

LUMINIA GRANATUM^{PRCF}

A synergistic **BRIGHTENING** approach.

LUMINIA GRANATUM^{PRCF}

enhances radiance and glow of skin, the result is a more even tone and texture and a visible brightening effect.

Extremely effective brightening strategy based in a three-angle approach:

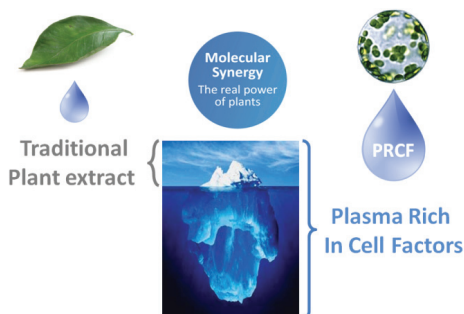
- Natural Lightening Perfector
- Texture and Tone Evener
- Radiance and Glow Enhancer

A GREAT TECHNOLOGY BEHIND

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

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.

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, targeting the molecular synergy phenomenon.



DESCRIPTION

LUMINIA GRANATUM^{PRCF} is a powder derived from the cultured plant stem cells from the seeds of Punica granatum (Pomegranate) that is obtained by our Plant Cell Biofactories™ Technology.

LUMINIA GRANATUM^{PRCF} enriched in characteristic hydroxybenzoic acids, is standardized in gallotannins (gallic acid) and ellagitannins (ellagic acid).

PCB Technology allows to stimulate the cell cultures of **LUMINIA GRANATUM^{PRCF}** for obtaining the highest production of ellagic acid and gallic acid, the major antioxidants in pomegranate.

Phytore Biotech's Know-how in bio-engineering of stem cell cultures allows to stimulate the stress signaling pathways to enhance the production of these key antioxidant and anti-inflammatory acids. Therefore, **LUMINIA GRANATUM^{PRCF}** includes a unique skin friendly synergistic combination that ends up in an innovative whitening and lightening approach.

APPLICATIONS

Brightening and lightening creams, prevention and treatment of photo-induced pigmentation, radiant and glowing cleansers, eye contour brightening treatments, skin tone eveners, spot fading treatments, hand and décolletage products, outdoor-care and sun protection, anti-aging treatments.

INCI

Maltodextrin (and) Punica Granatum Seed Cell Culture Lysate.
China approved INCI also available.
Preservative Free.

FORMULATION

Water and ethanol soluble.
Incorporation: dissolve **LUMINIA GRANATUM^{PRCF}** into the aqueous phase or add pre-solved, during the cooling phase (<40°C).

DOSAGE

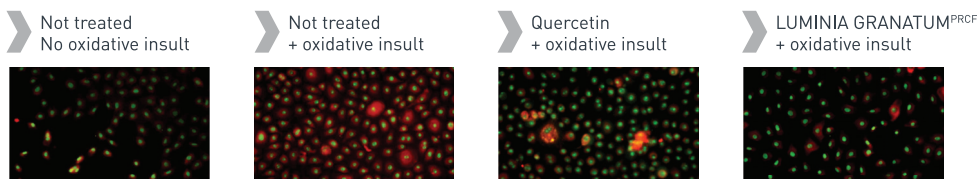
Suggested use level: 0.3 – 1%.

DECLARATIONS

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

IN VITRO EFFICACY

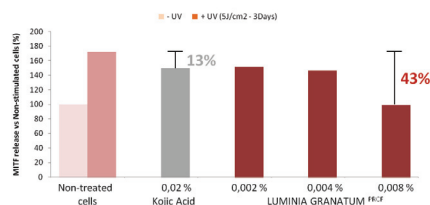
1. Antioxidant effect on Human Epidermal Progenitor Cells against Sun Radiation induced oxidative stress.



- Green fluorescence: DNA oxidation (CellRox green).
- Orange fluorescence: Cytoplasmic oxidation (CellRox Orange).

