

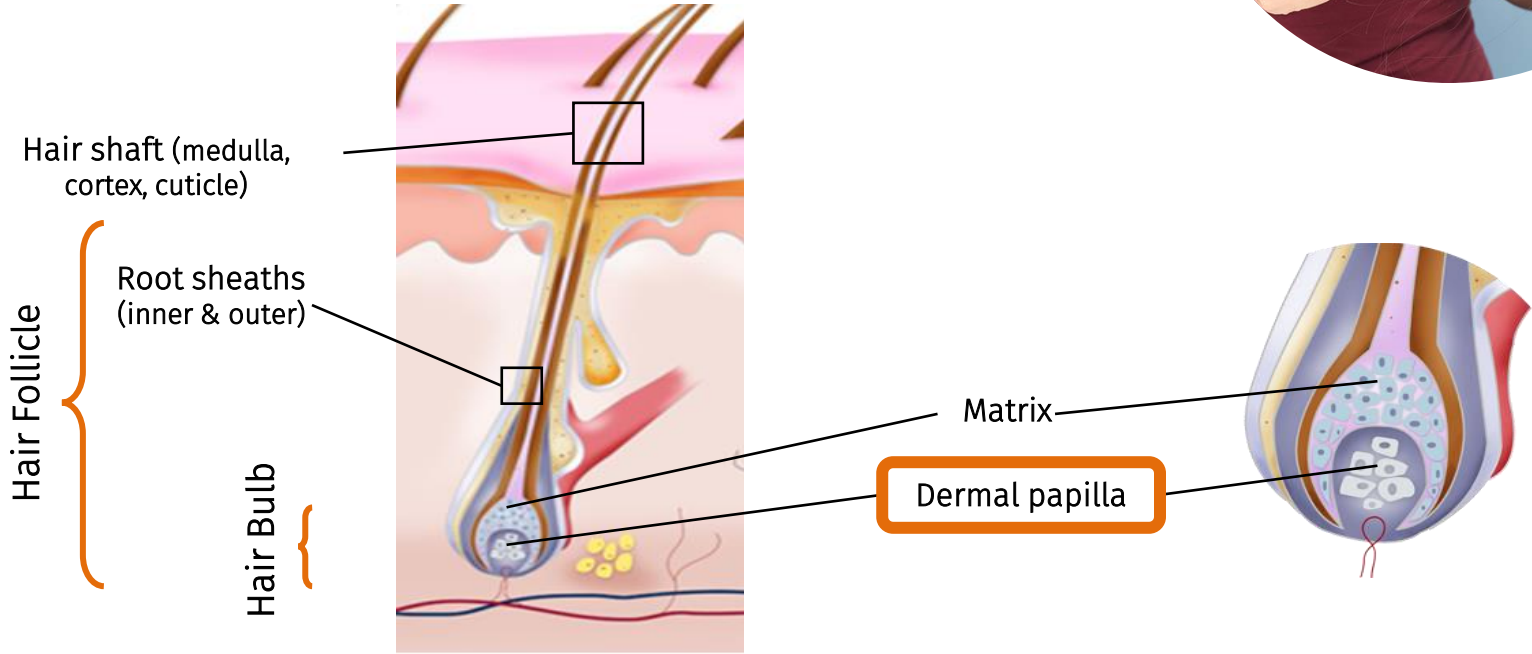


Capilia Longa™  
Make your hair  
sprout again

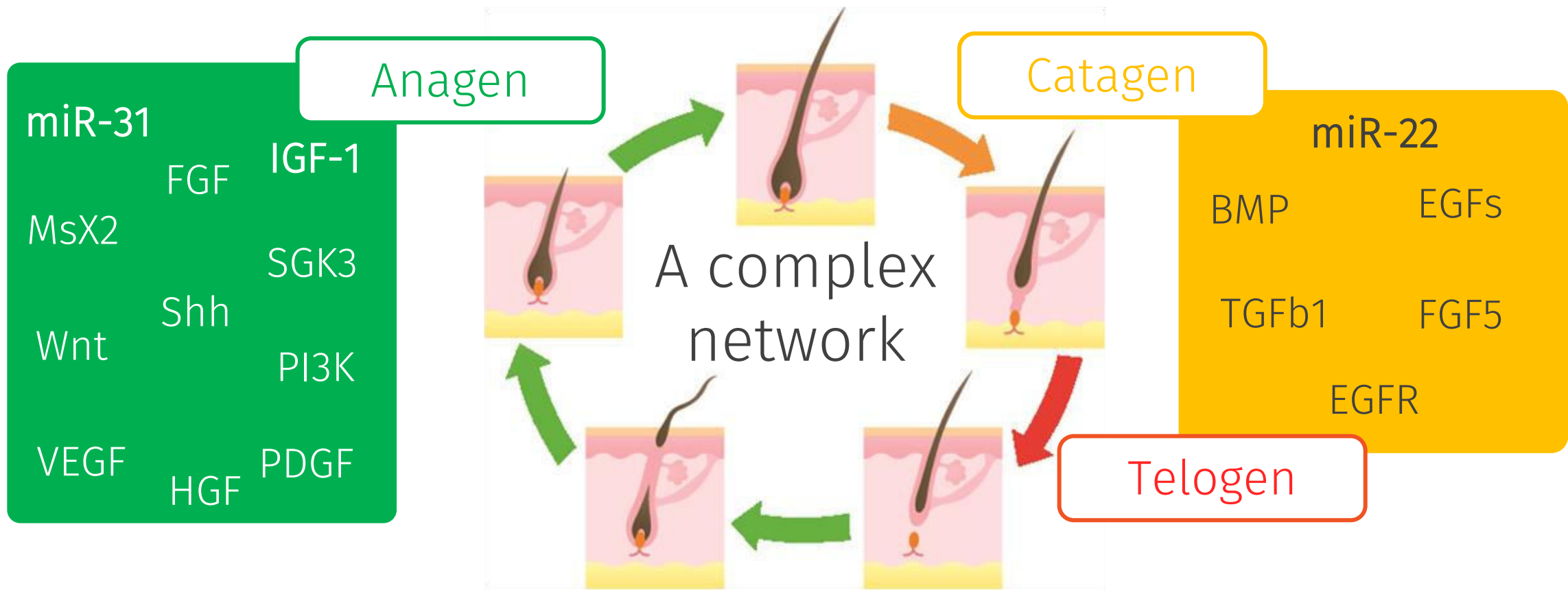


# Hair loss: a global problem

Hair loss or alopecia affects both women and men and has diverse origins: genetic, hormone driven, immunological, pharmacological, disease-induced, etc.



