



MALVA

Active Hair Follicles
with Stem Cells



Hair Growth
Stimulating
Effect

ACTV
BIOTECH

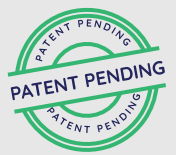
Active Hair Follicles with Stem Cells

Effects

- Encourages new hair formation by stimulating hair follicles.
- Strengthens the hair follicles by feeding the hair root and reduces hair loss.
- Makes the hair stronger, moist and soft thanks to the mucilage and phenolic compounds it contains.
- Prevents hair graying by increasing melanin synthesis in hair follicles.
- Protects the hair by activating the detoxification mechanism against substances that will harm the hair.

Origin

Developed from *Malva sylvestris* (Mallow) 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® Malva 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

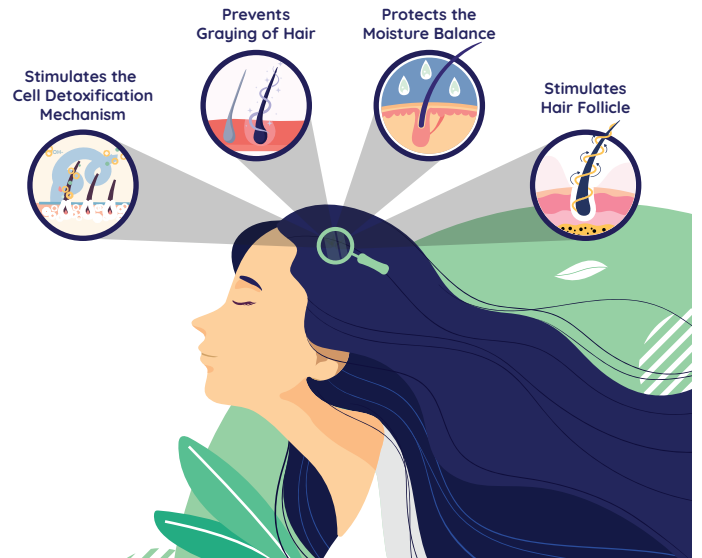
Cell Line: Human normal keratinocyte, human normal fibroblast cell, mouse melanocyte cell

Test Component: 125, 250 and 500 µg/ml ProliCell Malva extract

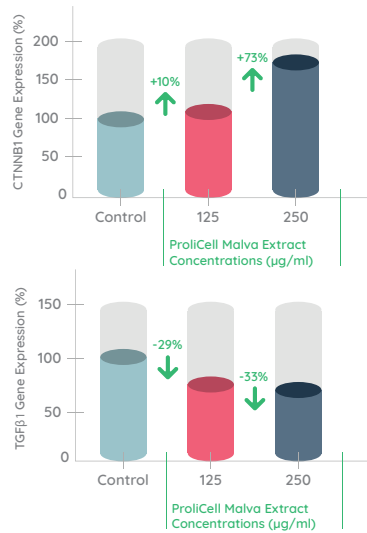
Parameter:

Analysis of expression of genes by RT-qPCR,
For gene expression analyses, keratinocyte, fibroblasts and melanocyte cells were incubated with ProliCell Malva concentrations for 24 hours.

