



GOLDSTEM

Gold Effect Against Senescence



Effective
DNA
Repair

ACTV
BIOTECH

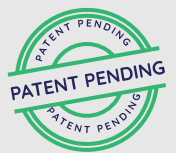
Gold Effect Against Senescence

Effects

- Suppresses UV-induced inflammation on the skin.
- Prolongs the life of cells by suppressing the effects of senescence.
- Activates DNA repair by increasing the synthesis of genes related to DNA repair mechanism in the formation of DNA damage originating from the environment.
- Protects organelle and cell membrane integrity by preventing lipid peroxidation and so increases the lifespan of cells.

Origin

Developed from *Helichrysum arenarium* (*Helichrysi flos*) stem cells using ProlCell® Technology.



What is ProlCell® Technology?

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



Effect Mechanism

ProlCell® GoldStem 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, keratinocyte cell

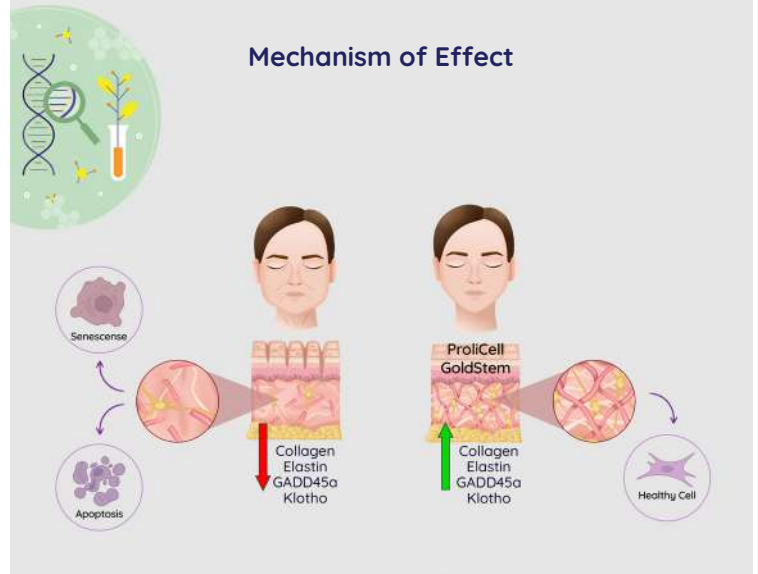
Test Ingredient: 250 ve 500 µg/mL ProliCell GoldStem,

Parametre:

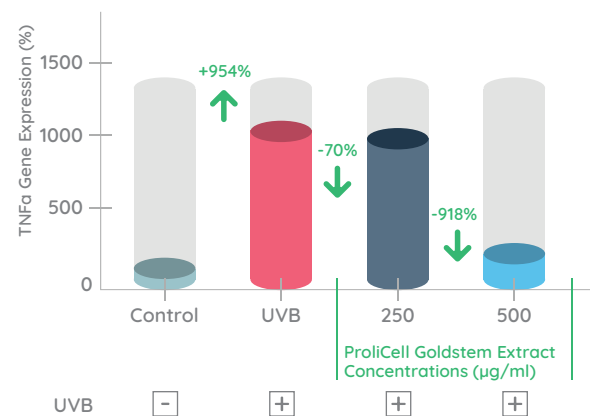
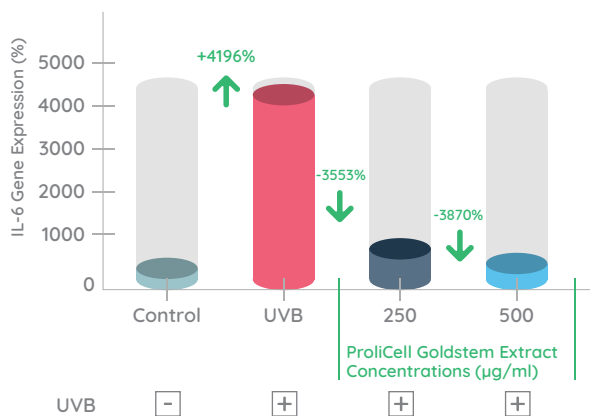
Analysis of expression of Klotho, GADD45a, IL-6 and TNFα genes by RT-qPCR,

For gene expression analysis, fibroblast cells were incubated with ProliCell GoldStem Extract concentrations for 24 hours.