# Hair cycle: a complex network



This hair cycle is the same in all our body areas (scalp, beard, eyebrows, eyelashes, etc.), though the durations of these phases vary in each case. Boosting the Anagen phase is key for reactivating the hair cycle

# Hair cycle: a complex network

	<b>Scalp</b>	<b>Beard</b>	<b>Eyelashes</b>	<b>Eyebrows</b>
<b>Anagen</b>	2-7 years	2-7 years	4-10 weeks	4-7 months
<b>Catagen</b>	2-3 weeks	2-3 weeks	2-3 weeks	3-4 weeks
<b>Telogen</b>	3 months	3-6 months	4-9 months	9 months



# Eyebrows & eyelashes features



Eyebrows have the slowest growth rate than any other area of our bodies

Too much waxing, tweezing or threading can damage your eyebrows and make them grow back thin

Anagen: 4-7 months

Catagen: 3-4 weeks

Telogen: 9 months

**SHORTER ANAGEN THAN TELOGEN!!!**



Around 50% of the eyelashes are in Telogen phase, and about 40-50% are in Anagen (only a 10% or less are in Catagen)

There is a generalized reduction in the thickness, pigmentation and length of eyelashes with age

Anagen: 4-10 weeks

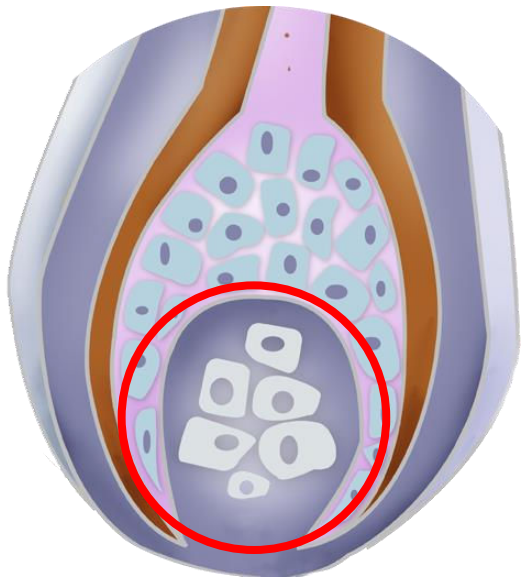
Catagen: 2-3 weeks

Telogen: 4-9 months

**MUCH SHORTER ANAGEN THAN TELOGEN!!!**

# The Dermal Papilla Cells: key roles

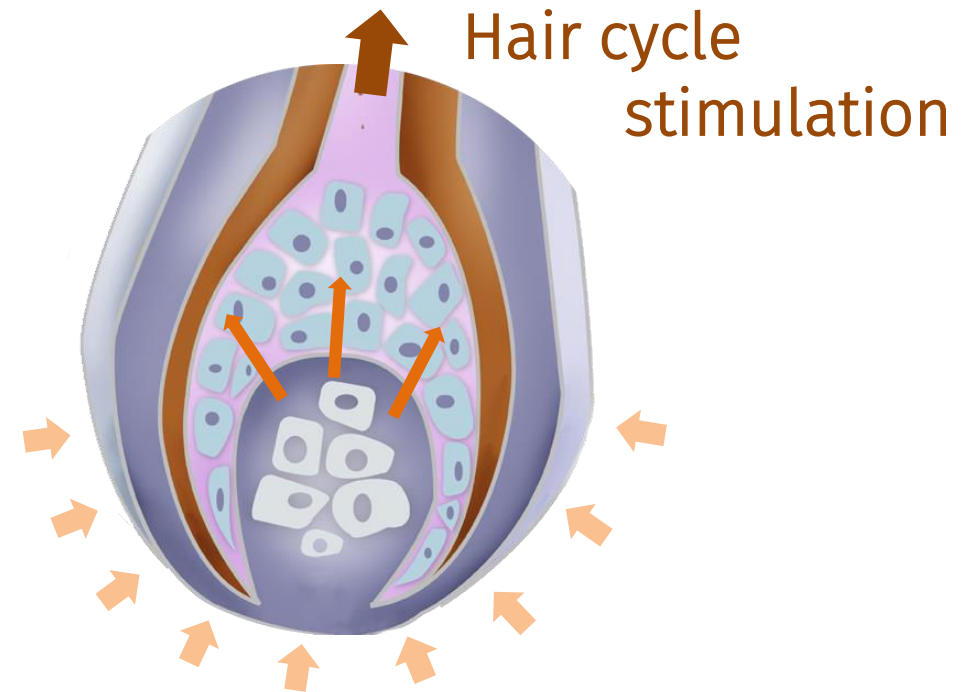
Hair Follicle Dermal Papilla Cells (HFDPC), a.k.a., the Dermal Papilla Cells



They are in the core of the hair bulb

They activate the proliferation and differentiation of keratinocytes in the germinal matrix

They regulate the hair growth cycle, and they determine the quality and size of the produced hair



# Hair cycle: key modulators

## IGF-1: a master paracrine signaler

A potent mitogenic growth factor from the HFDPC's

Key role: maintains the Anagen phase and delays the entrance in the Catagen phase

