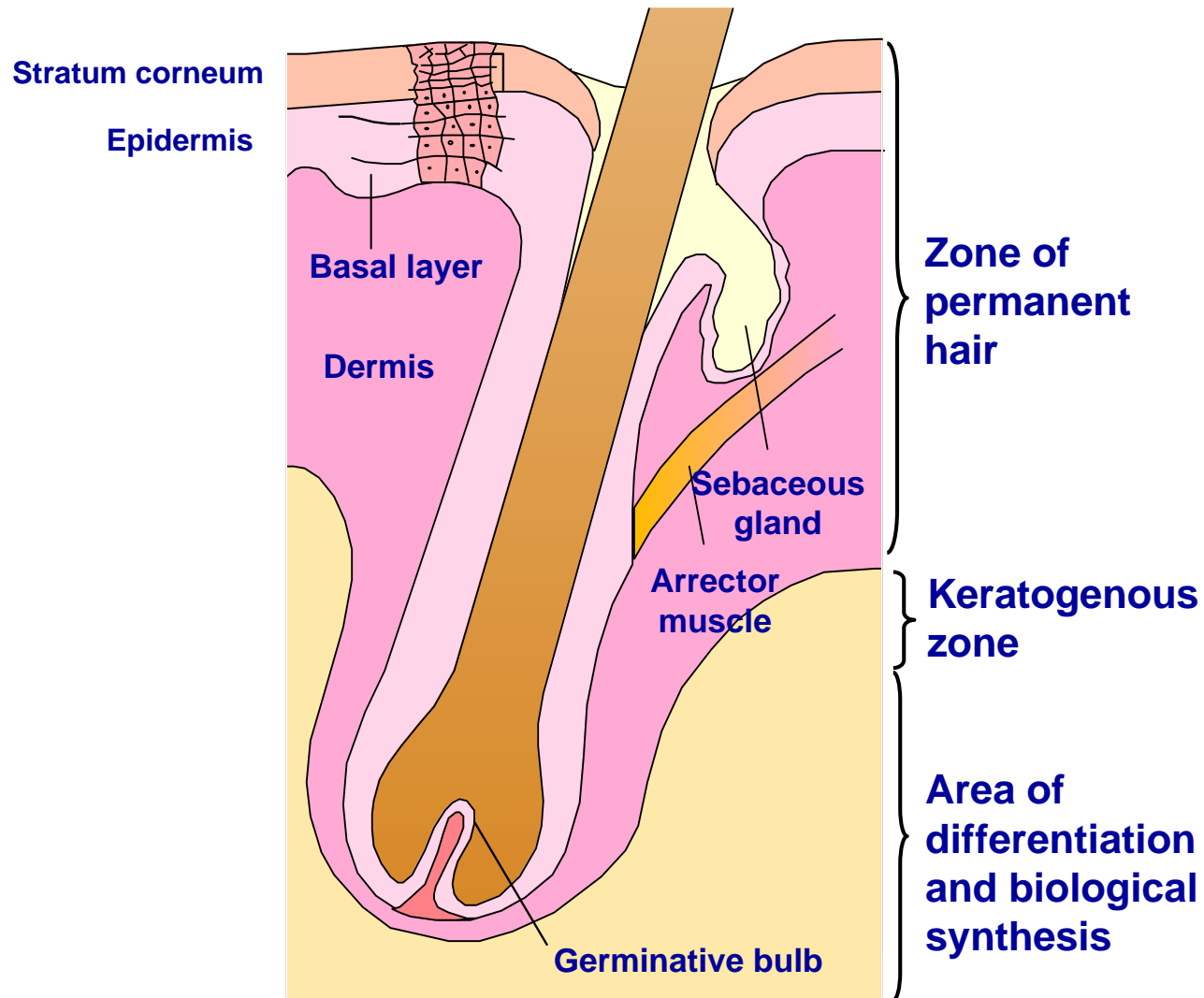
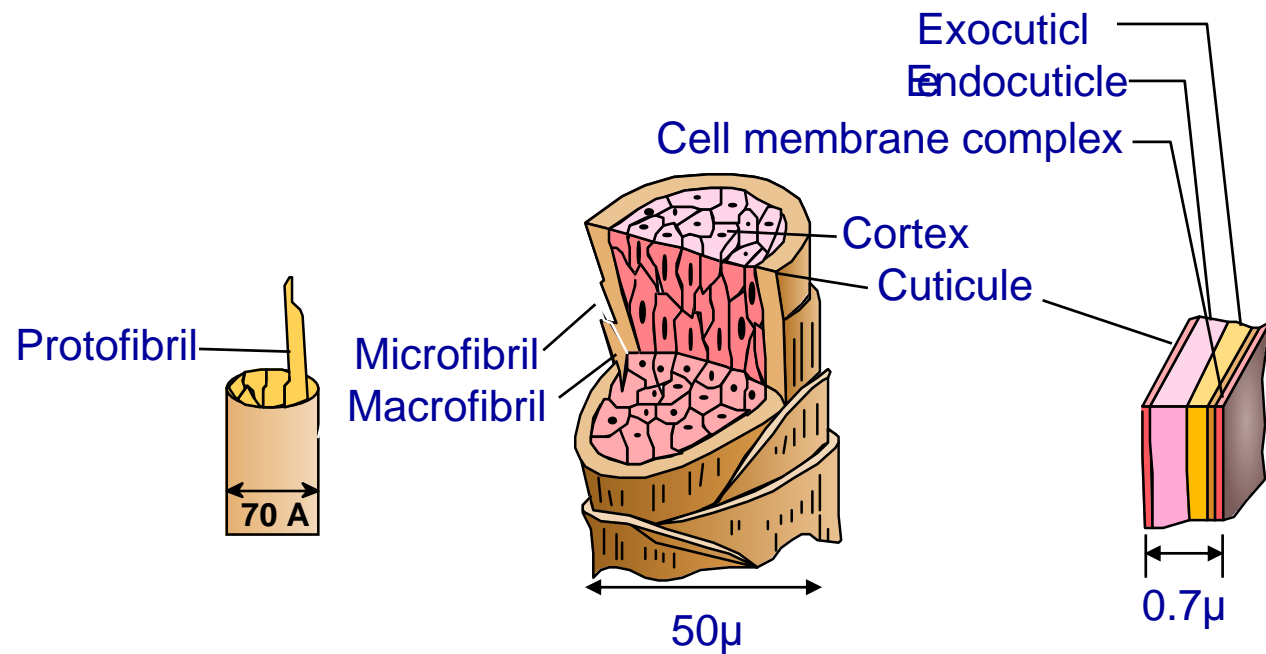

