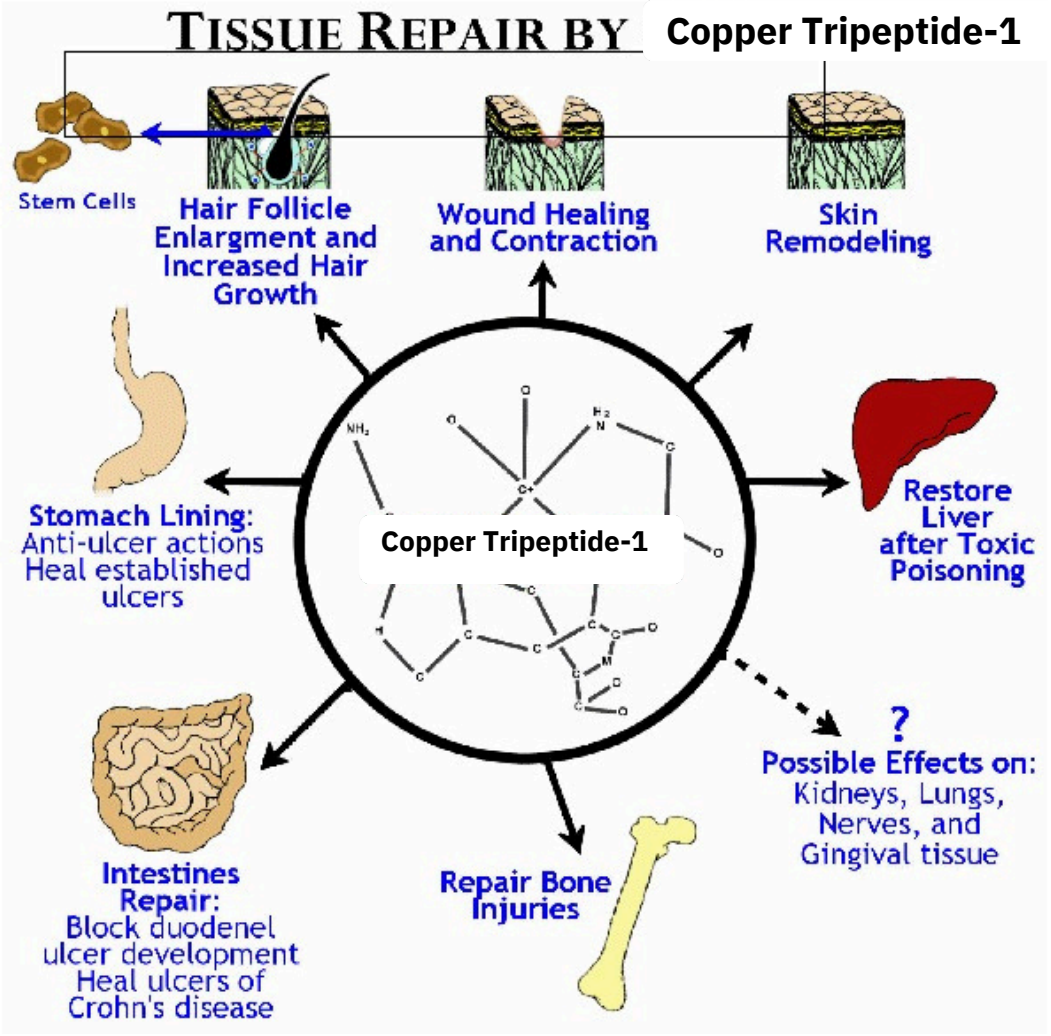
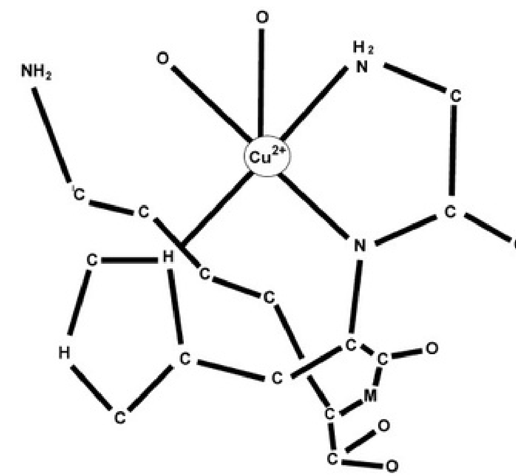
YUMEDICS
SCALPDOSE BIO AMPOULE PP66