Mechanism of effect

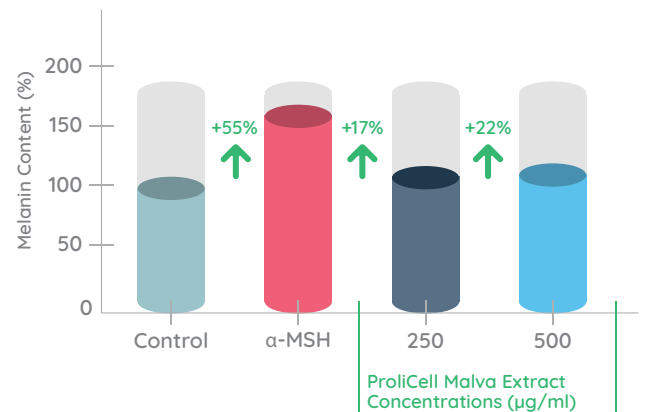


Expression Analysis of Hair Follicle Stimulating Associated Genes



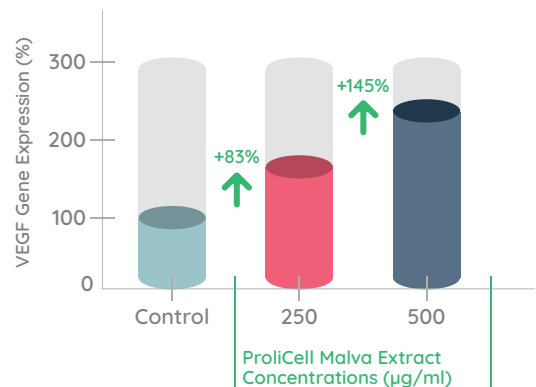
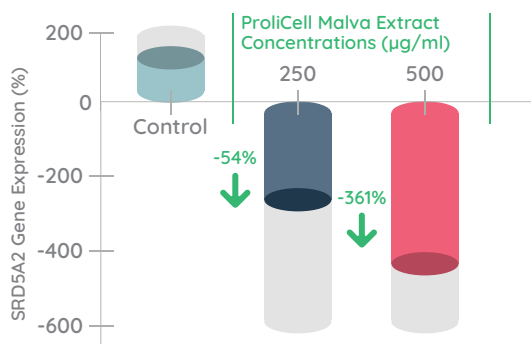
ProliCell Malva shows potent hair follicle stimulating activity by stimulating the Wnt β catenin pathway and suppressing TGF β 1 expression.

Effect on Melanin Synthesis



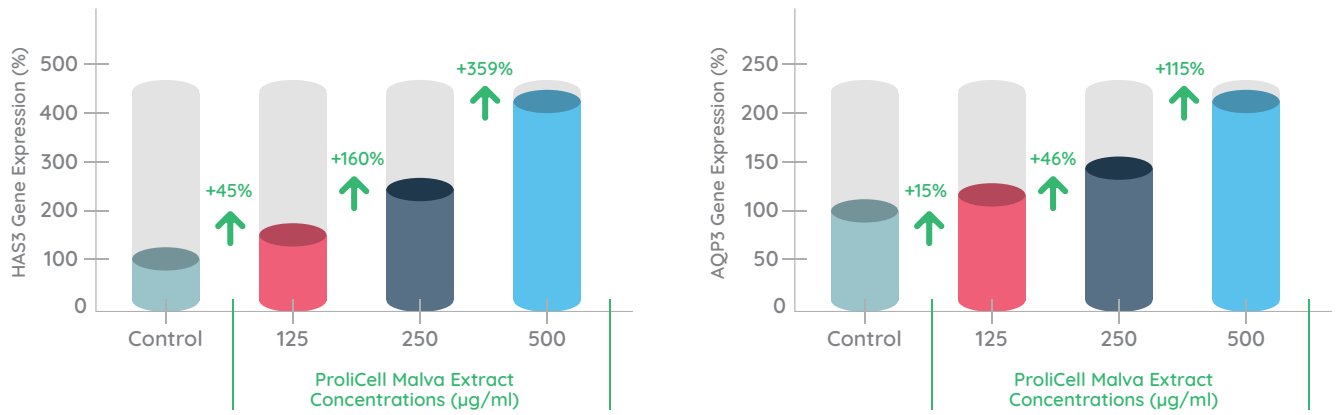
ProliCell Malva prevents hair graying by increasing melanin synthesis in hair follicles.