TRICHOGEN® VEG LS 8960

Trichogenic complex
Anti-hair loss active and conditioner

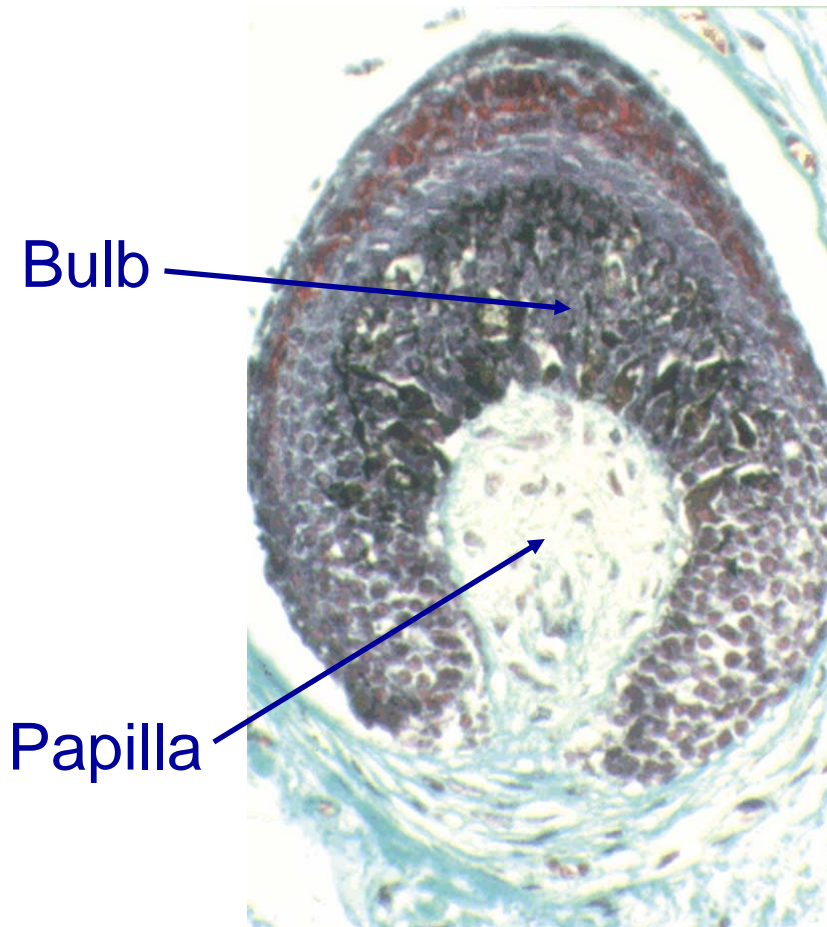
Physiology of hair



Hair stem



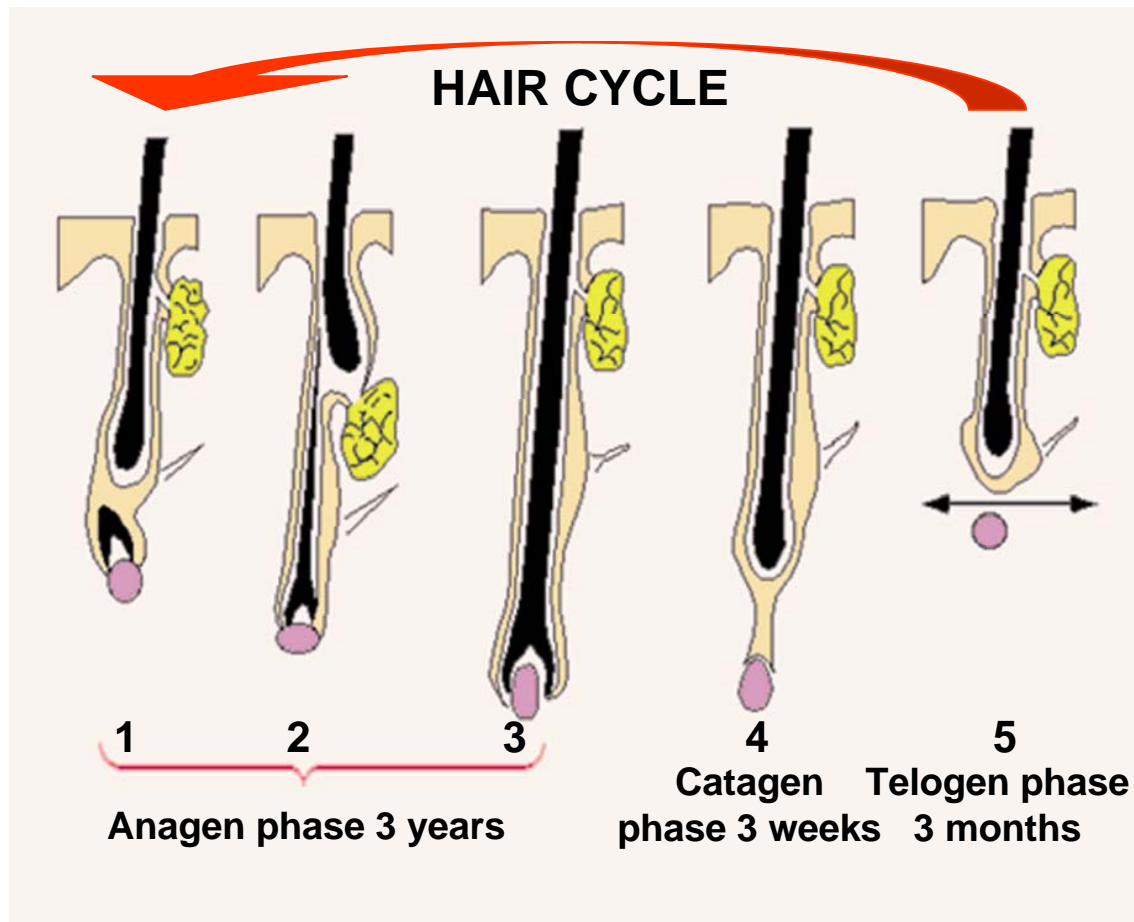
Hair follicle



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

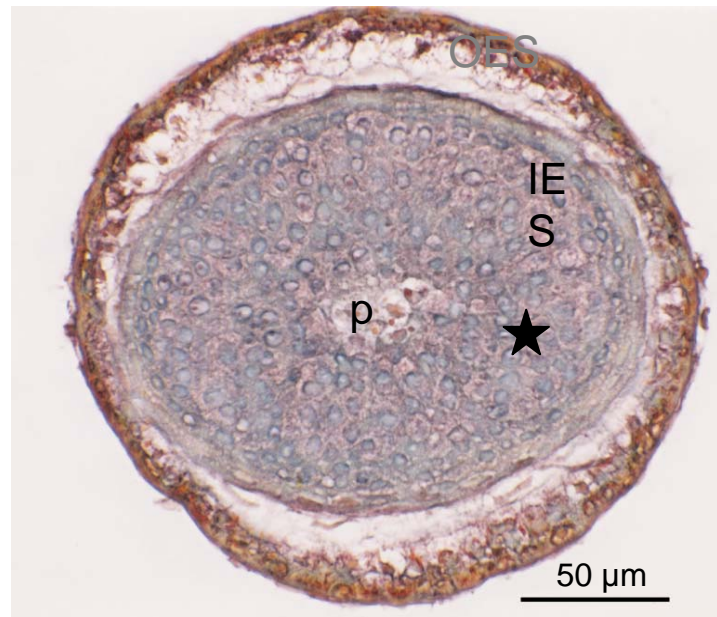
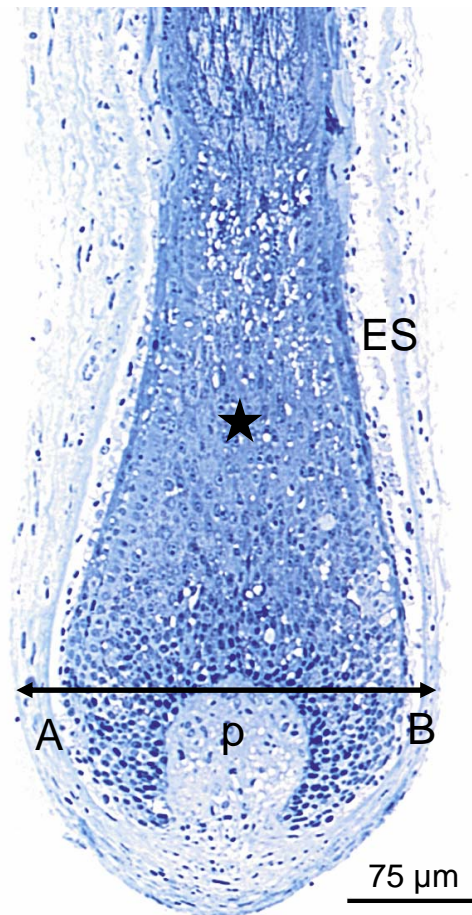