Mechanism of Effect

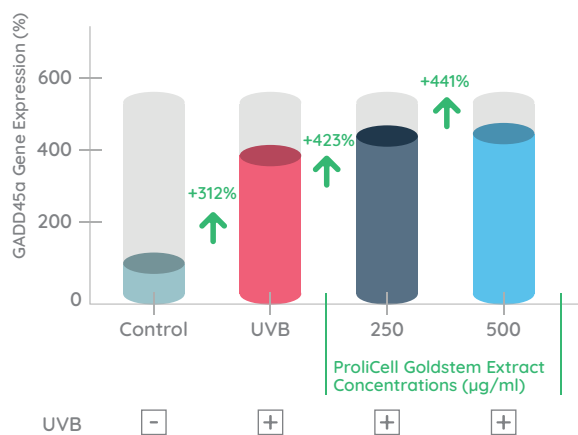


Expression Analysis of Genes Associated with Inflammation Induced by UVB Radiation



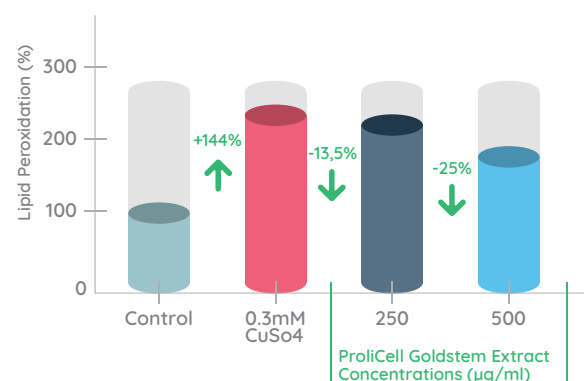
ProliCell GoldStem significantly reduces inflammation caused by UVB.

Genes Expression Analysis Associated with Repair of UV-Induced DNA Damage



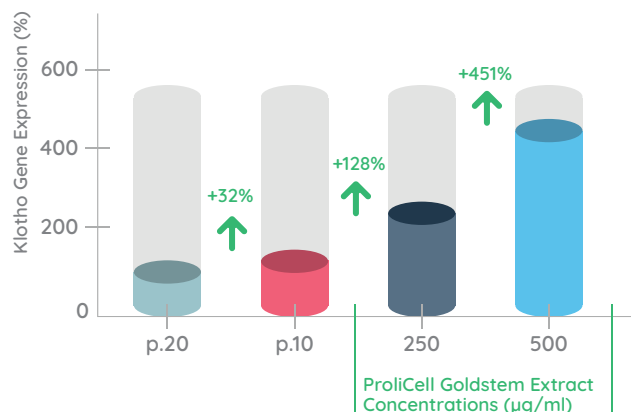
ProliCell GoldStem increases the life span of cells by activating the DNA repair mechanism.

Determination of the Effect on Lipid Peroxidation by MDA Method



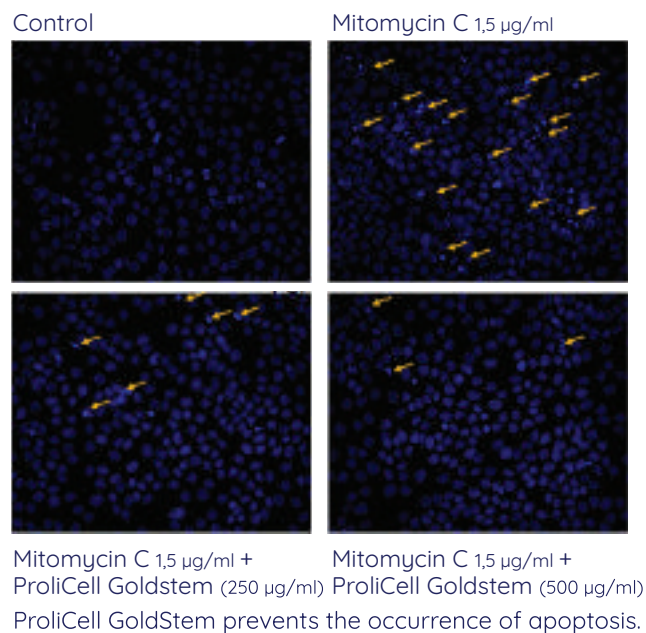
ProliCell GoldStem ensures the protection of cell membrane integrity and significantly prevents lipid peroxidation occurring in cell membranes.