**miRNAs: epigenetic switchers** Small molecules of non-coding RNA ( $\approx 20$  nucleotides)

### miRNA-31

Exclusively in Anagen phase

Prevents the entry into the Catagen

Promotes cell differentiation  
during hair growth



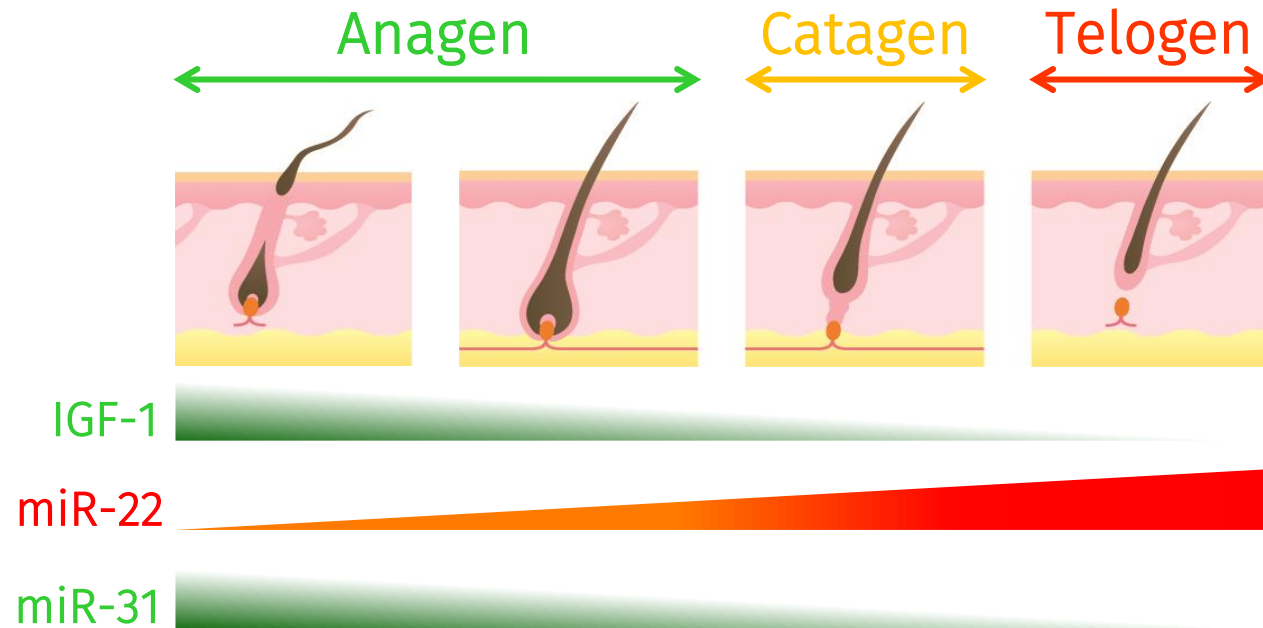
### miRNA-22

Highly expressed during Catagen  
and Telogen phases

Inhibits cell differentiation

Inhibits the synthesis of keratins

# Hair cycle: key modulators



CAPILIA LONGA™ resets the hair cycle by modulating key growth factors (IGF-1) and epigenetic factors (miRNA31 & miRNA22)



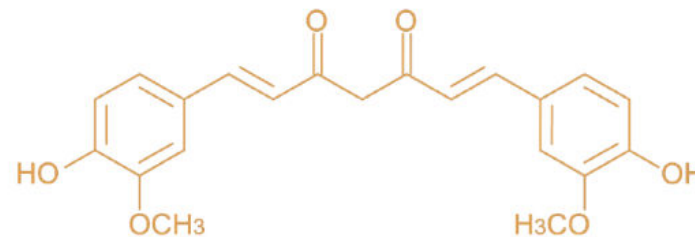
# The plant: *Curcuma longa*



Tropical and subtropical plant characterized by the existence of a very ramified, cylindrical and orange rhizomes. These rhizomes are a modified roots that acts as a resistance and storage organ. They grow indefinitely and have **excellent regenerative properties**.



Rich in curcuminoids (mainly curcumin), *Curcuma longa* has a **huge biomedical potential**.



Curcumin is only the 2-5%  
of the turmeric powder



# What if we applied plant growth factors to our hair?

Naturally very similar

## Plant tissues



Phyto-Peptidic  
Fractions™  
from *Curcuma  
longa*

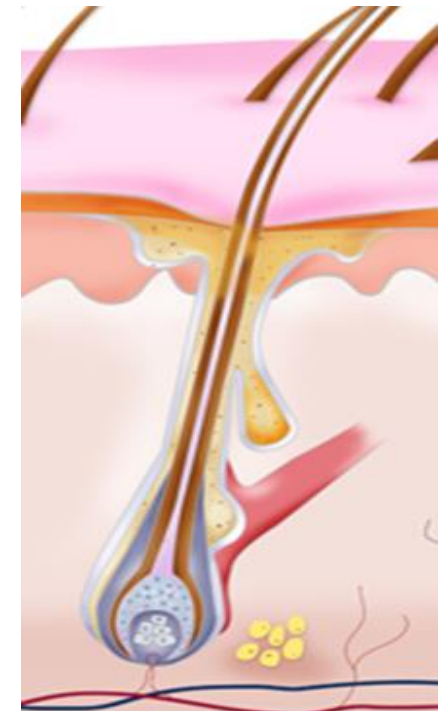
Rooted

Seasonal behavior  
(Autumn fall)

