



OCEA CARE®

Marine enhancer of skin repair

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Regulates the major phases of skin regeneration

Increase of the differentiation into myofibroblasts

Stimulation of remodelling

Activation of essential growth factors

Boosts the proliferation of skin cells

Favors skin's natural recovery



Our skin reflects our energy level and health. It has the amazing ability to constantly regenerate itself after damage. Many factors can damage skin e.g. environmental (wind, humidity, sunlight, temperature irregularities), mechanical (friction, shear, epidermal stripping) and irritants. Once the protective barrier is broken, the normal (physiologic) process of wound healing is immediately set in motion through a cascade of complex events in order to promote proper skin regeneration and restore the barrier function integrity.

GELYMA proposes OCEA CARE® a combination of glycerin, *Laminaria saccharina* extract and arginine, that targets skin repair.

Mechanisms of action

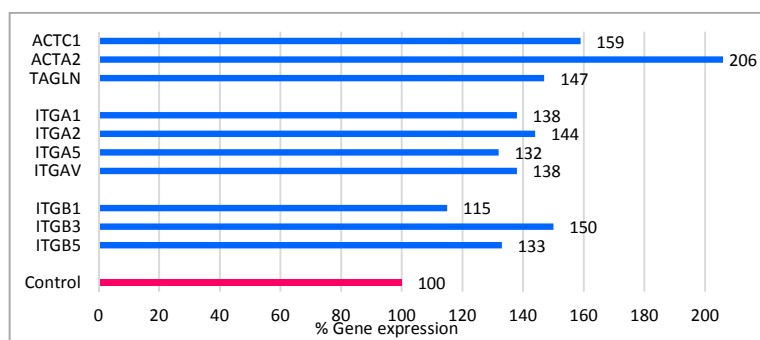
Skin repair includes a complex cascade of overlapping events involving various cells (e.g. keratinocytes, fibroblasts, endothelial cells) and mediators (e.g. growth factors, integrins). The first phase occurs with the processes of hemostasis that prevents blood loss and of inflammation that helps clean the wound site. Then cells adjacent to it migrate to the site, proliferate, synthesize matrix components and tend to close the wound in order to achieve values proximal to the healthy skin. The most important cell is fibroblast which is responsible for initiating angiogenesis, re-epithelisation and collagen formation.

OCEA CARE® helps regulate the major phases of skin regeneration

Genomic analysis on NHDFs fibroblasts submitted to 3% active for 24h. Analysis by qRT-PCR on TaqMan cards (STRATI CELL- BELGIUM).

OCEA CARE® helps to stimulate wound contraction by increasing the differentiation of fibroblasts into myofibroblasts and to favour tissue remodelling by acting on different Types collagens. It also activates genes of numerous cytokines (e.g. growth factors) involved in all phases of skin regeneration.

► Increase of the differentiation into myofibroblasts



► OCEA CARE® over-expresses genes coding for different actins, especially ACTA2 (+106%) known to be the major tracer of the differentiation of fibroblasts into myofibroblasts.

Actins favour wound contraction by myofibroblasts.

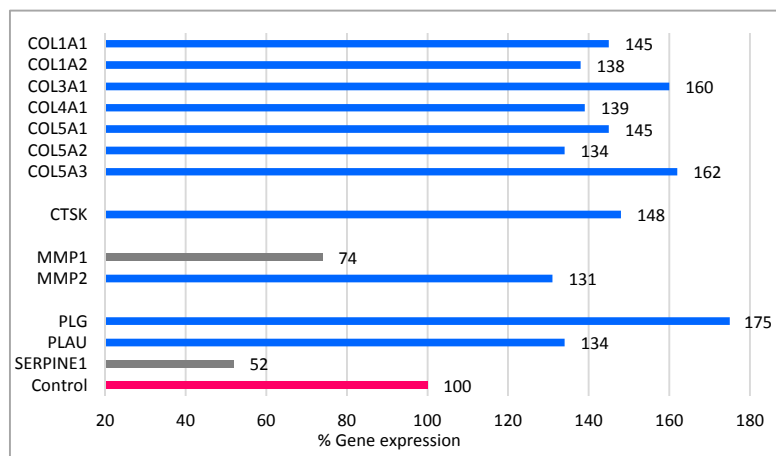
► OCEA CARE® induces the over-expression of genes coding for several integrins belonging both to α chains (ITGA1-ITGA2-ITGA5-ITGAV) β chains (ITGB1-ITGB2-ITGB5).

