

## Sensiteam



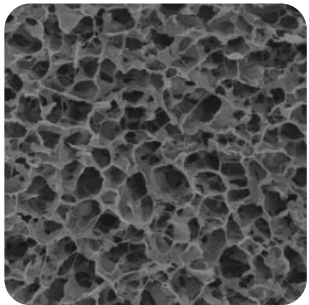
A global strategy against skin problems

## Sensiteam, Target

The skin may react more or less strongly to endogenous and external stress. These reactions mobilize energy skin cells and consequently the capacity of the skin to counteract environmental stress declines. Acne patients are under higher oxidative stress than people with healthy skin, and as a result their antioxidant levels are exhausted. Redness, pimples, micro-swellings are the visible expression result of this stress.



## Sensiteam, a Synergie



### **Lamellar biomineral: bentonite**

The african wild grape is intercalated in the multi- lamellar active clay creating a powder-form, preservatives-free, active ingredient that is easy to formulate.

Due to its inorganic nature, bentonite provides protection of the bio-active molecules from UV radiation and thermal degradation. Thanks to its structure, it allows to encapsulate the active ingredient, protect it and release it progressively on the skin. Moreover, this biomineral absorbs excess oil helping unclog pores.



### **African Wild Grape**

African Wild Grape (botanical name: *Lannea microcarpa*) is a sub-sahelian plant from Burkina Faso rich in anthocyanins.

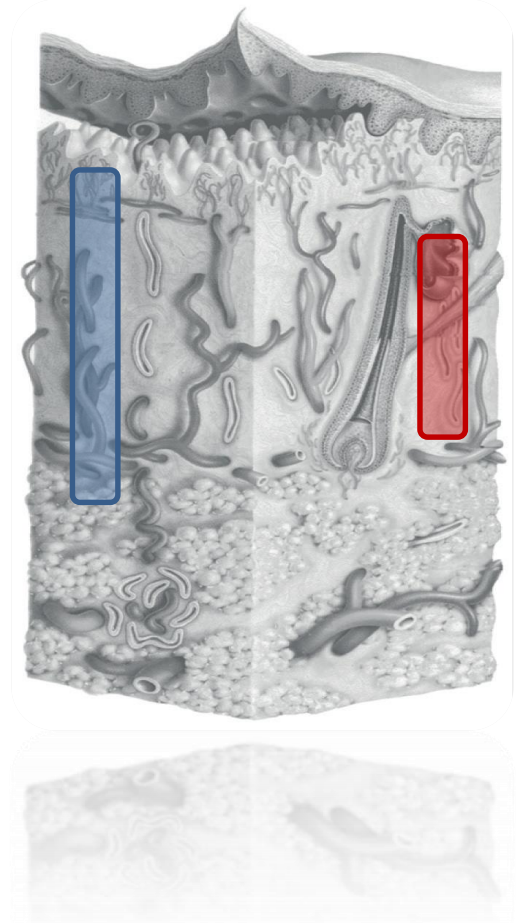
# Sensiteam, A global strategy against skin problems

- **Prevention: limit the skin stress**

Reinforce the skin natural protection against lipo-oxidation in order to provide the **protection of cells membranes**.

- **Treatment: remove skin disorders and improve wound healing caused by acne diseases.**

