



# 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.
- 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 human and plant. This provides exogenous plant small RNAs to play a key role on the physiological function of the human body, including the skin.



# Activity Tests

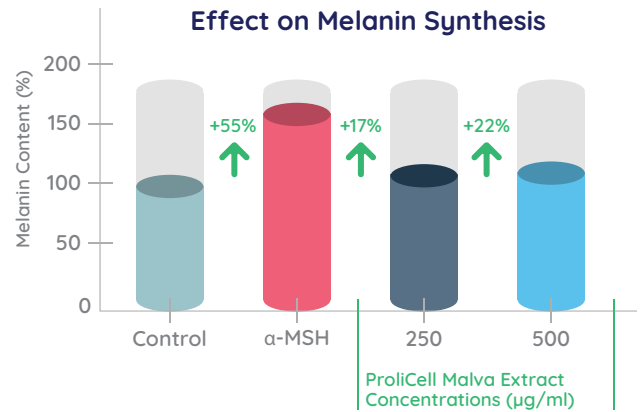
## In vitro Tests

**Cell Line:** Human normal keratinocyte, human normal fibroblast cell and mouse melanoma cells

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

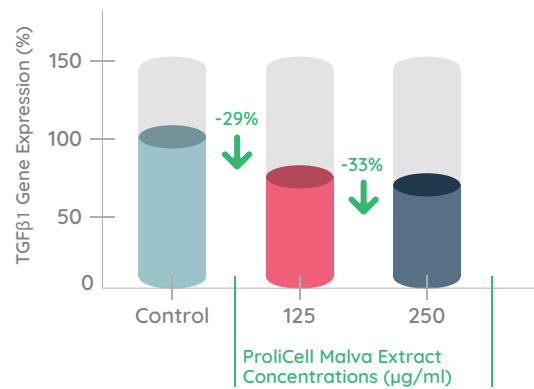
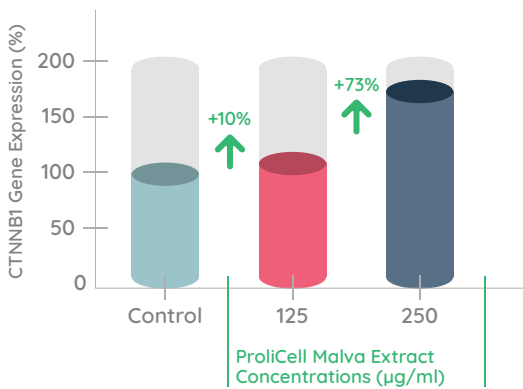
**Parameter:** Analysis of expression of genes by RT-qPCR,

For gene expression analyses, keratinocyte, fibroblasts and melanoma cells were incubated with ProliCell Malva concentrations for 24 hours.



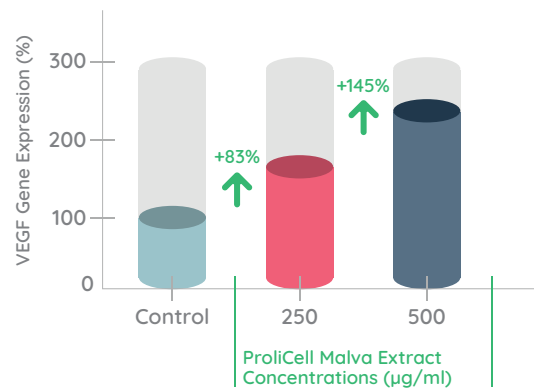
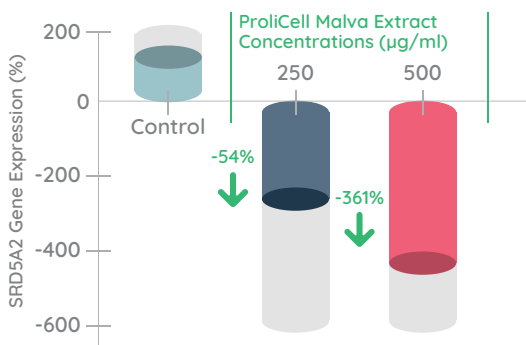
ProliCell Malva prevents hair graying by increasing melanin synthesis in hair follicles.

