

ACTIVE  
INGREDIENTS

## CAPIXYL™

### ANTI-AGING HAIR CARE COMPLEX

Biomimetic peptide  
combined with a  
red clover extract

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For stronger and thicker  
hair and lashes

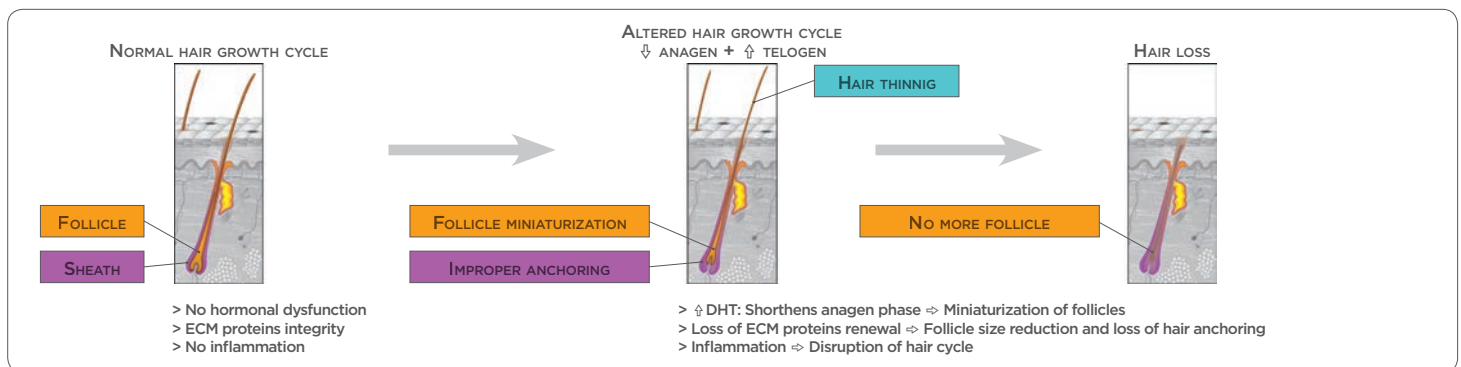


CAPIXYL™ IS AN INNOVATIVE COMPLEX OF BIOMIMETIC PEPTIDE COMBINED WITH A RED CLOVER EXTRACT. IT TARGETS THE MAIN CAUSES OF HAIR LOSS, PROVIDING FULLER AND THICKER HAIR.

## HAIR GROWTH CYCLE

The importance of hair in our lives cannot be overstated. Whether men or women lose their hair, they lose much more than their natural, youthful appearance. People also lose their self-esteem and self-confidence associated with healthy looking hair. Hair loss also, called alopecia, is a common problem affecting both men and women.

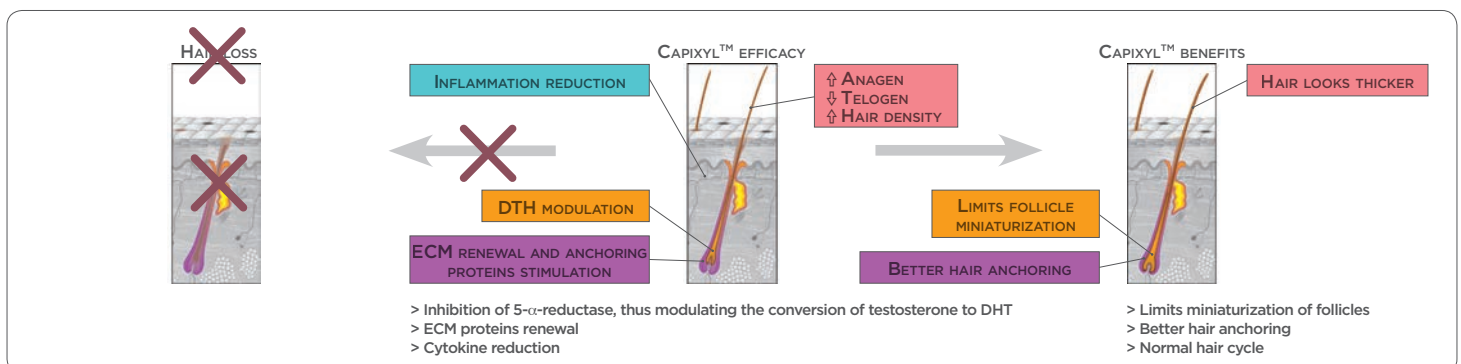
Normal hair follicle is surrounded by healthy connective tissue and dermal papilla, and has minimal or absence of inflammation nor oxidative stress. Hair loss sufferers will most of the time have the hair growth cycle disrupted by an increase of dihydrotestosterone (DHT) hormone, loss of connective tissue integrity surrounding the hair follicle, and an increase of the inflammatory process and oxidative stress in the scalp. With age, the decrease number and size of hair follicles in the scalp will also lead to thinner hair and an increase in hair loss.