Anagen Phase
(aspect of the bulb)



Telogen Phase
(aspect of the bulb)

Anagen phase

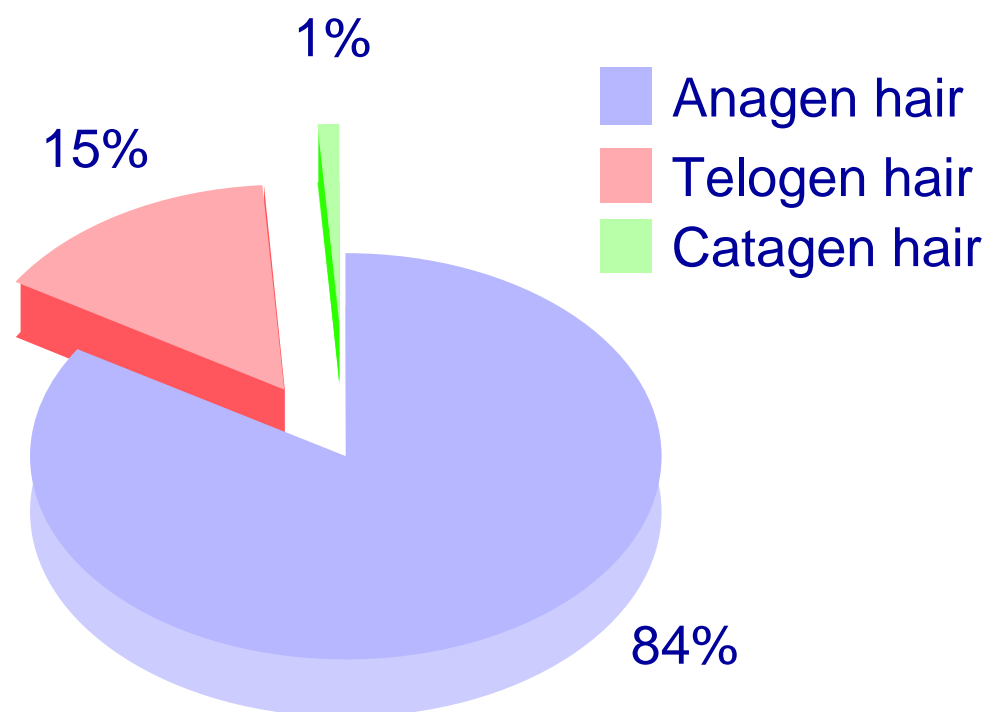


- ★ = keratogenous area
- ES = epithelial sheath
- IES = inner epithelial sheath
- OES = outer epithelial sheath
- g = germinative cells
- p = dermal papilla