- **Copper tripeptide-1**
- **Panthenol**
- **Eriobotrya Japonica Leaf Extract**

Copper Tripeptide-1



Copper Tripeptide-1



1. 5-α reductase inhibition
Decreases hair loss-inducing hormone DHT, Hair loss preventive effect
2. Synthesis of cell growth factor promoting effect
Normalization of hair growth cycle by preventing shortening of anagen stage or transition to catagen stage of hair
3. Antioxidant function to suppress oxygen free radical
Prevent oxidative damage of hair follicle cells to prevent hair loss.
Supply nutrition to the hair follicles.
Stimulating blood vessel formation in the scalp.

Copper Tripeptide-1

Proven hair growth effect

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Archives of Pharmacal Research
http://apr.psk.or.kr

The Effect of Tripeptide-Copper Complex on Human Hair Growth *In Vitro*

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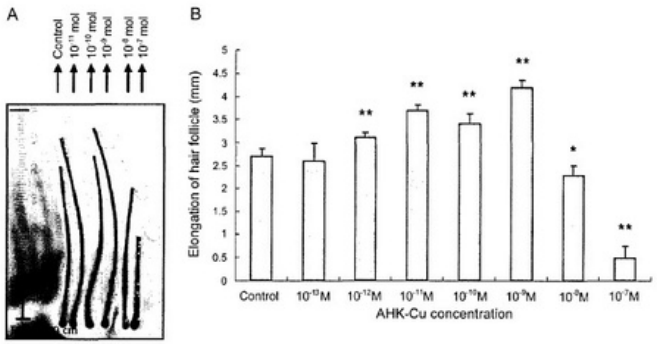
AHK-Cu stimulated the elongation of human hair follicles ex vivo

After 12 days of organ culture, the length of human hair follicles in the 10^{-12}~10^{-9} M AHK-Cu treated group were significantly increased compared with the vehicle-treated group (Fig. 1). 10^{-8} and 10^{-7} M AHK-Cu, however, significantly inhibited the hair follicle elongation by 14.8 ± 1.2 (2.3 ± 0.18 mm) and 81.5 ± 40.8% (0.5 ± 0.25 mm), respectively, as compared with the vehicle-treated control.



AHK-Cu induced the proliferation of cultured DPCs

According to the result of MTT assay, AHK-Cu significantly stimulated the proliferation of cultured DPCs at concentrations of 10^{-12}~10^{-9} M versus the vehicle-treated control (Fig. 2); however, 10^{-8} M AHK-Cu did not affect the proliferation of DPCs.

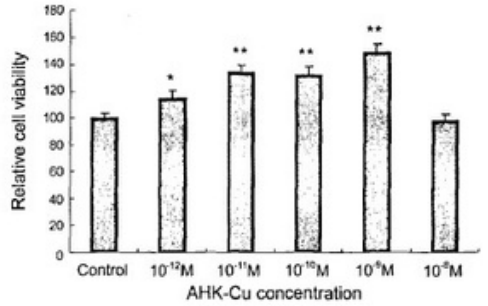


Fig. 2. Viabilities of human dermal papilla cells (DPCs) treated with AHK-Cu. DPCs (5.0×10^3 cells/well) were seeded into 96-well plates,

