

SEAVIE®

A marine-derived answer for invigorating skin

*

Offers the skin intense nutrition for revitalizing it

Improves the cellular energetic status

*Protects the mitochondria of skin cells and
keeps its functionality*



Skin is the largest organ of the body and the mirror of the body. As in all other body tissues, nutrition plays a vital role in maintenance and health. Indeed, to be maximally effective in its protective function, the skin depends on an appropriate supply in nutrients. All nutrient deficiencies could severely affect overall cellular metabolism and ultimately energy level and survival.

To bring a marine answer to revitalize the skin, GELYMA proposes SEAVIE® prepared from the brown seaweed *Fucus serratus*.

Mechanisms of action

SEAVIE® supplies main nutrients to skin

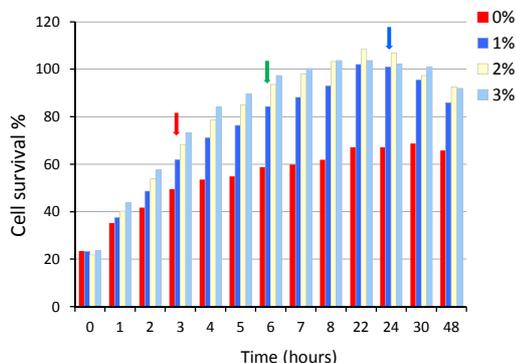
- All essential amino-acids* are present. The major amino acids present are: glutamic acid (400 ppm), aspartic acid (200 ppm), proline (180 ppm) and alanine (100 ppm). Dermal tissues depend on proline content to support collagen.
- SEAVIE® contains minerals* with rebalancing properties, especially K (3473 ppm), Na (3045 ppm), Mg (442 ppm), Ca (203 ppm), Mn (4.3 ppm) and Zn (1.5 ppm). Potassium and magnesium provide energy to cells and enhance exchanges between cells and hydration. Calcium reinforces cell membranes.
- All trace minerals* indispensable for skin protection are found in significant quantities, especially Mn (4.3 ppm) and Zn (1.5 ppm) which act as cofactors of several enzymes. Si (1.4 ppm) provides elasticity and firmness to skin tissue. Iodide is also found (6.7 ppm).
- Mannitol* occurs as osmotically active regulator of homeostasis (12.95% dry weight). * data from a control batch.

Due to this nourishing composition, SEAVIE® helps to maintain healthy cell growth and rapid skin renewal.

SEAVIE® helps to provide nutrients to starved skin

The goal of these *in vitro* tests is to evaluate the revitalising properties of SEAVIE® on both human keratinocytes and reconstituted skins cultured in food starved conditions, especially in DPBS (Dulbecco's Phosphate Buffered Saline) supplemented or not with the active.

➤ Increase of the proliferation of human keratinocytes

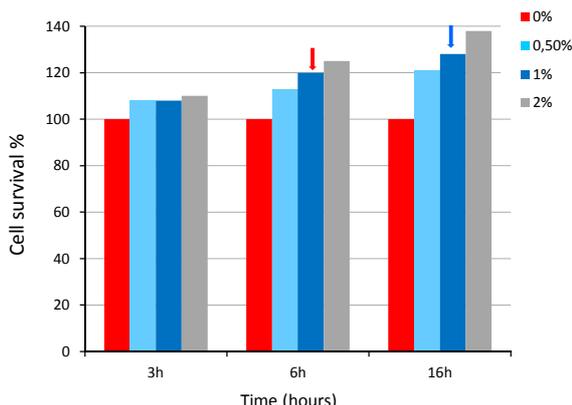


After 3h pre-treatment in presence of 1% - 2% or 3% SEAVIE®, human keratinocytes cultured in DPBS, supplemented or not with the active during 48h. Cellular proliferation evaluated by the Alamar blue™ reduction at different time points during 48h.

In presence of SEAVIE®, cells proliferate more rapidly, compared to control without active addition (red bars).

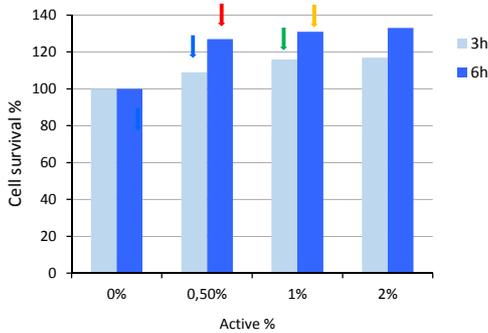
- At 1% active, the beneficial effect reaches up
- + 27% after 3h cultivation ↓
 - + 42% after 6h cultivation ↓
 - + 51% after 24h cultivation ↓ compared to control.

➤ Increase of the viability of human keratinocytes



Experiment performed on human keratinocytes. Cellular viability evaluated by the MTT test performed at 3h - 6h and 16h after the end of the pre-treatment.

- At 1% active, SEAVIE® increases the viability by:
- + 20% after 6h cultivation ↓
 - + 28% after 16h cultivation ↓
- compared to control without active addition (red bars).



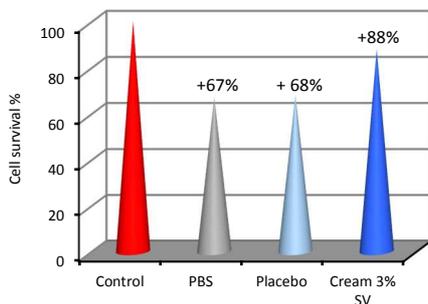
Human keratinocytes cultured in DPBS, supplemented or not with 0.5% - 1% or 2% SEAVIE® but without any pre-treatment. MTT test performed 3h and 6h after the start of experiment.