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

The hair formula

The trichogram determines: the **Hair Formula**



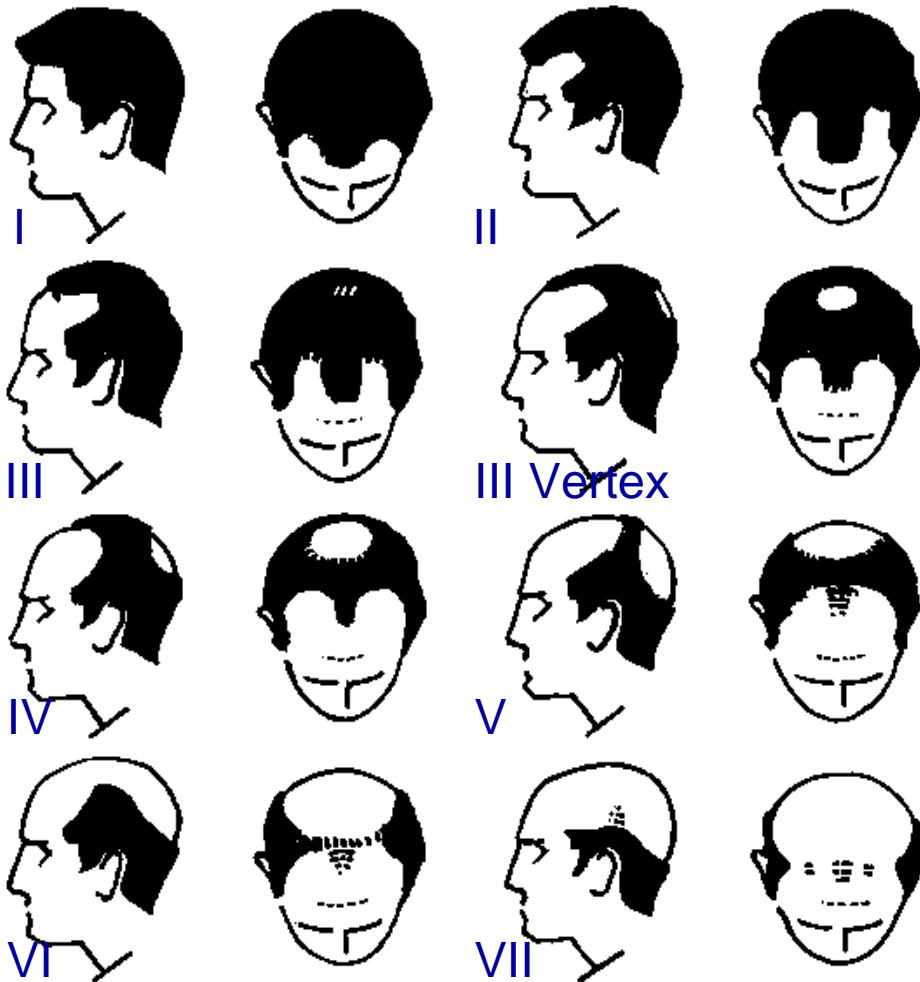
The $\frac{A}{T}$ ratio

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

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

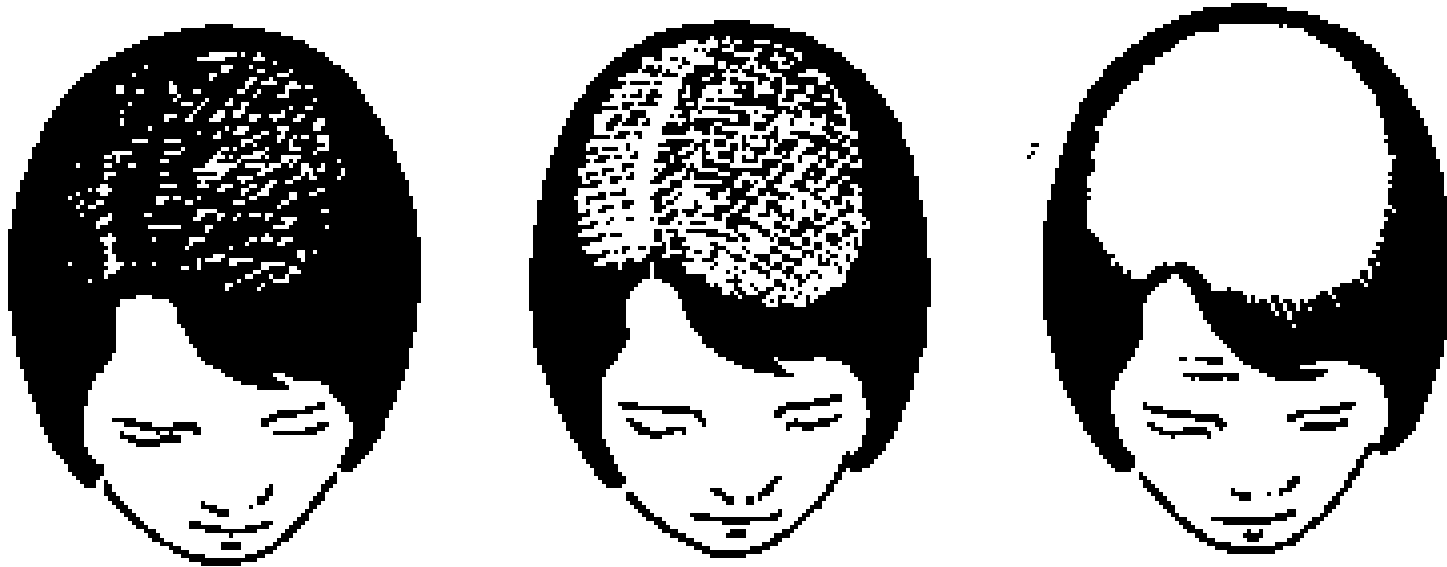
$$\frac{A}{T} = < 3 : \text{Pathological ratio}$$

Androgenic or seborrheic alopecia on man



Classification according
to Hamilton

Androgenic or seborrheic alopecia on woman



Ludwig classification (on women)

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

Origin of androgenic alopecia

- **Inner factors**

- receptivity to male hormones
- genetic tendency
- psychic factors

- **Nutritional factors**

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

- **Seborrhea**

Definition

TRICHOGEN® 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

**Sulfopeptides
of soy (glycine max)**
(MW ~ 15,000 Da)



Regulators of cellular nutrition and growth.
Supply in bioavailable sulfur, stimulation of protein biosynthesis



Amino-acids: tyrosine, arginine, ornithine, citrulline

Precursors of proteins and melanin pigments

Aminosaccharide
glucosamine

GAG precursor for strengthening the extracellular papillary / peribulbar matrix

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)

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

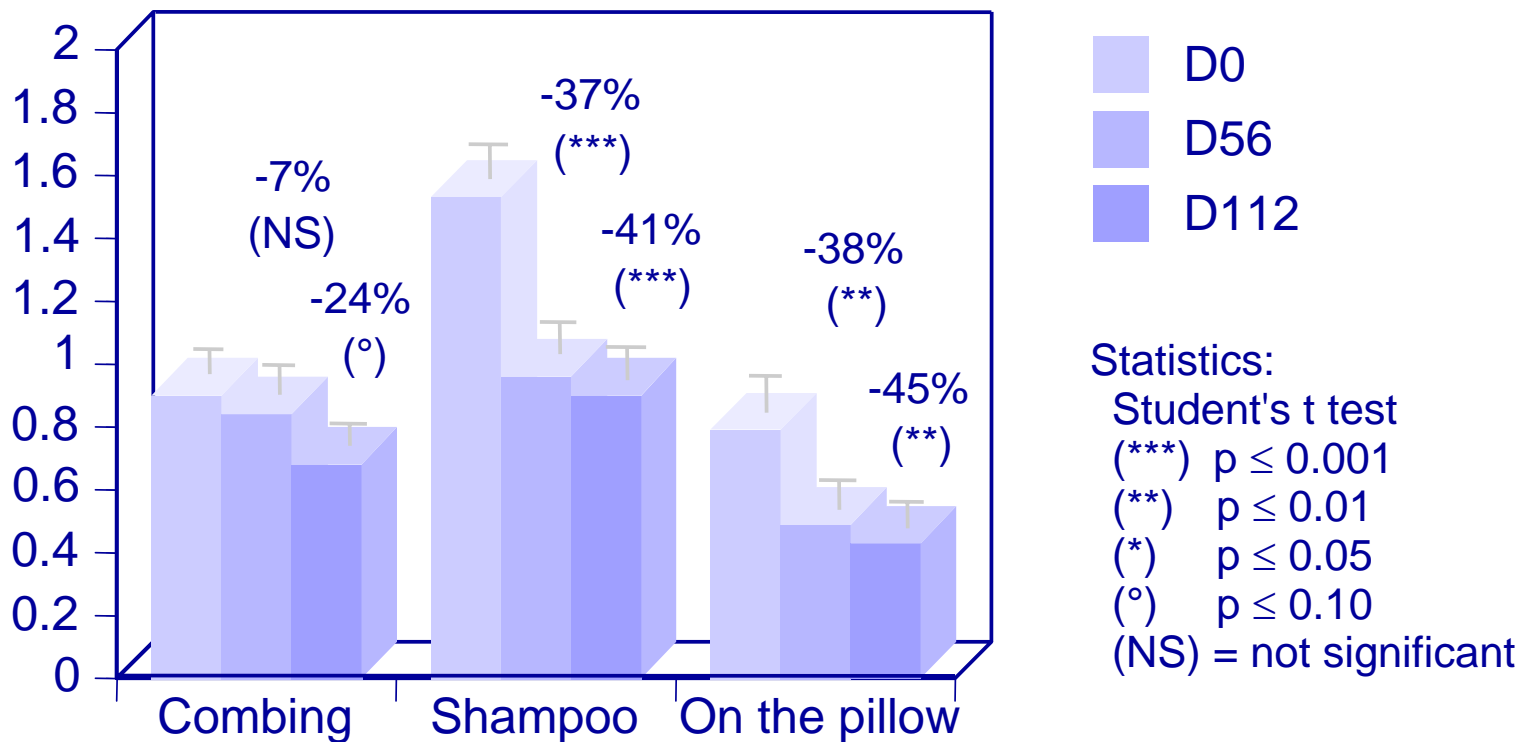
Improvement of aesthetic qualities of hair and scalp Sensorial evaluation

