

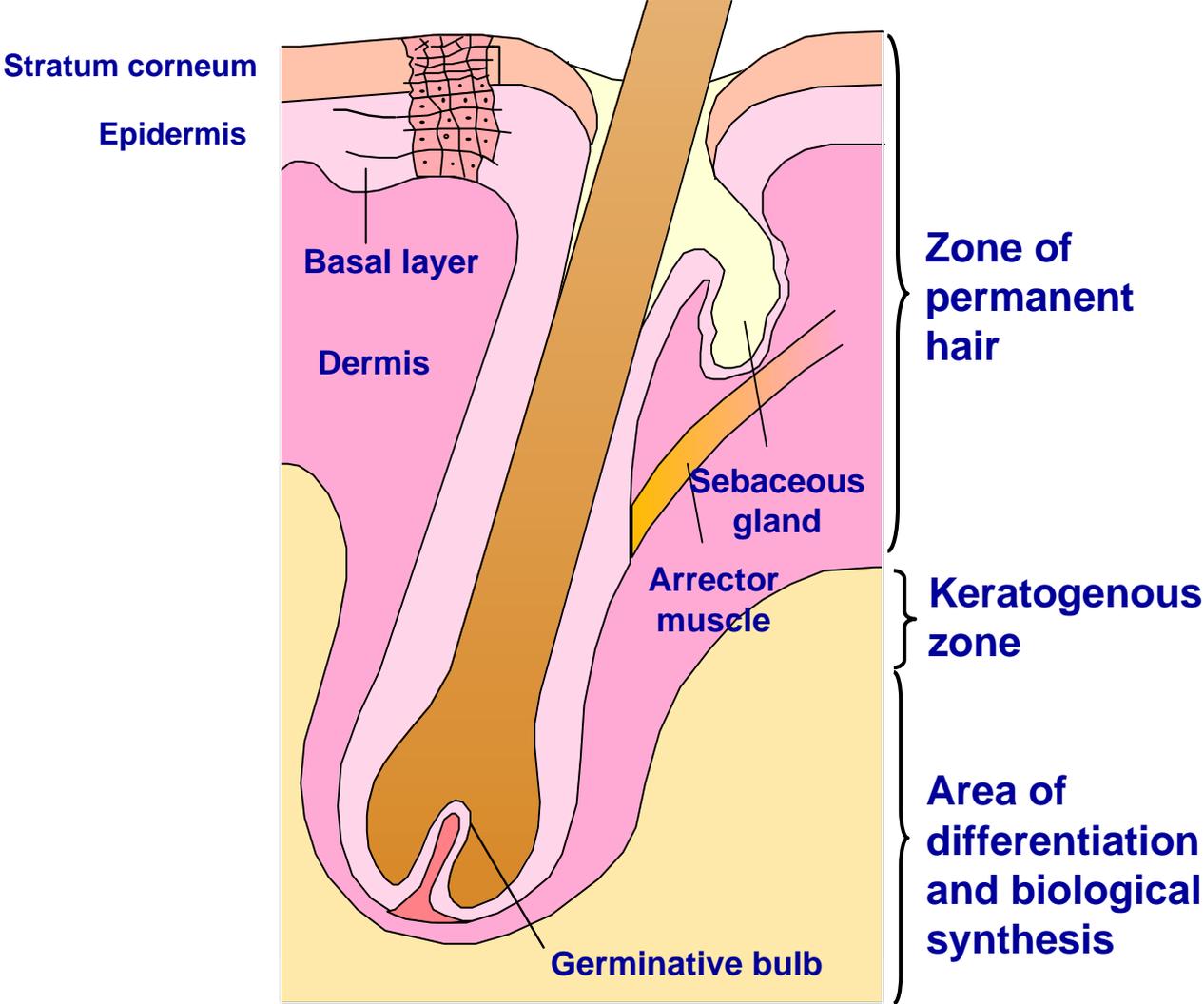
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# TRICHOGEN<sup>®</sup> VEG LS 8960

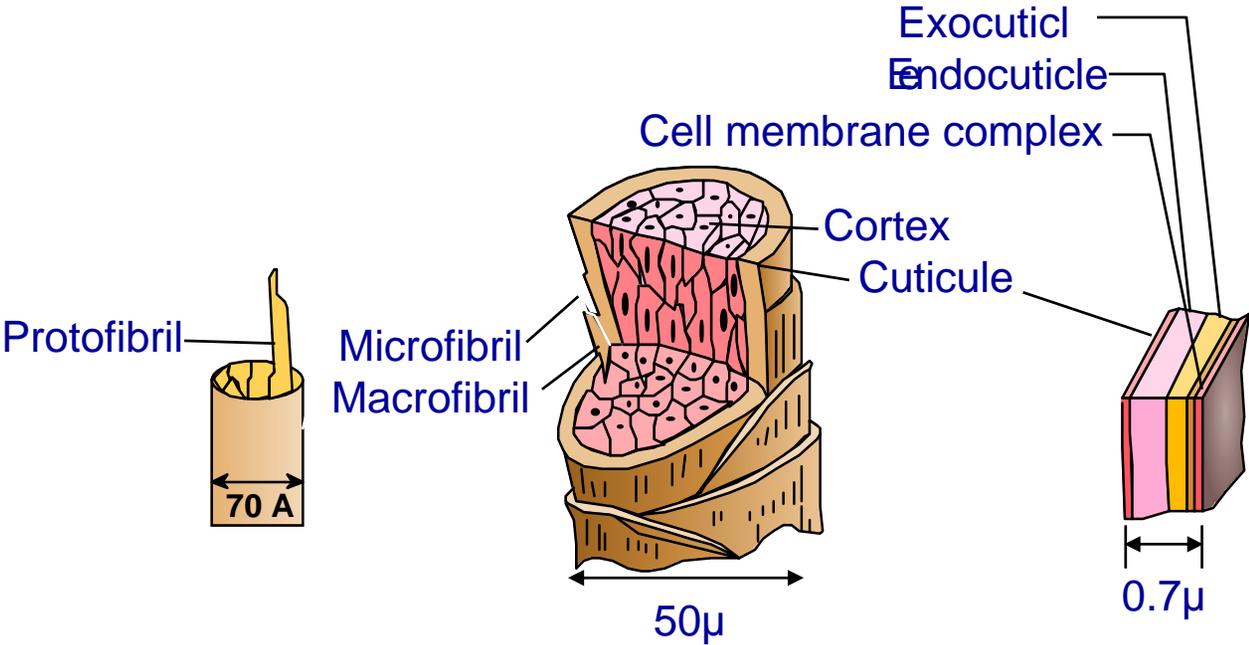
Trichogenic complex  
Anti-hair loss active and conditioner