## SYNERGISTIC ACTION OF A PEPTIDE AND RED CLOVER EXTRACT

Capixyl™ is a biomimetic peptide (acetyl tetrapeptide-3) combined with a red clover extract rich in Biochanin A. Capixyl™ efficacy is based on the association and synergistic action of its two ingredients.

Capixyl™ has a direct action on 5- $\alpha$ -reductase which modulates dihydrotestosterone (DHT) to help prevent hair miniaturization. It improves ECM proteins integrity in dermal papilla for a better hair anchoring and reduces damages caused by inflammation, providing fuller, thicker and healthier looking hair.

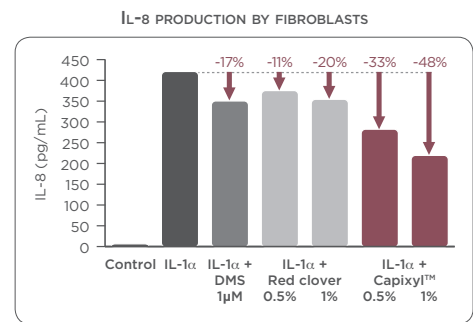


# TARGETTING THE CAUSES OF HAIR LOSS

## Inflammation reduction

IL-1 $\alpha$  mimics the inflammation process in human fibroblasts and induces IL-8, a pro-inflammatory cytokine.

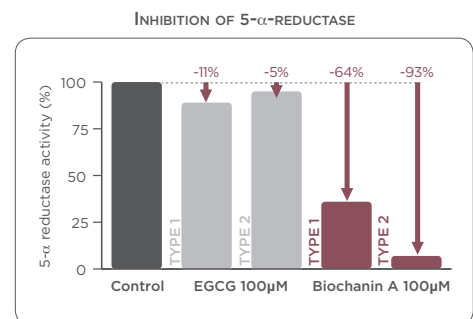
**Capixyl™ helps decrease pro-inflammatory cytokines with a synergistic action compared to red clover extract alone.**



## DHT modulation via 5- $\alpha$ -reductase activity

DHT is formed by the action of 5- $\alpha$ -reductase on testosterone. DHT causes hair loss by shortening the growth cycle, producing progressively shorter and finer hair. This is the study of the capacity of Biochanin A to inhibit the 5- $\alpha$  reductase activity in comparison with a well known 5- $\alpha$  reductase inhibitor EGCG (epigallocatechin gallate a potent antioxidant found in tea).

**Biochanin A inhibits 5- $\alpha$ -reductase activity.**



## ECM renewal and anchoring improvement

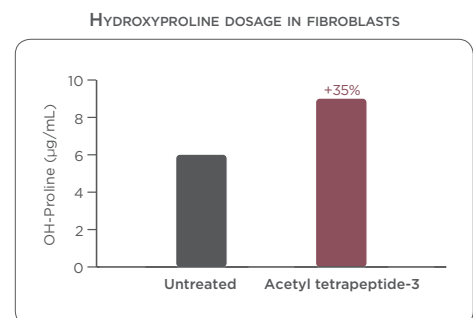
Hair follicles size is determined by:

- The volume of its dermal papilla;
- The volume of the extracellular matrix.

