



## **EFFICIENSEA®**

Offers efficient protection to irritated skin

\*

*Protects DNA*

*Keeps inflammation under control*

*Promotes a soothing effect*



Oxidative stress is considered to be a major contributor to the aging process. In skin, its consequences induce important damage such as:

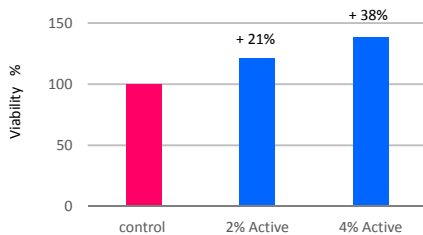
- ▶ deterioration of DNA,
- ▶ aging acceleration with the degradation of connective tissue proteins (e.g. elastin) and the development of irregular pigmentation,
- ▶ inflammation processes due to membrane lipoperoxidation.

GELYMA proposes EFFICIENSEA® to provide effective protection against such harmful damage in the skin.

## Mechanisms of action

### EFFICIENSEA® increases skin cell viability

*In vitro* test performed on reconstituted skin. Viability determined by MTT test after 48 h cultivation.

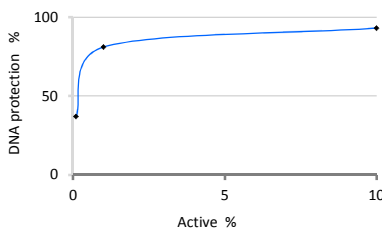


2% EFFICIENSEA® lead to + 21% stimulation compared to untreated control.

Statistical validation (ANOVA, least significant difference)

### EFFICIENSEA® protects DNA against singlet oxygen-induced damage

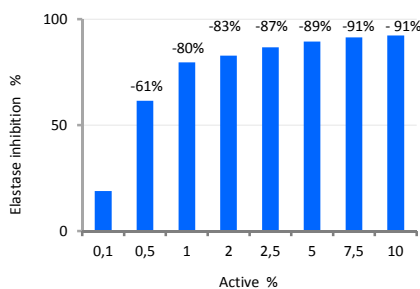
*Chemiluminescent 3D Assay* based on a repair reaction of DNA by using plasmid DNA adsorbed on sensitized microplates.



EFFICIENSEA® induces a potent protection of DNA against singlet oxygen, which is a very reactive form of oxygen capable of rapidly oxidizing many molecules e.g. membrane lipids & DNA.

DNA protection reaches up to 50% with 0.2% EFFICIENSEA® only and 81% with 1%.

### EFFICIENSEA® inhibits elastase



Elastase can attack all major connective tissue proteins.

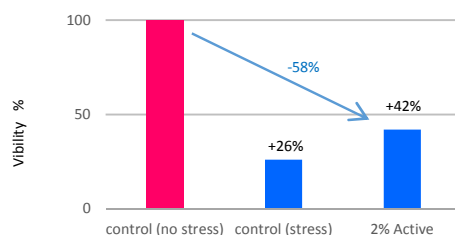
EFFICIENSEA® inhibits elastase with a dose dependent activity.

1% EFFICIENSEA® induce - 80% inhibition.

By inhibiting elastase, EFFICIENSEA® prevents the degradation of elastin that is the molecule which brings bodily tissues their elasticity.

### EFFICIENSEA® protects against UVB irradiation

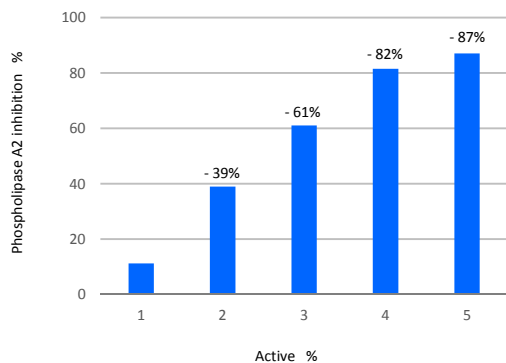
*In vitro* test performed on reconstituted skin submitted to UVB (300mJ/cm<sup>2</sup>) in the presence or absence of 2% active. Viability determined by MTT test after 48 h cultivation.



UVB is mostly absorbed in the epidermis.

2% EFFICIENSEA® induce +42% protection against UVB irradiation.

## EFFICIENSEA® keeps inflammation under control



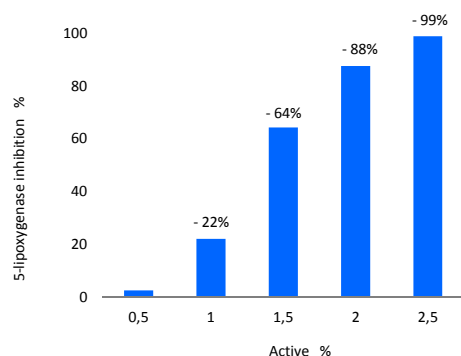
EFFICIENSEA® delivers powerful anti-inflammatory action at two levels of the arachidonic cascade.

Its inhibitory potency increases both for phospholipase A2 and 5-lipoxygenase, as its concentration increases.

### Inhibition of phospholipase A2

EFFICIENSEA® stops the release of arachidonic acid by phospholipase A2 from membrane phospholipids.

3% EFFICIENSEA® give -61% inhibition.

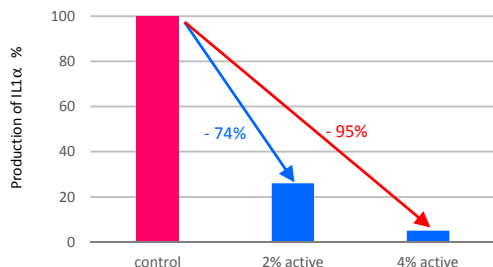


### Inhibition of 5-lipoxygenase

The 5-lipoxygenase generates hydroperoxydes which are the precursors of leukotrienes.

EFFICIENSEA® potently limits the production of leukotrienes by inhibiting the 5-lipoxygenase activity.

2% EFFICIENSEA® give -88% inhibition.



### Inhibition of interleukin IL1α

Elisa testing on reconstituted skins after UVB irradiation (dose: 300 mJ/cm<sup>2</sup>).

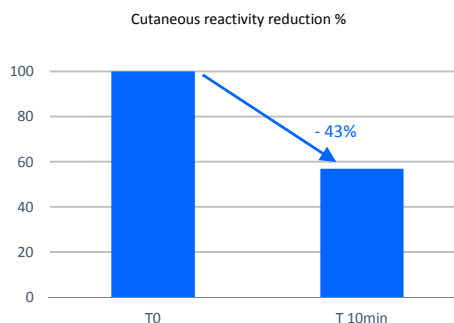
Adding of 2% and 4% EFFICIENSEA® in the culture medium inhibits respectively of -74% and -95% the synthesis of IL1α.

These data confirm the powerful capacity of EFFICIENSEA® to mitigate the inflammatory response in skin.

## EFFICIENSEA® attenuates skin irritation (stinging sensations)

### Clinical study

Evaluation of the anti-irritant properties of EFFICIENSEA® incorporated at 10% into a gel on the nasolabial fold of 20 volunteers (17 female – 3 male of 19-70 years old) after irritation induced by a solution 10% lactic acid (stinging test). Statistical validation: Wilcoxon test (IDEA-FRANCE).



After 10 min application only, significant reduction of irritation: -43% decrease in stinging.

EFFICIENSEA® reduces skin irritation to chemicals and promotes a soothing effect.