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

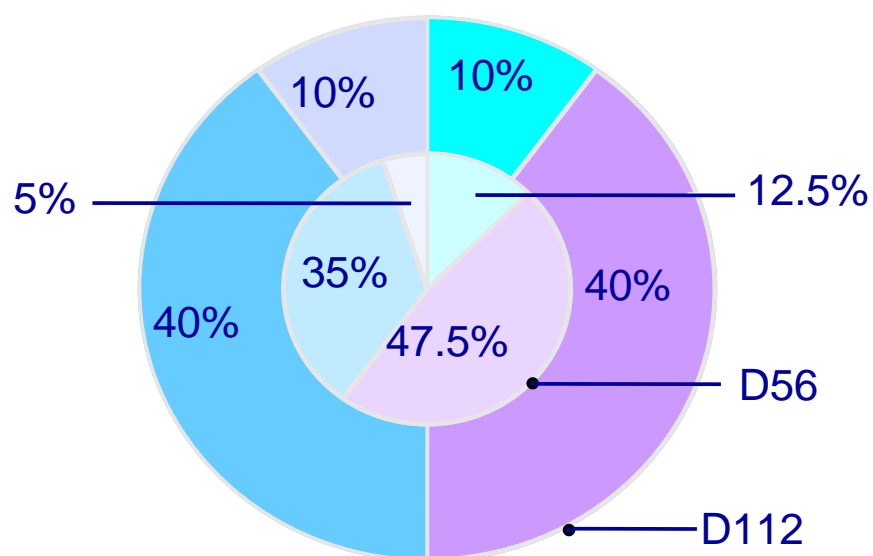
Semi-quantitative appraisal by volunteers of hair loss



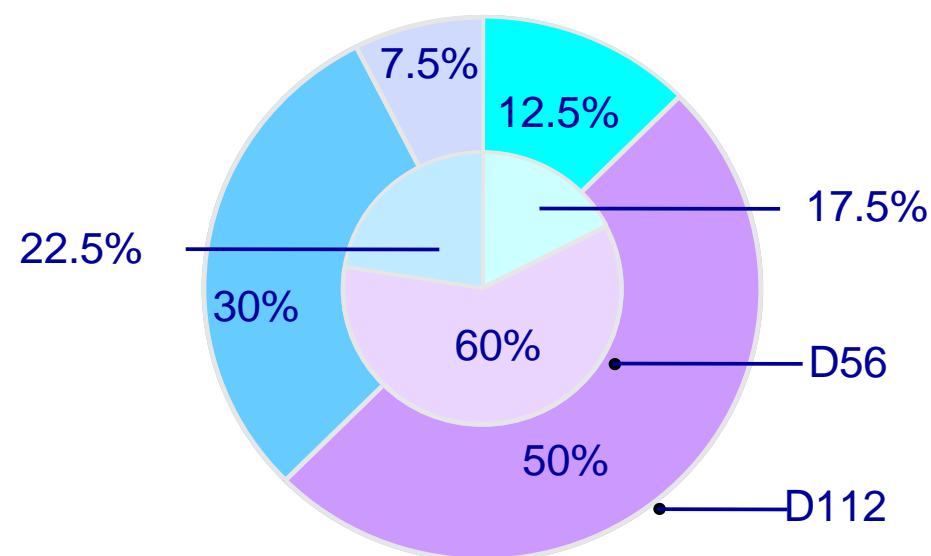
Efficacy test (clinical test) – Evaluation by the volunteers

Improvement of hair growth

Lower hair loss



Faster hair growth



No effect Medium Good Quite good

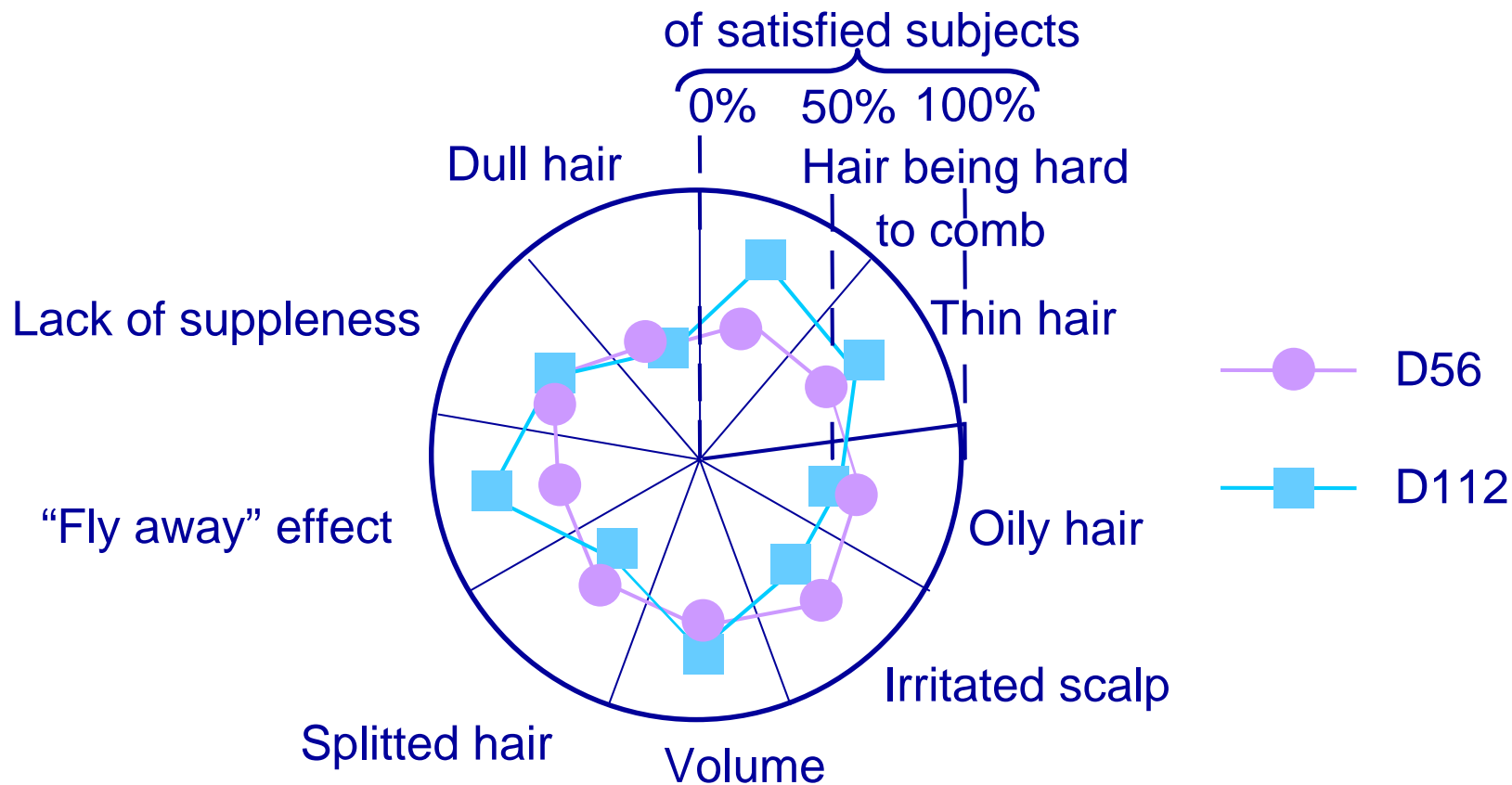
Efficacy test (clinical test) – Evaluation by the volunteers

The volunteers have observed:

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

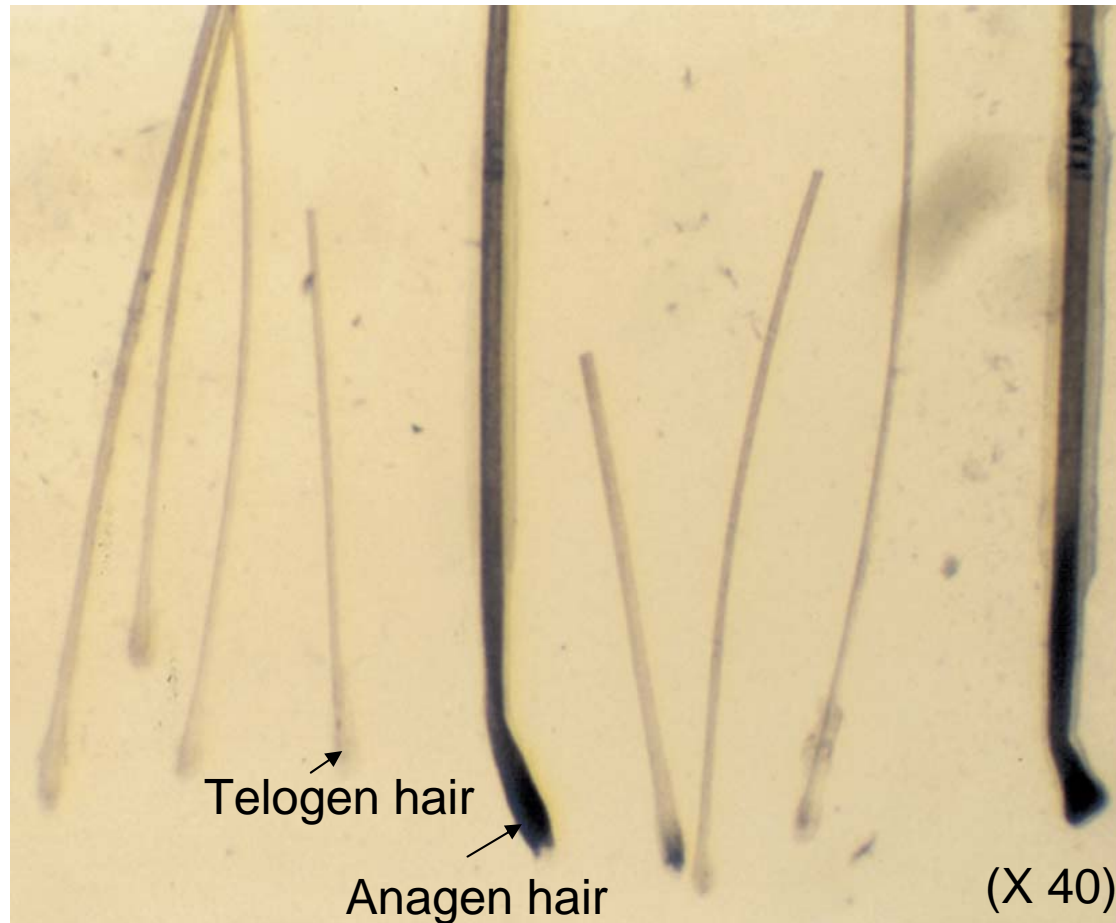
Efficacy test (clinical test) – Evaluation by a dermatologist

Improvement of the aesthetic qualities of hair and scalp



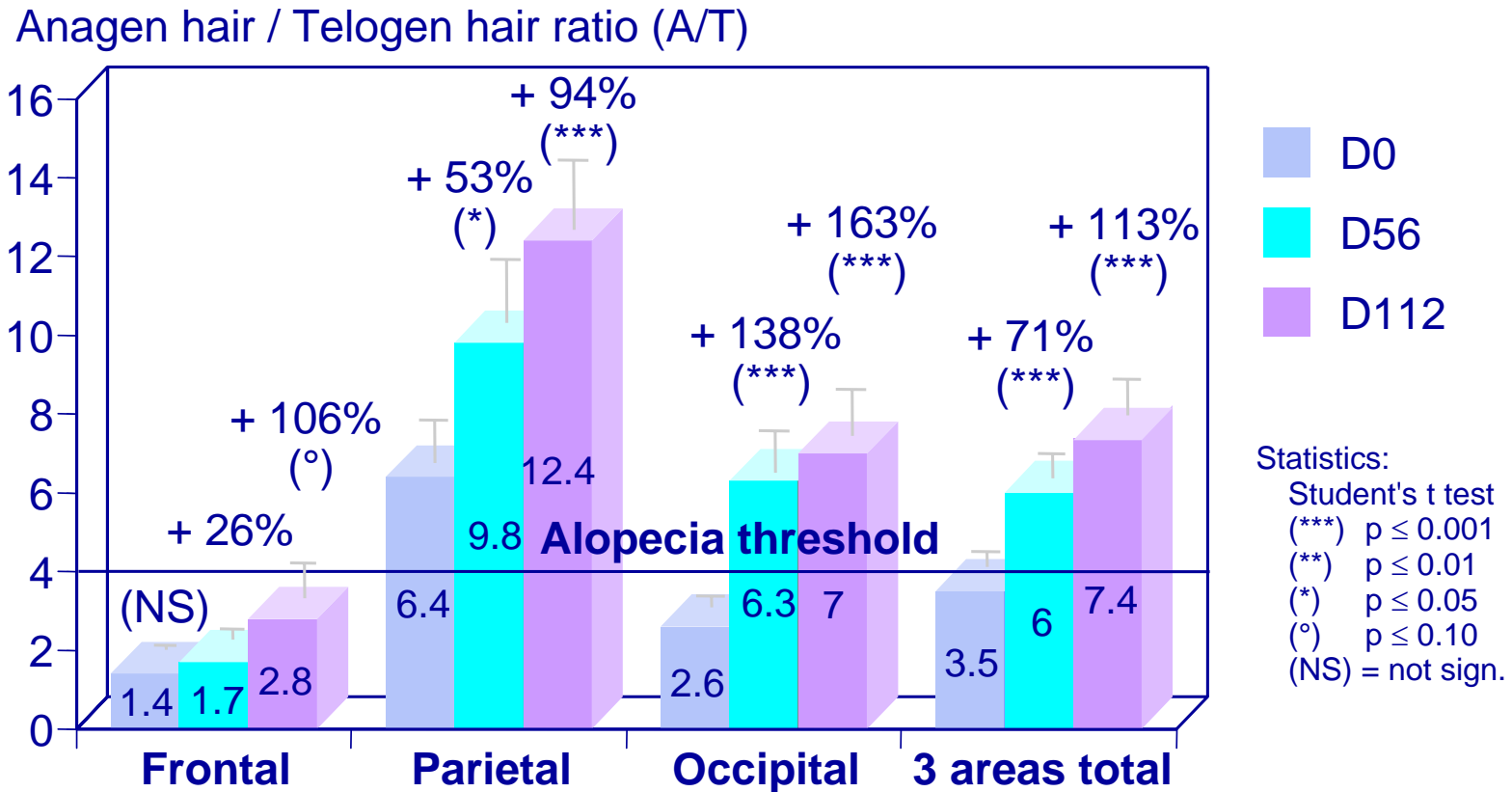
Efficacy test (clinical test) – Trichogram evaluation

