GLYCEROPHOSPHOINOSITOL CHOLINE
GLYCEROPHOSPHOINOSITOL LYSINE

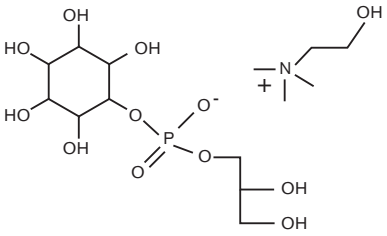
FROM SUNFLOWER THE FASTEST RELIEF
AGAINST INFLAMMATION AND ITCH
WITH LONG TERM RELIABILITY

COSMETICS

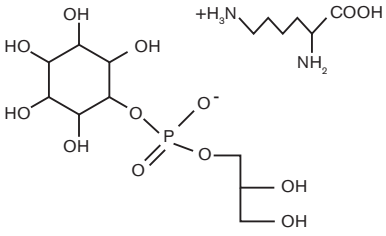
GLYCEROPHOSPHOINOSITOL CHOLINE
GLYCEROPHOSPHOINOSITOL LYSINE

Glycerophosphoinositol (GPI) salts are innovative sunflower lecithin-derived active ingredients, covered by a wide international patent both on the molecules and their cosmetic application.

They are semisyntetic derivatives of glycerophosphoinositol, a natural cell component produced by lipid metabolism.



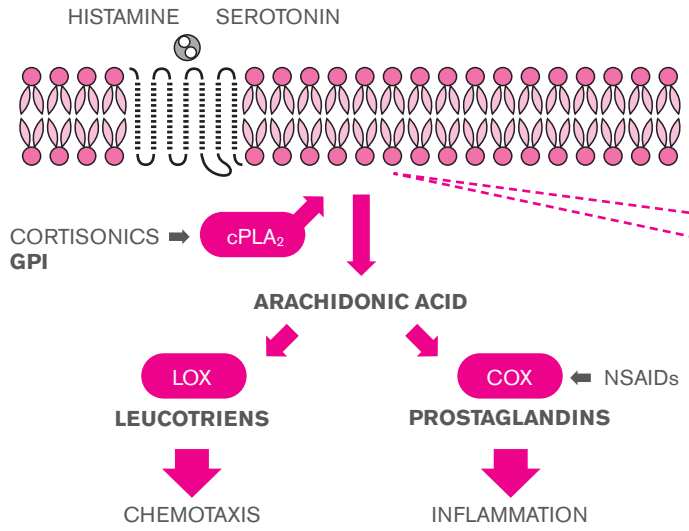
GLYCEROPHOSPHOINOSITOL CHOLINE



GLYCEROPHOSPHOINOSITOL LYSINE

GPI acts upstream in the inflammatory cascade via an innovative mechanism of action since it fits into an entirely physiological auto-regulating system.

MECHANISM OF ACTION: negative feedback inhibition of citosolic Phospholipase A_2 ($cPLA_2$), an enzyme involved in inflammation and main inducer of the release of arachidonic acid.



INCI NAME:
water, glycerophosphoinositol choline, phenoxyethanol, ethylhexylglycerin
FEATURES: Glycerophosphoinositol (GPI) choline 10% aqueous solution.

INCI NAME:
water, glycerophosphoinositol lysine, phenoxyethanol, ethylhexylglycerin
FEATURES: Glycerophosphoinositol (GPI) lysine 11% aqueous solution.

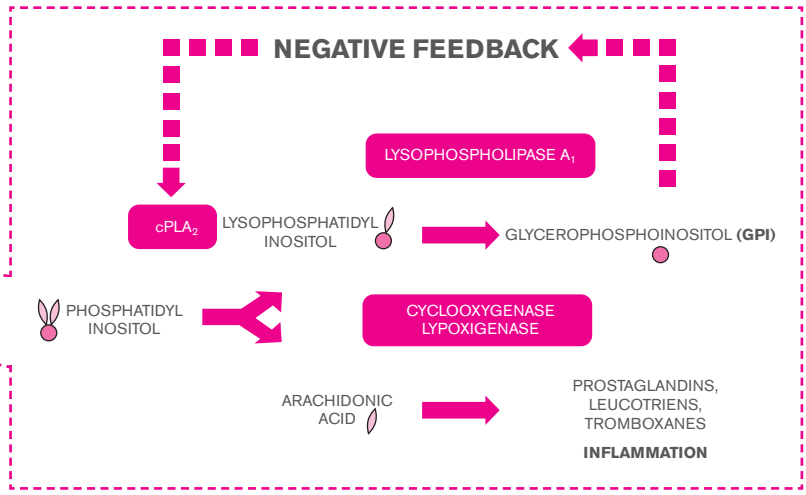
THE WHEN

FROM SUNFLOWER THE FASTEST RELIEF AGAINST INFLAMMATION AND ITCH WITH LONG TERM RELIABILITY.