## Expression Analysis of Hair Follicle Stimulating Associated Genes



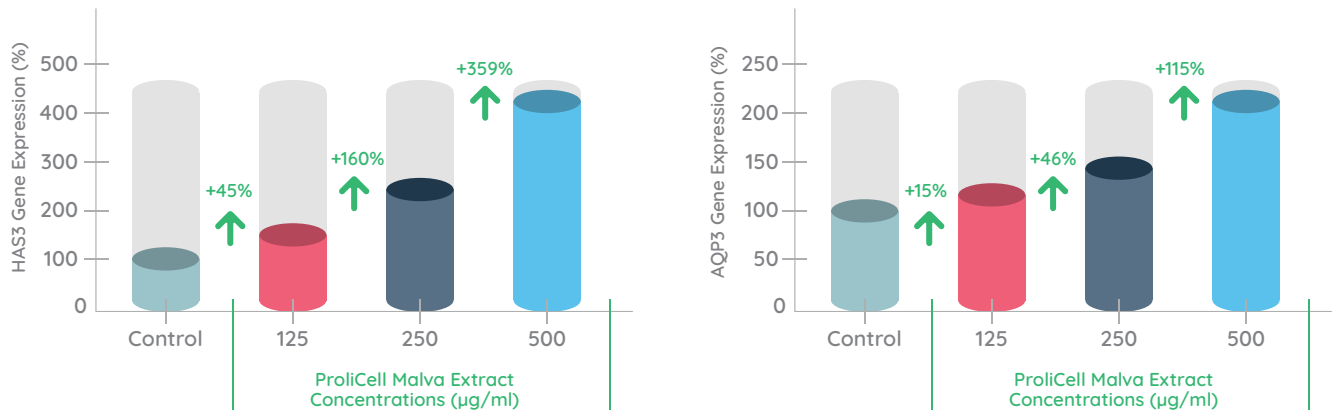
ProliCell Malva shows potent hair follicle stimulating activity by stimulating the Wnt β catenin pathway and suppressing TGFβ 1 expression.

## Expression Analysis of Genes Associated with Hair Loss



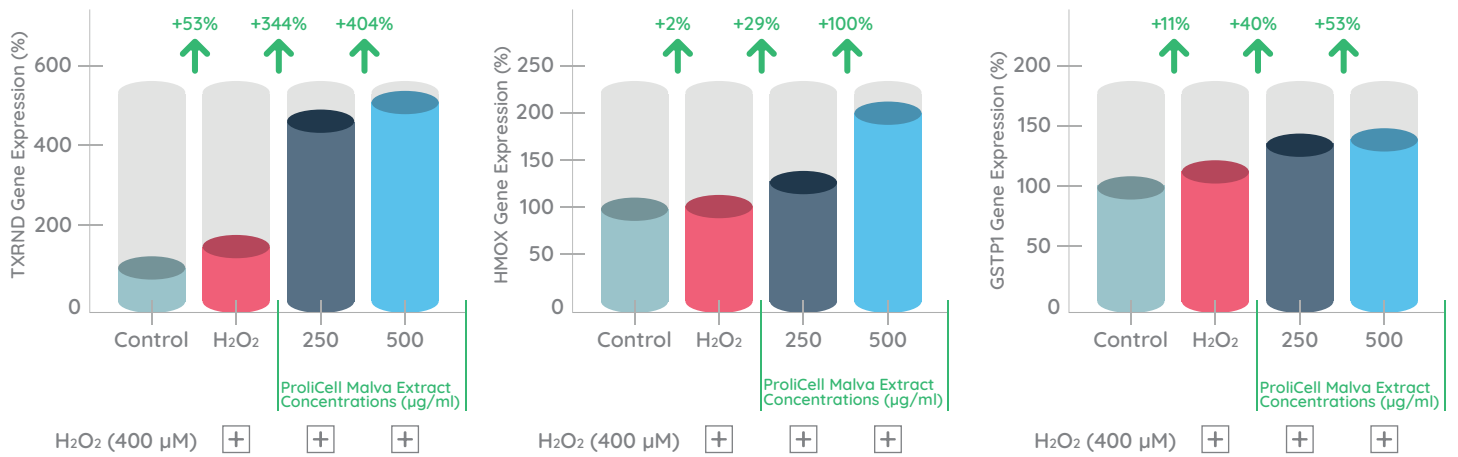
ProliCell Malva has an anti-hair loss effect by suppressing the expression of SRD5A2, while stimulating the expression of VEGF. ProliCell Malva accelerates blood flow and provides nourishment to the hair.