Visualization



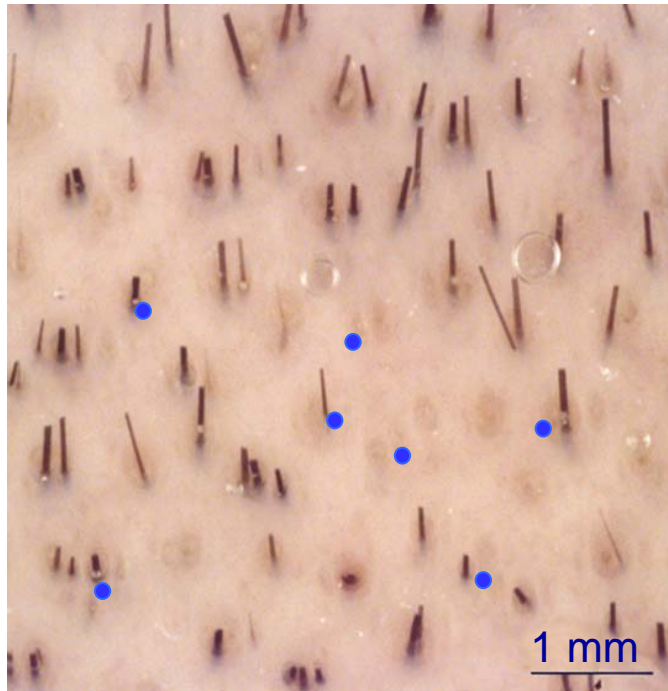
Efficacy test (clinical test) – Trichogram evaluation

Quantification

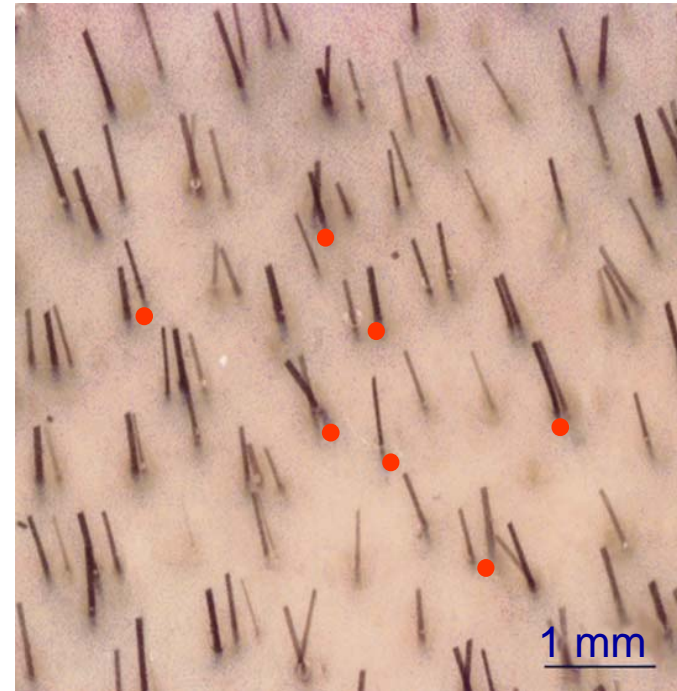


Efficacy test (clinical test) – Phototrichogram evaluation

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)

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

- 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_2O_2 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

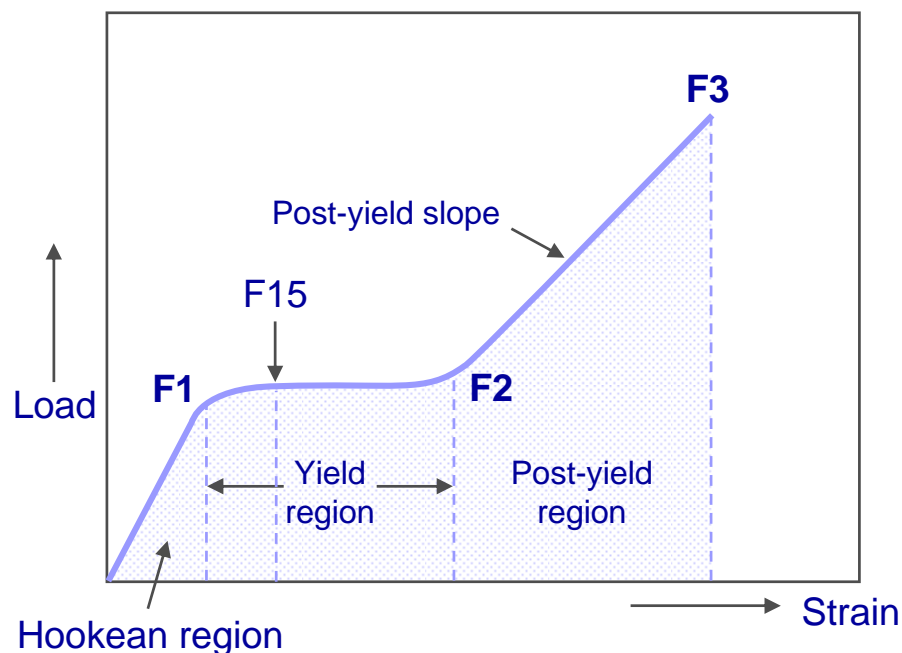


24 h after the last treatment

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

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**



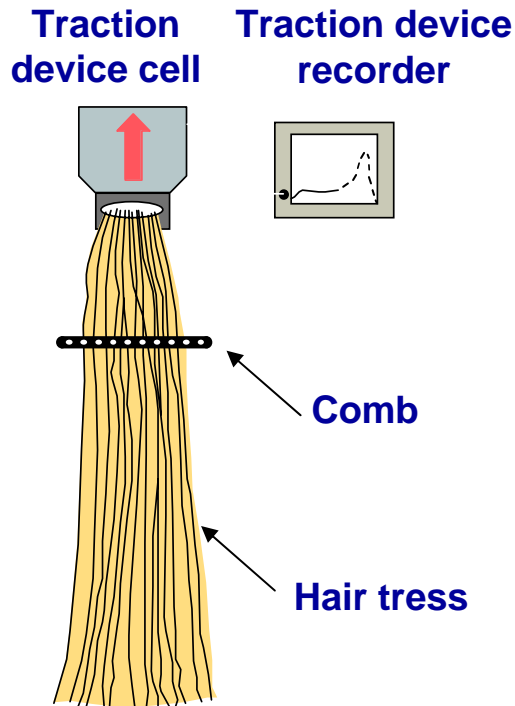
**Damaged hair treated with
TRICHOGEN® VEG LS 8960**