Expression Analysis of Genes Associated with Hair Loss



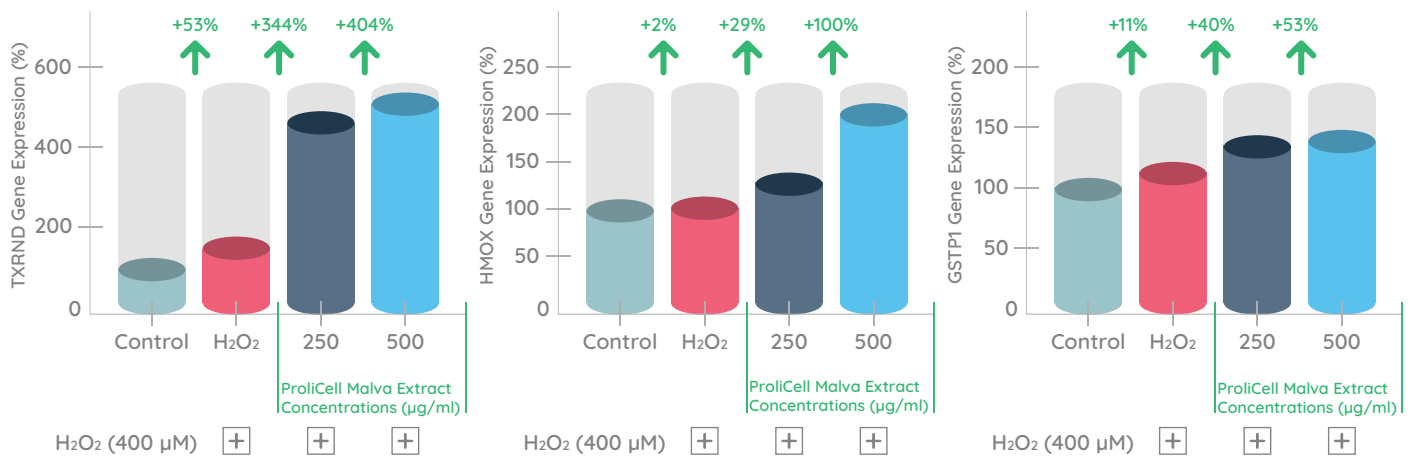
ProliCell Malva has an anti-hair loss effect by suppressing the expression of SRD5A2, while stimulating the expression of VEGF. ProliCell Malva accelerates blood flow and provides nourishment to the hair.

Expression Analysis of Hydration-Related Genes



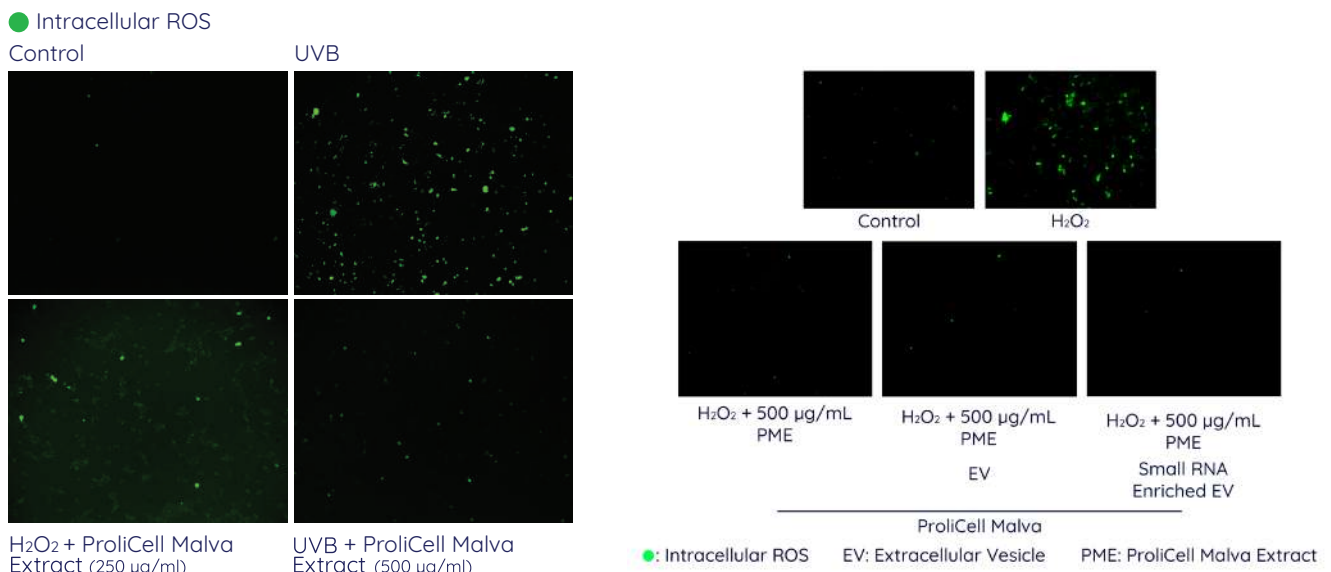
ProlCell Malva protects the moisture balance of the scalp by increasing the expressions of AQP3 and HAS3 genes.

