

# BLUE OLÉOACTIF®

Global Anti-Pollution: Blue Light and Urban Environment

Substantiated oil-based active ingredient concentrated by  
Oléo-éco-extraction patented green process

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# BLUE OLÉOACTIF®

## HARNESSING THE LIFE FORCE OF RICE TO PROTECT SKIN FROM URBAN POLLUTION AND BLUE LIGHT

BLUE Oléoactif® is a new anti-pollution and anti-blue light active, extracted through a patented Oléo-éco-extraction process from three varieties of rice: black, red and brown. BLUE Oléoactif® is biomimetic, eco-designed, 100% vegetal, locally-sourced, totally safe and COSMOS-certified.

### RICE, SOURCE OF LIFE

Rice is one of the edible raw materials with the highest nutritional value. Black rice, for example, has been known for millennia in China for its positive contribution to health and longevity. In particular, the very small part of the rice known as rice germ (2% w/w) contains an enormous number of essential elements that are used to develop and transform itself into a young plant. Rice germ is the living part of the grain, a "vitality concentrate."

For BLUE Oléoactif®, Hallstar is introducing a unique TRI-active with three synergistic rice from the Camargue region in the South of France, giving skin the power to PROTECT and DETOXIFY. And RiziGerm® – rice germ obtained by a unique French technology – is being used for the first time in a cosmetic application.

BLUE Oléoactif® maintains skin's normal physiology in the presence of environmental attacks like urban pollutants and blue light by boosting defense and repair system of cells. It acts like an invisible second skin, blocking biological mechanisms from external aggressions, and regenerates the cells to prevent premature aging.

### KEY ACTIVE PHYTO-MOLECULES

BLUE Oléoactif® is composed of complementary phytomolecules from rice and soybean oil for a curative and a protective effect against pollution and blue light:

- A pool of antioxidants, photo-protectors and free-radical scavengers:  $\gamma$ -oryzanol from brown rice germ, anthocyanins from black rice, procyanidins from red rice<sup>[1][2]</sup> and tocopherols and carotenoids from soybean oil
- The perfect balance of  $\omega 3$ ,  $\omega 6$ ,  $\omega 9$  fatty acids that plays a positive role on inflammation, skin barrier function and membrane reinforcement and repair

### AN INNOVATIVE COSMETO-GENOMIC STUDY AT 1% DOSE

To guarantee representative and objective results, the booster effect of BLUE Oléoactif® defense and repair system of cells is demonstrated ex vivo on skin explants from two different Caucasian women, aged 55 and 57, by an exclusive cosmeto-genomic technique.