THE WHY

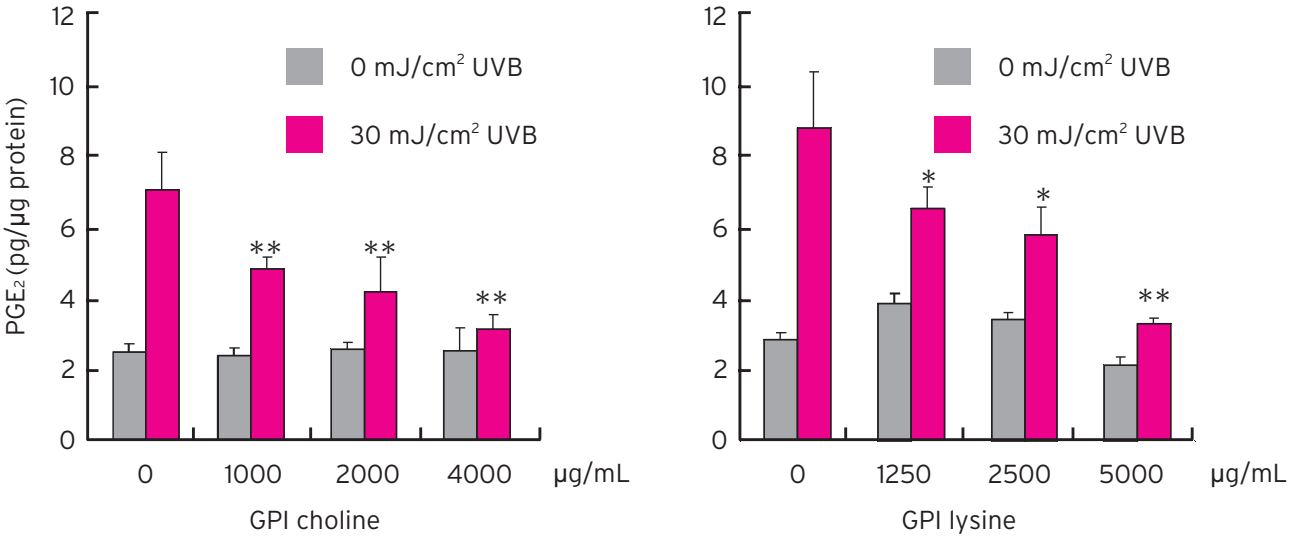
- **QUICK and EFFECTIVE:** defined and innovative mechanism of action upstream in the inflammatory cascade at the same level of cortisonic agents
- **NATURAL:** GPI choline and lysine supports an existing physiological control system
- **SAFE:** selective and devoid of side effects typical of cortisonic agents (no interference with the hormonal balance of the body)

PATENT PROTECTED patent n. EP1332149-1
Granted in Europe, USA, China, India, Israel and Canada



PROTECTION FROM PHYSICAL AGENTS

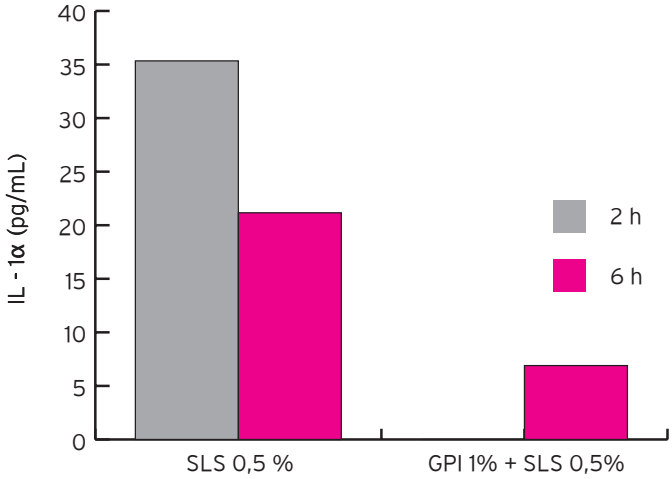
Normal Human Epidermal Keratinocytes (NHEK) were pretreated with different concentrations of GPI for 24 hours. Cells were then exposed to UVB (25 mJ/cm²) and the levels of Prostaglandin E2 (PGE_2) secreted into the media were quantified by ELISA kit. Significant differences were analyzed by Student's t-Test; * $p < 0.05$; ** $p < 0.01$.