*Dermal Papilla Cells: DPC *AHK-Cu : Copper Tripeptide-1

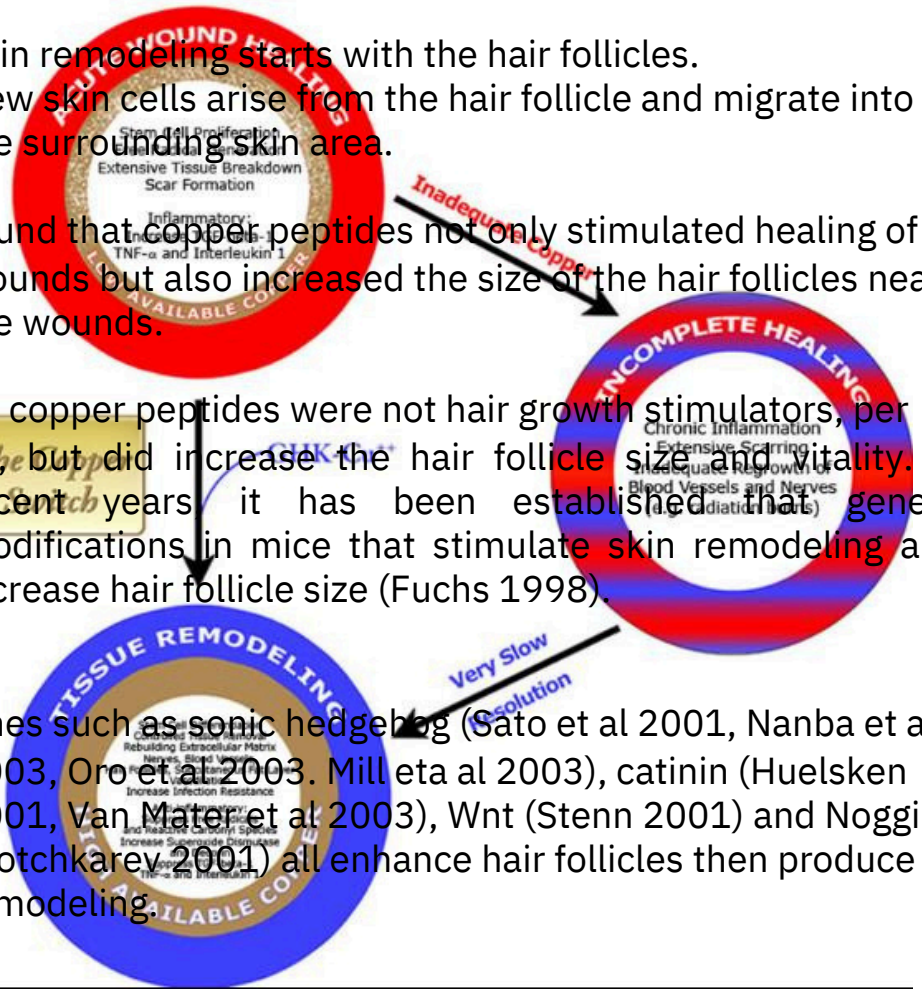
Copper Tripeptide-1

The role of regeneration and hair follicle production

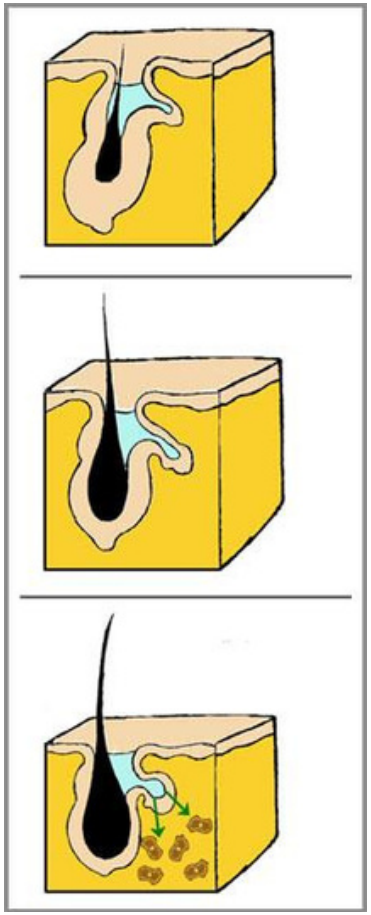
- Skin remodeling starts with the hair follicles.
- New skin cells arise from the hair follicle and migrate into the surrounding skin area.

•I found that copper peptides not only stimulated healing of wounds but also increased the size of the hair follicles near the wounds.

•The copper peptides were not hair growth stimulators, per se, but did increase the hair follicle size and vitality. In recent years it has been established that genetic
- modifications in mice that stimulate skin remodeling also increase hair follicle size (Fuchs 1998).



•Genes such as sonic hedgehog (Sato et al 2001, Nanba et al 2003, Oro et al 2003. Mill eta al 2003), catinin (Huelsken 2001, Van Mater et al 2003), Wnt (Stenn 2001) and Noggin (Botchkarev 2001) all enhance hair follicles then produce remodeling.



Hair follicle before remodeling signal.

The remodeling signal increases the size of the hair follicles.