The viability increases at 0.5% active by +9% after 3h cultivation
+27% after 6h cultivation
1% active by +16% after 3h cultivation
+31% after 6h cultivation
compared to control.

These experiments performed in food starved conditions prove that SEAVIE® is able to supply all nutrients necessary for healthy cell growth and metabolism.

SEAVIE® improves the cellular energetic status

► Increase of the mitochondrial respiration and stimulation of the intracellular ATP synthesis



After DPBS stress for 1h only, reconstituted skins cultured in the normal growth medium. Unique topic application of a cream with 3% SEAVIE® (or the placebo) during and after DPBS stress. MTT test after 48h cultivation. Statistical analysis ANOVA.

The opposite graph proves the beneficial supplementation of SEAVIE® on skin viability.

Evaluation of ATP - Human keratinocytes cultured in optimal cultivation conditions with 10% calf foetal serum for 72h. ATP quantified by a bioluminescence assay.

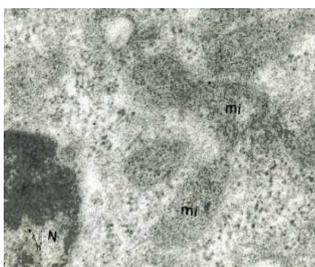
With 0.2% SEAVIE® only, the intracellular ATP synthesis reaches 107%.

SEAVIE® significantly stimulates the energetic metabolism of keratinocytes by increasing the ATP synthesis.

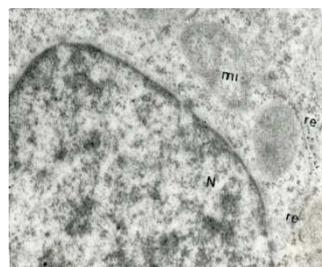
SEAVIE® protects the mitochondria of skin cells and keeps its functionality

Cultured human keratinocytes treated with 2% SV in optimal cultivation conditions. After 24h cultivation, preparation of cell cultures for electron microscopy.

Mitochondria are cellular organelles surrounded by a double envelope consisting of an outer membrane and an inner membrane. The inner membrane has numerous cristae that protrude into the matrix. All mitochondria dysfunctions affect this cellular fine structure.



Untreated

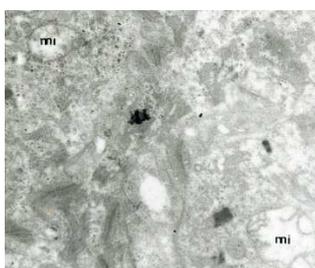


Treatment with 2% SEAVIE®

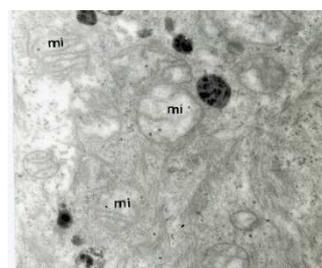
In untreated cells, the fine structure of the nucleus (N) and mitochondria (mi) appear damaged, especially at the membrane level.

In treated cells with 2% SEAVIE®, the nucleus (N) and mitochondria (mi) are structurally better preserved than in control. Note: the presence of numerous ribosomes tightly bounded to the endoplasmic reticulum (re) that involves active protein synthesis.

Human skin explants treated with a cream containing 3% SEAVIE® (or placebo). After 24h cultivation, preparation of explants for electron microscopy.



Placebo



Cream with 2% SEAVIE®

In explants treated with placebo, the mitochondrial matrix (mi) appears dilated.

In explants treated with a cream containing 2% SEAVIE®, mitochondria (mi) are numerous, fully intact, with regular and long cristae, that characterizes active functional ability.

SEAVIE® protects the mitochondria of the skin cells and maintains proper mitochondrial functioning and good cell metabolism.

Algal source

Fucus serratus grows from half-tide level to low-water mark in dense colonies, forming "belts" above *Laminaria* populations.

It occurs in the North Atlantic. It is absent along the Gulf of Biscaye but present along the coasts of northern Spain.

SEAVIE®

For invigorating skin



Cosmetic benefits

Due to its nourishing composition, SEAVIE® durably guarantees the life expectancy of the cells in food starved conditions.

It brings the skin potassium and magnesium to provide energy to cells and to enhance exchanges between cells and hydration, calcium for strengthening cell membranes, manganese, zinc and selenium for combating free radicals and also mannitol for helping cellular osmoregulation.

By maintaining efficient skin nutritional balance, SEAVIE® improves the vitality of the skin and regenerates it.

By reinforcing the cellular energetic status, SEAVIE® revitalizes the skin and helps rejuvenate it.

This makes SEAVIE® a good candidate to regenerate and to keep the skin vital.
The skin feels invigorated with natural healthy look.

Cosmetic applications

All revitalising cosmetics and toiletries products - All products for men including skin and hair care.

Recommended use level: 0.2% - 2%.

Characteristics

| | | | |
|------------|-------------------------------|-------------------|---------------------|
| INCI names | water | CAS n° 7732-18-5 | EINECS n° 231-791-2 |
| | <i>Fucus serratus</i> extract | CAS n° 94167-02-9 | EINECS n° 303-400-6 |

Limpid liquid brown colored.

Preservatives by selection: microcare SB or phenoxyethanol.

Packing list: 1kg – 5 kg – 10 kg.



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