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# Physiology of hair

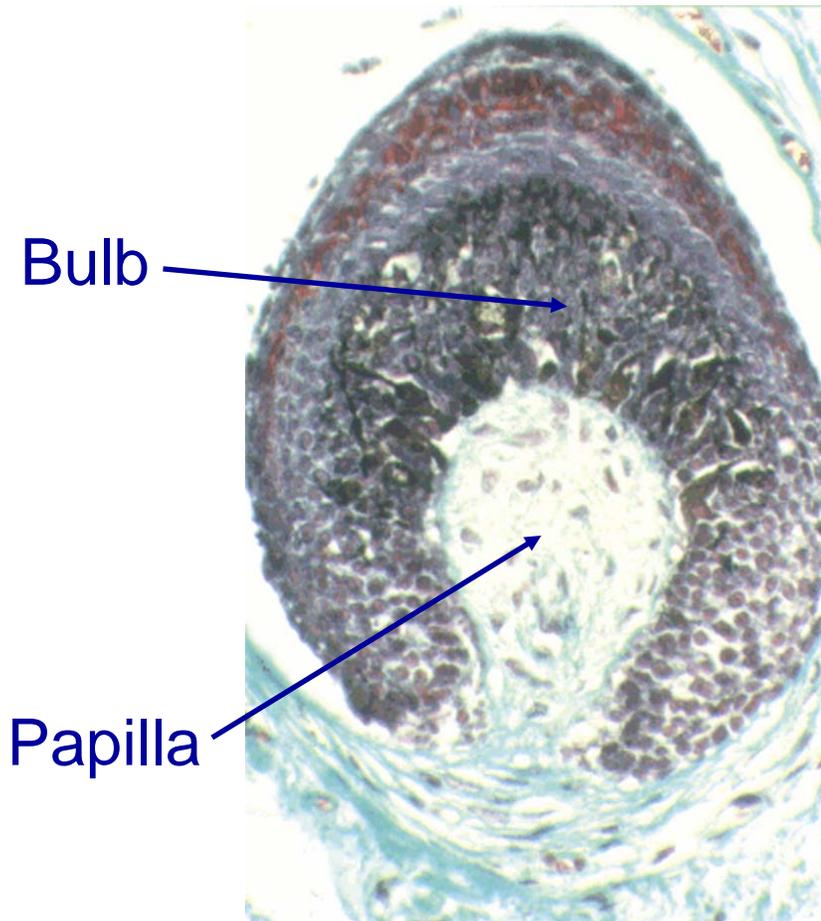


# Hair stem



# Hair follicle

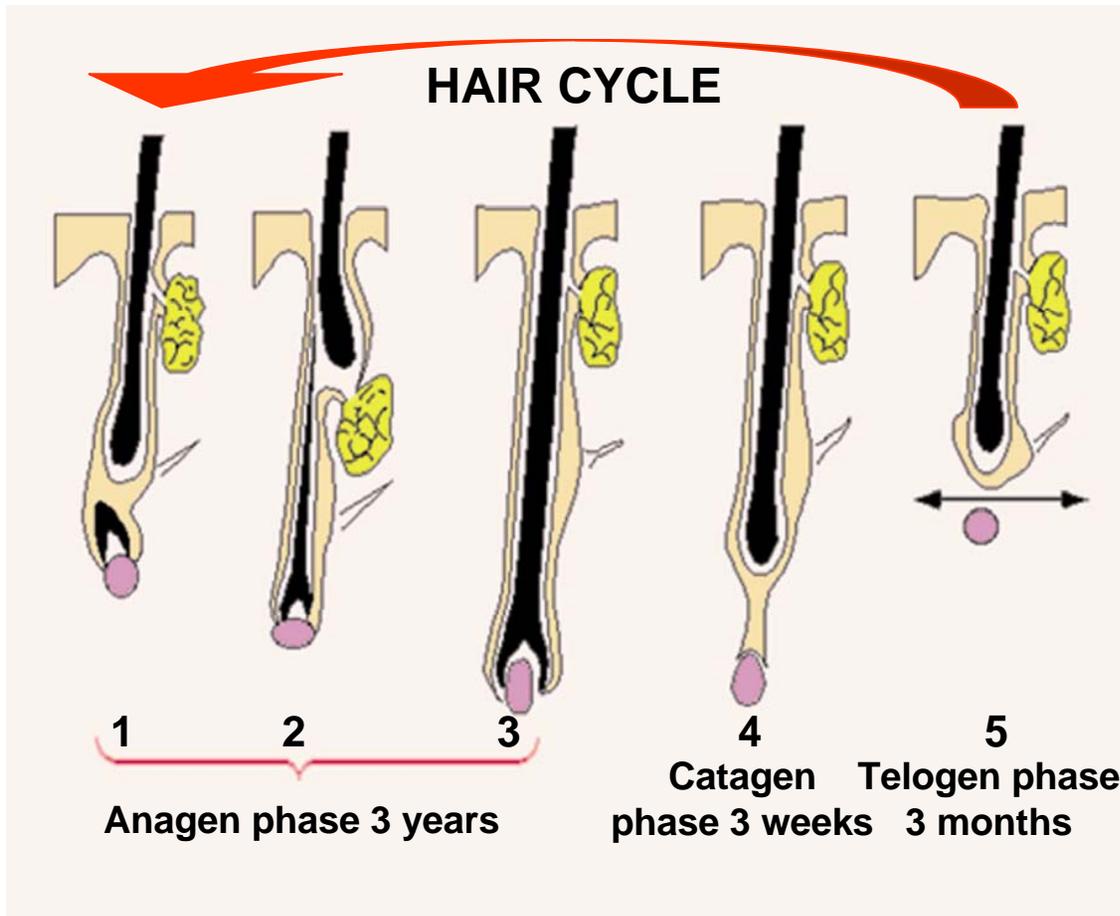
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The hair follicle is the living part of the hair:

- **the bulb**
  - Made of cells, similar to basal epidermal layers
  - Metabolic activity is important
- **the papilla**
  - Median invagination
  - High vascularization

# Physiology of hair follicle



Hair follicles have a periodic and cyclic activity of growth

# Cyclic activity can be evaluated by a trichogram

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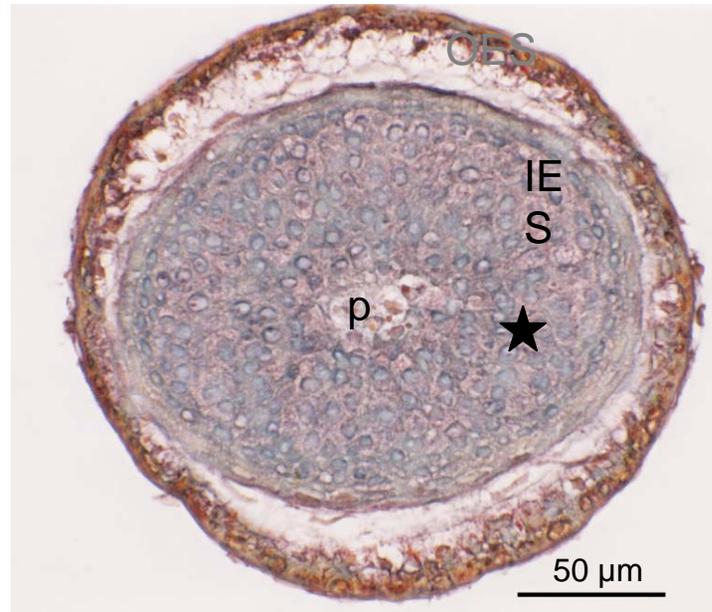
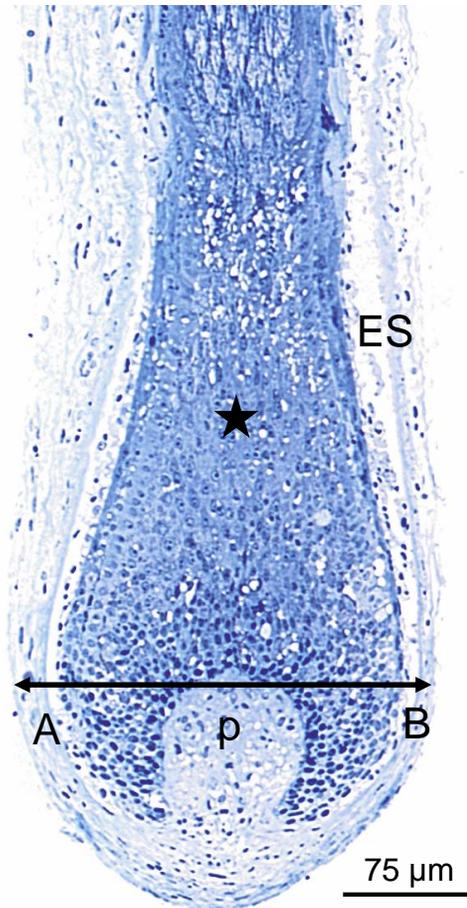