The enlarged hair follicle begins to product new skin cells that migrate into the surrounding skin and rebuild the skin.

Copper Tripeptide-1

Hair follicle regeneration and strengthening

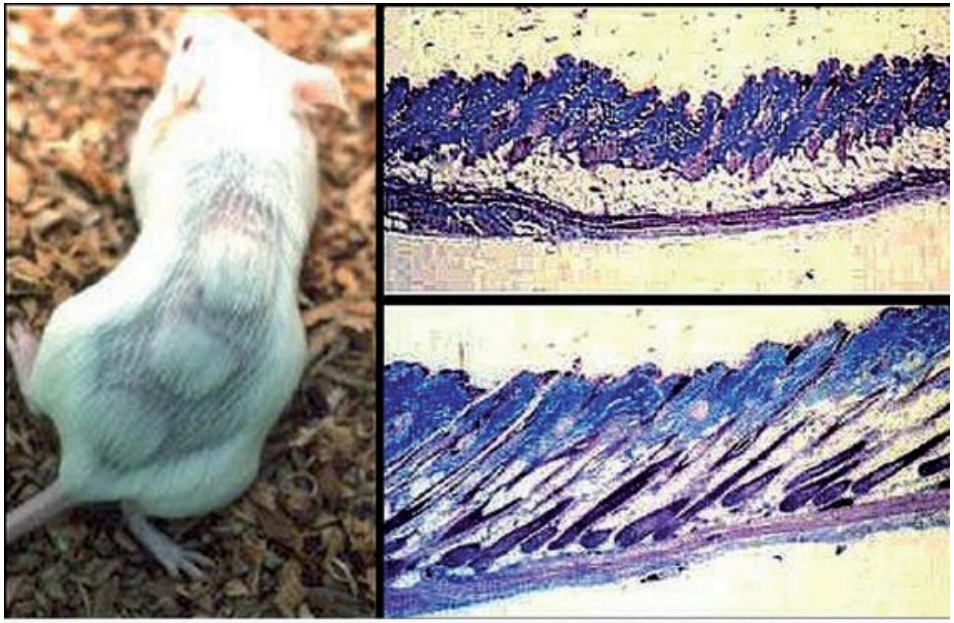
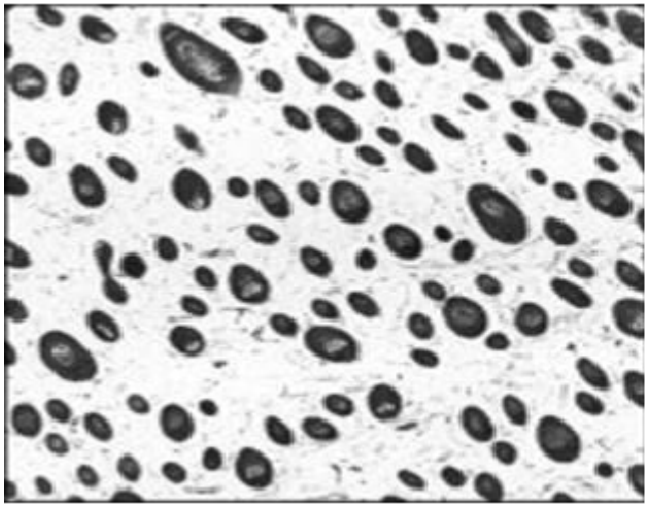


Fig. 2 A 25 day-old mouse was shaved and injected intradermally in three spots with GHK-Cu. Twelve days later, there was a very strong stimulation of hair growth at the injection sites

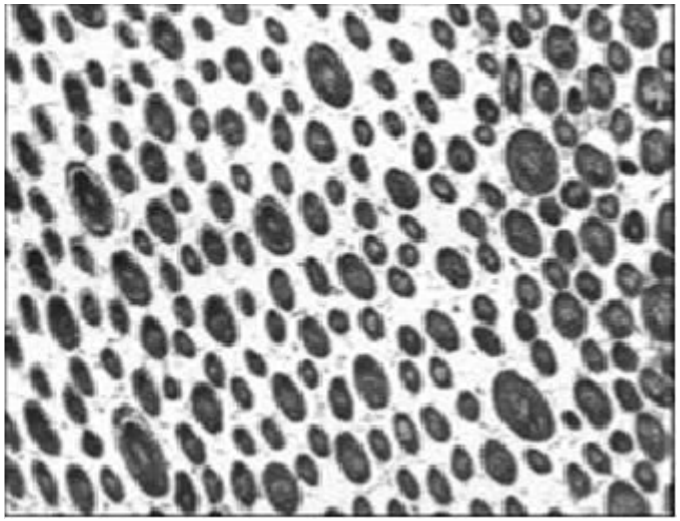
Pic. <Microscopic images>,
Ref. The human tri-peptide GHK and tissue remodeling, Loren pickart, skin biology, 4122 factoria boulerard, suite 200

