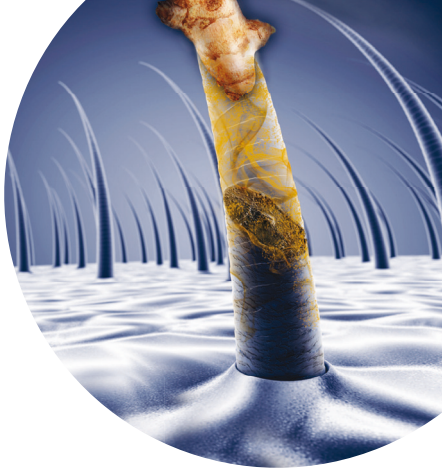
CAPILIA LONGA PPF

The Hair 3D BIO-PRINTER



Hair Growth Re-Activation by genuine Plant Growth Factors

- Epigenetic Reset of hair bulb
- Hair Follicle Regeneration
- Exclusive Nutritive Blend

PATENT PENDING

First Generation of PLANT PEPTIDES

Hair Programmed BIO-PRINTING

A GREAT TECHNOLOGY BEHIND

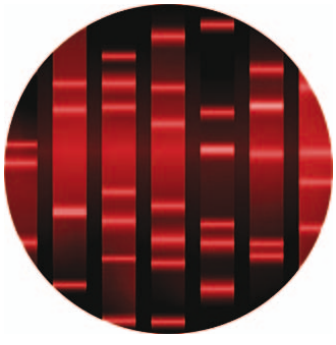
As expert developer of plant totipotent cell cultures, Vytrus Biotech launches a new range of products arising from the proprietary Technology Platform **Plant Cell Biofactories™** introducing: **Phyto-Peptidic Fractions™ (PPF).**

Phyto-Peptidic Fractions™ represent the first generation of **genuine plant peptides**, a revolutionary discovery that opens the door to a new generation of cosmetics.

Vytrus Biotech, through a driven **Growth Factor Control** development process has been able to **identify, produce and concentrate** these Phyto-Peptidic Fractions™ from an optimized culture of totipotent cells.

These PPF are the ultimate responsible of the extremely high regenerative properties of totipotent cells and, for the first time, this astonishing potential can be used in cosmetics.

That makes of Phyto-Peptidic Fractions™ the **first cosmetic active of this category** able to maintain the skin regenerative potential.



DESCRIPTION

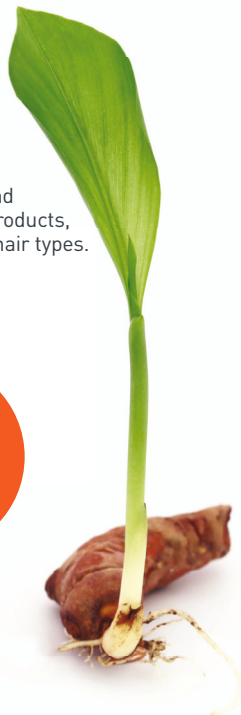
Curcuma longa is a tropical and subtropical plant characterized by the existence of very ramified, cylindrical and orange rhizomes. These rhizomes are a modified root that acts as a storage and resistance organ. They **grow endlessly** and have **excellent regenerative properties.**

Rich in curcuminoids (mainly curcumin), *Curcuma longa* is the **most studied plant in biomedicine**, having a huge potential, with more than 400 pre-clinic assays described in the literature and more than 1.000 publications showing its multiple properties (antioxidant, anti-inflammatory, wound healing, antimicrobial, DNA protecting, etc.)

CAPILIA LONGA^{PPF} represents a new activity profile for this species claiming the **Phyto-Peptidic Fractions™** as a new range of bioactives from *Curcuma longa* (Curcumin is only the 2-5% of turmeric powder).

CAPILIA LONGA^{PPF} is the **concentrated secretome** of totipotent cells from the rhizome of *Curcuma longa*. This secretome is **rich in signaling peptides** specially designed to create the optimal micro-environment to Re-Activate the hair growth.

CAPILIA LONGA^{PPF} acts as a Hair **3D BIO-PRINTER** resetting and guiding the hair follicle growth with a **BIO-SOFTWARE** (Phyto-Peptidic Fractions™), nourishing at the same time the hair follicle growth with an innovative **BIO-INK** (Exclusive Nutritive Blend).



APPLICATIONS

Prevention and reduction of hair loss, hair re-densifying treatments, follicular activity stimulators, hair growth promoters, restoratives and optimizers of hair follicle cycle, hair nourishing and strengthening products, hair fiber strengtheners, ideal for fragile, weak and lacking volume hair types.

INCI

Water (and) Curcuma Longa (Turmeric) Callus Conditioned Media (and) Glucunolactone (and) Sodium Benzoate
China approved INCI also available.