Nutrients absorption from  
surrounding micro-environment

Pool of very active Stem cells

## Human hair



Vytrus has found the link: **SIGNALLING PEPTIDES**

# A new turmeric (*Curcuma longa*)

## CAPILIA LONGA™

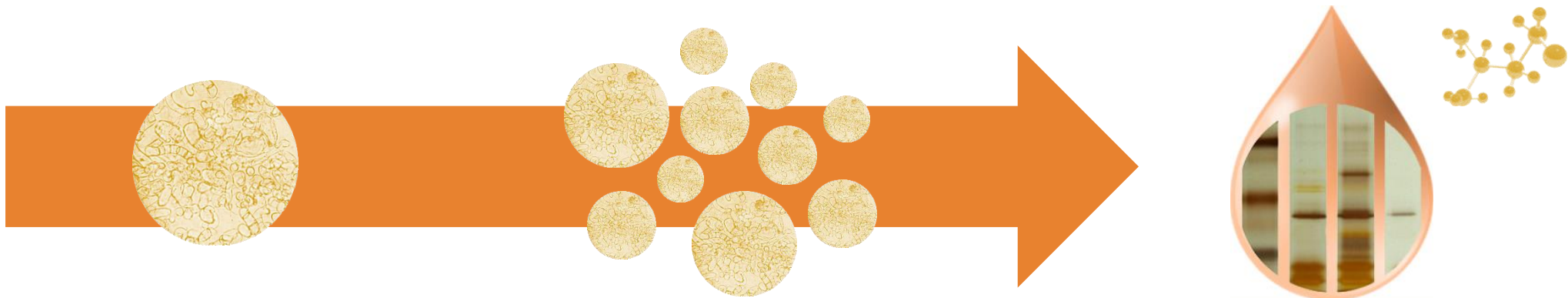
*Curcuma longa* natural peptides

Exclusive  
Technology

1 Growth  
stimulation

2 Secretome  
concentration

3 Secretome enriched  
with plant peptides

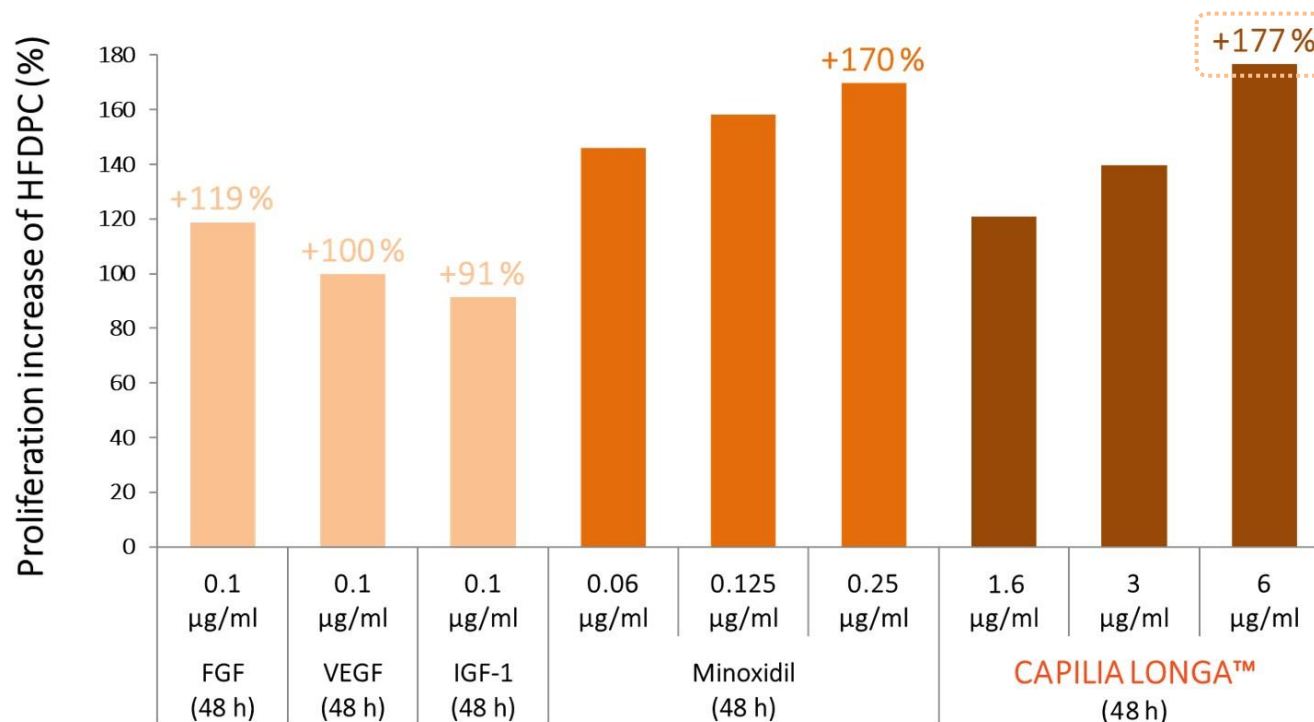


# Biological activity

Growth  
Factor-like  
Effect

Minoxidil-  
like  
effect

## 1 Induction of HFDPc proliferation



Up to +177% of proliferation increase vs untreated cells, showing higher effect than other Growth Factors (FGF, VEGF, IGF-1) and even higher than Minoxidil (+170%)

Human Follicle Dermal Papilla Cells (HFDPc)

48h of incubation with the product

Measurement of incorporation of Bromodeoxyuridine (BrdU) in the DNA of HFDPc through an Immunocytochemical assay

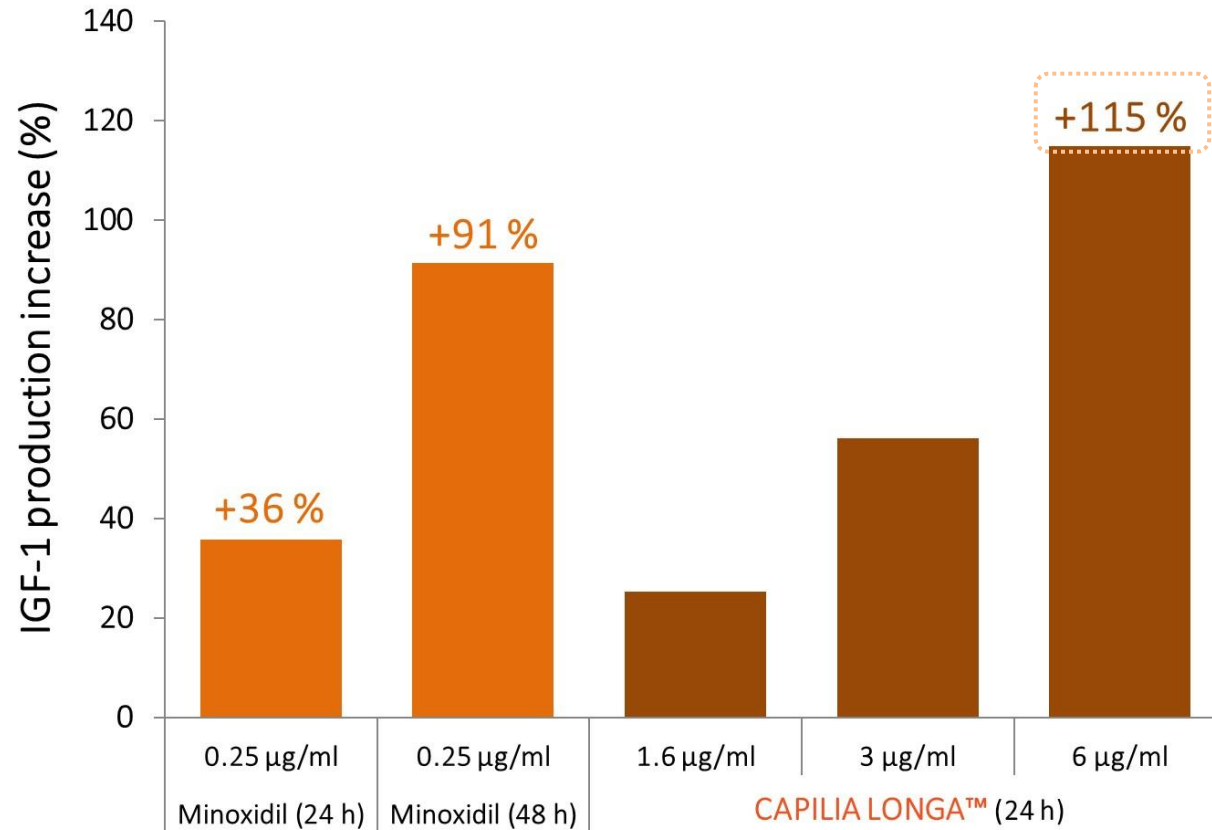
The levels of fluorescence intensity indicate the Proliferation Index of HFDPc compared to Not treated Cells in Basal Medium