Copper Tripeptide-1

New hair follicle formation effect



Control



Treated
Copper Tripeptide-1

Ref.
•The human tri-peptide GHK and tissue remodeling, Loren pickart, skin biology, 4122 factoria boulerard, suite 200
•http://skinbiology.com/copperpeptideregeneration.html

Panthenol

J. Cosmet. Sci., 62, 361–369 (July/August 2011)

Skin moisturizing effects of panthenol-based formulations

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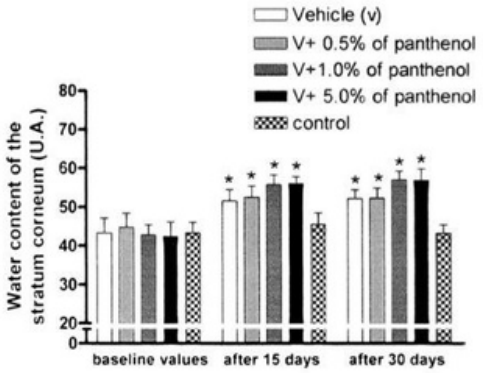


Figure 1. Water content of the stratum corneum before (baseline values) and 15 and 30 days after daily application of the formulations: vehicle (V), V+0.5%, V+1.0%, and V+5.0% of panthenol and control site (ANOVA test, n = 20 subjects, mean ± SEM). *Significantly different from the base values and control site ($p < 0.001$).

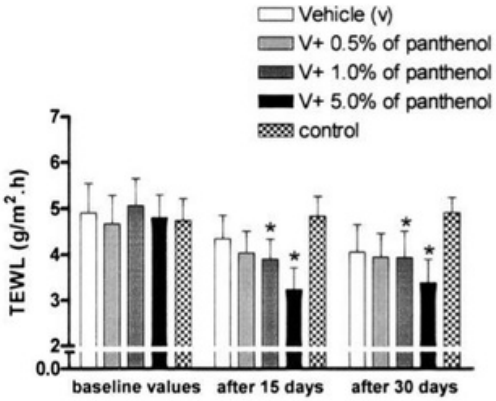


Figure 2. Transepidermal water loss before (baseline values) and 15 and 30 weeks after the application of the formulations: vehicle (V), V+0.5%, V+1.0%, and V+5.0% of panthenol and control site (ANOVA test, n = 20 subjects, mean ± SEM). *Significantly different from the base values and control site ($p < 0.001$).

Panthenol

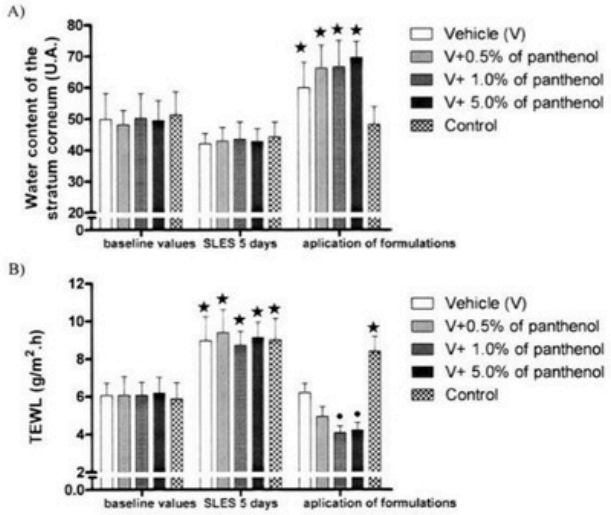
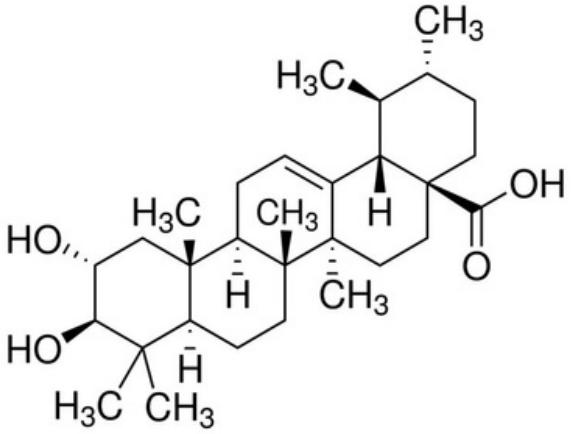