Expression Analysis of Genes Associated with the Detoxification Mechanism



ProlCell Malva effectively stimulates the cell detoxification mechanism to reduce oxidative stress caused by environmental pollutants and ProlCell Malva provides the removal of oxidative damage in the scalp.

Effect on the Formation of Intracellular ROS



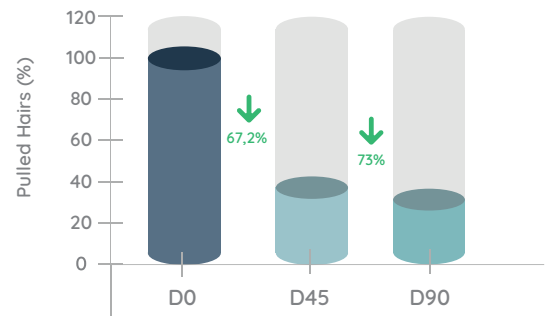
ProlCell Malva protects hair against damage caused by UV radiation, hair dyes and environmental pollutants by reducing oxidative stress caused by UVB and hydrogen peroxide. It was concluded that this protective effect increased when ProlCell Malva was used together with EVs and EVs enriched in small RNAs.

In Vivo Efficacy Test

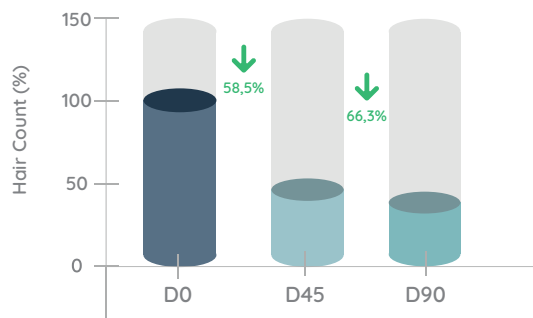
Anti-Hair Loss Activity

- A clinical evaluation with the test treatment was initially carried out on 22 volunteers aged between 23 and 55 years (mean 42.2 ± 9.5).
- The volunteers were men and women between the ages of 35 and 65 suffering from alopecia or excessive hair loss. Volunteers submitted to 30 days of wash-out phase without any specific hair efficacy treatment (anti-hair loss, strengthening...).
- Volunteers' hair was treated with 2% ProliCell Malva anti-hair loss serum for 3 months.
- Measurements were recorded before starting treatment (D0), after 1.5 months of treatment (D45) and after 3 months of treatment (D90).