Life Time Associated Gene Expression Analysis

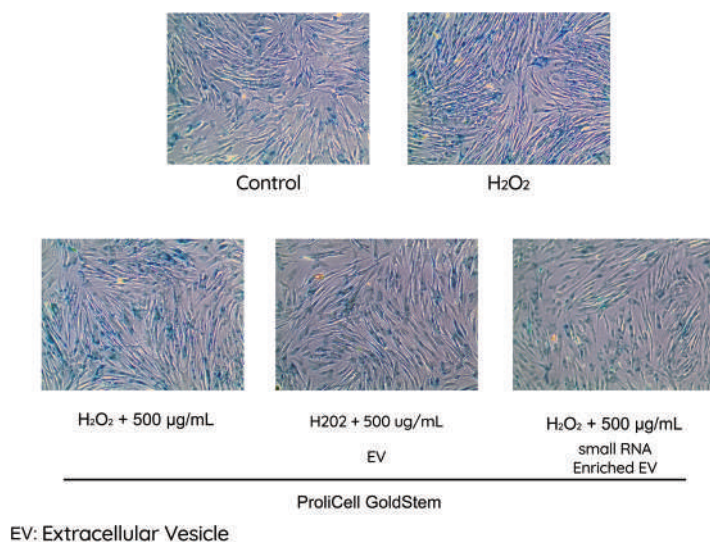


ProlifeCell GoldStem extends the lifespan of cells by increasing expression of Klotho gene.

Detection of Apoptosis by DAPI Staining

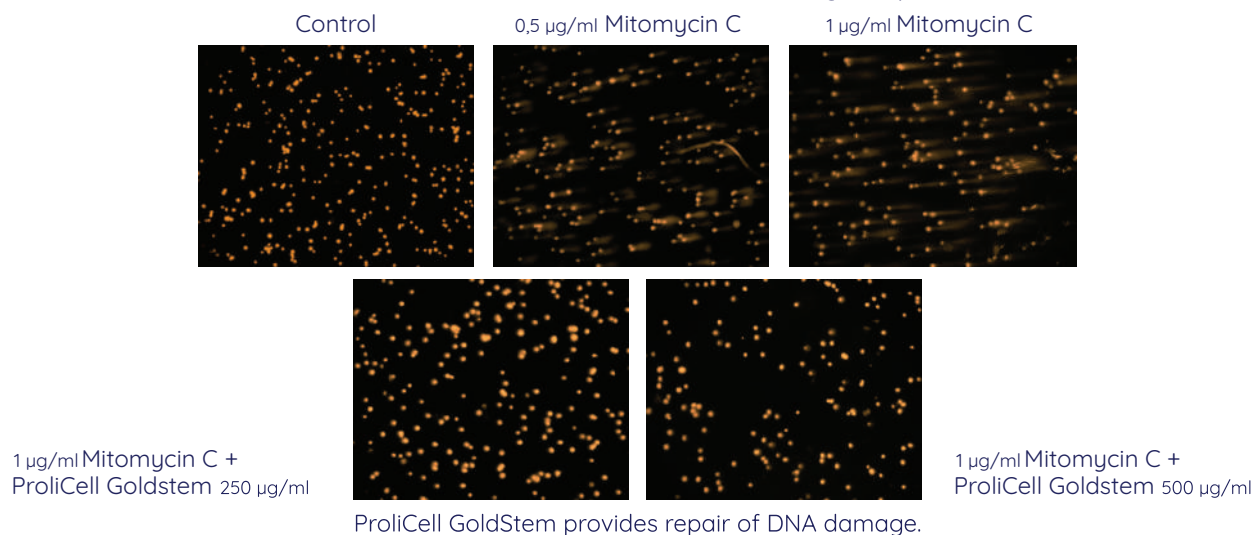


Determination of Senescence by Senescence-Associated β -galactosidase (SA- β galactosidase) Test



ProlifeCell GoldStem, significantly reduces cellular aging and senescence caused by external factors. It was determined that when ProlifeCell GoldStem and EVs were applied depending on small RNA concentration, cellular aging and senescence were significantly reduced depending on the small RNA concentration.