Phyto-Peptidic Fractions™ from Curcuma longa

FORMULATION

Water and ethanol soluble
Incorporation during the cooling phase (<40ºC).

DOSAGE

Suggested use level: 0,5 – 2%.

DECLARATIONS

Free off: GMO, BSE, listed CMR, VOC, heavy metals, listed allergens, parabens, phenoxyethanol, aflatoxins, pesticides and contaminants.

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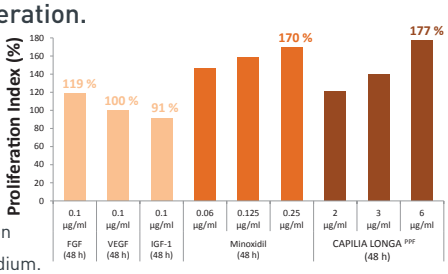
IN VITRO EFFICACY

1. Induction of Dermal Papilla cells Proliferation.

- Human Fibroblasts Dermal Papilla Cells (HFDPC).
- 48h of incubation with the product.
- Measurement of incorporation of Bromodeoxiuridine (BrdU) in the DNA of HFDPC through an Immunocto-chemical assay.
- The levels of fluorescence intensity indicate the Proliferation Index of HFDPC compared to Not treated Cells in Basal Medium.

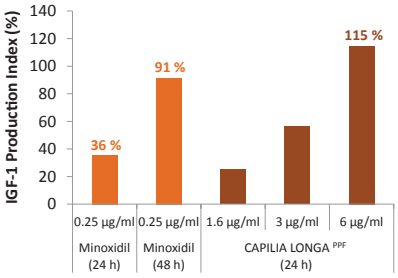


Up to 177% of Proliferation Index (compared to Not Treated cells), showing a Higher effect that other Growth Factors (HGF, FGF, VEGF, IGF-1) and even higher than Minoxidil (169%).

Growth Factor-like Effect

2. Induction of Insulin Growth Factor (IGF-1) Production from Dermal Papilla Cells.

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

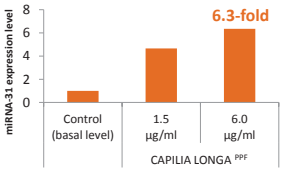


Up to 115% of Production Index (compared to Not Treated cells) from the HFDPC, showing a faster activity than Minoxidil (36%).

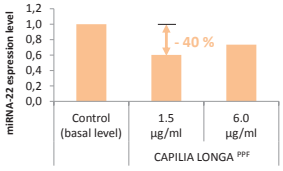
Minoxidil-like Effect

3. Modulation of miRNA31 and miRNA22 expression levels from Derma Papilla Cells.

- Human Fibroblasts Dermal Papilla Cells (HFDPC).
- 24h of incubation with the product.
- Quantification of miRNA levels from HFDPC supernatants through qPCR.
- Analysis of raw data by Pfaffl method where the expression of each gene is compared with a control gen Actin (housekeeping gene).
- Production Index results compared to Not treated Cells in Basal Medium.



Up to 6.3 times miRNA-31 Expression Stimulation (compared to Control).

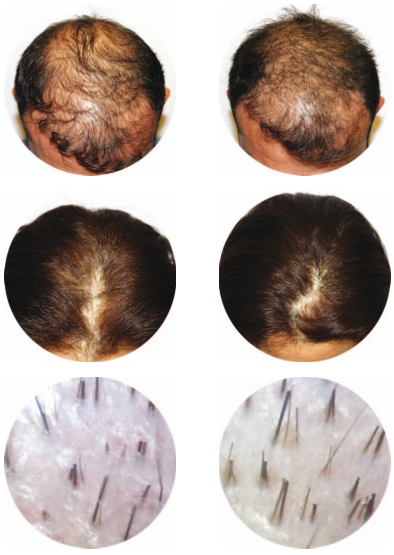


Up to 40% miRNA-22 Expression Index Reduction (compared to Control).

IN VIVO EFFICACY

- Panel of 40 volunteers.
- Showing Hair Loss (A/T<4).
- Different etiologies*.
- Men: grade Hamilton II-IV.
- Women: grade Ludwig I-II.
- 18-60 years old.
- 1% dosage.
- 1 application/day on the scalp.
- Double blind assay. 45 - 90 - 150 days.

* Male and Female androgenetic alopecia, seasonal alopecia, difuse alopecia, Hair loss due to technical processes, fragility, menopause.



Up to 89% hair loss reduction at 150d

Up to 52% hair density increase at 150d

Up to 13.500 new hairs

SAFETY PROFILE

In vivo:
- Skin Tolerance (patch test).
- Sensibilization (HRIPT).

In vitro:
- Skin irritation potential.
- Ocular irritant potential.
- Mutagenicity.
- Cytotoxicity.

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