GPI choline and lysine significantly suppress UVB-induced PGE_2 secretion in NHEK keratinocytes.

PROTECTION FROM CHEMICAL AGENTS

The surfactant agent sodium lauryl sulphate (SLS), with or without GPI choline, is applied for 24 hours on the upper keratinized layer of Skinethic® epidermis units at the 16th day of culture. At the end of the exposure period, the cell culture medium below epidermis units is collected and the level of the pro-inflammatory cytokine interleukin 1α (IL-1α) is quantified by ELISA kit.



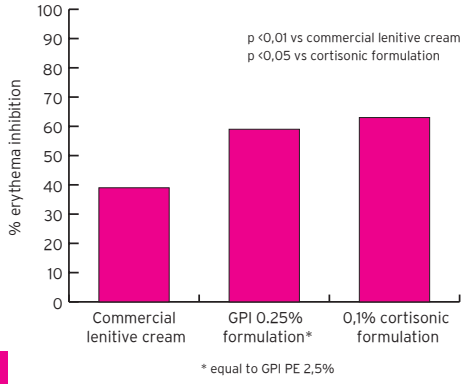
GPI choline inhibits the release of IL-1α from keratinocytes of 3D human epidermis. The compound alone does not cause any detectable cytokine release (data not shown).

THE CLINICAL EVIDENCE:

A large dossier of clinical studies, conducted in collaboration with leading Universities and Dermatologic centers, has demonstrated the efficacy of this compound in treating all kinds of skin conditions, physiological and pathological, such as heat rash, dermatitis and psoriasis, **without the side effects typically associated with topical cortisone**.

THE SKIN: UVB-INDUCED ERYTHEMA

- 20 subjects
- UVB irradiation of forearms (dosage: 2 MED)
- 6 hour application of topical formulations
- 48 hour quantitative monitoring of erythema by reflectance spectrophotometry

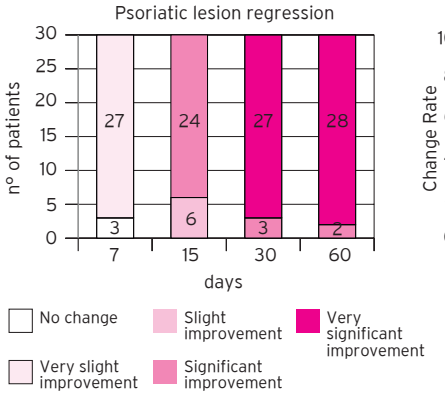


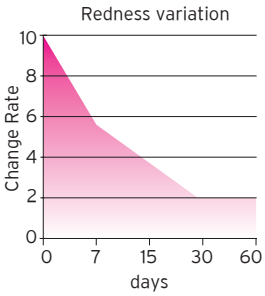
GPI choline reduces UVB-induced erythema by 60% providing a lenitive efficacy comparable to that of a cortisonic preparation.

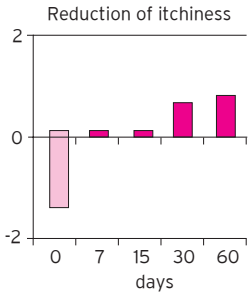
THE SKIN: PROTECTIVE AND SKIN BALANCING ACTIVITY IN THE PSORIATIC MODEL

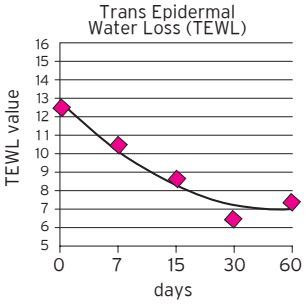
- 30 subjects suffering of mild-to-moderate psoriasis
- twice a day treatment for 60 days with a 1% GPI Choline cream*
- clinical monitoring of psoriasis symptoms (psoriatic lesion, redness, itchiness) and instrumental evaluation of the main skin parameters (TEWL, hydration)