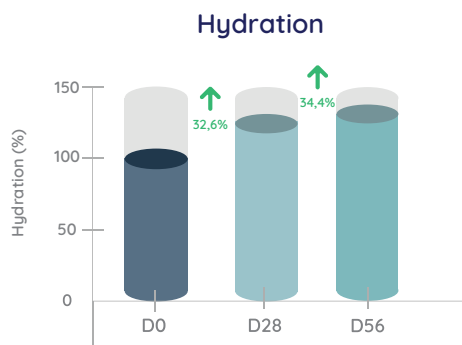
Determination of Effect on DNA Damage Repair



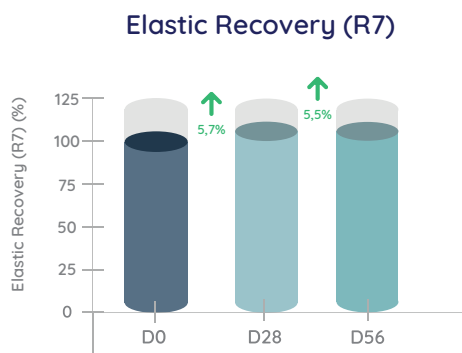
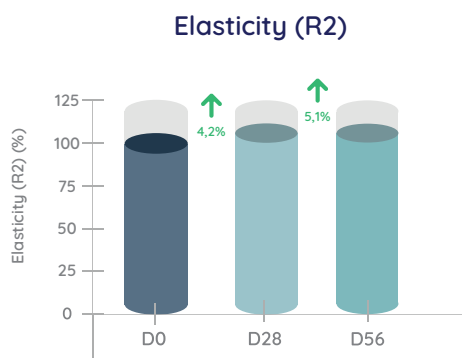
In Vivo Efficacy Test

Anti-aging Activity

- A clinical evaluation with the test treatment was initially carried out on 22 volunteers, aged from 34 to 61 years (mean 48.4 ± 8.0).
- The volunteers were required to be female, between 35 and 65 years, presenting moderate to very severe signs of aging.
- Anti-aging Cream (containing 2% ProliCell GoldStem) 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).

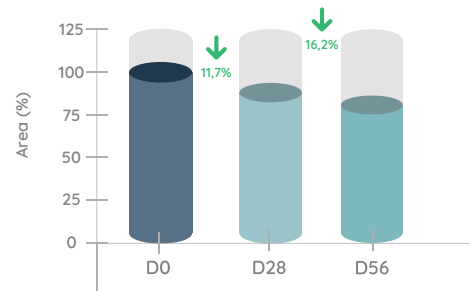


Skin moisture level change in volunteers

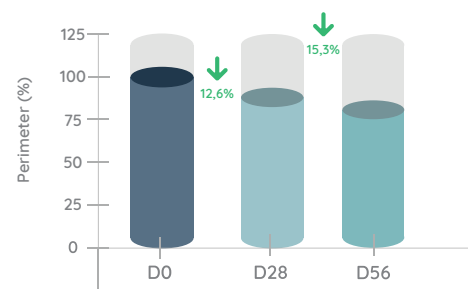


Change in skin elasticity and elastic recovery level in volunteers using Anti-aging cream

