

ISP

BIOTECHNOLOGIES

Vincience  
ACTIVES

# GP4G IS

## Description

**A unique plankton extract that energizes and protects skin from environmental stress, and enhances maintenance and repair.**

GP4G IS is a cosmetic active ingredient extracted from the plankton *Artemia salina*. It is designed for energizing and regenerating skin care products.

GP4G IS also offers a new way to increase cellular defenses against UV stress and demonstrates **multiple protective effects**:

- Enhances cellular protection against UV aggressions and DNA damage
- Stimulates HSP70, proteins implicated in the fight against cellular stress, and increases skin defenses as well as resistance to UV and heat stress
- Provides an anti-inflammatory action by decreasing the level of inflammatory cytokines such as IL-1 $\alpha$ , IL-8 and TNF $\alpha$ .

## Properties

- Cellular energizer and revitalizer that increases cAMP *in-vitro*
- Stimulates protein synthesis (keratin, filaggrin, collagen, fibronectin) *in-vitro*
- Important effect on DNA protection: significantly decreases stress-induced DNA damage
- Induces HSP70 in stress-free manner
- Protects against different stresses (in particular UV stress) and photoaging
- Restores HSP70 in skin damaged by aging or by treatment with retinoids
- Validated by ECOCERT

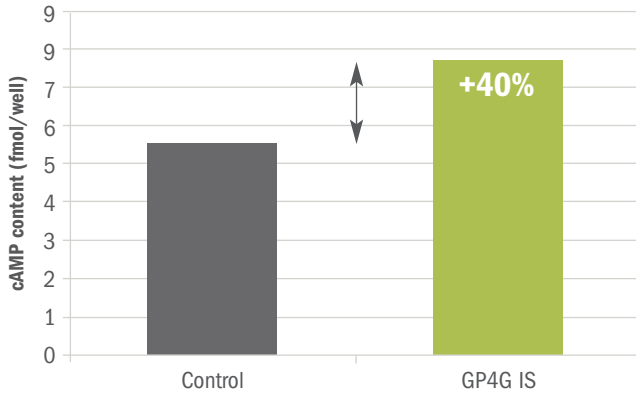
## Cosmetic applications

- Revitalizing or energizing skin care products
- Day creams for DNA protection and repair
- Anti-photoaging cosmetic skin care
- Sun products to help DNA protection and repair
- Products for skin protection and defense against environmental stress (HSP)
- Co-active energetic boosters (cell signal enhancer)

ISP Vincience™ Actives

## 1. GP4G IS increases cAMP (*in-vitro* study)

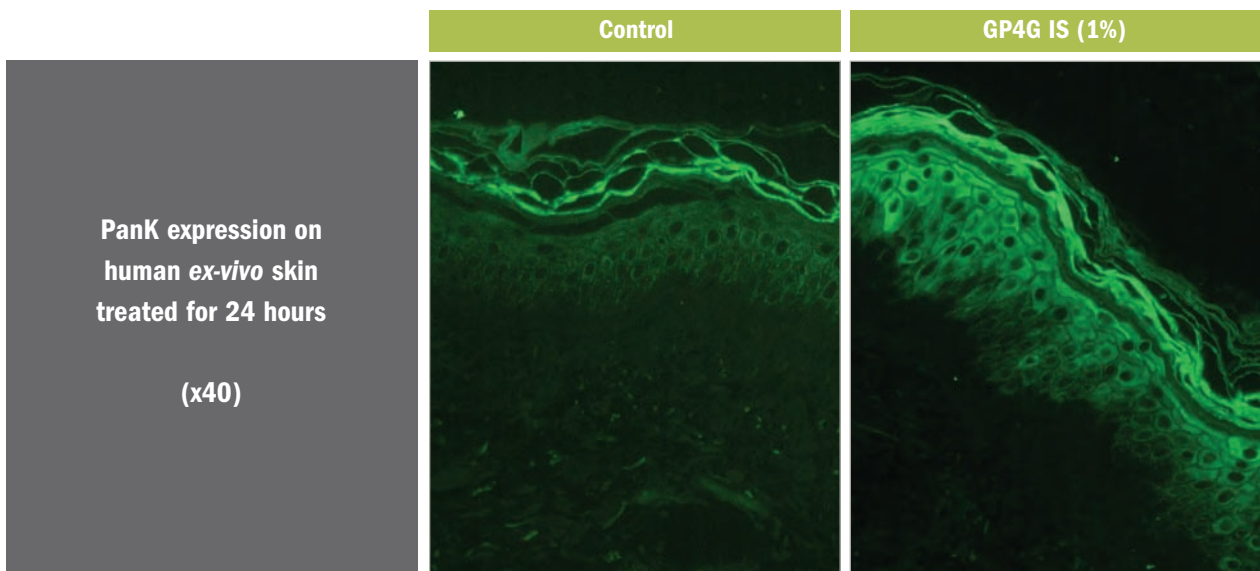
**Cells:** Human fibroblasts    **Dose:** GP4G IS 2%    **Evaluation:** Immunoenzyme assay



GP4G IS as an ATP precursor demonstrates energizing properties: it “boosts” cAMP-dependent metabolic pathways.

