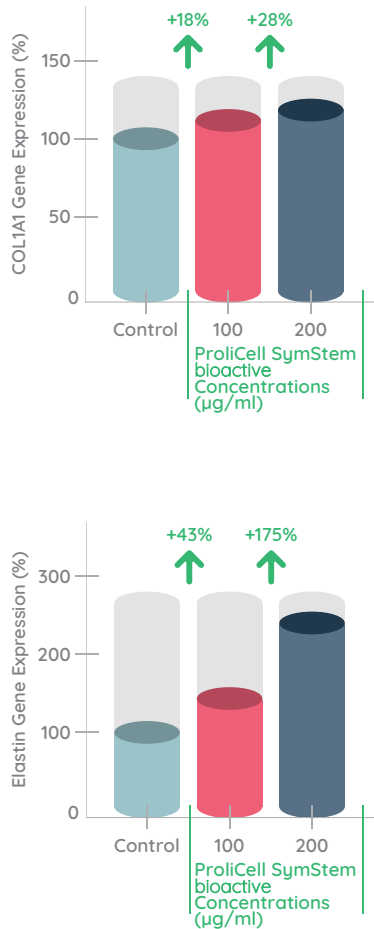
ProlCell SymStem reduces the expression of IL-1α in keratinocyte cells, which causes the skin to appear rough.

Expression Analysis of Genes Associated with Skin Moisture



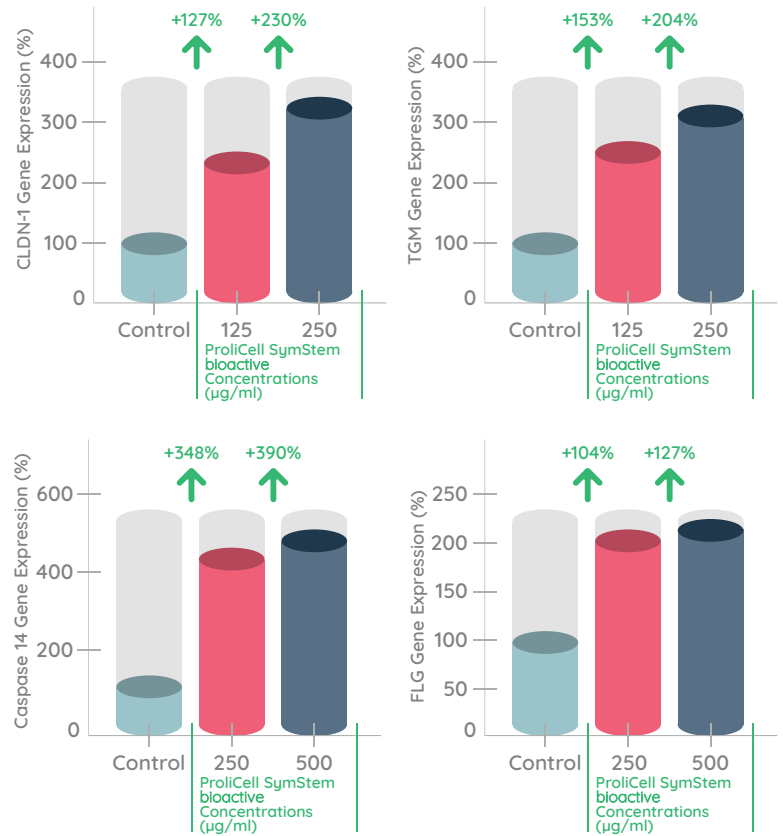
ProlCell SymStem increases the synthesis of AQP3 and HAS3 and provides a moist and lively appearance of the skin.

Expression Analysis of Genes Associated with Anti-Aging and Skin Elasticity



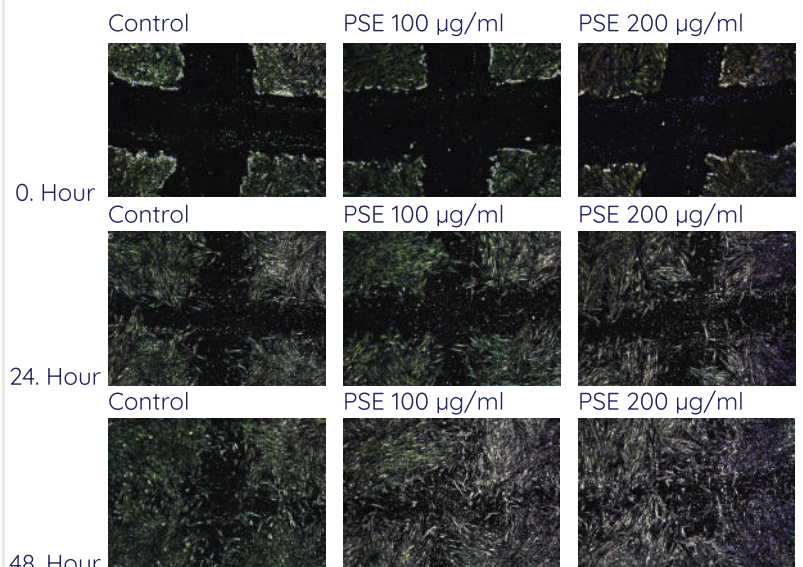
ProlCell SymStem reduces the aged appearance of the skin, strengthens the connective tissue and increases the elasticity of the skin by increasing COL1A1 and ELN gene expression.