**Anagen Phase**  
(aspect of the bulb)



**Telogen Phase**  
(aspect of the bulb)

# Anagen phase

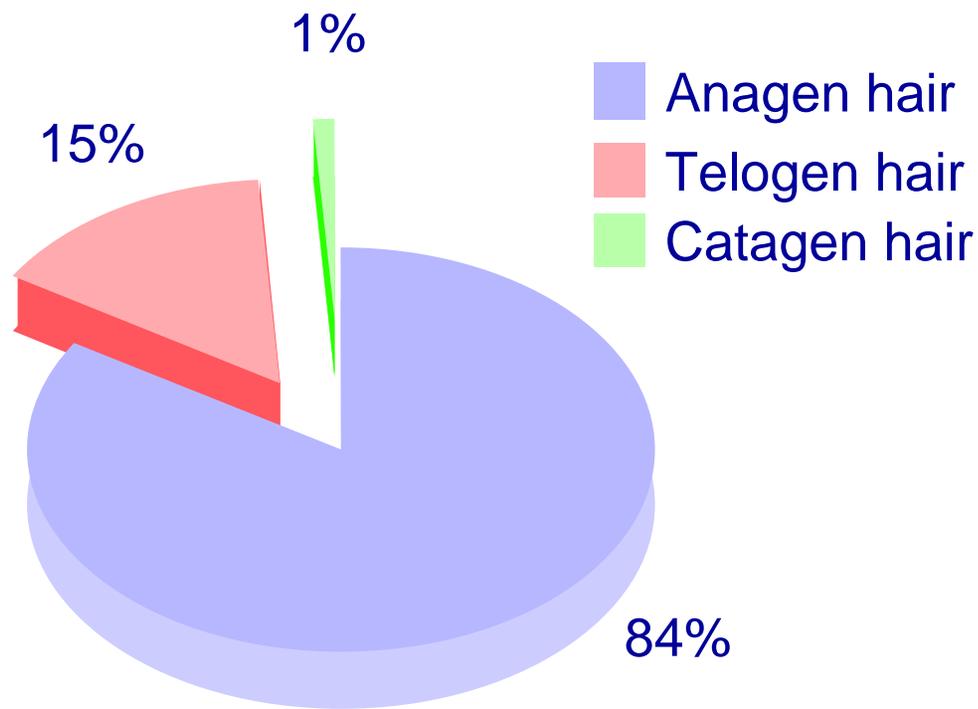


- ★ = keratogenous area
- ES = epithelial sheath
- IES = inner epithelial sheath
- OES = outer epithelial sheath
- g = germinative cells
- p = dermal papilla

The anagen phase is an active phase of growth, it lasts 3 - 4 years

# The hair formula

The trichogram determines: the **Hair Formula**



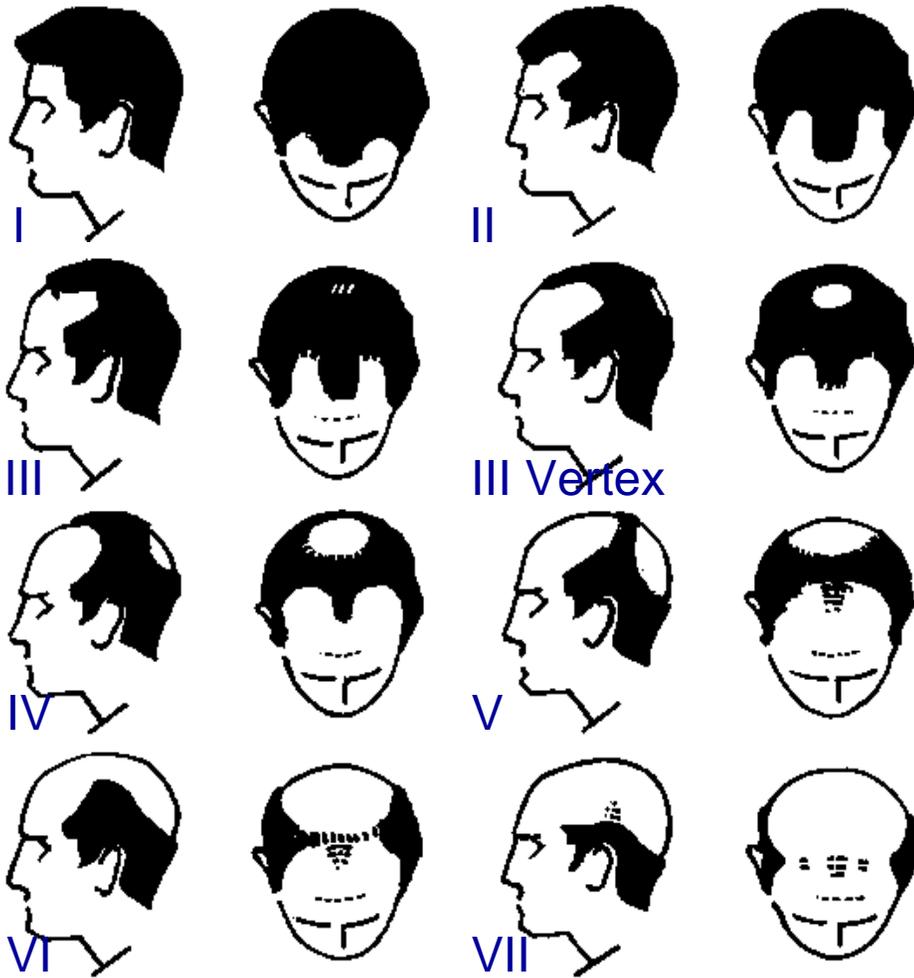
The  $\frac{A}{T}$  ratio

$$\frac{A}{T} = \frac{\text{Anagen hair \%}}{\text{Telogen hair \%}}$$

$$\frac{A}{T} = 4 : \text{normal situation}$$

$$\frac{A}{T} = < 3 : \text{Pathological ratio}$$

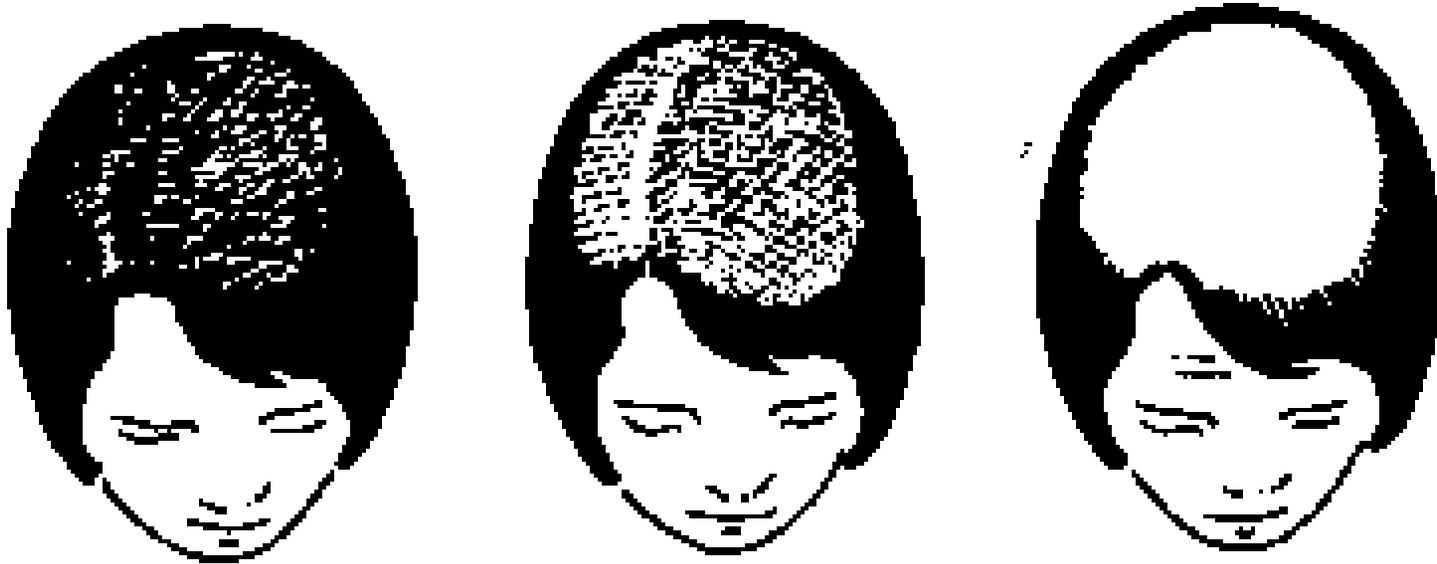
# Androgenic or seborrheic alopecia on man



Classification according to Hamilton

# Androgenic or seborrheic alopecia on woman

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Ludwig classification (on women)

**Androgenic** alopecia is partly linked to the action of **androgens** on the **papilla**

# Origin of androgenic alopecia

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- **Inner factors**

- receptivity to male hormones
- genetic tendency
- psychic factors

- **Nutritional factors**

- deficiencies
  - in proteins
  - sulfur amino acids
  - in vitamins
- general deficiencies

- **Seborrhea**

# Definition

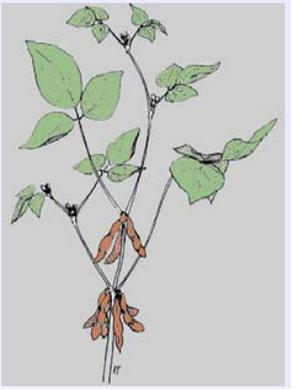
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**TRICHOGEN<sup>®</sup> VEG LS 8960** is an unique trichogenic complex. It consists of a selection of synergistic components of botanical, biotechnological and synthetic origin.