# Biological activity

Growth  
Factor-like  
Effect

Minoxidil-  
like  
effect

## 2 IGF-1 production increase on HFDPC



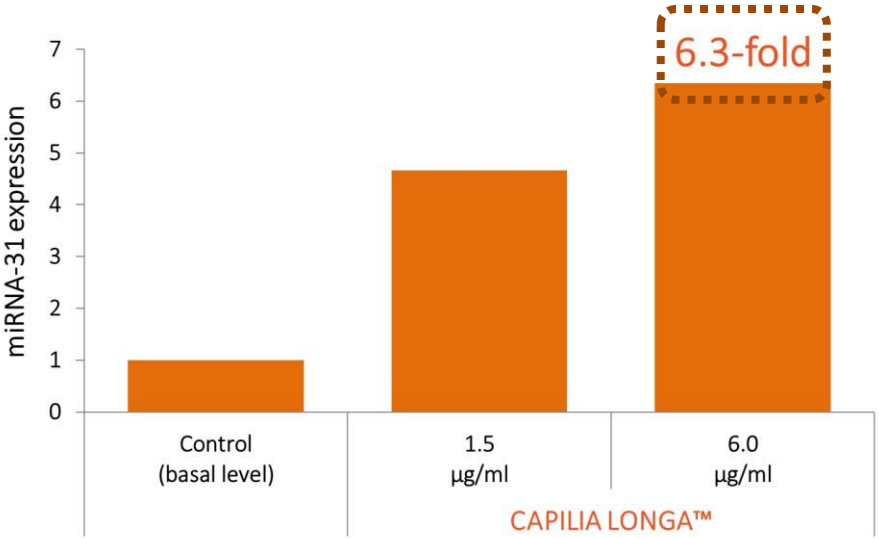
Up to 115% of production increase vs untreated cells, showing a faster activity than Minoxidil (36%) at 24h

Human Follicle Dermal Papilla Cells (HFDPC)  
24-48h of incubation with the product  
Quantification of IGF-1 levels from the supernatants by ELISA  
Production results compared to Not treated Cells in Basal Medium

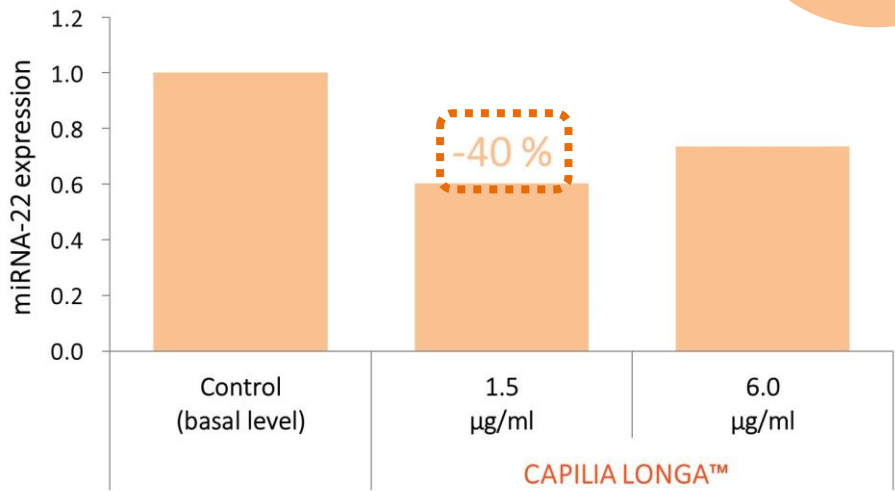
# Biological activity

## 3 Modulation of miRNA-31 & miRNA-22 expression on HFDPC (qRT-PCR)

EPIGENETIC  
ANAGEN  
PHASE  
BOOSTING



EPIGENETIC  
TELOGEN  
PHASE  
REDUCTION



Human Follicle Dermal Papilla Cells (HFDPC)  
24h of incubation with the product.  
Quantification of miRNA levels from HFDPC supernatants through qRT-PCR.

# Clinical evaluation

1%

DOSAGE

18-60

YEARS

45 - 90 - 150 days

EFFECT

40

VOLUNTEERS

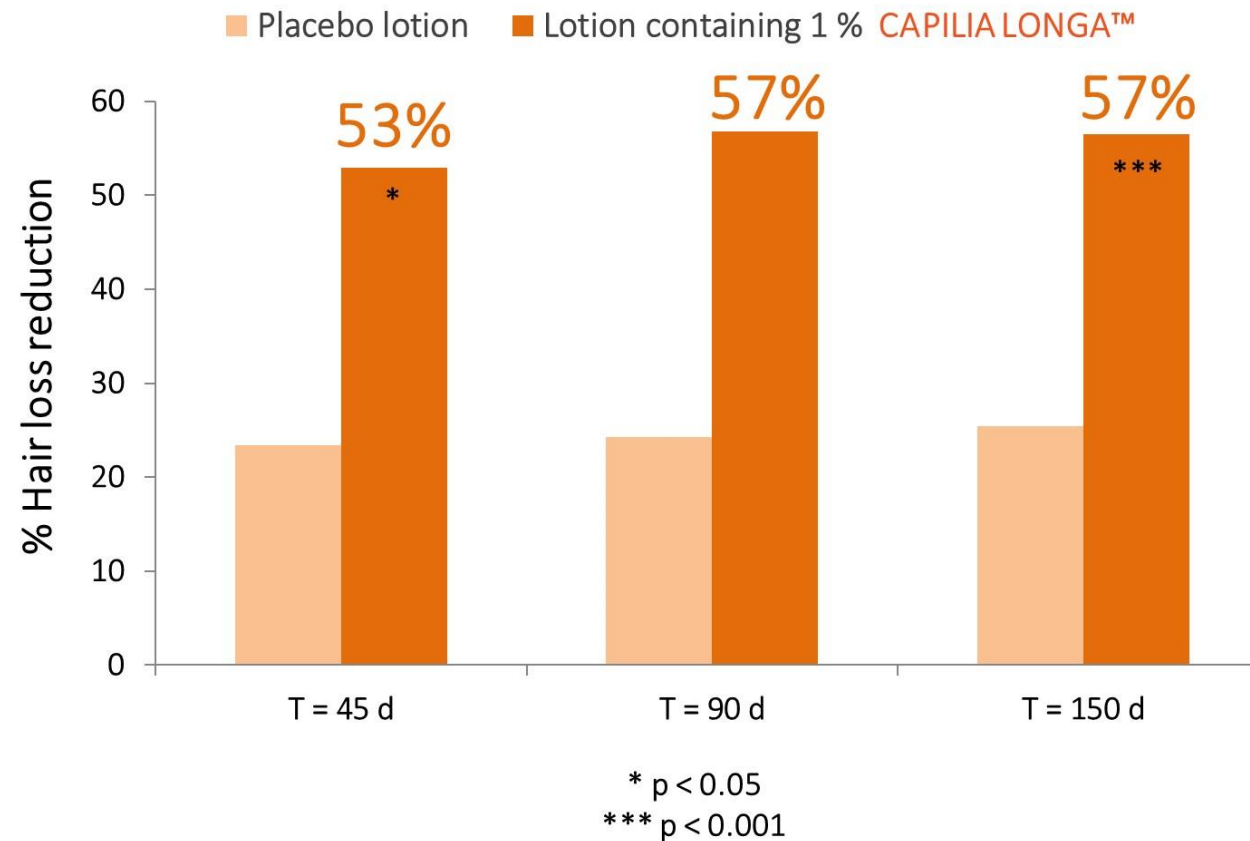


- 🧪 Single Blind
- 🧪 Showing Hair Loss (A/T<4)
- 🧪 Male and Female Androgenetic Alopecia, seasonal alopecia, diffuse alopecia, Hair loss due to menopause. **Men** grade Hamilton II-IV **Women** grade Ludwig I-II
- 🧪 1 application/day on the scalp (by night, before going to sleep)