Figure 3. Water content of the stratum corneum (A) and transepidermal water loss (B) before (baseline values) and after repetitive skin washing with SLES solution for five days (SLES five days) and two hours after a single application of the formulations: vehicle (V), V+0.5%, V+1.0%, and V+5.0% of panthenol and the control site (with SLES washing and without the application of the formulations) (ANOVA test, n = 20 subjects, mean ± SEM). ★ Statistically significantly higher compared to baseline values ($p < 0.001$); • Statistically significantly lower compared to baseline values ($p < 0.001$).

CONCLUSION

This clinical study showed that panthenol-based formulations increased skin moisture and had a significant effect on skin barrier function by decreasing TEWL values. In addition, concentrations of pro-vitamin also influenced the improvement of skin barrier function. One percent panthenol added to the basic formulation tested was sufficient to show efficacy in this parameter. It seems that the moisturizing effects of panthenol can be attributed mainly to the protection of skin barrier function, and thus it may be used in cosmetic products to maintain physiological skin conditions and to prevent dry skin alterations, since loss of water may adversely impact skin appearance and lead to skin disorders.

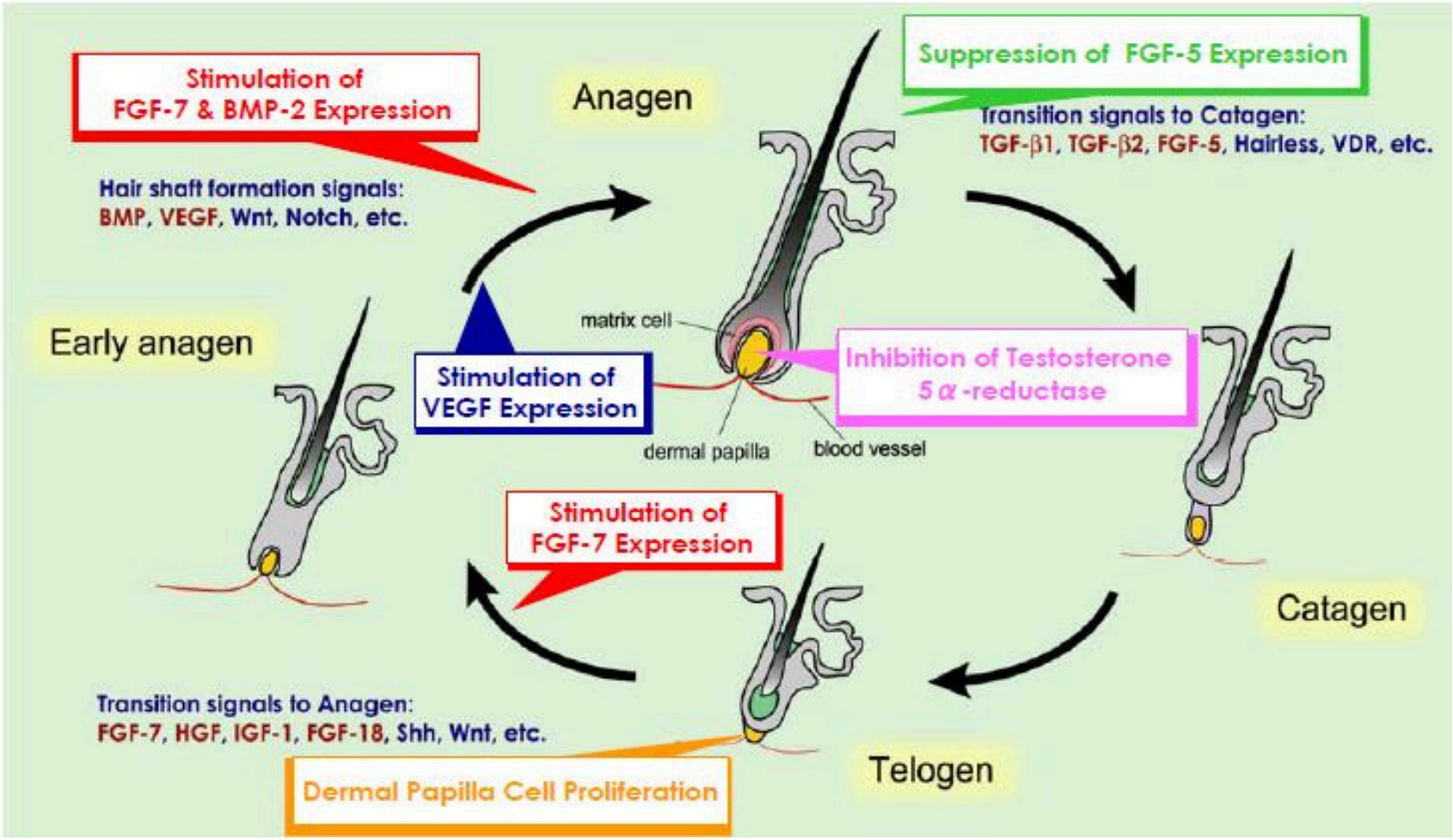
Eriobotrya Japonica Leaf Extract



- It Helps hair growth by enhancing the stimulation of neurotransmitters
- By reducing testosterone and 5-alpha reductase activity,
  the main cause of hair loss, and improves hair loss symptoms

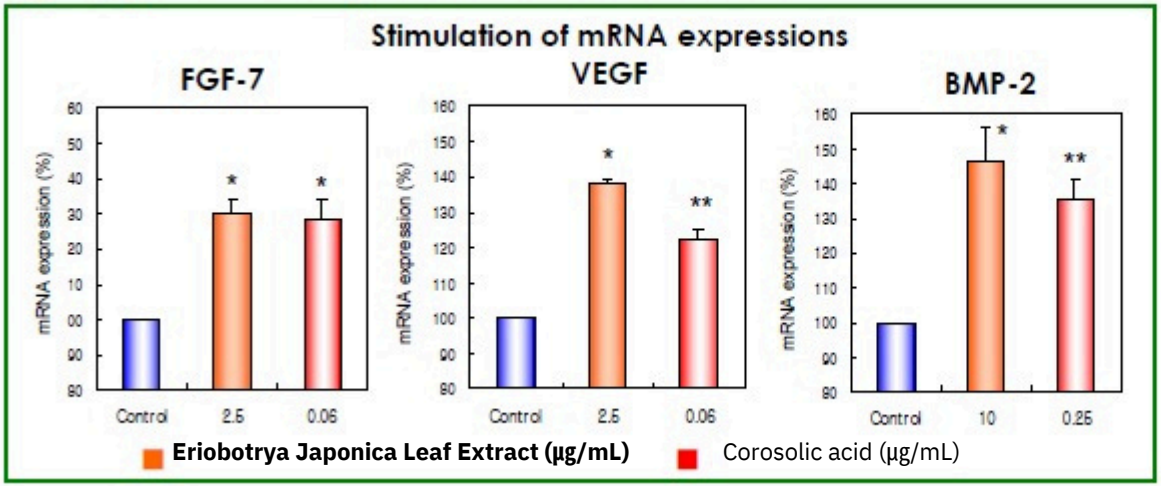
Eriobotrya Japonica Leaf Extract

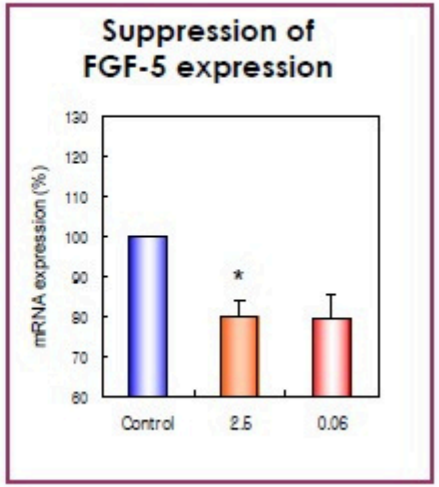
How Eriobotrya Japonica leaf extract works?



