

TURMERIA ZEN^{PRCF}

Relax the Stress of your BRAIN-SKIN CONNECTION

Welcome
to the
Cosmetics of
Emotions

- The Anti-stress wrinkles
- Emotional hydration Manager
- Modulator of Brain-skin connection



Make your skin speak for you

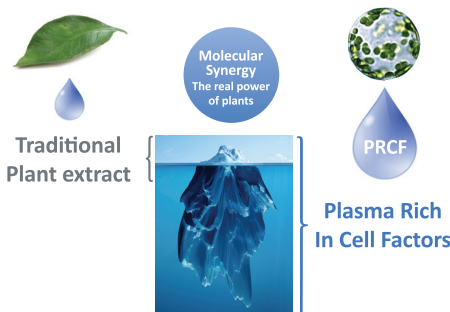


A GREAT TECHNOLOGY BEHIND

As expert developer of plant cell cultures, Vytrus Biotech launches a new range of products based on the technology of plant stem cells introducing: **Plasma Rich in Cell Factors™ (PRCF)**.

PRCF arises from our Plant Cell Biofactories (PCB) Technology. This technology is based in a driven development process that is designed to enrich the cell culture in several fractions of active molecules in sync (**the metabolome**), targeting the molecular synergy phenomenon.

PRCF is the Company innovative approach to the phenomenon and proprietary concept of **Molecular Synergy**: the new way to take advantage of the real power of plants.



DESCRIPTION

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

Rich in diarylheptanoids (mainly curcumin), *Curcuma longa* is the **most studied plant in biomedicine**, having a huge potential thanks to its multiple properties (antioxidant, anti-inflammatory, wound healing, antimicrobial, DNA protecting, etc.).

TURMERIA ZEN^{PRCF} represents a new activity profile for this species claiming the Plasma Rich in Cell Factors™ as a new combination of bioactives (**metabolome**) from *Curcuma longa*.

Stress, tiredness and lack of sleep all affect our skin in many different ways. Our immune system is disturbed, making the skin more vulnerable and causing inflammation and dehydration. More wrinkles appear while existing wrinkles become deeper; there is a loss of elasticity, a delay in wound healing, damage to skin structure and a decrease in barrier function. Stress leads to the excessive release of stress-response hormones like Cortisol, altering the skin homeostasis (water balance and ECM structure).

TURMERIA ZEN^{PRCF} is the concentrated metabolome of totipotent cells from *Curcuma longa* rhizome. This **metabolome** is rich in stress-related cell factors specially designed to act synergistically **against the harmful effects of stress**, modulating the **brain-skin connection**.

APPLICATIONS

Cosmetic preparations for psychographic stress profiles (teenagers, pregnant women, heavy workload, caregivers, etc.), moisturizing products, anti-stress, well-being, cosmetics, sensitive and sensitized skins, threatened or sun-exposed skin, delicate areas (eye, lips, scars, etc.), scalp preparations, preventive cosmetics of psycho-induced aging and psycho-dermatological co-adjuvant.

INCI

Curcuma Longa (Turmeric) Callus Lysate, Glycerin, Pentylene Glycol, Phytic Acid, Water (Aqua).
China listed INCI also available.
Preservative Free.

FORMULATION

Water and ethanol dispersible.
Incorporation during the cooling phase (<40°C).

DOSAGE

Suggested use level:
0,5 - 2%.

DECLARATIONS

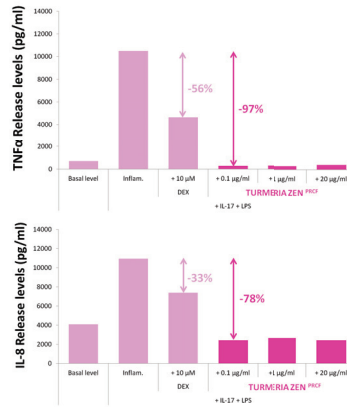
Free off: GMO, BSE, listed CMR, VOC, heavy metals, listed allergens, parabens, phenoxyethanol, aflatoxins, pesticides and contaminants.



IN VITRO EFFICACY

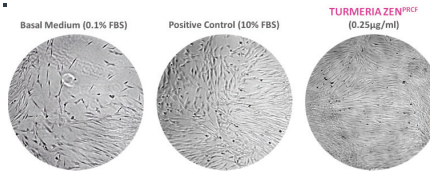
1. Anti-inflammatory activity in activated Human Monocytes (THP-1).