## 2. GP4G IS promotes synthesis of epidermal and dermal proteins

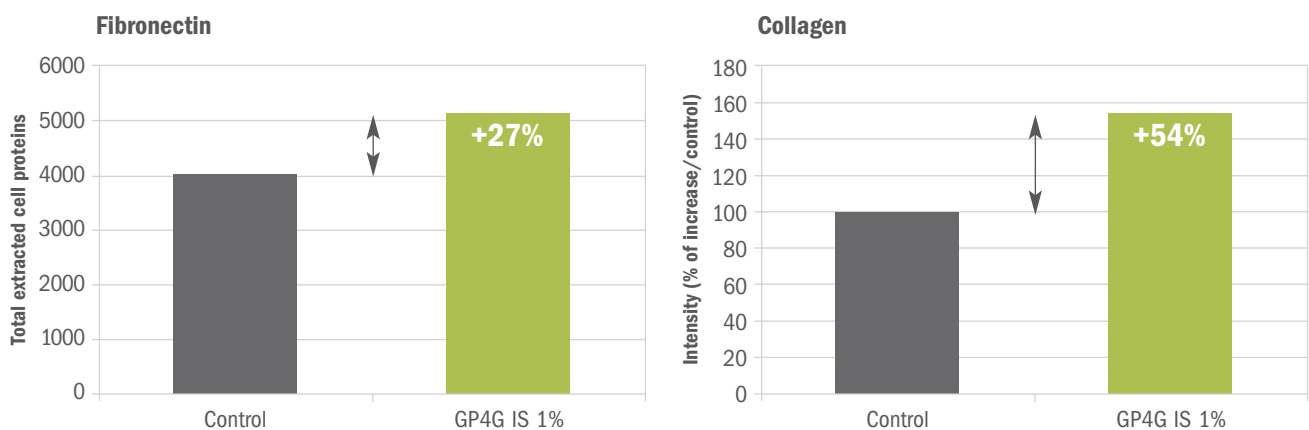
### 2.1 Epidermal proteins



Additional *in-vitro* tests on keratinocytes (immunoblotting) demonstrate that GP4G IS at 1% increases keratin synthesis by 68% after 24 hours (results not shown).

### 2.2 Dermal proteins

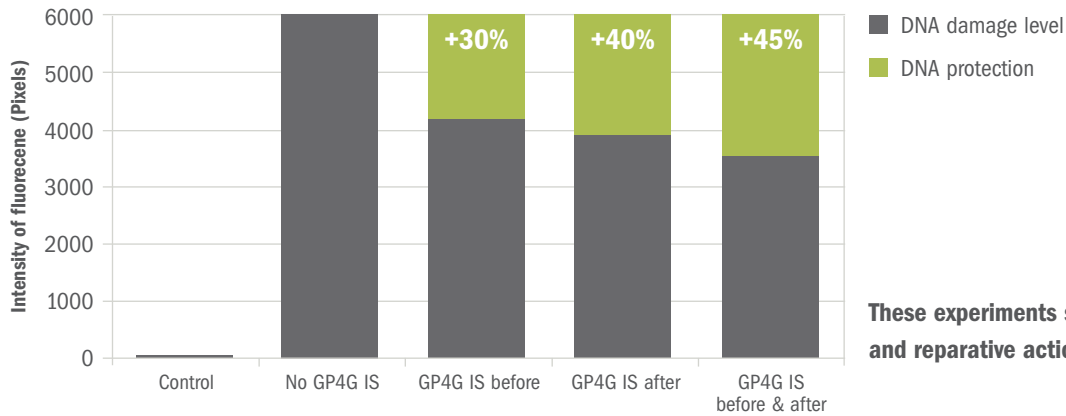
**Cells:** Human fibroblasts    **Dose:** GP4G IS 1%    **Evaluation:** Immuno-blotting



GP4G IS demonstrates regenerating properties on epidermal cells and on dermal proteins.

