



FILL OLÉOACTIF®

Skin filler Phytoside™

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

HALLSTAR 
B E A U T Y

FILL OLÉOACTIF®



A BIO-INSPIRED INNOVATION TO FILL IN WRINKLES

The first of its kind, FILL Oléoactif® is an active ingredient designed with two emblematic Mediterranean plants sustainably sourced (upcycled, respectful of Good Harvesting Practices), local (France) and presenting remarkable antioxidant and repairing properties. Highly concentrated in Phytoside™ (myricitrin, oleuropein), FILL Oléoactif® activates natural healing pathways to counter-balance skin aging signs and restore younger skin architecture. This ingredient is eco-processed, vegetal, and COSMOS-certified, with proven efficacy at 1% dose.

BEST PRACTICES IN SUSTAINABILITY

FILL Oléoactif® is designed with organic leaves harvested in France from *Myrtus communis* (myrtle) and *Olea europaea* (olive), two perennial plants of the Mediterranean ecosystem. Development of this active ingredient employs a socially **responsible, ecological, and sustainable** value chain:

- Olive leaves: **upcycled**, manual harvest, natural drying
- Myrtle leaves: **wild picking**, **partnership with the French association of professionals of wild plants gathering** (AFC) whose mission ensures the **preservation and durability of plant resources**. To fulfill Nagoya protocol requirements, Hallstar co-finances the association's activities, contributes to the realization of harvesting technical booklets, requires from its suppliers of wild myrtle leaves to adhere to the AFC (i.e., sign the association's charter) and commit to the recommendations given in the AFC Good Harvesting Practices Guide
- **Planet-friendly production method**: process using the green patented Oléo-éco-extraction technology, low carbon footprint (0.2 kg CO₂ eq. /kg of product), rational consumption of water and electricity, local recycling of 100% of biowaste



ACTIVATION OF NATURAL SKIN HEALING PATHWAYS

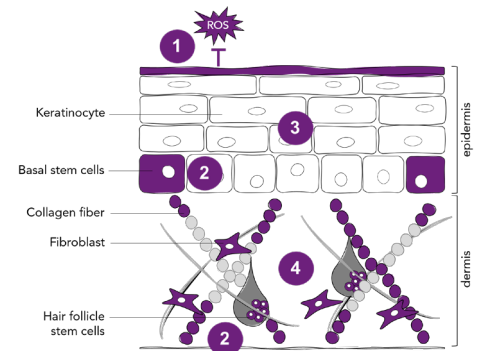
To internally combat the effects of aging and fill in depleted tissue, the skin must continually regenerate and renew itself. Skin regeneration spontaneously occurs during the healing process. Unfortunately, repair mechanisms become less effective with age^{[1][2]} and oxidative stress^{[3][4]}. As a result, the skin's surface appears more irregular and wrinkled. 54 years-old skin explants left untreated or topically treated with 1% FILL Oléoactif® are used to demonstrate that **FILL Oléoactif® regulates innovative key genes and proteins of natural skin healing process**.



Modulation of gene expression

Gene expression is studied after mRNA extraction and RT-qPCR analysis. FILL Oléoactif® provides anti-aging efficacy by significantly regulating the expression of **14 genes** categorized in 4 biological pathways of skin healing:

- Cell defense
- Mobilization of epidermal stem cells
- Epidermal regeneration
- Dermal remodeling