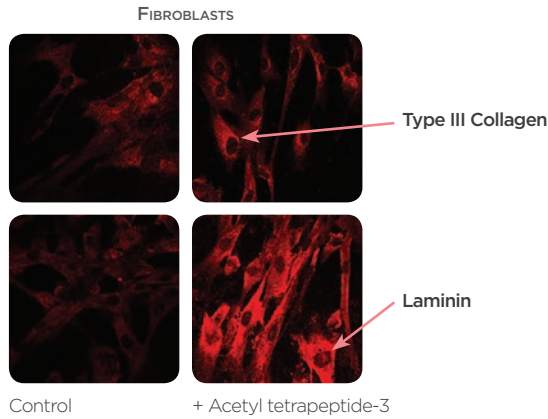
Healthy dermal papilla will produce good ECM proteins such as collagen type III and anchoring fibers such as laminin and collagen VII which will favor a good hair anchoring in the bulb surrounding tissue. If improper ECM renewal, hair will eventually lack vigor and will thin. Cycle after cycle, the follicle becomes smaller and finally, miniaturized and fall.

Proline is an amino acid constituent of collagen, therefore it represents a good indication of newly synthesized collagen.

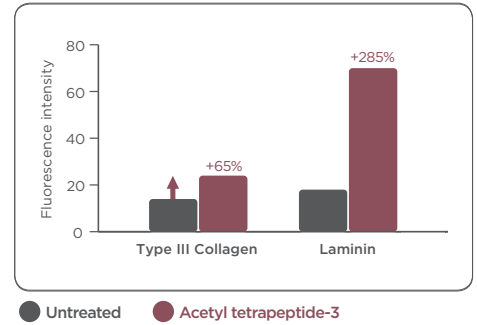
**Acetyl tetrapeptide-3 stimulates collagen production for better ECM integrity leading to a better anchoring.**



Quantification of laminin, type III collagen synthesis induced by Acetyl tetrapeptide-3 on fibroblasts. It has been demonstrated that molecules which have an activity on these ECM proteins stimulation, also increase hair follicle size and improve hair anchoring.

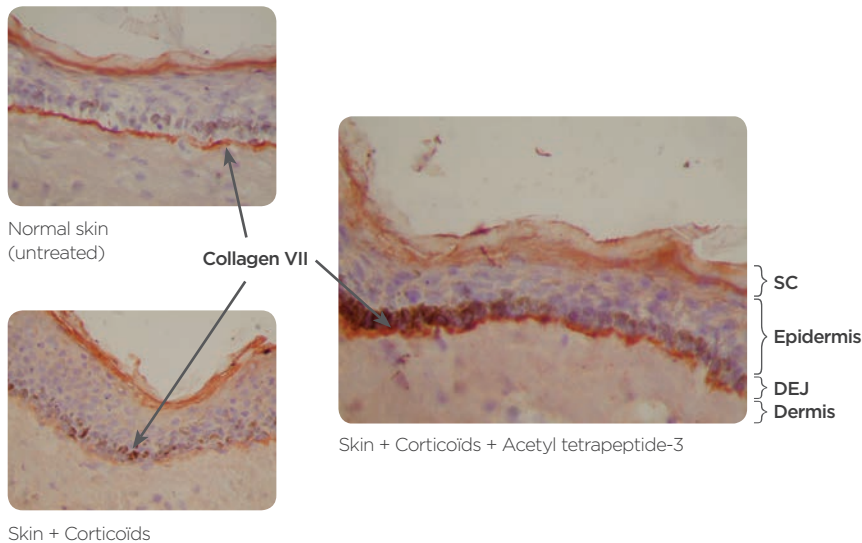


**STIMULATION OF ECM PROTEINS SYNTHESIS BY FIBROBLASTS**

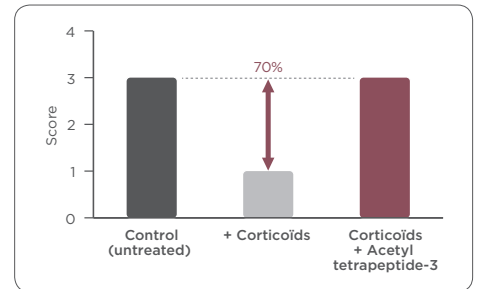


**Acetyl tetrapeptide-3 stimulates dermal papilla extracellular matrix proteins, and thus has a direct effect on structures surrounding hair follicles.**