# Composition and mode of action

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<p><b>Sulfopeptides of soy (glycine max)</b> (MW ~ 15,000 Da)</p>		<p>Regulators of cellular nutrition and growth. Supply in bioavailable sulfur, stimulation of protein biosynthesis</p>
<p><b>Amino-acids:</b> tyrosine, arginine, ornithine, citrulline</p>		<p>Precursors of proteins and melanin pigments</p>
<p><b>Aminosaccharide</b> glucosamine</p>		<p>GAG precursor for strengthening the extracellular papillary / peribulbar matrix</p>

# Composition and mode of action

Vitamins of B group (PP, B5, biotin)	Regulation of cellular nutrition	
Zinc salt	Seboregulation	
 Panax Ginseng extract	 Arctium Majus extract	Stimulation of microcirculation Antimicrobial effects
Silicone and quaternium	Hair conditioner	

# Efficacy test (clinical test)

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## Anti-hair loss activity

**40 male volunteers**  
with androgenetic alopecia (I to III) A/T ratio < 4

**D0: sensorial and clinical appraisal - Trichogram**



Treatment every two days 10 ml of hair lotion  
containing **10% TRICHOGEN® VEG LS 8960**



**D56 - D112**

- Sensorial and clinical appraisal by the volunteers and a dermatologist
  - Trichogram - Phototrichogram

# Efficacy test (clinical test) – Evaluation by the volunteers

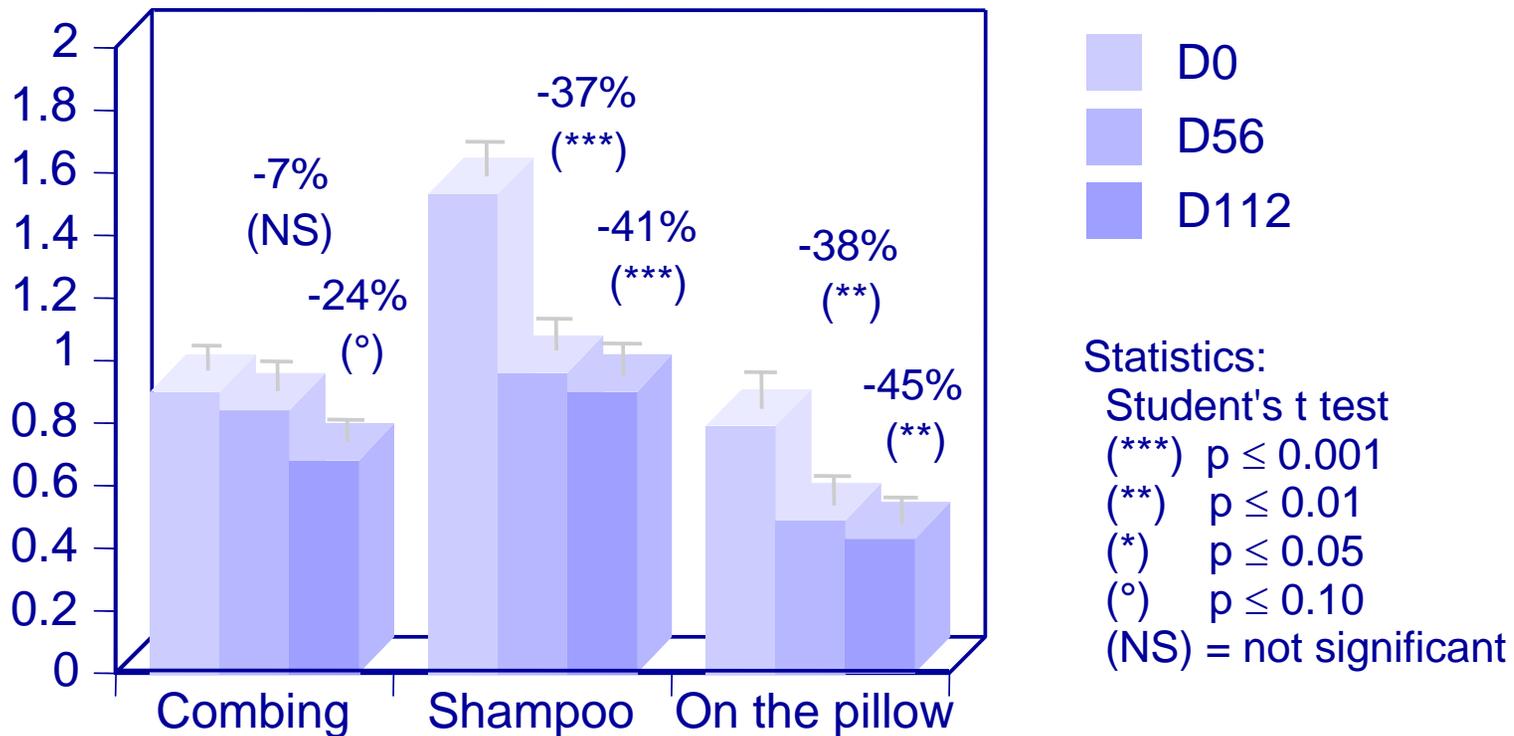
## Improvement of aesthetic qualities of hair and scalp Sensorial evaluation

Parameters	Improvement (% subjects) after:			
	56 days		112 days	
	Good	Quite good	Good	Quite good
Shape, volume	42.5	5	52.5	10
Spring	45	7.5	52.5	10
Shine	52.5	5	42.5	12.5
Silk	42.5	2.5	50	12.5
Seborrhea	42.5	6	33	12
Irritation	37	29.5	48.5	13

# Efficacy test (clinical test) – Evaluation by the volunteers

## Decrease of hair loss

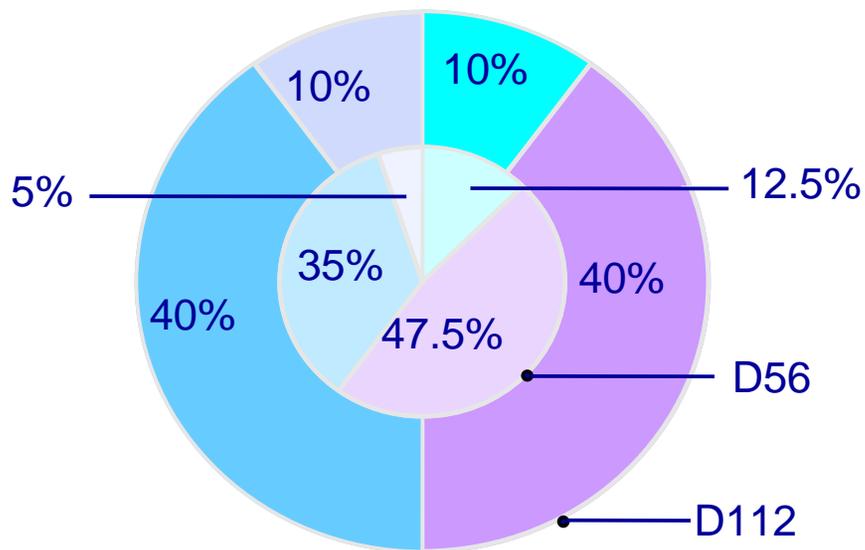
Semi-quantitative appraisal by volunteers of hair loss