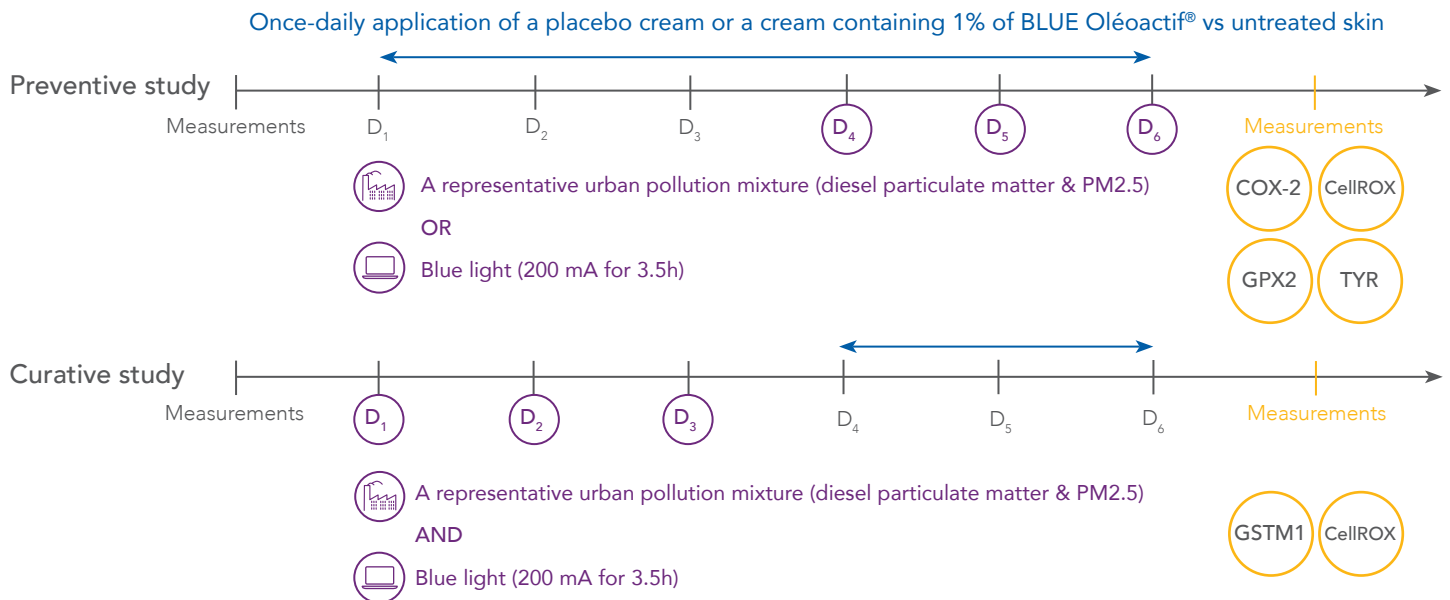


- Urban pollution is simulated by a standardized urban pollutant blend: urban dust with particles of 2.5 $\mu$ m size, heavy metals, polycyclic aromatic hydro-carbons (PAHs), etc.
- Blue light exposure is simulated with specific LEDs at 200 mA, 470 nm, for 3.5 hours.
- Preventive activity is studied with 1% of BLUE Oléoactif® in a cream or with a placebo cream that is applied for 6 days. Urban pollutant stress or blue light exposure occurs the last 3 days (once per day). The marker at the end of each condition is compared to the untreated skin and placebo cream.
- Curative activity is studied after urban pollutant stress and blue light exposure for 3 days without cream. Then, a placebo cream or a cream containing 1% of BLUE Oléoactif® is applied during the last 3 days, without stress. The marker at the end of each condition is compared to the untreated skin and placebo cream.

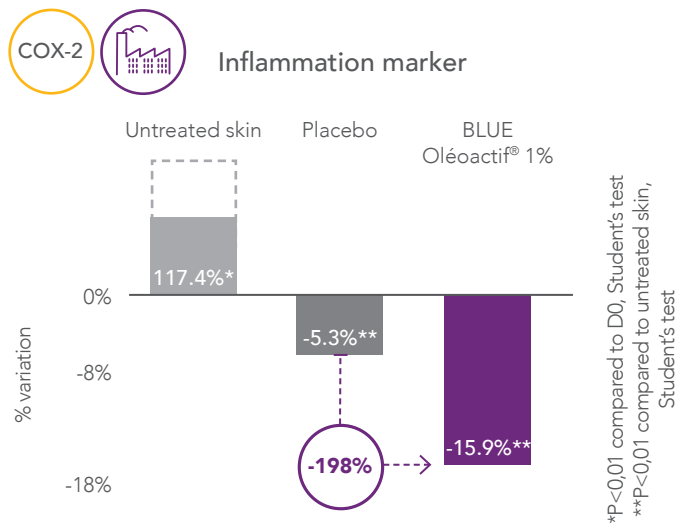
<sup>[1]</sup> Gema Pereira-Caro and Al., Phytochemical Profiles of Black, Red, Brown, and White Rice from the Camargue Region of France. Agric. Food Chem. 61, 7976–7986 (2013)

<sup>[2]</sup> Piebep Goufo and Al., Rice antioxidants: phenolic acids, flavonoids, anthocyanins, proanthocyanidins, tocopherols, tocotrienols,  $\gamma$ -oryzanol, and phytic acid, Food Science & Nutrition; 2(2): 75–104 (2014)