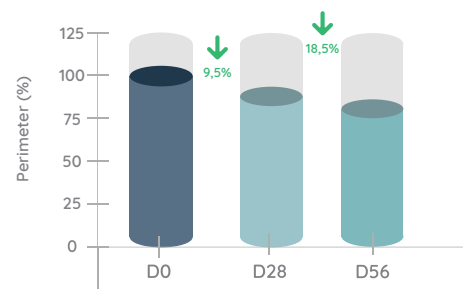
Forehead Wrinkles - Area



Forehead Wrinkles - Perimeter



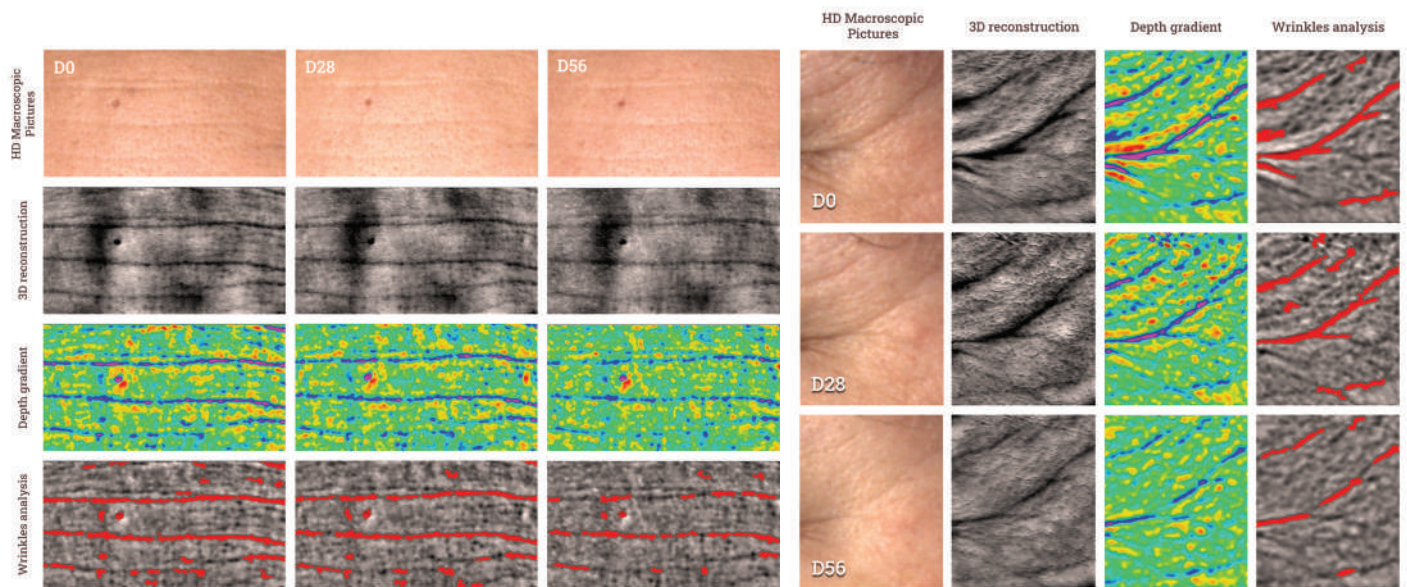
Forehead Wrinkles - Volume



Change in of the area, perimeter, and volume of forehead wrinkles in volunteers

The topical treatment with “Anti-aging Cream (containing ProliCell GoldStem)” displays anti aging and moisturizing capabilities, substantiated in statistically significant reductions of forehead wrinkles, reductions of crow's feet wrinkles, and significant improvements of skin hydration and skin elasticity parameters.

80% of the volunteers stated that fine lines were improved and **85%** of them stated that it provided a brighter appearance.



Effects of Anti-aging cream on forehead and crow's feet wrinkles.

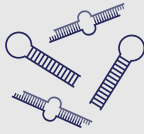


Effects of Anti-aging cream on volunteers.



Gold Effect Against Senescence

Effect Mechanisms



- Cellular anti-aging.
- Anti-senescence, which consists of environmental effects and takes place in the natural process.
- Protective against oxidative stress.
- Repairs UV-induced DNA damage.
- Repairs DNA damage caused by chemicals.

Cosmetic Uses



- Anti-aging Products
(Face and Skin Care Products)
- UV Protective Products
(Face and Skin Care Products)



ProlCell GoldStem DW (Disperses in water)

INCI Name: Glycerin, Helichrysum Arenarium Extract, Xanthan Gum

ProlCell GoldStem WS (Water-soluble)

INCI Name: Glycerin, Helichrysum Arenarium Extract, Sodium benzoate, Potassium sorbate

Usage rate: 2-5%

pH: 4.0-7.0



Features



Origin: Herbal

Appearance: Viscous cell lysate suspension

Color: Dark yellow

Fragrance: Characteristic

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