Gene Expression Analysis Associated with the Skin Barrier



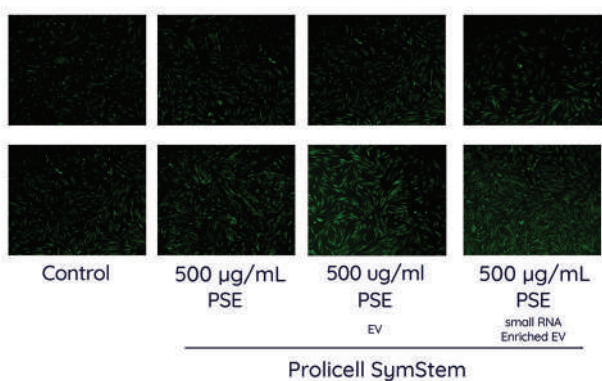
ProlCell SymStem helps maintain the skin barrier by increasing CLDN-1, TGM, Caspase 14 and FLG gene expressions in keratinocyte cells.

Determination of Wound Healing with the Scratch Assay Method



PSE: ProlCell SymStem bioactive

ProlCell SymStem facilitates wound healing by increasing migration and cell migration in fibroblast cells.



PSE: ProlCell SymStem bioactive | EV: exosome

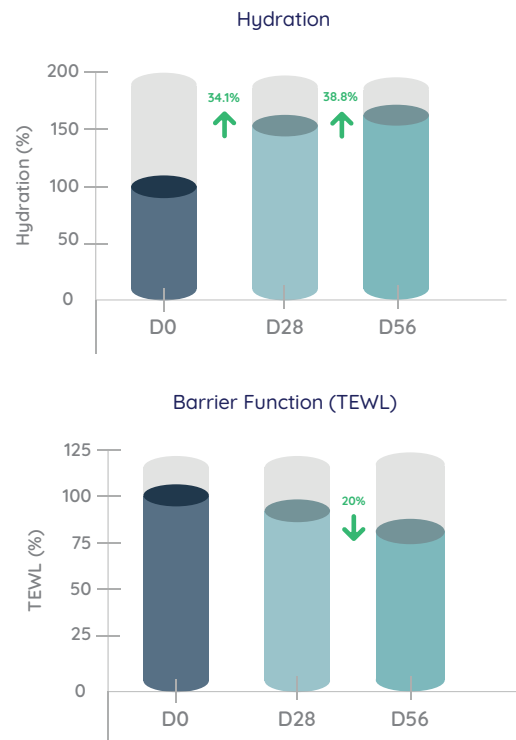
ProlCell SymStem increases fibroblast migration. It was concluded that when ProlCell SymStem and EVs were used together, fibroblast migration increased depending on the small RNA concentration.