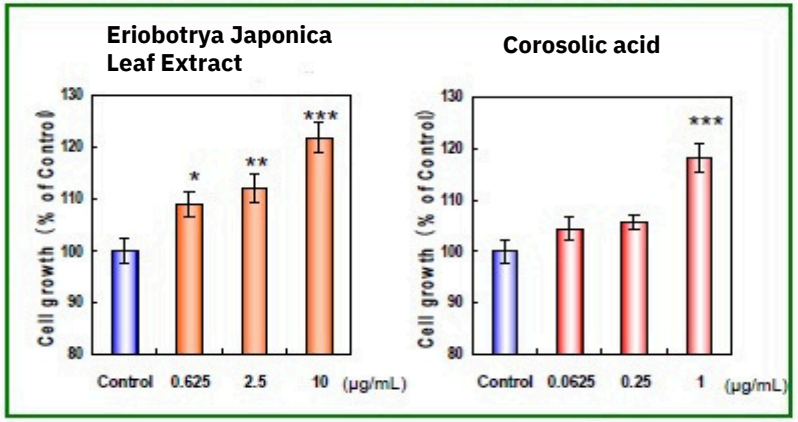
Eriobotrya Japonica Leaf Extract

Regulation of Cytokines Production Level

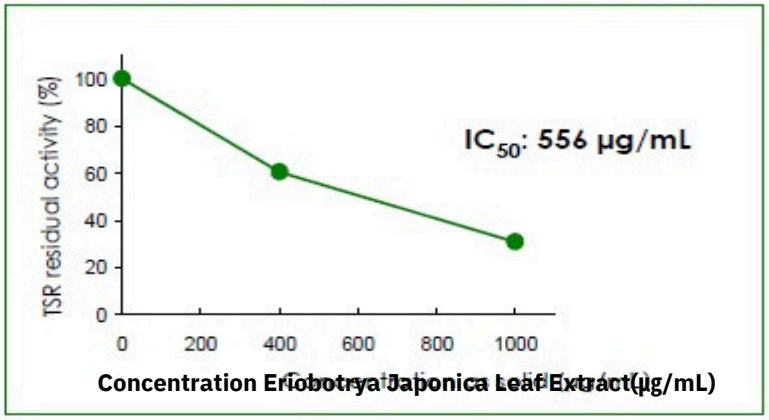




Proliferation of Dermal Papilla Cell



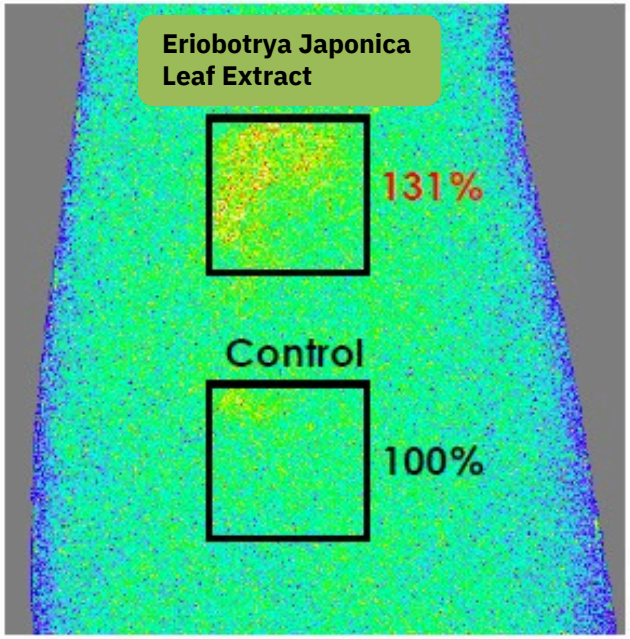
Inhibition of Testosterone 5α-reductase



***:P<0.001, **:P<0.01, *:P<0.05

Eriobotrya Japonica Leaf Extract

Promotion of Blood Circulation



<Method>
Test sample :
- Test solution
(50%EtOH solution with
1% of Eriobotrya Japonica Leaf Extract
- Control
(50%EtOH solution with
1% of 1,3-butylene glycol)

Application :
Apply paper filter containing test sample to the forearm for 10 min.

Measurement : 2D laser blood flowmeter