Biological pathways	Gene expression	Functions
1 Cell defense	SOD2 +65%**	Stimulation of skin defense from oxidative stress (↓ SOD2) ► Natural processes of skin rejuvenation are facilitated.
2 Mobilization of epidermal stem cells	CD200 +116%*	<ul style="list-style-type: none"> • Basal stem cells: stimulation (↑ CD200) • Hair follicle stem cells: differentiation of suprabasal cells in the bulge region (↑ CD200 / ↓ KRT15), proliferation of cells of the junctional zone (↓ LRIG1) ► Epidermis regeneration is initiated.
	KRT15 -73%**	
	LRIG1 -49%**	
3 Epidermal regeneration	FGF2 +74%**	Keratinocytes: <ul style="list-style-type: none"> • Migration (↑ FGF2, IL1, IL6, KRT16, KRT17, MMP19, MYO5B) • Cell size/number balance (↑ MYO5B) • Proliferation (↑ FGF2, IL1, MMP19) • Reorganization of the epidermis in structured and dense layers ► Epidermis cohesion and thickness are reinforced.
	IL1 +274%**	
	IL6 +188%**	
	KRT16 +49%*	
	KRT17 +264%**	
	MMP19 +50%**	
	MYO5B +58%*	
4 Dermal remodeling	IL6 +188%**	Fibroblasts: <ul style="list-style-type: none"> • Migration (↑ IL6, ADAMST1, MMP19, MYO5B) • Proliferation (↑ IL6) • Protection from apoptosis (↑ HAS2) Stimulation of the production of extracellular matrix and collagen I synthesis (↓ RELA) Support of epidermis structure ► Dermis resistance and elasticity are restored.
	ADAMST1 +44%*	
	MMP19 +50%**	
	MYO5B +58%*	
	HAS2 +163%*	
	RELA -30%**	

Variation % (vs untreated explant)

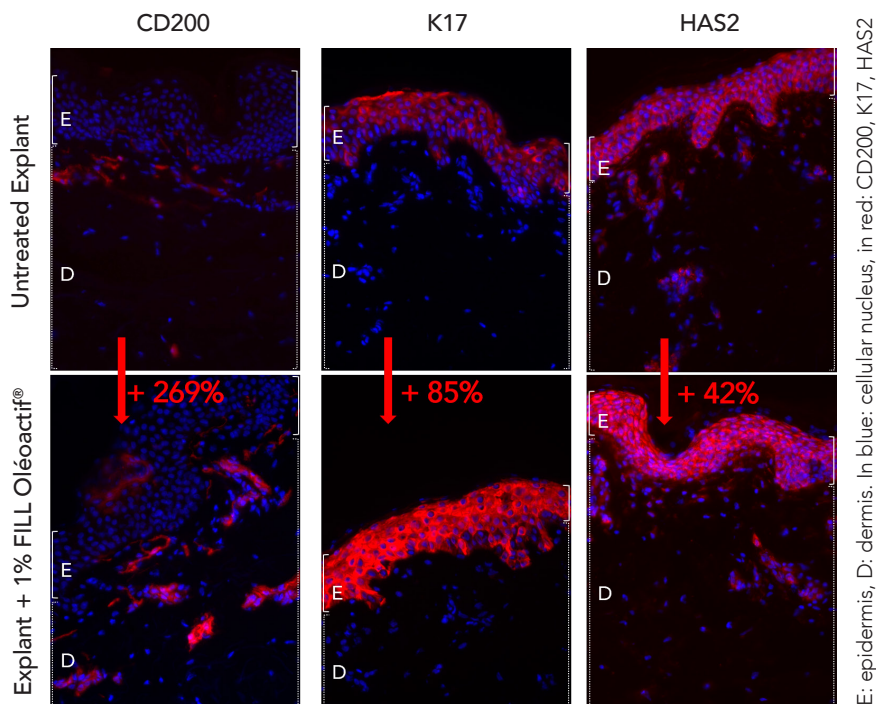
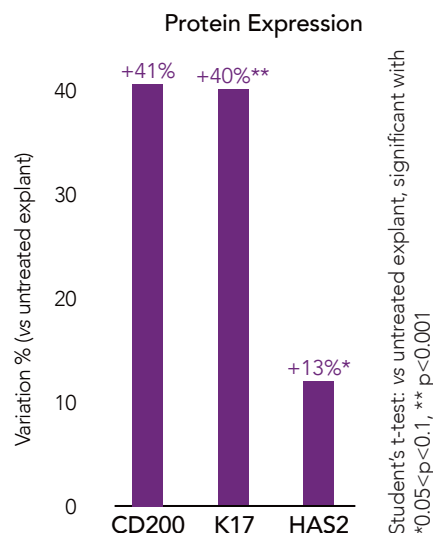
Student's t-test: vs untreated explant, significant with *0.05<p<0.1, **p<0.05

FILL Oléoactif® counter-balances signs of skin-aging and restores younger skin defense and architecture.