# Clinical evaluation

UP TO  
89%

## 1 Anti-Hair Loss efficacy Combing Test





# Clinical evaluation

## 2 Regenerative efficacy Global aspect of the hair

T 0d



T 150d



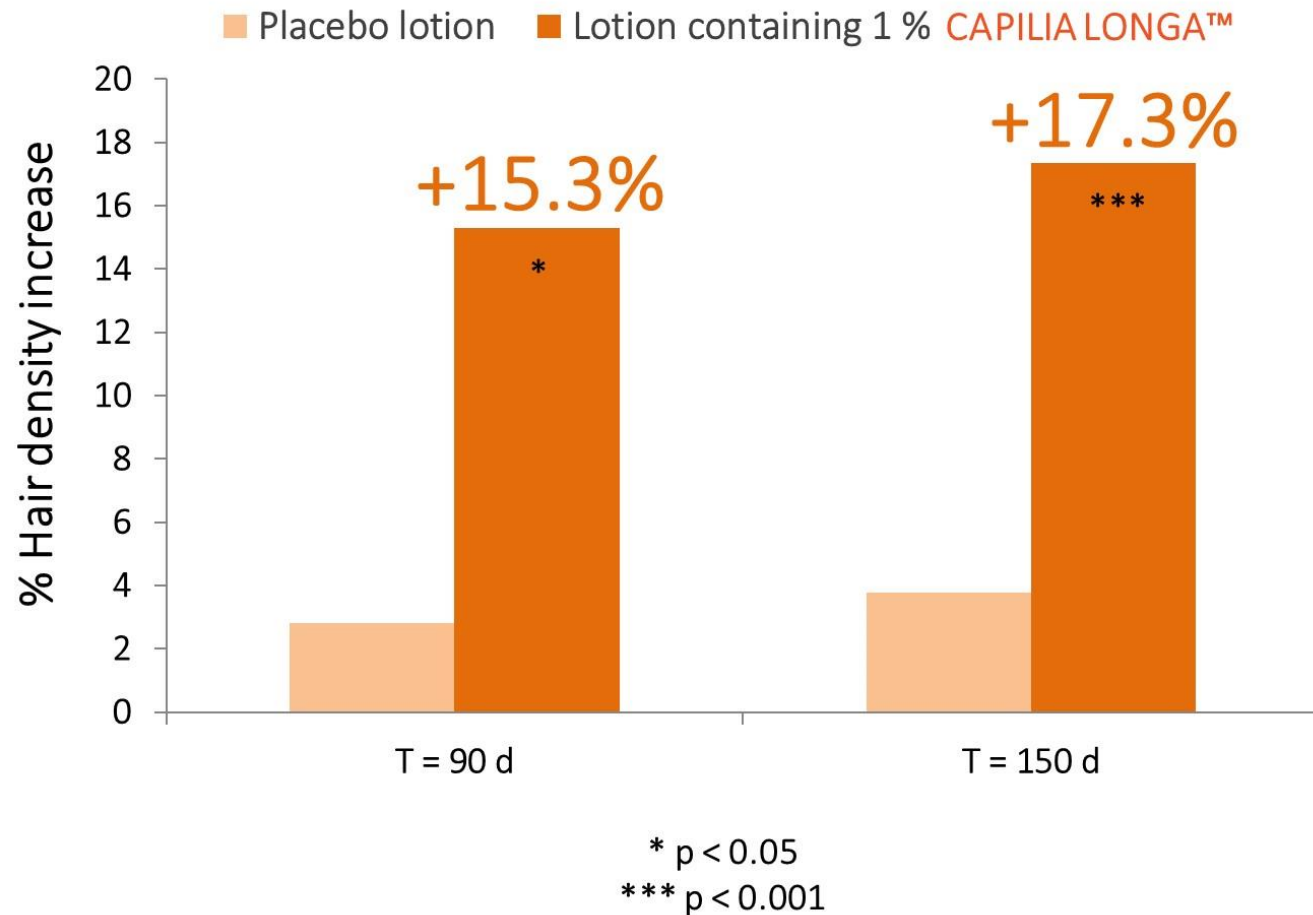
Vol. 19

Vol. 2

Vol. 20

# Clinical evaluation

## 3 Regenerative efficacy Microphotography (TrichoScan®)



Average of 15.3 % and 17.3% of Hair Density increase at 90 & 150 days, respectively

Regenerative effect

Defined cut spot on the side, over the ear (by cutting the spot we make sure we analyze the same spot all the time)

TrichoScan® pictures are analyzed by the software in order to obtain the hair count (No. hairs/cm<sup>2</sup>)