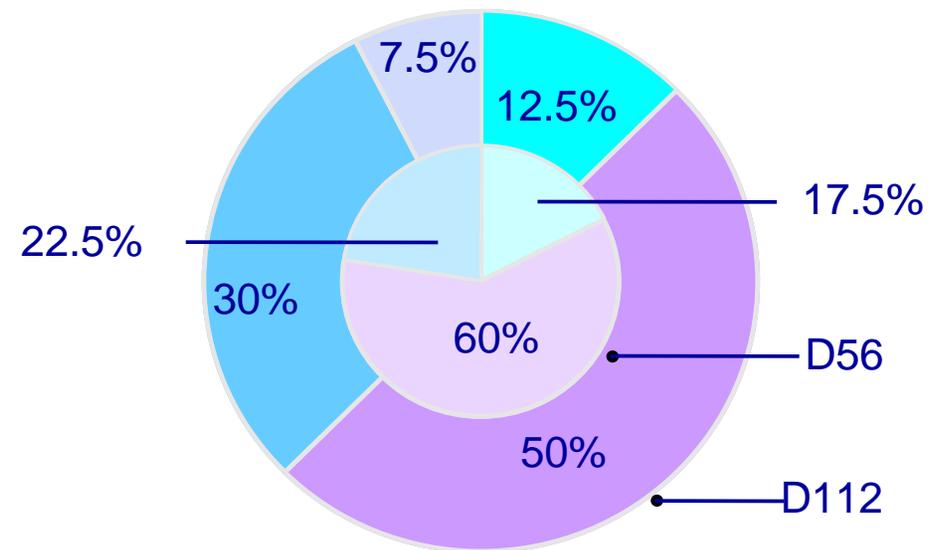
# Efficacy test (clinical test) – Evaluation by the volunteers

## Improvement of hair growth

### Lower hair loss



### Faster hair growth



No effect    Medium    Good    Quite good

# **Efficacy test** (clinical test) – Evaluation by the volunteers

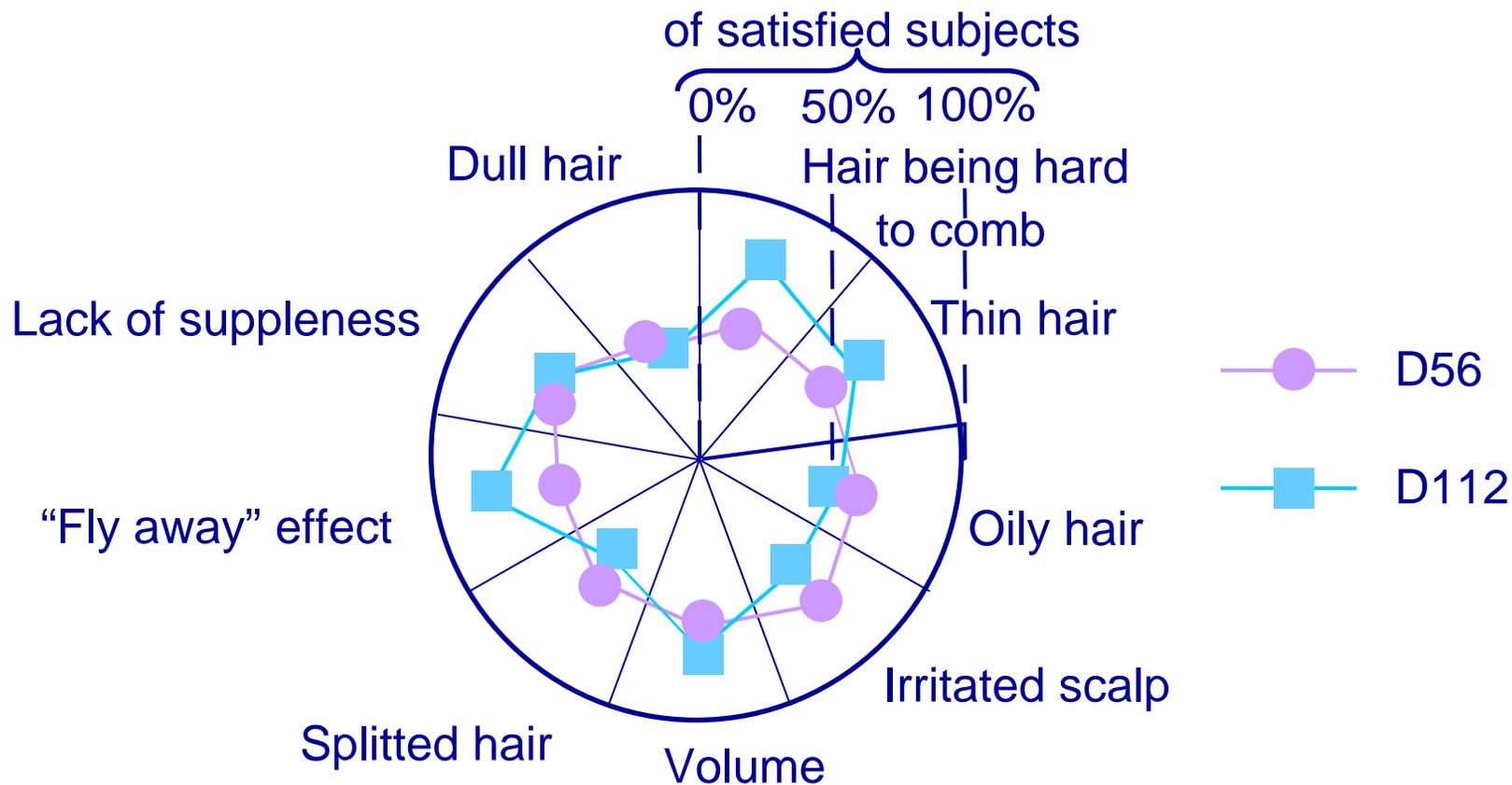
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The volunteers have observed:

- an improvement of the aesthetic qualities of hair and scalp,
- a lower hair loss,
- a faster hair growth

# Efficacy test (clinical test) – Evaluation by a dermatologist

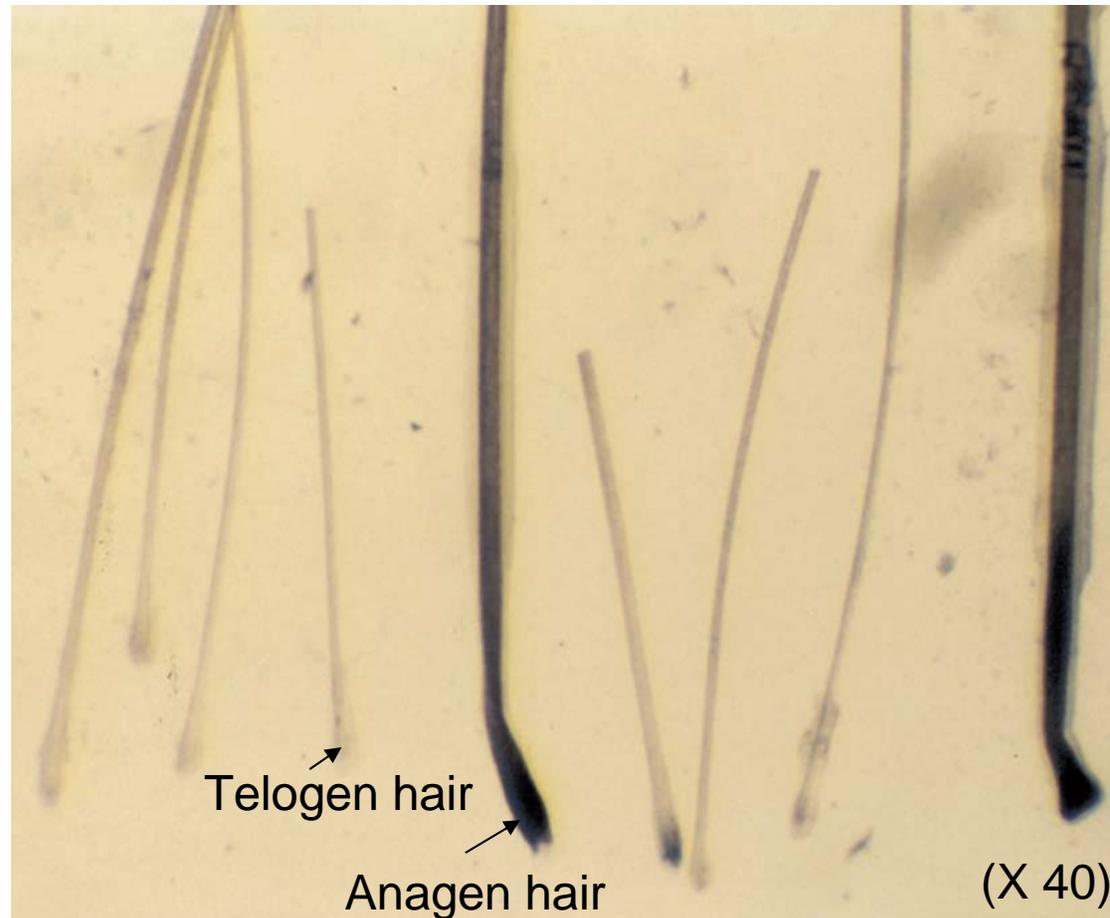
## Improvement of the aesthetic qualities of hair and scalp