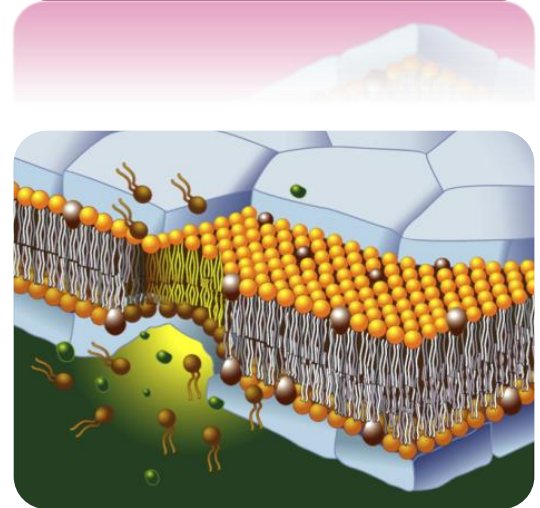
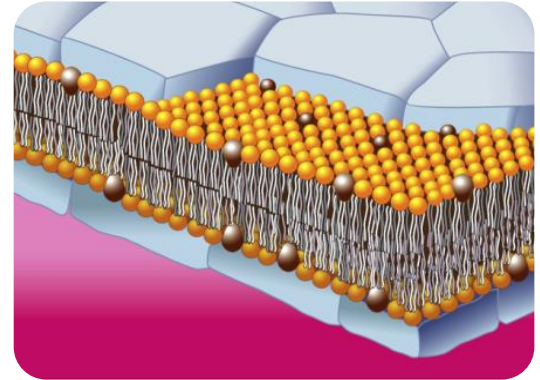
Thanks to **stimulation of endothelin production**, the most powerful vasoconstrictors known, pathogenic agent causing skin infections are quickly confined and effectively removed by lymphatic vessels. Moreover secretion of endothelin stimulates cellular growth and regeneration reducing acne scares.



# Preventive action

## Protection of cells membranes:

The skin and sebum are constantly exposed to oxidative stress (UV, chemicals etc.) and thus needs antioxidant protection. Reducing both systemic and local oxidative stress on the skin is one of the keys to getting over acne(1). Lipid peroxidation alters the physiological functions of cell membranes and plays an important role in cellular membrane damage (2). There are indications that lipid peroxidation itself is a match that lights an inflammatory cascade in acne (3). The introduction of oxidized functional groups in the lipid tail leads to an important conformational change in the lipids. This conformational change leads to an increase in the average area per lipid and, correspondingly, to a decrease of the bilayer cell membrane thickness. Sensiteam preserved cellular membranes from lipo-peroxidation ensuring cohesion, resiliency and skin barrier integrity.



- 1) Haidar Hamid Al-Anbari *et al.* Oxid Antioxid Med Sci. 2012; 1(3): 201-207
- 2) BJirasak Wong-ekkabut *et al.* Biophys J. 2007 December 15; 93(12)
- 3) Bowe WP, Logan AC. Lipids Health Dis. 2010; 9:141

# Preventive action

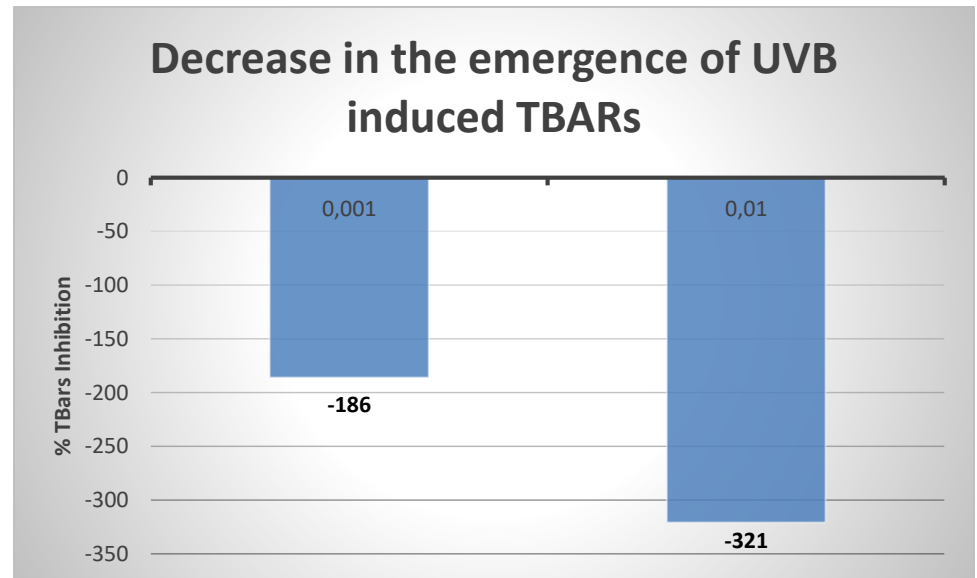
## Protection of cells membranes:

TBARS in medium supernatant were used as an indicator of lipid peroxidation.