- Human Monocytes line THP-1.
- Treatment phase: "inflamed" cells treated with TUMERIA ZEN^{PRCF} for 24 h.
- TNF-α and IL-8 levels quantified from the cell culture supernatant by ELISA.
- Positive control of inflammatory activity: IL-17 (3ng/ml) + LPS (10μg/ml).
- Negative Control of Anti-Inflammatory Action: Dexamethasone (10μM) + IL-17/LPS.



2. Wound healing properties (Scratch test).

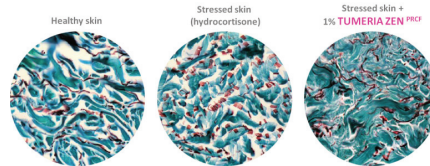
- Human Dermal Fibroblasts (HDF).
- A 2 mm wound realized on the monolayer culture.
- FBS: Fetal Bovine Serum, Positive control.
- Monitoring of the healing process by phase contrast microscopy (48h).



EX VIVO EFFICACY

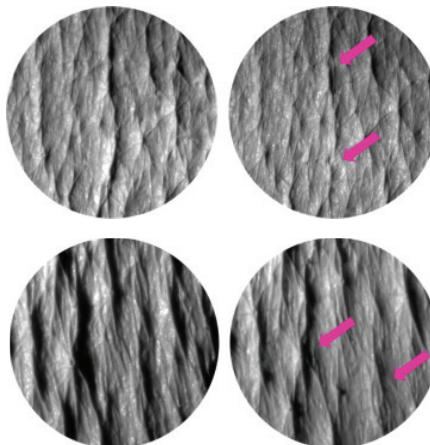
Protection effect on cortisol-stressed skin explants.

- Human Organotypic Skin Explant Culture (hOSEC).
- Stressed skin: Induction of stress by exposure of healthy explants to hydrocortisone (10μg/ml) daily.
- Skin treated with 2%, 1% or 0.5% of TURMERIA ZEN^{PRCF} daily.
- Optical microscopy images from histological sections stained with Masson's trichrome.
- Quantification of Collagen and Elastin levels by colorimetry (12 days).



IN VIVO EFFICACY

- Single blind placebo-controlled study.
- 16-20 vol. (35-50 years old) 1% TURMERIA ZEN^{PRCF}.
- Women subjected to psychosocial stress.
- Volunteers selection through:
 - STAI questionnaire (State-Trait Anxiety Inventory for Adults).
 - Cortisol test in saliva (Salimetrics® Europe Ltd).
- Application zone: face.
- Measurements in cheeks.
- 2 applications/day.
- 28d (winter: January-February, Poland).



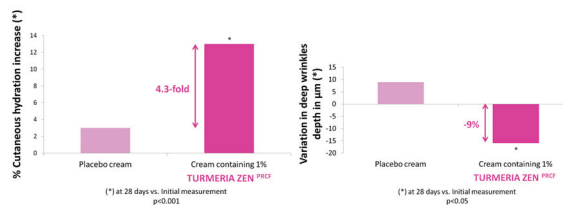
SAFETY PROFILE

In vivo:

- Skin Tolerance (patch test).
- Sensitization (HRIPT).

In vitro:

- Skin irritation potential.
- Ocular irritant potential.
- Mutagenicity.
- Cytotoxicity.



TUMERIA ZEN^{PRCF} completely restored TNF-α and IL-8 levels from inflamed cells. The effect was very potent at all tested doses reaching up to -97% and up to -78%, respectively.

Dexamethasone-like Effect

TUMERIA ZEN^{PRCF} accelerated the healing process up to +72% at 24h and up to +63% at 48h compared to baseline conditions.

TUMERIA ZEN^{PRCF} protected the collagen and elastin degradation levels up to +80% and up to +88% compared to stressed skin explants, respectively.

Prevents the harmful effects of stress

TUMERIA ZEN^{PRCF} significantly increased the average cutaneous hydration rate at 28 days of treatment: 13% average from the start of the study, representing up to 4.3-fold higher than placebo.

Emotional Hydration Manager

TUMERIA ZEN^{PRCF} significantly reduced the depth of deep wrinkles at 28 days: 9% average from the start of the study and up to 40% as the maximum obtained effect.

The Anti-Stress wrinkles