# Efficacy test (clinical test) – Trichogram evaluation

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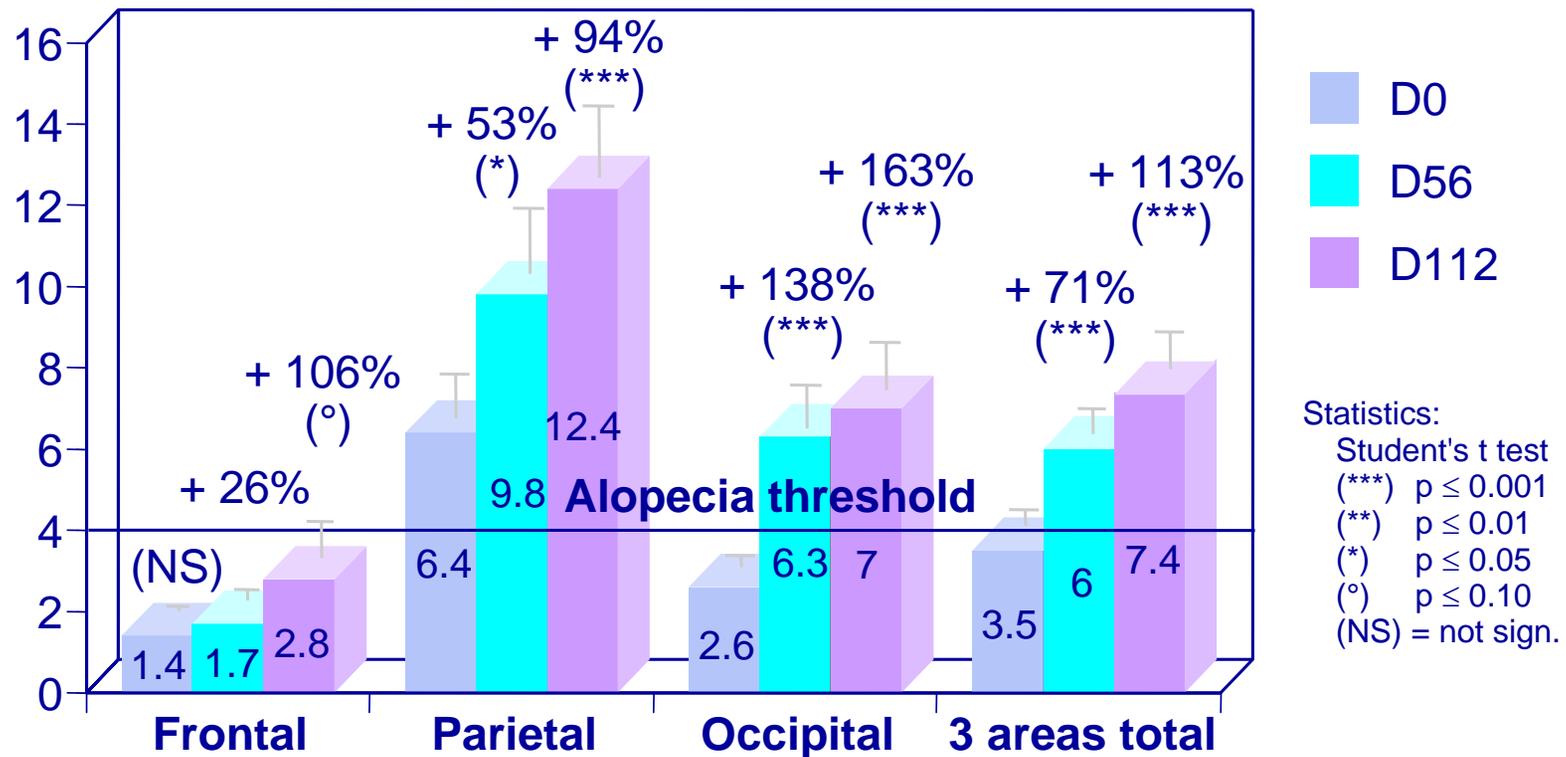
## Visualization



# Efficacy test (clinical test) – Trichogram evaluation

## Quantification

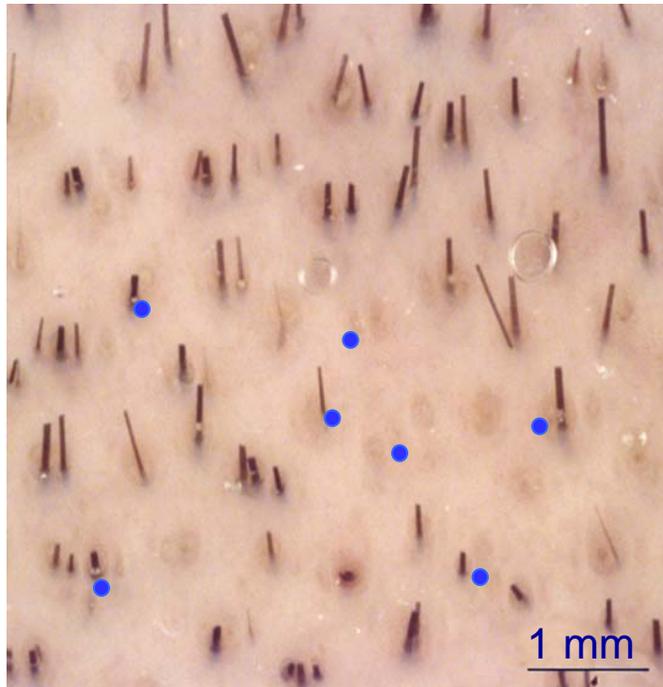
Anagen hair / Telogen hair ratio (A/T)



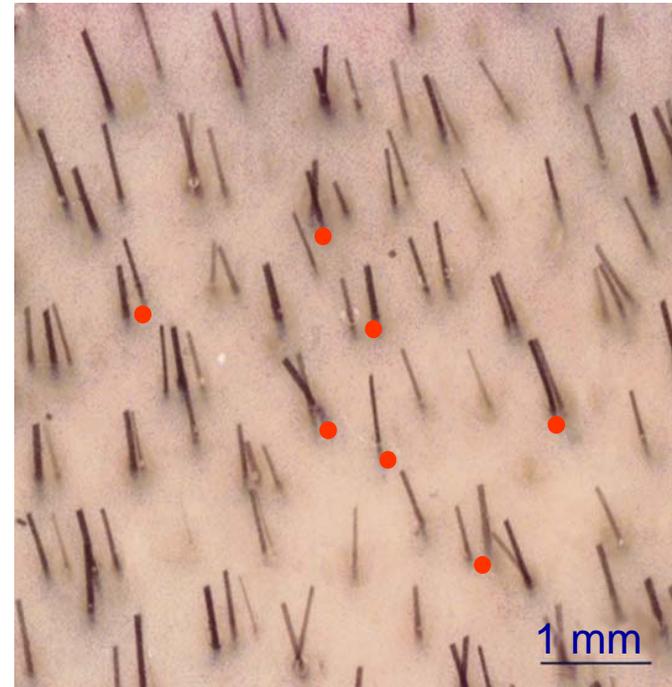
# Efficacy test (clinical test) – Phototrichogram evaluation

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Before treatment



After treatment



Same area after 4 months of treatment: new hairs appear compared to before treatment, each one in anagen phase

# **Efficacy test** (clinical test)

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## **Anti-hair loss activity**

After 4 months of treatment, TRICHOGEN VEG LS 8690 clearly :

- Slows down hair loss.
- Improves hair regrowth : the growth is more important, and faster, on the parietal, occipital and frontal zones.
- Improves the aesthetic quality of hair and scalp.
- These effects are quantified, and visible on pictures and by the users.