On a model of a normal dermal monolayers human fibroblasts.

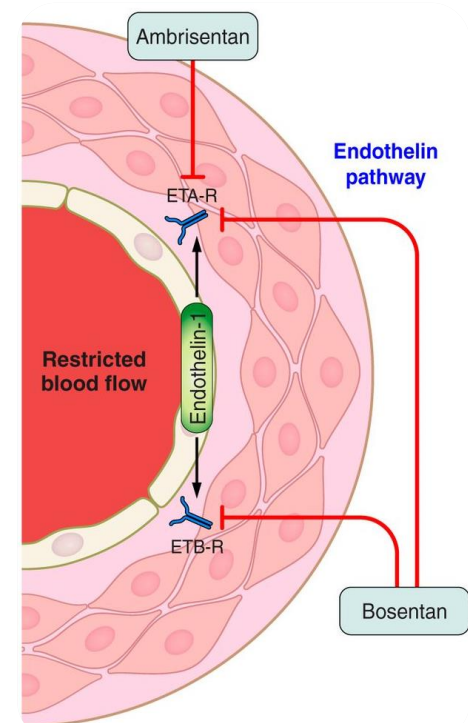
Fibroblasts are incubated at 37°C during 48 hours, under humid atmosphere and 5 % of CO<sub>2</sub>, without or with the active ingredient at different concentrations.

At the end of the incubation period, TBARS production in UVB-irradiated cells is quantified with a specific and sensitive ELISA kit. Tests evaluated each experimental condition in triplicate.



## Treatment action: remove unsightly disorders and improve wound healing

- **Endothelin is known as one of the most powerful vasoconstrictor** directly related to vascular tone and tissue irrigation of the skin. During a lesion or skin contamination endothelin plays a fundamental physiological role in increasing the microvascular blood flow by vasoconstriction. Both humoral immune system and lymphatic system are activated. Pathogenic agent causing skin infections are quickly confined and effectively removed by lymphatic vessels. Thanks to stimulation of endothelins production within skin by Sensiteam, the acceleration of the healing process allows treating and removing extremely faster the pathogenes elements.
- Endothelin Et-1 is also known as a able to stimulate cellular growth and regeneration of keratinocytes. Sensiteam through the regulation endothelin production stimulates extracellular matrix synthesis of keratinocytes especially increasing fibronectin production.



# Treatment action

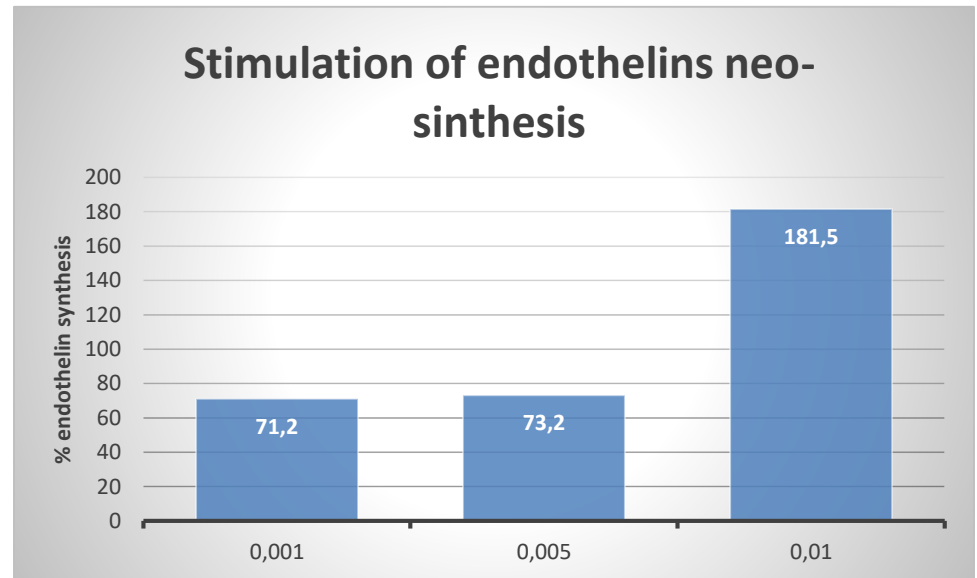
## Endothelin synthesis:

### MATERIALS & METHODS :

On a model of a normal dermal monolayers human microvascular endothelial cells.