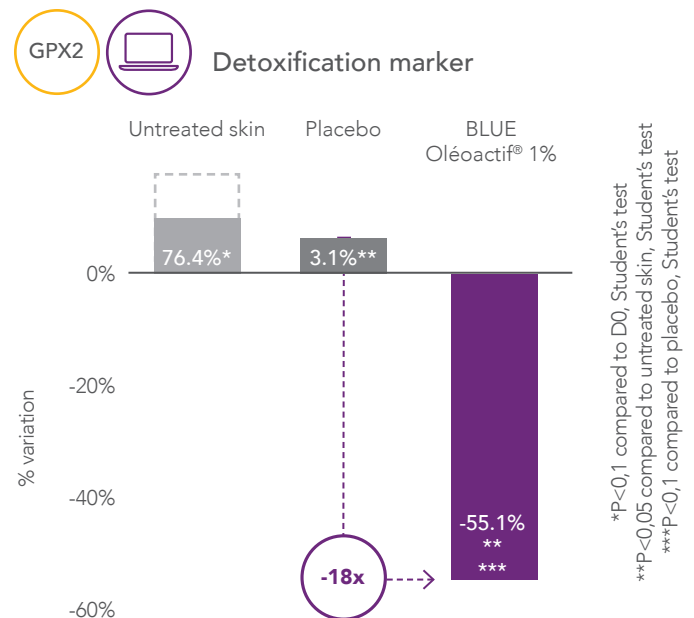
<sup>[3]</sup> M. Habbous and Al., Polymorphismes des glutathion S-transférases et pathologies humaines : bilan des études épidémiologiques. Ann Biol Clin, 62 : 15-24 (2004)



## PREVENTIVE STUDY: BOOSTER OF CELLS' DEFENSE AND PROTECTION



Urban pollution stress statistically induces the expression of COX-2 - cyclooxygenase-2 – gene, a key regulator of inflammation. 1% of BLUE Oléoactif® represses inflammation marker by -198% compared to placebo. BLUE Oléoactif® blocks urban pollutants and prevents them from penetrating the skin.



In the presence of blue light stress, detoxification marker is overexpressed to enable cells to eliminate toxic molecules. Stress statistically induces the expression of GPX2 - glutathione peroxidase 2- gene on untreated skin, a key marker of detoxification. 1% BLUE Oléoactif® represses detoxification marker by 18 times compared to placebo. BLUE Oléoactif®, like a "screen," protects cells from stress upstream, keeping cells from depleting themselves.

BLUE Oléoactif® effectively protects cells from urban pollution and blue light, and boosts their defense system.

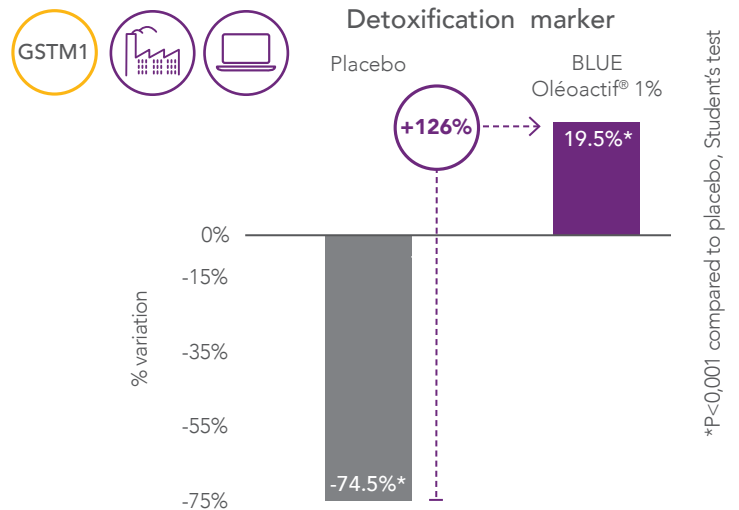
**TYR** Blue light exposure generates skin pigmentation, sometimes more pronounced hyperpigmentation than UV<sub>B</sub> irradiation. BLUE Oléoactif® modulates the tyrosinase enzyme involved in melanin formation, a biological skin pigment. 1% of BLUE Oléoactif® represses tyrosinase marker by 4.4 times compared to a placebo, reducing hyperpigmentation.

BLUE Oléoactif® regulates hyperpigmentation caused by blue light from technical device screen's glow. BLUE Oléoactif® is effective in reducing pigmentation disorders.