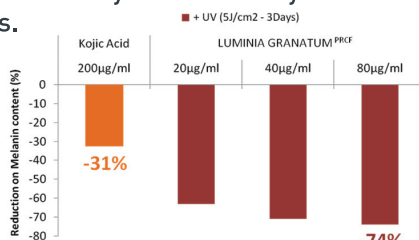
2. Melanogenesis inhibition on UV-induced Keratinocytes – Melanocytes co-culture: inhibition of MITF expression.

- Co-culture of Human Epidermal Progenitor Cells (HEPC) and Human Epidermal Melanocytes (HEM) in a proportion 3:1, respectively, during 24h.
- 1 application/day of Sun Radiation (5J/cm²) and LUMINIA GRANATUM^{PRCF}, 3 days treatment.
- Quantification of Microphthalmia-Associated Transcription Factor (MITF) levels from the supernatants by ELISA.



3. Melanogenesis inhibition on UV-induced Keratinocytes – Melanocytes co-culture: inhibition of Melanin synthesis.

- Co-culture of Human Epidermal Progenitor Cells (HEPC) and Human Epidermal Melanocytes (HEM) in a proportion 3:1, respectively, during 24h.
- 1 application/day of Sun Radiation (5J/cm²) and LUMINIA GRANATUM^{PRCF}, 3 days treatment.
- Quantification of Melanin level by spectrophotometry (365nm).



* Protection Index: reduction of ROS production compared to control (not treated, irradiated).
 * Sun radiation: irradiation with a solar simulator lamp (SOL500 Dr. Hönle).

More in vitro studies available

Up to 38% of Protection Index against oxidative stress after Sun radiation*.

Results show a more intense whitening effect on dark spots than at the skin hue, therefore skin is more even and uniform.

Up to 43% of inhibition index in MITF levels after a Sun Radiation induction.

Up to 74% of inhibition index in the melanin synthesis after a Sun Radiation induction.

LUMINIA GRANATUM^{PRCF} enhances skin radiance improving glow and evening the tone and texture for a flawless complexion and perfect skin.

LUMINIA GRANATUM^{PRCF} shows a skin tone whitening and brightening effect in 87% of the volunteers: +3.5% increase in skin brightness.

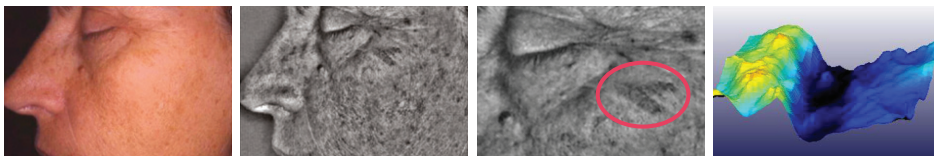
LUMINIA GRANATUM^{PRCF} shows a spot whitening effect in 100% of volunteers: 31% in melanin index (ITA) 5.4% increase in skin luminosity (L*).

LUMINIA GRANATUM^{PRCF} shows a smoothing effect in 80% of volunteers (Crow's Feet wrinkles): 10.8% improvement in skin roughness (Ra).

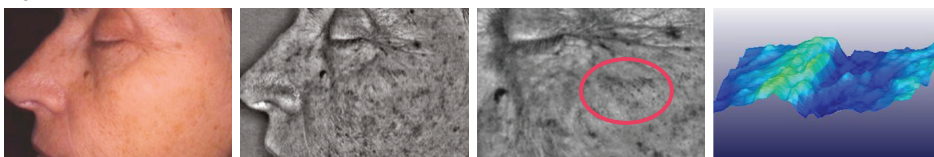
IN VIVO EFFICACY

- 30 Caucasian volunteers.
- 40-70 years old (average 60.1).
- 15 vol. 0.3% dosage.
- 15 vol. 1% dosage.
- Face 6 & 12 weeks.
- 2x day.

T 0



T 12 wks



SAFETY PROFILE

In vivo:

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

In vitro:

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