In vivo Efficacy Tests

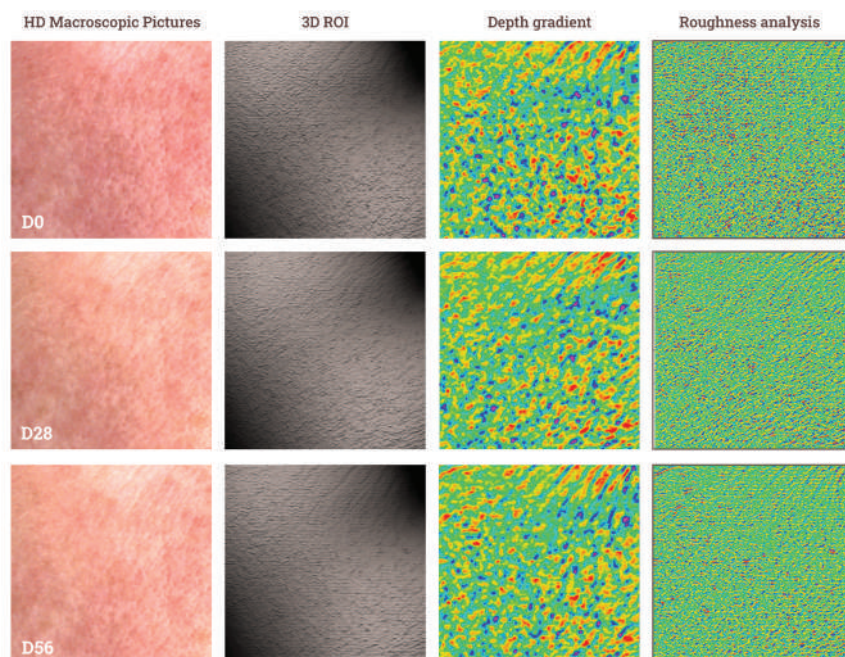
Skin Barrier Booster Activity

- A clinical evaluation with the test treatment was initially carried out on 22 volunteers, aged from 33 to 59 years (mean 45.8 ± 8.4).
- The volunteers were required to be female, between 35 and 65 years, presenting moderate to very severe signs of roughness, with very dry or dry skin, presenting a tendency to skin irritation and/or impairment (desquamation, flaking, dehydration...).
- Skin Barrier Booster Cream (containing 2% ProlCell SymStem) was applied to the volunteers' face 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).

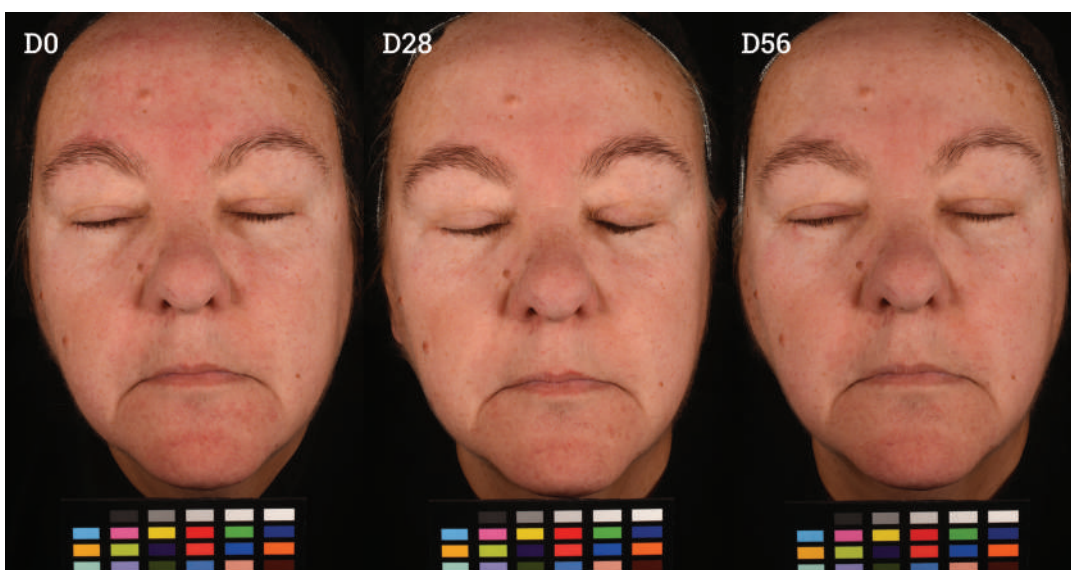
Volunteers stated that it renewed the skin by 76% and provided a younger appearance.



Skin barrier Booster cream containing ProlCell SymStem shows high moisturizing and epidermal barrier strengthening capacity with a significant increase in hydration and a significant reduction in transepidermal water loss.



Effects of Skin Barrier Booster Cream in Surface Roughness for Volunteer



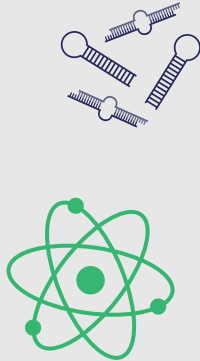
Effects of Skin Barrier Booster Cream in Volunteers



Professional Skin Repair

Effect Mechanism

- Anti-redness
- Skin barrier strengthener
- Anti-aging
- Wound healer



Cosmetic Uses

- Skin Barrier Booster Products (Face and Skin Care Products)
- Anti-aging Products (Face and Skin Care Products)
- Wound Healing Products (Face and Skin Care Products)



ProlCell SymStem DW (Disperses in water)

INCI Name: Glycerin, Symphytum officinale

Leaf bioactive, Xanthan Gum

ProlCell SymStem WS (Water-soluble)

INCI Name: Glycerin, Symphytum officinale

Leaf bioactive, Sodium benzoate, Potassium sorbate

Usage rate: 2-5%

pH: 4.0-7.0



Features

Origin: Herbal

Appearance: Viscous cell lysate suspension

Color: Dark brown

Odor: Characteristic

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