Endothelial cells are incubated at 37°C during 24 hours, under humid atmosphere and 5 % of CO<sub>2</sub>, without (control) or with the active ingredient at different concentrations.

At the end of the incubation period, proteins, in the culture mediums, is quantified with a specific and sensitive ELISA kit. Tests evaluated each experimental condition in triplicate.



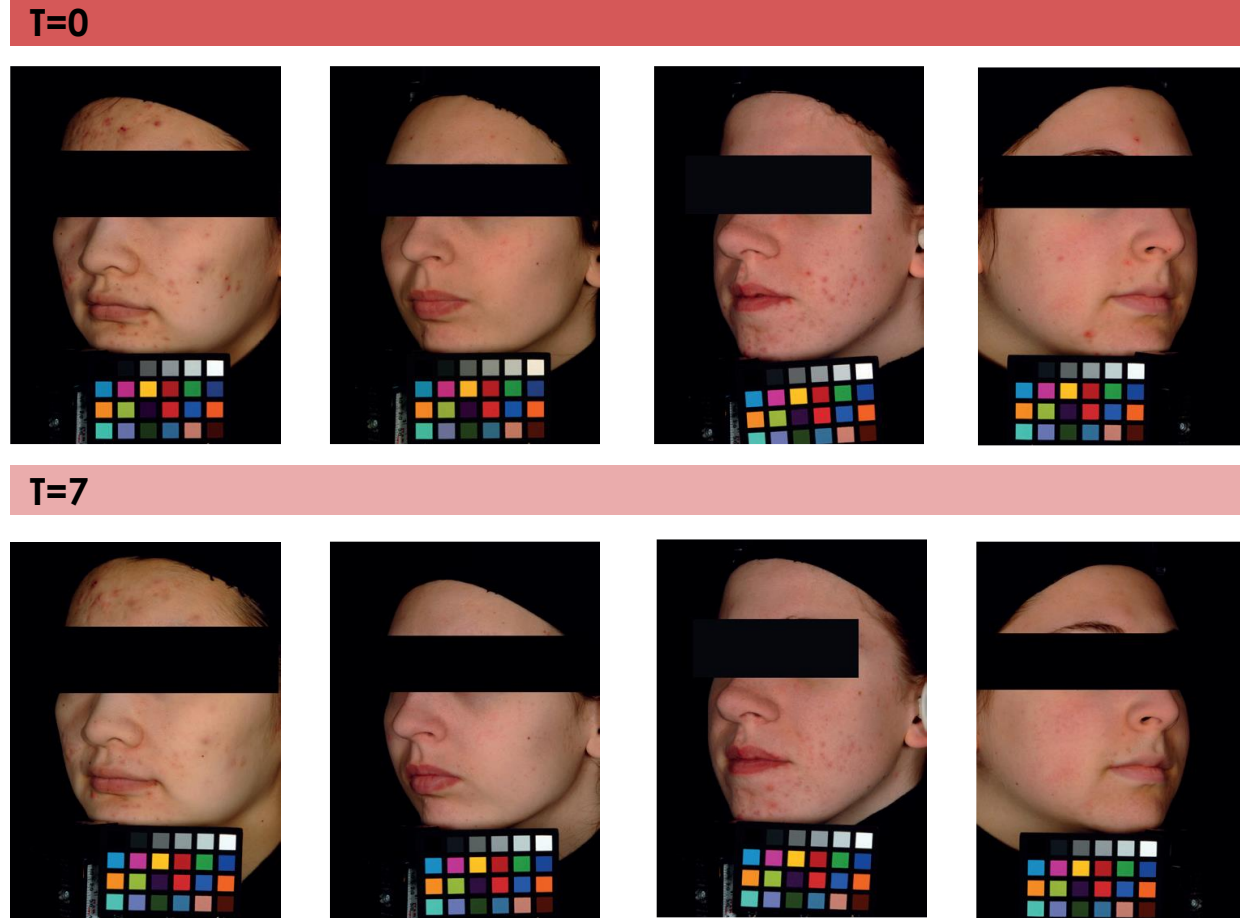
# In Vivo, A randomized double-blind placebo-controlled clinical trial