Integrins support cell adhesion and migration.

► Stimulation of remodelling

The new collagen matrix becomes cross-linked and organized during the remodelling phase. Different types of collagens are synthesized, especially Type III during the proliferation phase. It is transformed into Type I during the remodelling phase. Type IV collagen is found in basement membrane and Type V in blood vessels.

At least, the extracellular matrix must recover homeostasis and a dynamic equilibrium.



► OCEA CARE® would promote the synthesis of collagens
 Type I +38% (A1) +45% (A2)
 Type III +60%
 Type IV +39%
 Type V +34% (A1) +45% (A2) +75% (A3)

► OCEA CARE® increases by +48% the gene coding for cathepsin (CTSK) known to have collagenase and elastase activities that allows to counterbalance eventual accumulation of proteins.

► OCEA CARE®

- down-expresses the gene of MMP1 (-74%) that prevents the degradation of Type III collagen

- over-expresses the gene of MMP2 (+31%) that might facilitate the migration of fibroblasts in the wound environment.

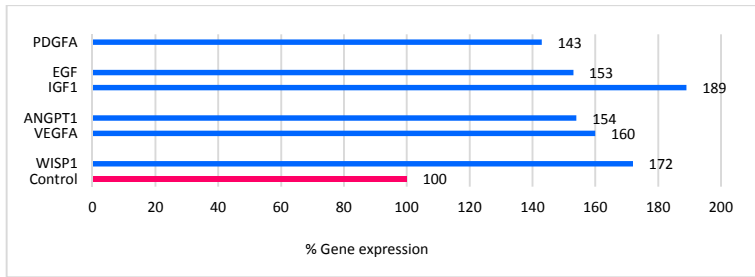
► OCEA CARE® also operates under the status of plasmin involved in the degradation of fibrin clot by

- increasing the expression of genes coding for PLG (plasminogen +75%) and PLAU (plasminogen activator-urokinase +34%) that contributes to equilibrate clot formation and the degradation of fibrin in the clot mass

- decreasing the expression of SERPINE 1 (-52%) that helps manage a faster healing.

► Activation of essential growth factors

Growth factors mediate signalling pathways between and within cells, controlling various biological activities e.g. cell division, differentiation, cell activation and survival.



► OCEA CARE® increases the expression of genes coding for essential growth factors.

PDGF (+43%) stimulates fibroblast proliferation and the differentiation into myofibroblasts.

EGF (+53%) accelerates re-epithelization and fibroblast proliferation.

IGF1 (+89%) sustains the formation of the granulation tissue and cooperates in collagen synthesis.

VEGFA (+60%) mediates angiogenesis.

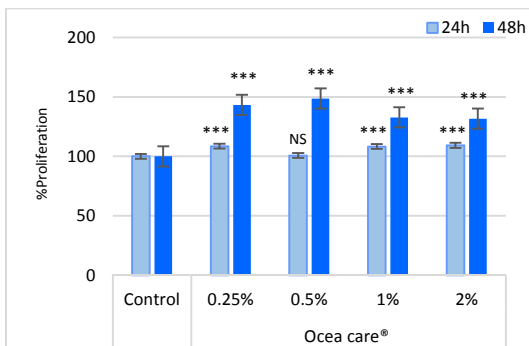
ANGPT1 (+54%) regulates angiogenesis and avoids excessive fibrosis.

WISP1 (+72%) stimulates collagen production.

OCEA CARE® is able to control numerous genes coding for growth factors involved in the major phases of skin repair.

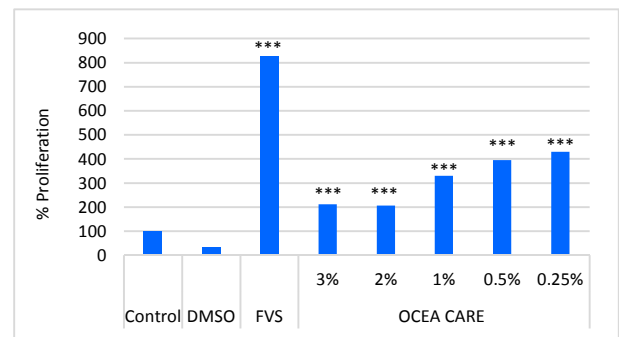
OCEA CARE® stimulates the proliferation of skin cells

Study on human keratinocytes
MTT test after 24h and 48h cultivation



The proliferation of keratinocytes reaches +143% with 0.25% active +148% with 0.5% active