*equal to GPI PE 10%







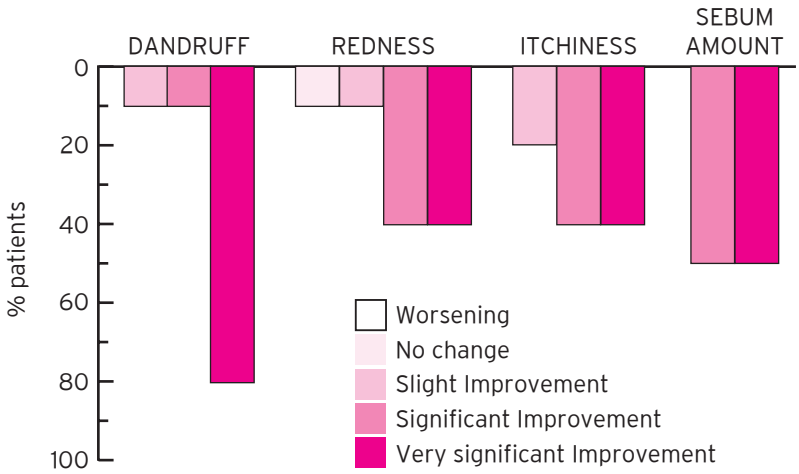


GPI choline reduces quickly (in 30 days) and efficiently psoriatic scales, redness and itchiness and normalizes the main parameters of the psoriatic skin.

THE SCALP: THE ANTI-DANDRUFF ACTIVITY

- 10 subjects suffering seborrheic dermatitis and dandruff on the scalp
- once a day treatment for 30 days with a 0,25%* GPI choline lotion
- clinical and dermatoscopical monitoring of symptoms at the end of treatment

* equal to GPI PE 2,5%



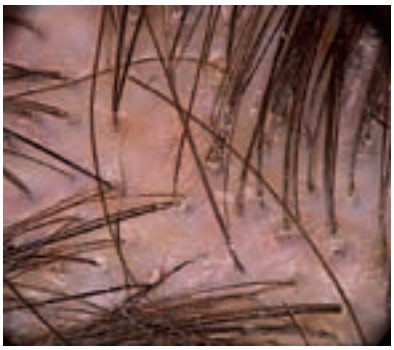
GPI choline provides a marked and rapid reduction of dandruff and related symptoms, such as itchiness and redness, without the side effects associated with topical cortisone agents.

SUBJECT 1

BEFORE

AFTER

SUBJECT 2



BEFORE

AFTER

THE HOW

COSMETIC USES

› after-sun and soothing treatments
› control of symptoms of sensitive and inflamed skin
› control of dandruff seborrheic dermatitis and related symptoms (redness, itch)
› prevention of photo-aging and aging (control of skin micro-inflammation)
› prevention of post-inflammatory spots

RECOMMENDED CONCENTRATION:

› 1-10% (corresponding to 0,1-1% GPI choline/lysine)

FORMULATION GUIDELINES:

› compatible with any type of formulation (emulsions, lotions, shampoos, ...)
› stable to wide temperature and pH ranges
› enhanced activity in association with phospholipids (eg. Lecithin)

PRODUCT SPECIFICATIONS

Product code	IRB G01-005 PE	IRB G01-006 PE
Product name	GPI PE	GPI LYSINE PE
Product composition	Glycerophosphoinositol (GPI) choline 10% aqueous solution	Glycerophosphoinositol (GPI) lysine 11% aqueous solution
Chemical name	L-α-glycero-phospho-D-mio-inositol choline salt	L-α-glycero-phospho-D-mio-inositol lysine salt
INCI name	aqua/water glycerophosphoinositol choline, phonoxyethanol, ethylhexylglycerin	aqua/water, glycerophosphoinositol lysine, phenoxyethanol, ethylhexylglycerin
Content	9,5 - 10,5% (w/w)	10,5-11,5 % (w/w)
Appearance	Opalescent liquid	Opalescent light yellow liquid
Density	0,9 - 1,1 g/mL	0,9-1,1 g/mL
pH	6,0 - 7,8	6,0 - 7,8
Final treatment	Ultrafiltered through 5000 Da membrane	Ultrafiltered through 5000 Da membrane
Preservatives	0,9% phenoxythanol, 0,1% ethylhexylglycerin	0,9% phenoxyethanol, 0,1% ethylhexylglycerin
Microbiological Specifications	Total microbial count: bacteria < 100 CFU/g fungi < 100 CFU/g	Total microbial count: bacteria < 100 CFU/g fungi < 100 CFU/g
Packaging	1 Kg	1 Kg
Storage	Store the product in the original closed container in a cool area	Store the product in the original well closed container in a cool area
Shelf life	36 months	36 months

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OPTIMIZING
IN MICRO,
IMPROVING
THE MACRO

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