## Test conditions:

- 24 healthy volunteers aged between 18-30
- Study period: 7 days
- Subject inclusion criteria:
  - Oily skin or combination skin.
  - Acne-prone skin
  - At least two inflammatory lesions on each half-face

## Clinical evaluation:

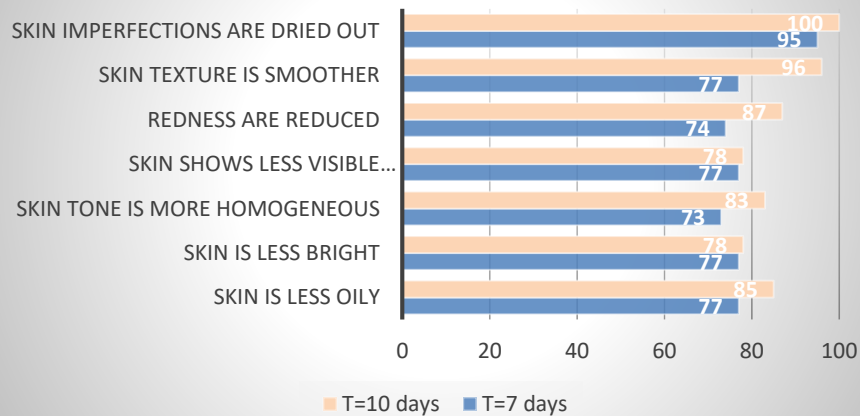
At days 7, high resolution digital photography in completely reproducible lighting conditions, using cross polarized light.



# In Vivo: Self-assessment questionnaire

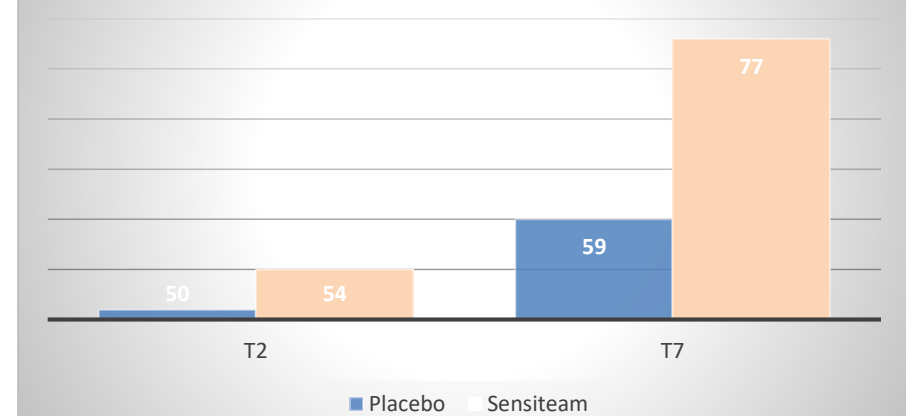
A randomized double-blind placebo-controlled clinical trial