## CURATIVE STUDY: BOOSTER OF CELLS' REPAIR SYSTEM

The combined stress of urban pollutants and blue light exposure exhausts cells and reduces expression of GSTM1 - glutathione S-transferase  $\mu$ 1- gene, a detoxification marker. A 1% dose of BLUE Oléoactif® boosts detoxification marker by +126 % compared to placebo. BLUE Oléoactif® helps cells' restoration process by reducing stress generated by chemical and environmental pollutants and by inactivating toxic molecules.

BLUE Oléoactif® effectively boosts repair system of cells and protects DNA<sup>[3]</sup> and other cellular components from damaging effects induced by urban pollutants and blue light.



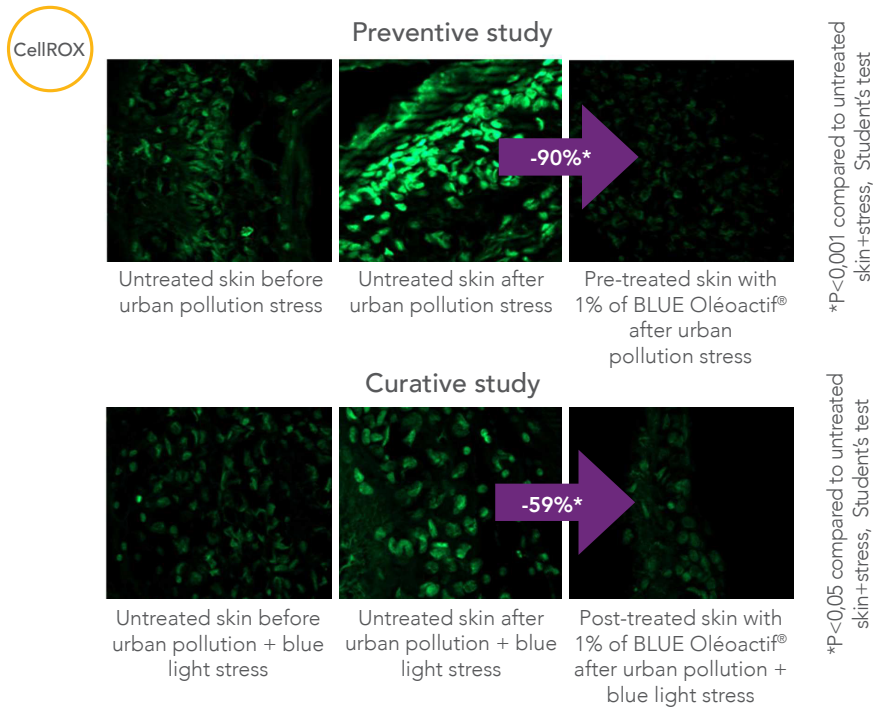
## PROOF OF EFFICACY: REACTIVE OXYGEN SPECIES (ROS) QUANTIFICATION

To prove the efficacy of BLUE Oléoactif® on the reduction of Reactive Oxygen Species (ROS) as a result of environmental stress, CellROX method was applied to quantify ROS by fluorescence.

Preventive activity is proven by application of a cream containing 1% of BLUE Oléoactif® BEFORE exposure to urban pollution stress. 1% of BLUE Oléoactif® is effective in reducing ROS production by 90%.

Curative activity is proven by application of a cream containing 1% of BLUE Oléoactif® AFTER exposure to urban pollution stress and blue light emission. 1% of BLUE Oléoactif® is effective in reducing ROS production by 59%.

BLUE Oléoactif® is exceptionally efficient in both preventing and repairing ROS formation and damages induced by urban pollution and blue light.



## TECHNICAL AND REGULATORY DATA

|                   |                                                                                                                                        |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| INCI NAME:        | Glycine Soja (Soybean) Oil (and) Polyglyceryl-3 Diisostearate (and) Oryza Sativa (Rice) Germ Extract (and) Oryza Sativa (Rice) Extract |
| RECOMMENDED DOSE: | 1% - 5%                                                                                                                                |
| RECOMMENDED pH:   | 4-8                                                                                                                                    |
| SOLUBILITY:       | Liposoluble                                                                                                                            |
| FORMULATION:      | In the fatty phase before emulsification or at the end of the formulation process or directly in anhydrous formulas.                   |



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