### Expression Analysis of Hydration-related Genes



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

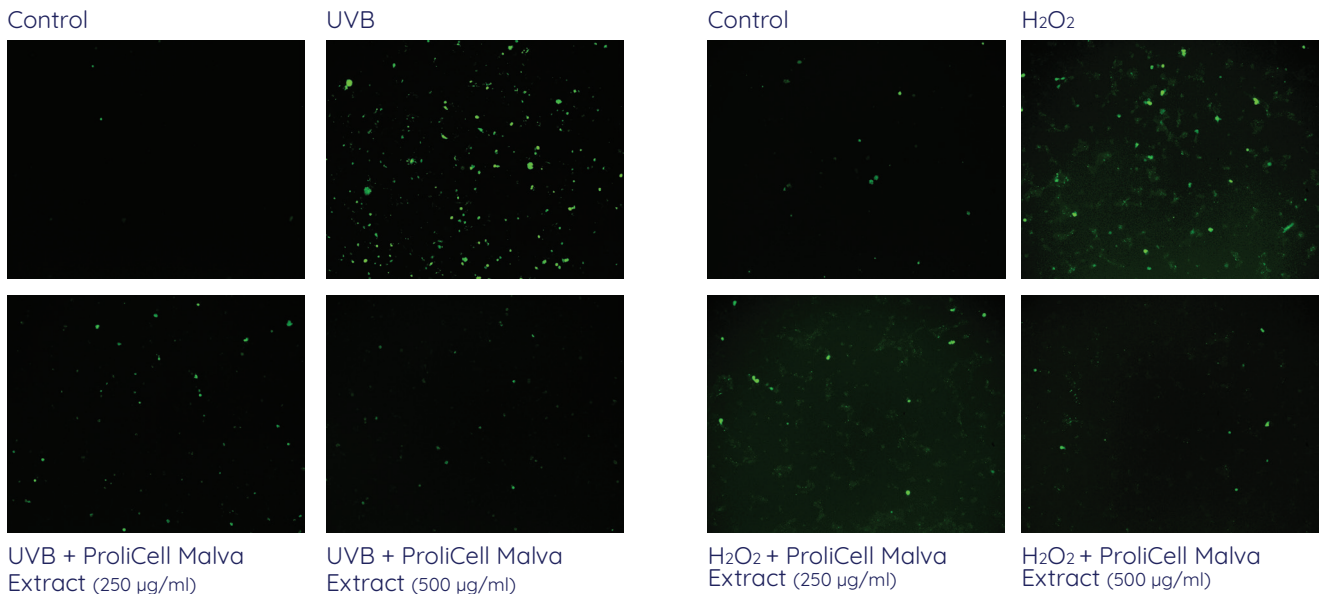
### Expression Analysis of Genes Associated with The Detoxification Mechanism



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

● 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.

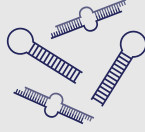




## Active Hair Follicles with Stem Cells

### Effect Mechanims

- 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



**INCI Name:** Glycerin, Malva sylvestris Callus Extract, Xanthan Gum.

**Usage rate:** 2-5%

**Solubility:** Water-soluble.

**Preservative:** No preservative

**pH:** 4.0-6.0



### Features

**Origin:** Herbal

**Appearance:** Viscous cell lysate suspension

**Color:** Brown

**Odor:** Characteristic

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



+09 212 912 13 36 info@actvlab.com

www.actvbiotech.com @actvbiyoteknoloji

Karaağaç Mah. Mavi Zümrüt Sokak No.48 Büyükcçekmece/İSTANBUL/TÜRKİYE

**ACTV**  
BIOTECH