## Volunteers satisfaction



Data statistically significant as  $P < 0.05$

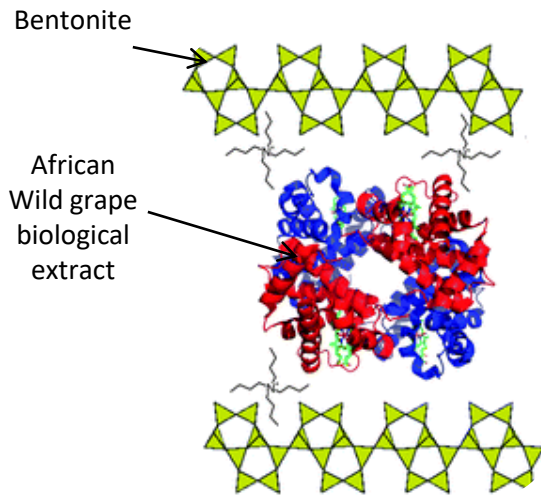
## Imperfection reduction



Data statistically significant as  $P < 0.05$

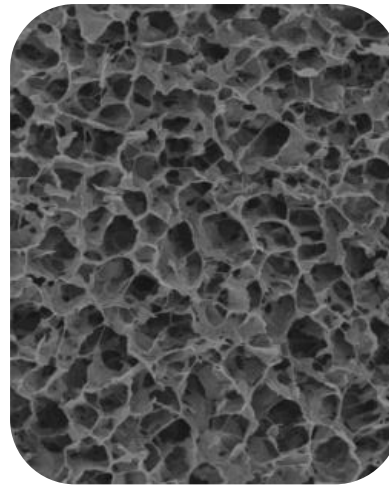
# PROTECTION and DRUG RELEASE mechanism

## Protection and stability of active ingredients



**Active ingredients as raw material in powder from:**

Biological active ingredients are integrated into bentonite sheets as a dehydrated form without preservatives.

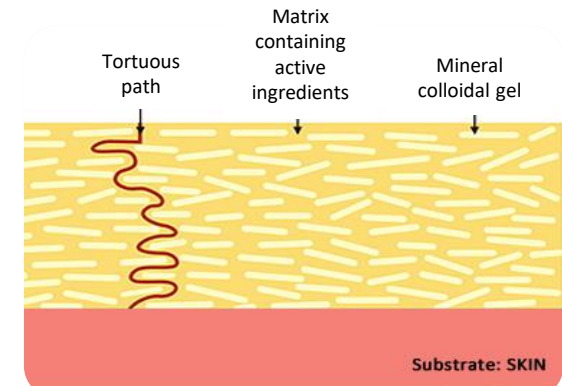


**Active ingredient into the finished product:**

In aqueous environment, bentonite creates a 3D structure like a « honeycomb » able to protect biological active ingredients.



## Drug release mechanism



**Once on the skin:**

Creation of “second skin” able to release biological active ingredients in a controlled way.

## Sensiteam, technical specifications

- INCI: Bentonite & Lannea microcarpa fruit extract
- CAS: 1302-78-9 & NA
- EINECS: 215-108-5 & NA
- COSMOS CERTIFIED
- APPEARANCE, beige powder without preservatives.
- FORMULATION: dispersible in aqueous phase
- STORE CONDITIONS: 18 months in a ventilated area
- DOSAGE: 1 %
- TOLERANCE:
  - Cutaneous: non-irritant
  - Ocular: moderately irritant
  - Genotoxicity: non-mutagenic
  - Phototoxicity: non-phototoxic
  - Cutaneous skin sensitization test: non-irritant and non-sensitizing
- **Certified estrogen-like endocrine disruptors free**

# Conclusion

1. A preventive action against lipo-peroxidation in order to provide the protection of cells membranes.
  - Decrease in the emergence of UVB induced TBARs : - 321% at 1%
2. A curative action which remove effectively skin infections by increasing of microvascular blood flow.
  - In Vitro, Stimulation of endothelin neo-synthesis: + 181 %
  - In Vivo, an overall , convincing and statistically signification improvement of the skin conditions and appearances



**EPHYLA SAS**

18 parc d'activités de l'Estuaire  
56190 ARZAL - FRANCE  
+33 (0)2 97 44 61 40

[www.ephyla.fr](http://www.ephyla.fr)

[contact@ephyla3.com](mailto:contact@ephyla3.com)

- Be inspired by nature -