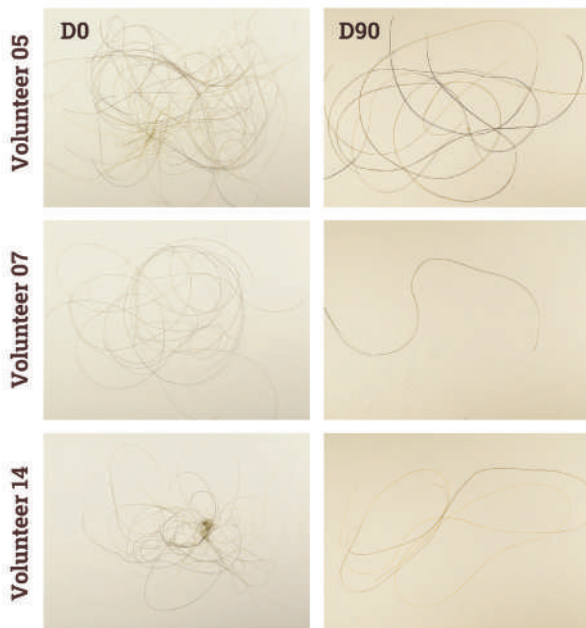
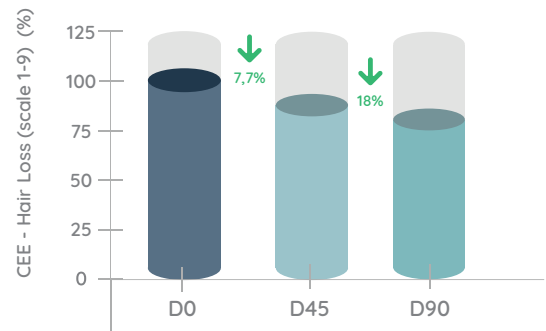
Pull Test