# Other tests available

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- Strengthening effect on damaged human hair (*traction test*)
- Film-forming, bio-conditioning and repairing effect on dry hair (*confocal microscopy*)
- Conditioning effect
- Photo-protection of human hair, against UV-B induced damage (dansyl chloride)
- Stimulation of oxygen consumption (*epithelial cells*)

# Efficacy tests

Strengthening effect on damaged human hair (*Traction test*)

## Protocol

Hair - Sodium Lauryl Sulfate at 15%



Permanent wave Mercaptoacetate at 6% +  
H<sub>2</sub>O<sub>2</sub> at 2% + rinsing  
2 cycles of permanent have been done

Once or 5 times

Without  
treatment

Placebo  
lotion

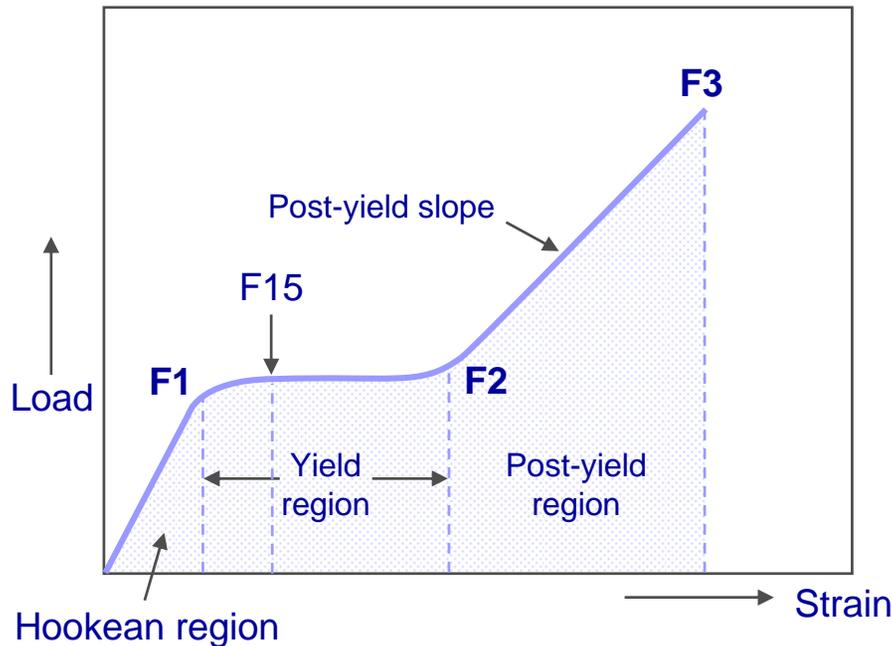
Lotion with 5%  
TRICHOGEN® LS 8960  
3 ml of lotion on hair tress  
during 30 min + rinsing

24 h after the last treatment

Traction test: after 1 treatment and after 5 successive treatments

# Efficacy tests

## Strengthening effect on damaged human hair (*Traction test*)



F1 = elasticity limit  
 F2 = plasticity limit  
 F3 = break point

Work to break  
 F15 = force at 15% of elongation

Parameters	% of increase	
	After 1 treatment	After 5 treatments
Force at 15%	+ 9%	+ 6%
Maximal force	+ 10%	+ 23%
Post-yield slope	+ 11%	+ 62%

The strengthening activity of **TRICHOGEN® VEG LS 8960 at 5%** on damaged hair is clearly demonstrated: the increase of hair mechanical parameters is significant even after only one application.

# Efficacy tests

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## Film-forming, bio-conditioning and repairing effect on dry hair Confocal microscopy

Hair was damaged by an acetone/ether blend and then treated with  
**TRICHOGEN® VEG LS 8960** at 10%



**Control hair**



**Damaged hair with  
acetone/ether**



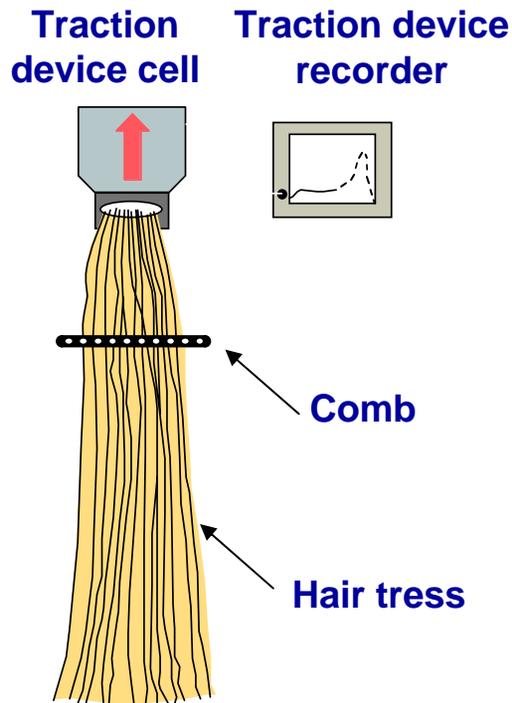
**Damaged hair treated with  
TRICHOGEN® VEG LS 8960**

**TRICHOGEN® VEG LS 8960** at 10% has clearly improved the surface of hair, and shows a good hair conditioning / repairing effect.

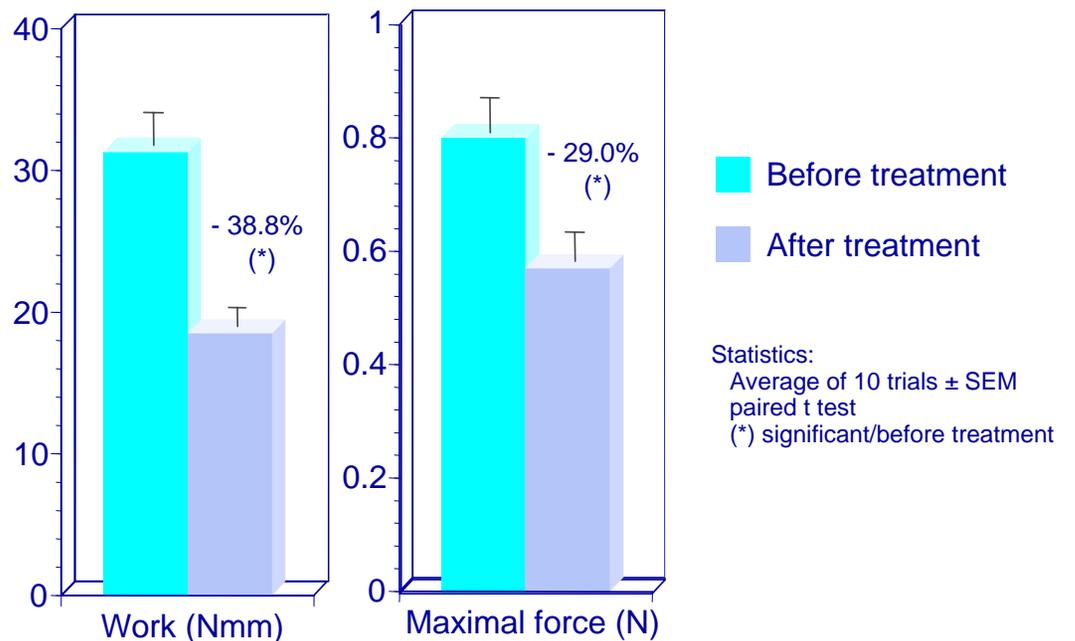
# Efficacy tests

## Conditioning effect

Quantitative evaluation of the conditioning effect of a lotion containing 10% **TRICHOGEN® VEG LS 8960**