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

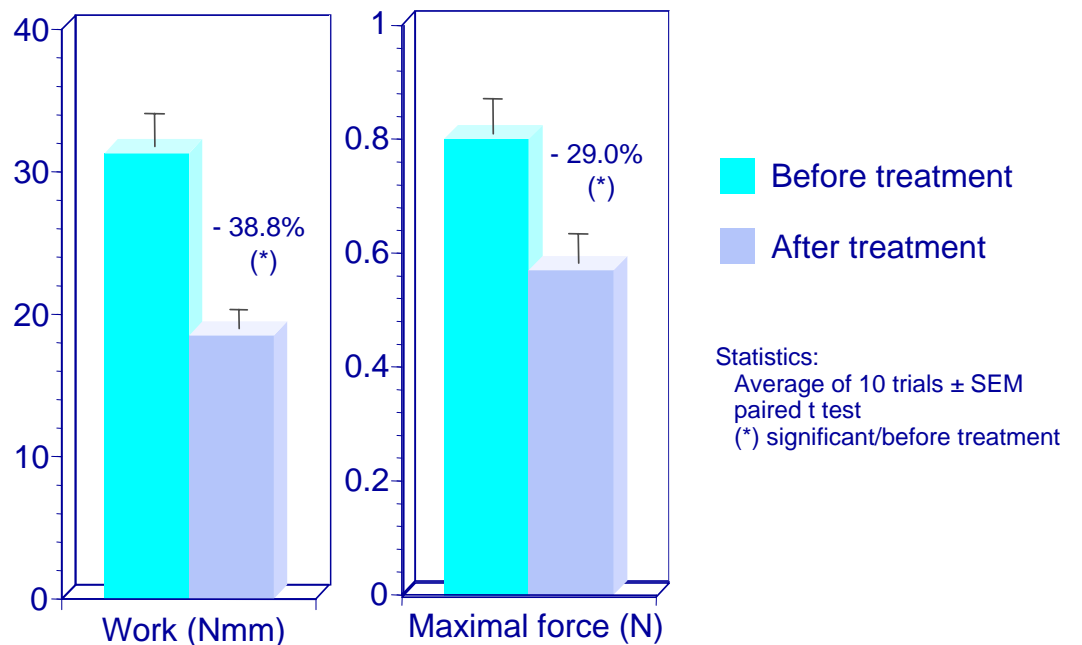
Efficacy tests

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

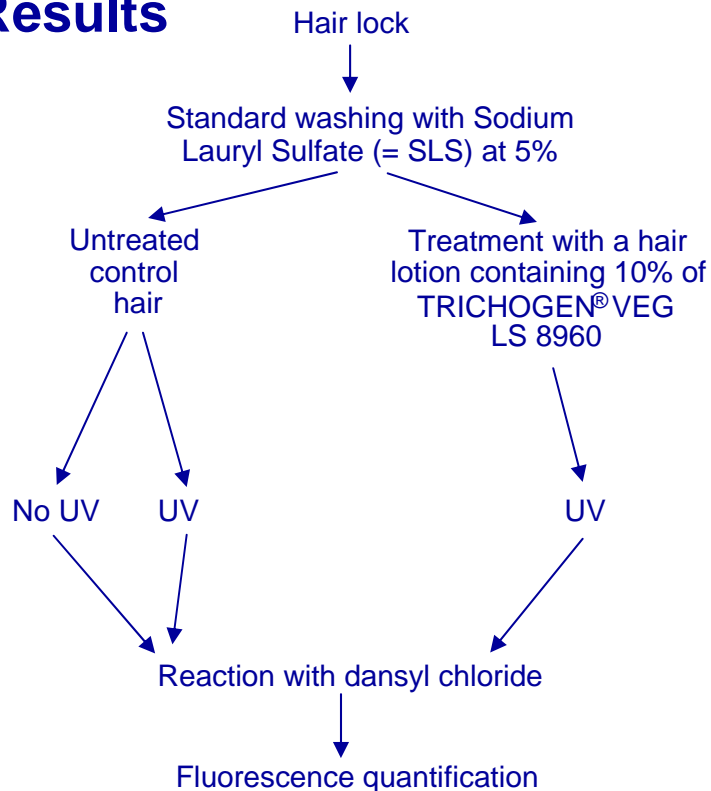


TRICHOGEN® VEG LS 8960 at 10% has significantly improved combing parameters of hair. It has a good conditioning property

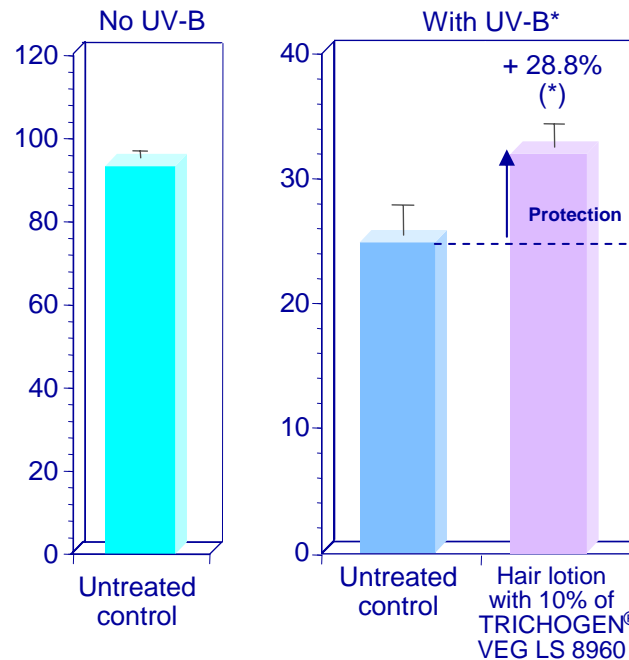
Efficacy tests

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

Results



Fluorescence intensity (Arbitrary units)



* UV-B 270 J/cm²

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

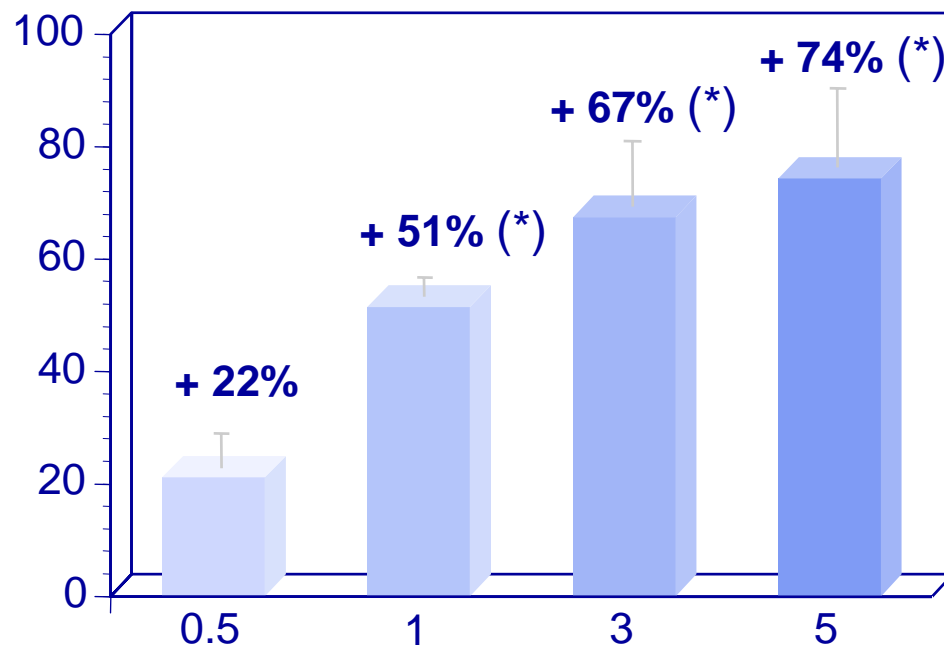
TRICHOGEN® VEG LS 8960 has shown a strong photo-protective effect of hair (increasing the fluorescence intensity by **+28.8%**)

Efficacy tests

Stimulation of oxygen consumption

Polarographical measurements on homogenate of epithelial cells

% increase of oxygen consumption



Concentration of TRICHOGEN® VEG LS 8960 (%)

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

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

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

Formulations

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

Technical data

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.

TRICHOGEN® VEG LS 8960

The effective active ingredient against hair loss