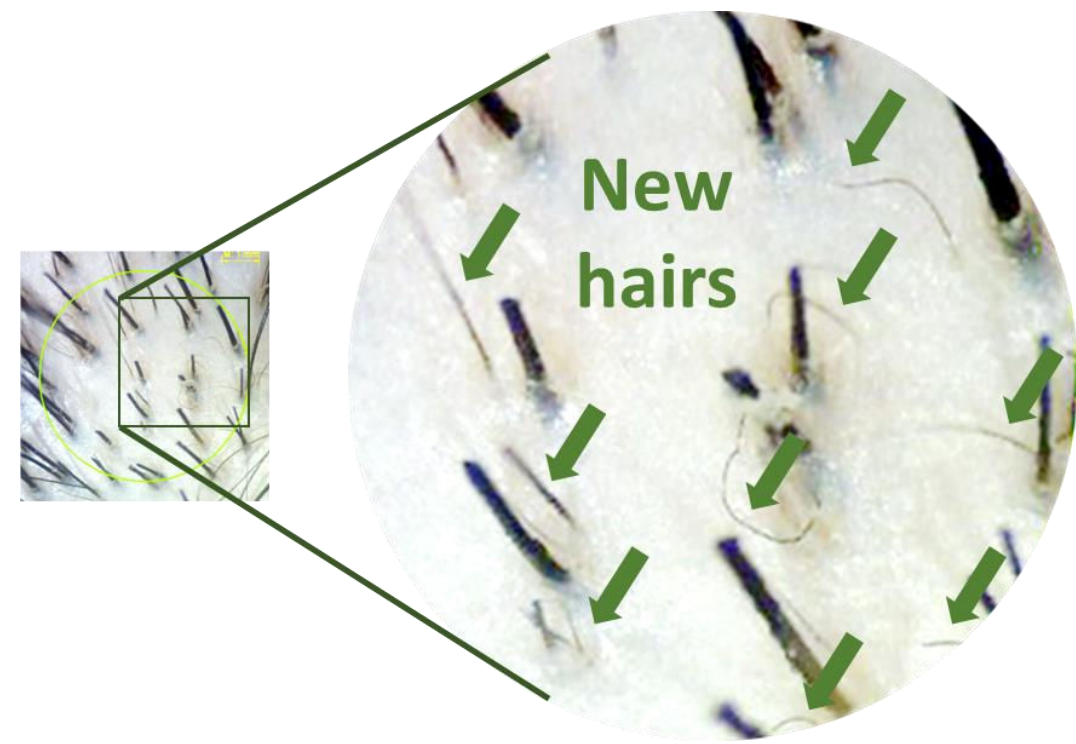
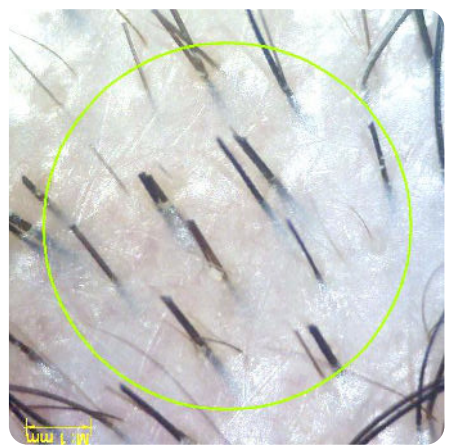
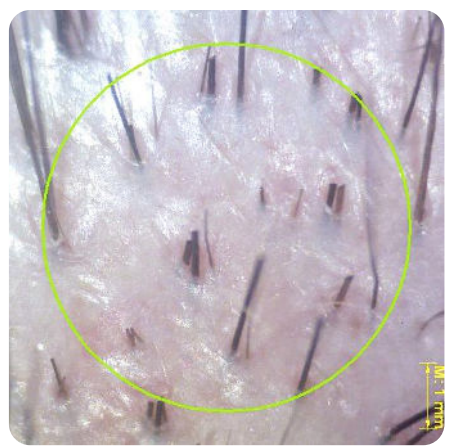
# Clinical evaluation

Average  
**13500**  
new hairs

## 3 Regenerative efficacy Microphotography (TrichoScan®)

T 0d

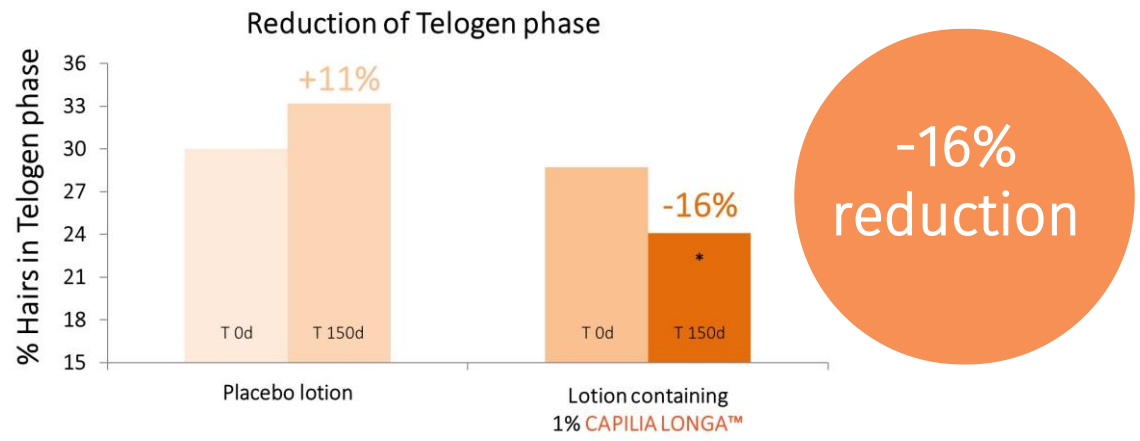
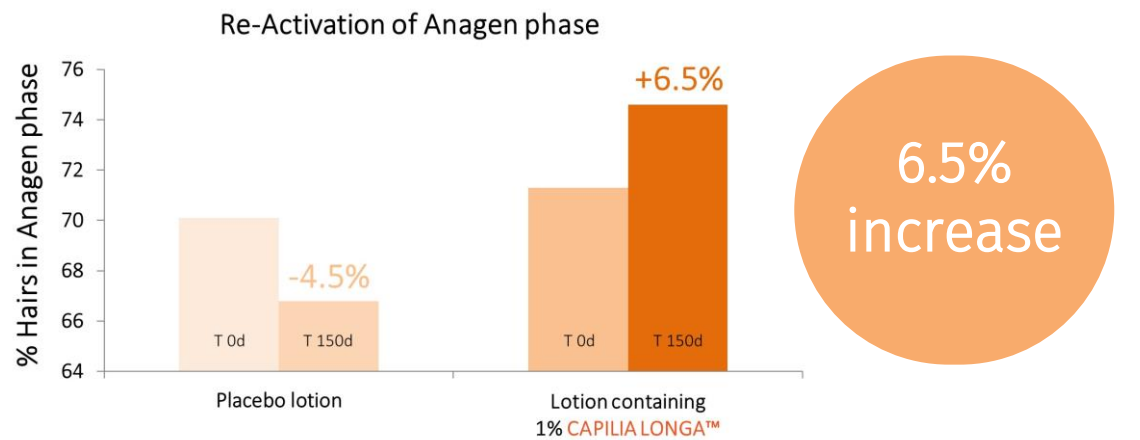
T 150d