Collagen VII is a major constituent of the anchoring fibrils and is located in the basement membrane (DEJ) around the papilla. In this experiment, corticoids are used to induce a decrease in the hair papilla cells growth and ECM protein.



**QUANTITATIVE EVALUATION OF COLLAGEN VII**



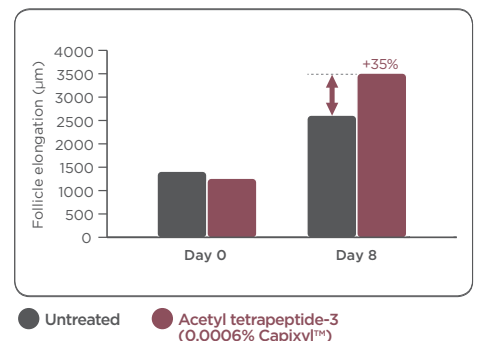
**Acetyl tetrapeptide-3 provides a repairing effect at the dermal-epidermal junction level, helping hair anchoring.**

## IMPROVING HAIR FOLLICLE LENGTH

Human hair follicles in anagen phase are isolated from skin biopsys and cultured with or without Acetyl tetrapeptide-3 for 8 days.

**Acetyl tetrapeptide-3 improves by 35% the length in comparison with untreated areas after 8 days of treatment.**

**MEASUREMENT OF HAIR LENGTH**



# PROVIDING FULLER AND THICKER LOOKING HAIR

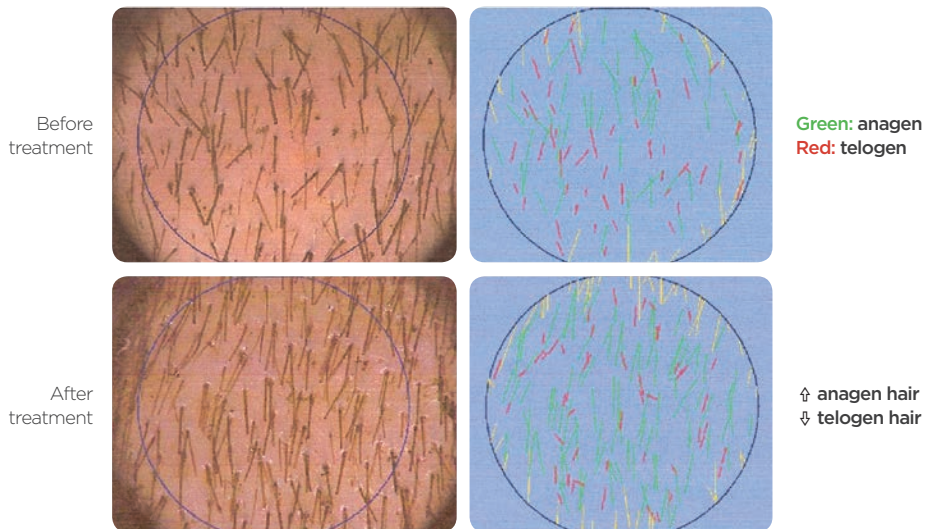
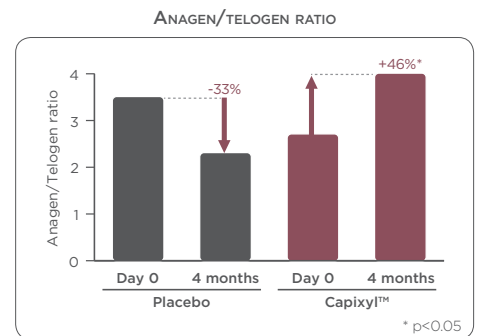
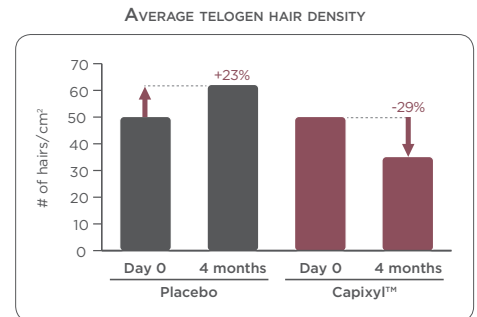
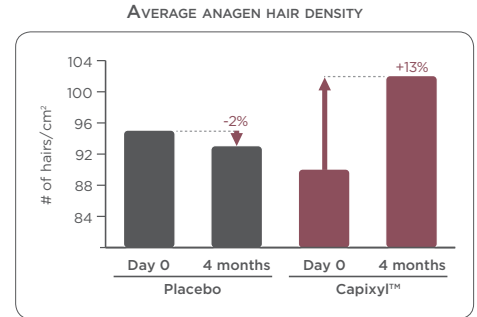
## Test protocol