### 3. GP4G IS promotes DNA protection and repair (*in-vitro* study)

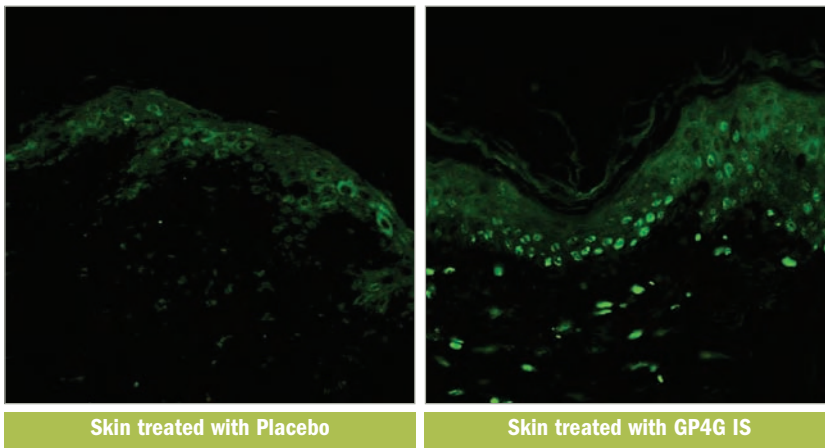
**Cells:** Human keratinocytes **Dose:** GP4G IS 1% **Evaluation:** TUNEL assay method



These experiments suggest a protective and reparative action of GP4G IS on DNA.

### 4. GP4G IS increases HSP70 synthesis

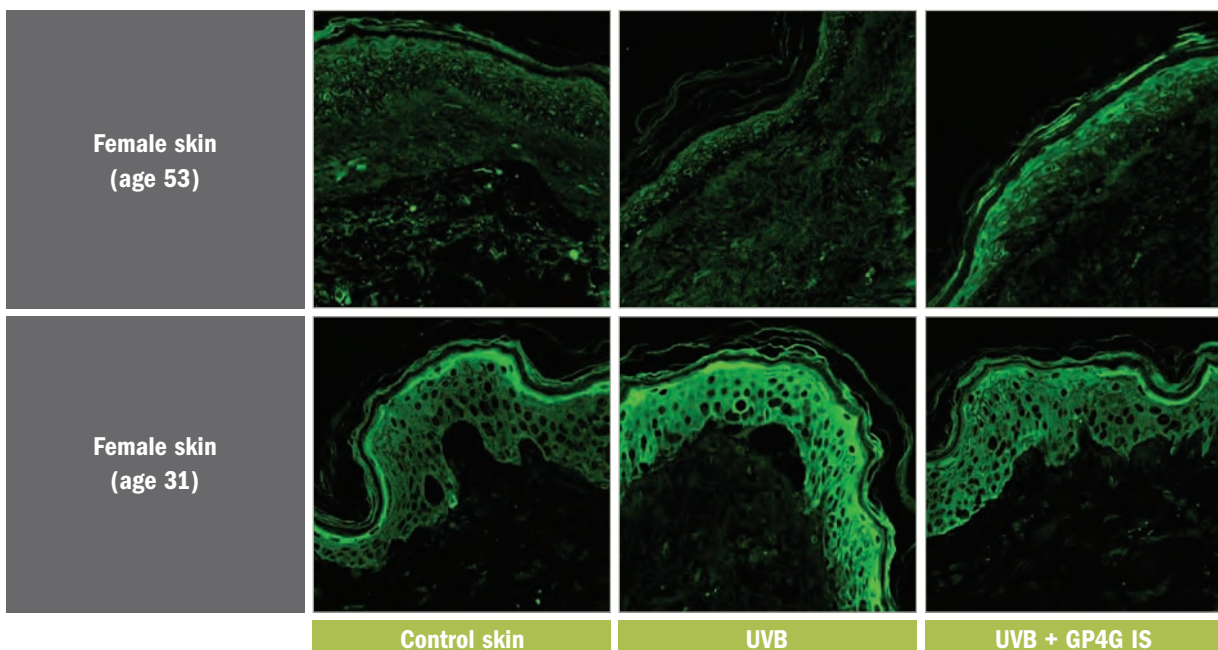
**Culture:** *Ex-vivo* human skin **Product application:** GP4G IS 3% **Evaluation:** Immuno-fluorescence staining



GP4G IS induces HSP70 expression in a stress-free manner. Additional studies show that GP4G IS at 1% protects from protein carbonylation (-15.7%) and reduces UVB-induced protein carbonylation by 25.5%.

### 5. GP4G IS compensates for age-related decrease in HSP70

**Culture:** *Ex-vivo* human skin **Application dose:** GP4G IS 3% **UVB Dose:** 100 mJ/cm<sup>2</sup> **Evaluation:** HSP70 immuno-fluorescence



GP4G IS compensates for aging-induced HSP70 loss. After UVB irradiation, both young and elderly skins react in a similar way to GP4G IS treatment.

# Specifications

<b>Form:</b>	Limpid solution
<b>Color:</b>	Pale yellow
<b>Odor:</b>	Characteristic
<b>Solubility:</b>	Water soluble
<b>Preservatives:</b>	Preservative-free

## INCI Name

WATER (AND) GLYCERIN (AND) ARTEMIA EXTRACT

## Formulation Guidelines

- Water soluble
- Add to emulsion on cool-down below 45°C but is thermostable to 60°C
- Recommended use levels: 0.5% - 5%, tested at 1% and 3%

The above formulation information is for guideline purposes only. Some products may be formulated outside of the parameters of these guidelines. Please contact ISP Vincience for more specific information.



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