Mean value of the combing parameters  $\pm$  SEM

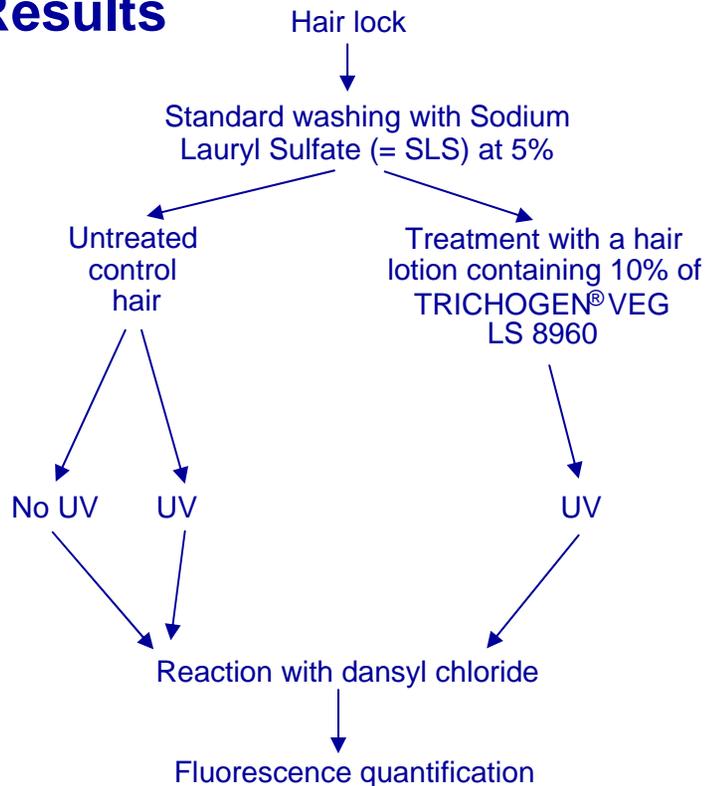


**TRICHOGEN® VEG LS 8960** at 10% has significantly improved combing parameters of hair. It has a good conditioning property

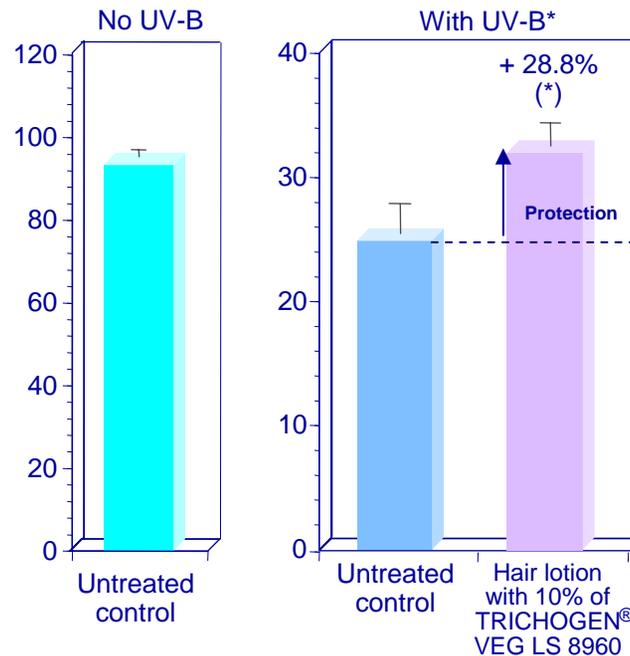
# Efficacy tests

## Photo-protection of human hair, against UV-B (dansyl chloride)

### Results



Fluorescence intensity (Arbitrary units)



\* UV-B 270 J/cm<sup>2</sup>

Statistics:  
Mann Whitney's U test  
(\*) significant/corresponding control

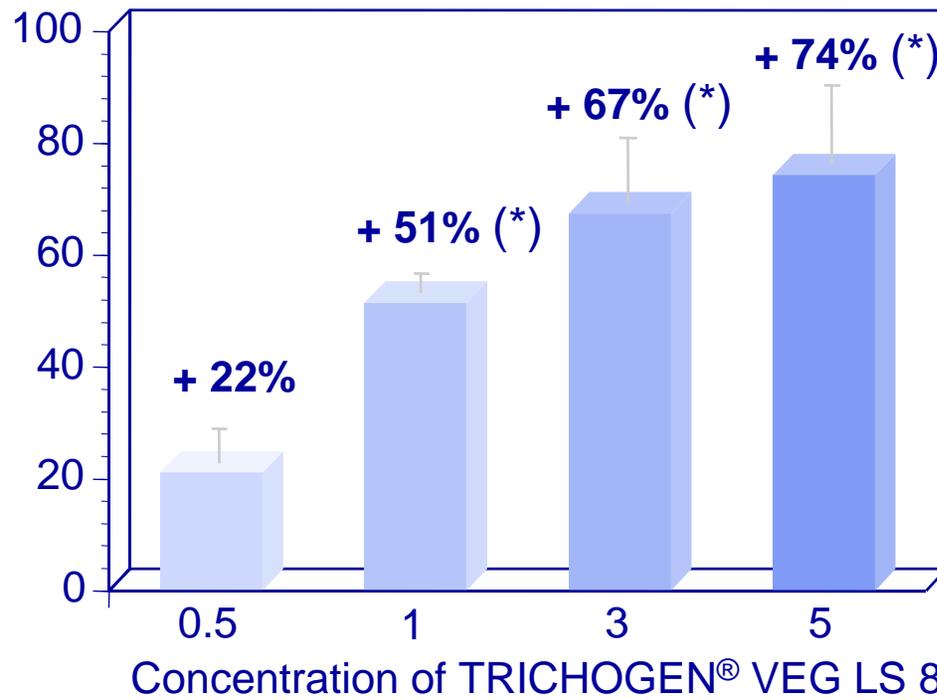
**TRICHOGEN® VEG LS 8960** has shown a strong photo-protective effect of hair (increasing the fluorescence intensity by **+28.8%**)

# Efficacy tests

## Stimulation of oxygen consumption

Polarographical measurements on homogenate of epithelial cells

% increase of oxygen consumption



Statistics:

Average of 5 trials

± SEM

Kruskal Wallis's test:

Significant

A posteriori test:

Mann Whitney U test

(\*) significant

difference in

comparison to 0.5 %

Significant and dose-dependent increase of oxygen consumption by epithelial cells.  
TRICHOGEN® VEG LS 8960 clearly improves cell vitality.

# Cosmetodynamic properties

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**Decrease of hair loss and stimulation of hair growth**  
cellular metabolism and oxygenation are increased

**Improvement of the aesthetic qualities of hair**  
improvement of hair softness, vitality, combability,  
suppleness, health

**Improvement scalp condition**  
the scalp is healthier  
sebaceous secretion is regulated  
dandruff, itchings are decreased

# Cosmetic uses

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- Anti-hair loss preparations
- Anti-age hair care

# Formulations

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- **leave-on preparations:** aqueous, hydro-alcoholic tonics
- **rinse-off preparations:** shampoos, conditioners

# Technical data

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**Aspect** : limpid light yellow liquid with a characteristic odor

**Dose of use** : Anti-hair loss courses: 10%  
As complementary hair care: shampoos: 3 - 5%

**Solubility** : soluble in water, in hydroalcoholic solutes and insoluble in oils

**INCI Name** : Water (and) Panax Ginseng Root Extract (and) Arginine (and) Acetyl Tyrosine (and) Arctium Majus Root Extract (and) Hydrolyzed Soy Protein (and) Polyquaternium-11 (and) Dimethicone Copolyol (and) Calcium Pantothenate (and) Zinc Gluconate (and) Niacinamide (and) Ornithine HCl (and) Citrulline (and) Glucosamine HCl (and) Biotin.

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# TRICHOGEN<sup>®</sup> VEG LS 8960

The effective active ingredient against hair loss

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