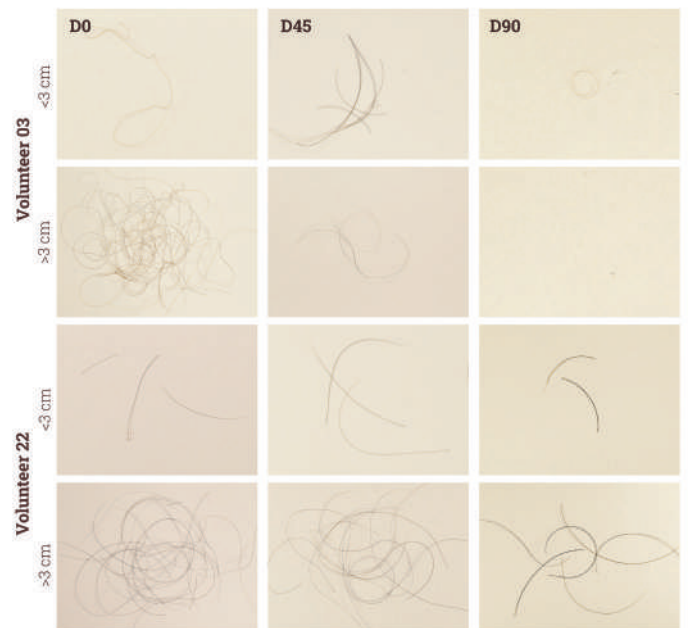
Wash Test - Hair >3cm



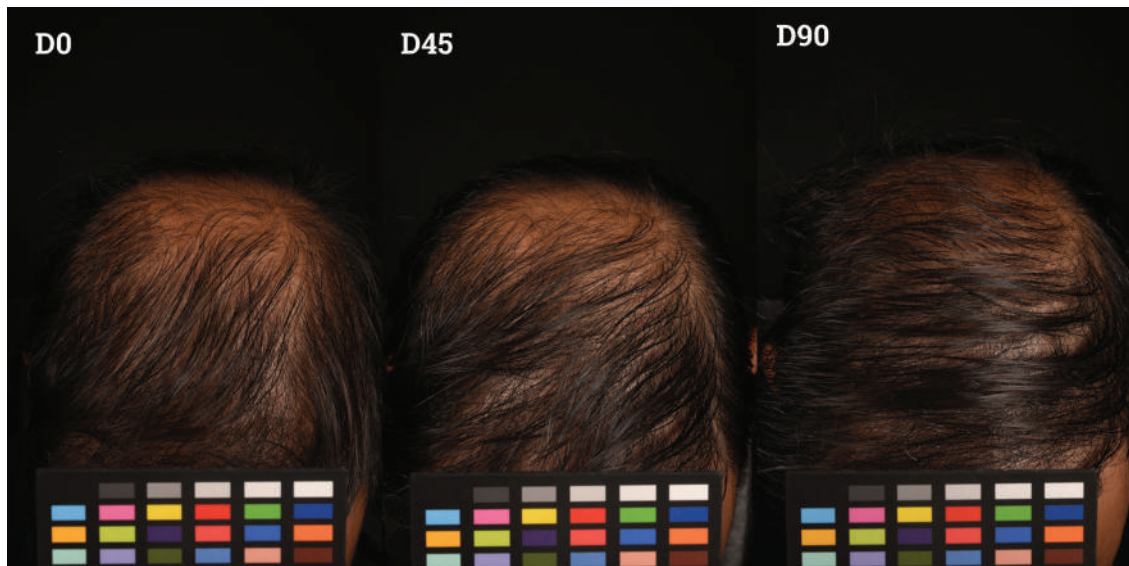
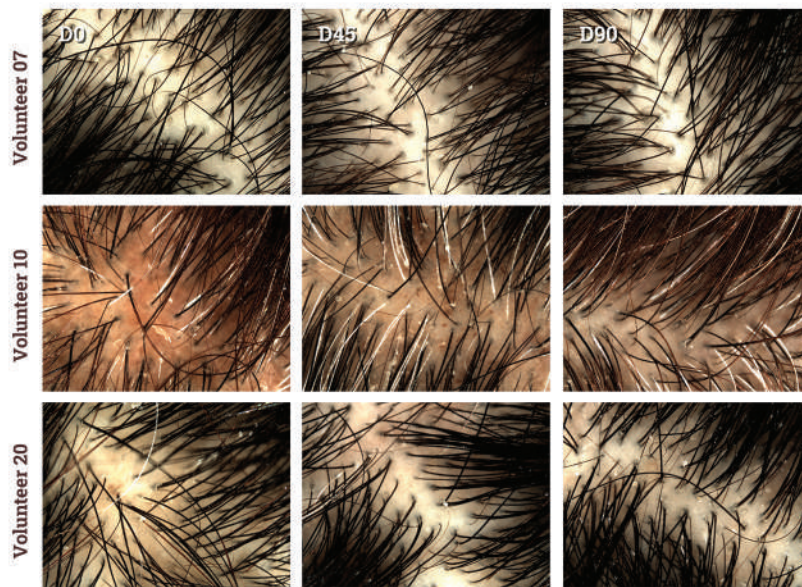
CEE - Hair Loss



Effects of Anti-Hair Loss Serum on hair shedding after Modified Pull Test



Effects of Anti-Hair Loss Serum on hair shedding after Modified Hair Wash Test



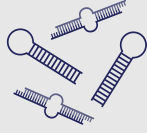
Effects of Anti-Hair Loss Serum on volunteers



Active Hair Follicles with Stem Cells

Effect Mechanism

- Encourages new hair formation by stimulating hair follicles.
- Strengthens the hair follicles by feeding the hair root and reduces hair loss.
- Makes the hair stronger, moist and soft thanks to the mucilage



Cosmetic Uses

- Hair dyes
- Shampoos that prevent hair loss
- Hair care creams
- Hair care oils
- Hair care serums



ProlCell Malva DW (Disperses in water)
INCI Name: Glycerin, Malva sylvestris (Mallow) Flower / Leaf / Stem Extract, Xanthan Gum
ProlCell Malva WS (Water soluble)
INCI Name: Glycerin, Malva sylvestris (Mallow) Flower / Leaf / Stem 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.