- 30 men with androgenetic alopecia: 15 treated with the Capixyl™ lotion (5%) and 15 with a placebo.
- Daily application of 20 drops of the Capixyl™ lotion or placebo for a period of 4 months.
- A digital trichogram (TrichoScan professional) was taken at D0 and 4 months later.

**Capixyl™ induces a visible increase in the anagen hair density in comparison with placebo.**

**Capixyl™ induces a strong reduction in the telogen hair density in comparison with placebo.**

A/T ratio = Comparison of the number of anagen and telogen hair, which is an indication of the percentage of active hair follicles.



**Capixyl™ increases the A/T ratio by 46% compared to a reduction of -33% for the placebo.**

**CAPIXYL™ IS AN INNOVATIVE AND POWERFUL COSMETIC INGREDIENT PROVIDING FULLER, THICKER AND HEALTHIER LOOKING HAIR.**

## PRODUCT DESCRIPTION

### INCI NAME

Butylene Glycol (1) (and) Water (2) (and) Dextran (3) (and) Acetyl Tetrapeptide-3 (4) (and) Trifolium Pratense (Clover) Flower Extract (5)

### CAS

107-88-0 (1), 7732-18-5 (2), 9004-54-0 (3), 827306-88-7 (4), 85085-25-2 (5)

### EINECS

203-529-7 (1), 231-791-2 (2), 232-677-5 (3), - (4), 285-356-7 (5)

### APPEARANCE

Transparent, colorless and odorless liquid

### FORMULATION

Capixyl™ should be incorporated at the end of the formulation at a temperature of <40°C.

### DOSAGE

- Intensive treatment: 5%  
- Preventive care: 0.5 - 2.5%

### OPTIMUM pH

4-8

### APPLICATIONS

- Hair treatment
- Anti-aging hair care product
- Men hair care product
- Treatment for seasonal hair loss
- Leave-on
- Scalp treatment
- Tonics
- Hair treatment for menopausal women
- Eyelashes

## FEATURES AND BENEFITS

FEATURES	BENEFITS
Unique combinaison: Peptide with botanical active	Stable, easy to work with and performant
Synergistic mechanism of action	Acts on all parameters influencing hair loss
High efficacy	Low dosage (starting at 0.5%)
Better efficacy than the reference molecule	Provides faster results
Clinically proven	Helps provide thicker and fuller hair

## ANTI-HAIR LOSS POTION

INGREDIENTS	INCI NAME	%
A	Water	qsp
	Sodium Phosphate	1.117
	Citric Acid	0.715
B	Tinogard Q	0.025
	UCON 50-HB-3520	0.50
	Mirasil DMCO	0.50
	Capixyl™	5.00
	Ethanol	20.00
C	Eumulgin HPS	0.60
	Parfum Neva	0.10

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