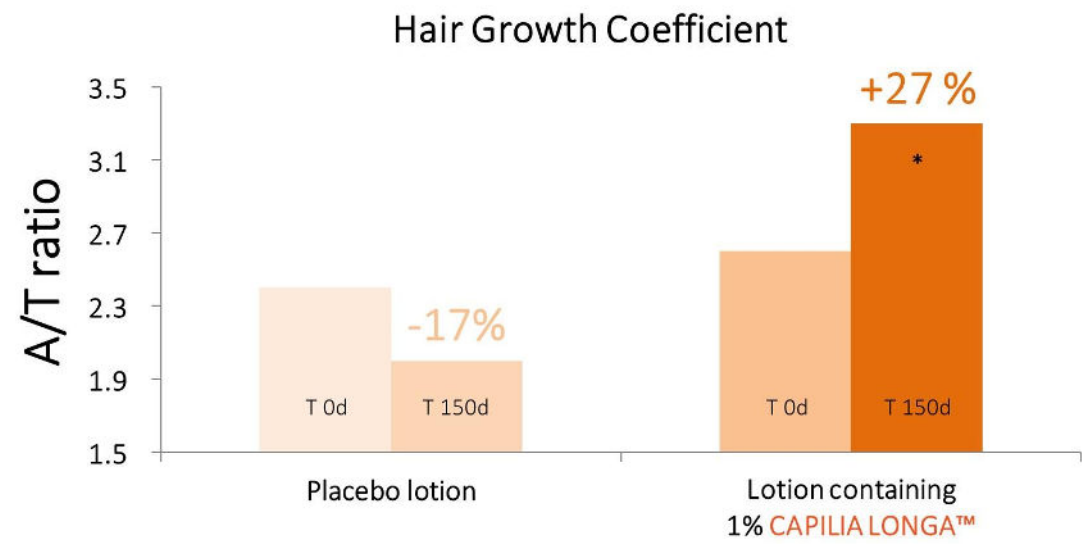
Up to 52% hair density increase at 150d

# Clinical evaluation

## 4 Rebalancing Hair Growth Cycle Trichogram



\* p < 0.05



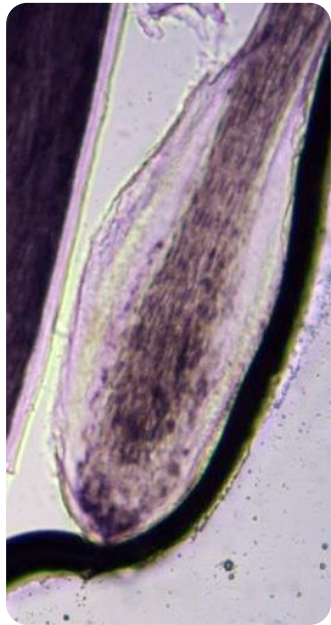
\* p < 0.05

27% increase of Hair Growth Coefficient (A/T ratio)

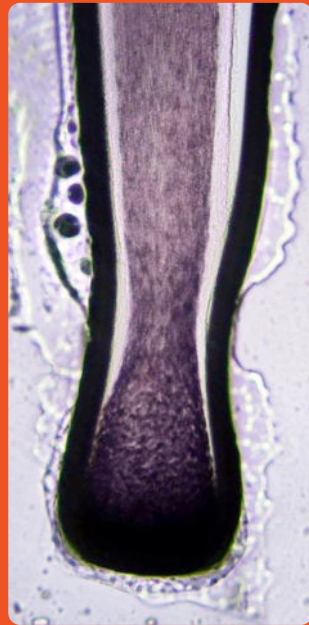
# Clinical evaluation

## 4 Rebalancing Hair Growth Cycle Trichogram

**MORE &  
LONGER  
ANAGEN  
PHASE**



T 0d



T 150d



More extensive sheaths



More developed regenerating area



Increase of active keratinocytes in the germinal matrix



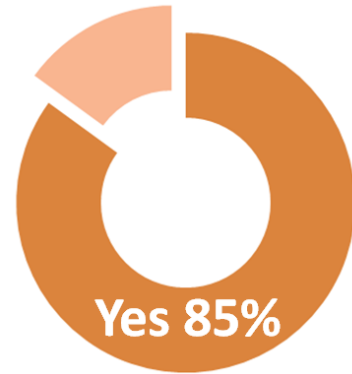
Better anchored & healthier hair

27 % A/T ratio increase (max. 140 %, i.e., 2.4-fold)  
A/T ratio from 2.6 to 3.3 (average); max. from 2.3 to 5.5

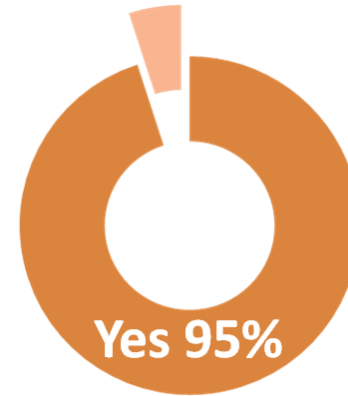
# Clinical evaluation

## 5 Self-Evaluation of volunteers

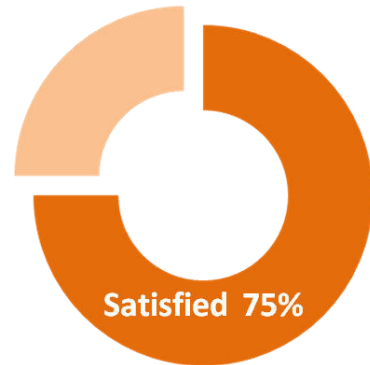
I notice new hair



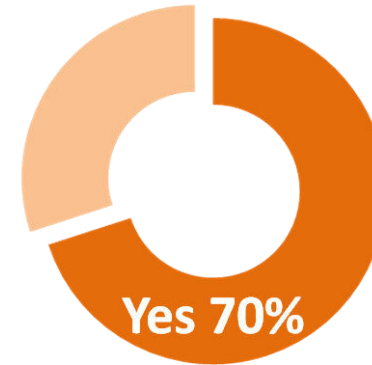
I notice hair loss reduction



Satisfaction Rate



Purchase Intention



BOOSTS HAIR GROWTH,  
DENSITY AND QUALITY

DELAYS HAIR LOSS

EPIGENETIC REBALANCE  
OF THE HAIR GROWTH  
CYCLE



STIMULATES BULB  
MICROCIRCULATION  
AND NUTRITION

ACTIVATES THE HAIR  
FOLLICLE  
REGENERATION

HAIR GROWTH FACTOR  
STIMULATION

PREVENTION AND  
REDUCTION OF HAIR  
LOSS PRODUCTS

HAIR GROWTH AND RE-  
DENSIFICATION  
STIMULATION  
PRODUCTS

BEARD GROWTH  
PRODUCTS



HAIR NOURISHING AND  
STRENGTHENING  
PRODUCTS

TREATMENTS FOR  
FRAGILE/WEAK/LACKIN  
G VOLUME HAIR TYPES

EYELASH AND EYEBROW  
GROWTH ENHANCING  
PRODUCTS



# Technical information



## Declarations

**Free from:** GMO, BSE, gluten, palm oil, cosmetic allergens, CMR ingredients, nanomaterials, VOC

COSMOS approved

ISO 16128 Natural Origin Index: 100%



## Dosage

Suggested use level: 0.5 – 2%



## INCI

Curcuma Longa (Turmeric) Root Extract, Water (Aqua), Pentylene Glycol, Phytic Acid



## Formulation

Water and ethanol soluble.

Incorporation during the cooling phase (<40°C).



Natural Innovation for a Better Life



[www.vytrus.com](http://www.vytrus.com)

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