Study on normal human fibroblasts
BrdU test (SEPhRA – FRANCE)



The proliferation of fibroblasts reaches +429% with 0.25% active +443% with 0.5% active

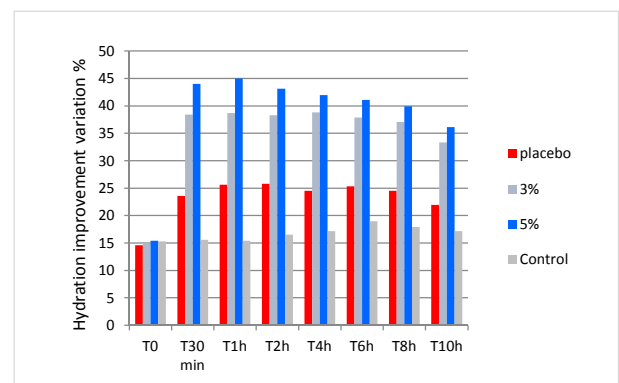
OCEA CARE® favors skin's natural recovery and improves superficial skin imperfections

► Increase of hydration

Hydration is important to recover skin integrity.

In vivo studies - Unique application of a Carbopol gel with 3% or 5% active on the leg of 10 volunteers (40-70 years old). Corneometric evaluation.

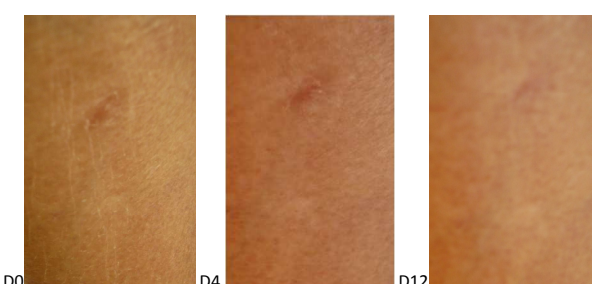
Compared to placebo and control (no treated area), the unique application of OCEA CARE® induces a noticeable moisturizing effect maintained for at least 10h.



► Improvement of superficial skin imperfections

In vivo studies - Twice daily application of a Carbopol gel with 5% active on the leg and heels of five volunteers.

Observations at D0-D4 and D12 (subject 1) and D0 and D4 (subject 2)



OCEA CARE® erases skin imperfections in a few days and confers a pleasant feeling to the skin.

The skin appears softer, smoother and more hydrated.



Remarks about OCEA CARE®: combination of glycerin from vegetal origin (that acts as humectant), *Laminaria saccharina* extract and L-Arginine.

The brown seaweed *Laminaria saccharina* (: *Saccharina latissima*) has been submitted to a biotechnological process in order to favour bioaccumulation of boron. The controlled and specific extraction of *Laminaria saccharina* enriched in boron has allowed to obtain an extract containing bioaccumulated boron.

Boron is a naturally occurring element widely distributed in the environment and commonly found in the oceans. In brown seaweeds it constitutes complexes with compounds such as mannitol, laminaran and alginic acid. Boron is known to activate skin repair and boost the migration and proliferation of keratinocytes.

The role of key mediator of L-arginine in wound healing is well proved and documented.

Cosmetic benefits

By controlling the expression of major genes involved in skin repairing, OCEA CARE® is able to

- ◆ promote the differentiation of fibroblasts into myofibroblasts
- ◆ improve skin modelling
- ◆ regulate homeostasis of the extracellular matrix
- ◆ stimulate major growth factors.

By stimulating the proliferation of both keratinocytes and fibroblasts, OCEA CARE® helps facilitate epithelization and the formation of new tissue.

By ensuring good skin hydration level and supporting repair of superficial skin injuries, OCEA CARE® restores a feeling of suppleness and comfort to a healthier and smoother state.

Cosmetic applications

Anti-aging products – repairing products – hands- feet repairing products- lotions for superficial micro-lesions, after sun care products.

Recommended use level: 1% - 5%.

Characteristics

INCI names	glycerin	CAS n° 56-81-5	EINECS n° 200-289-5
	water	CAS n° 7732-18-5	EINECS n° 231-791-2
	<i>Laminaria saccharina</i> extract	CAS n° 90046-14-3	EINECS n° 289-982-1
	L- Arginine	CAS n° 74-79-3/7200-25-1	EINECS n° 200-811-1/230-571-3

Limpid liquid light yellow colored.

Preservatives by selection: phenoxyethanol or Microcare SB.

Packing size: 1kg - 5 kg - 10kg.



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