Significant impact on skin proteins

The effect of FILL Oléoactif® on skin regeneration associated pathways is confirmed at protein level thanks to immunostaining evaluation:

- Mobilization of epidermal stem cells:
CD200 is increased by +41% (up to +269%)
- Epidermal regeneration:
K17 is stimulated by +40%** (up to +85%)
- Dermal remodeling:
HAS2 is upregulated by +13%* (up to +42%)



CLINICAL EFFICACY ON MATURE SKIN AT 1% DOSE

To assess the impact of FILL Oléoactif® on skin roughness and wrinkles, a randomized clinical study is conducted on 21 Caucasian women (44-60 years old) with mature skin applying FILL Oléoactif® on one side of the face and placebo on the other side twice a day for 28 days. Measurements are conducted after 14 days and 28 days of application.



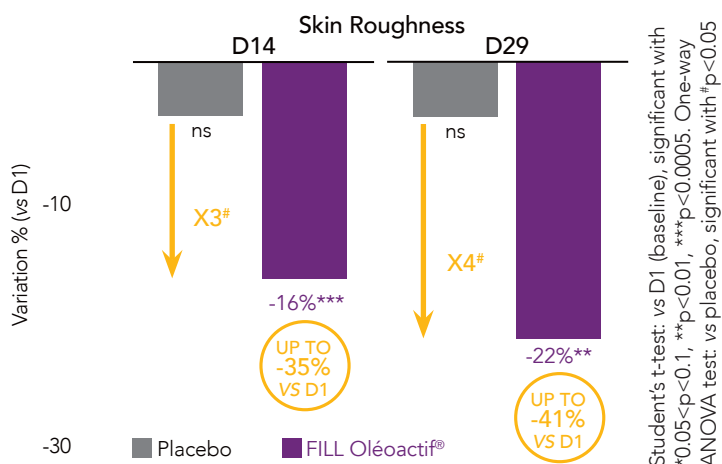
Skin resurfacing action

High-resolution digital photographs of both sides of the face are taken with VISIA® at D1 (baseline), D14 and D29. Skin roughness is quantified with VISIA® software.

FILL Oléoactif® significantly removes skin roughness after 14 days of application by -16%*** (up to -35%). The efficacy is confirmed after 28 days of use with an average reduction of -22%** (up to -41%).

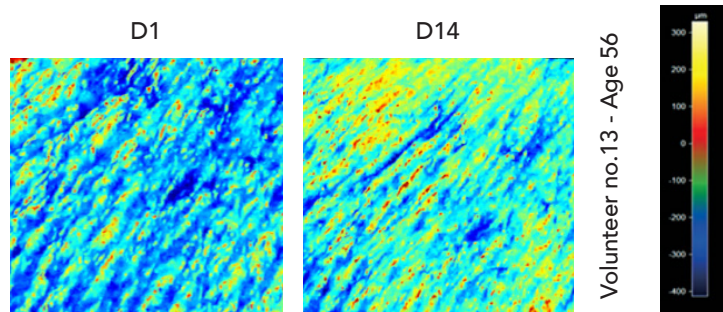
FILL Oléoactif® significantly resurfaces the skin up to 4 times more than the placebo#.

The smoothing effect is reached for 100% of volunteers at D29 (> 90% at D14).



3D photographs taken on cheek-nose area illustrate that FILL Oléoactif® visibly reduces skin folds and wrinkles (decrease of negative microrelief, in blue).

The skin is smoother and replenished after 14 days of application.

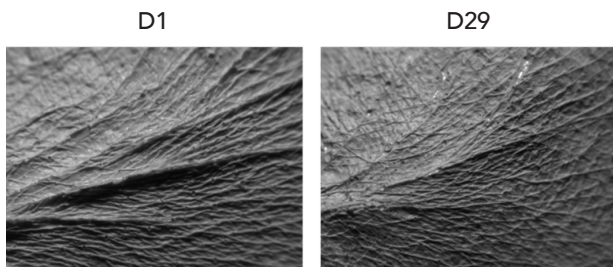
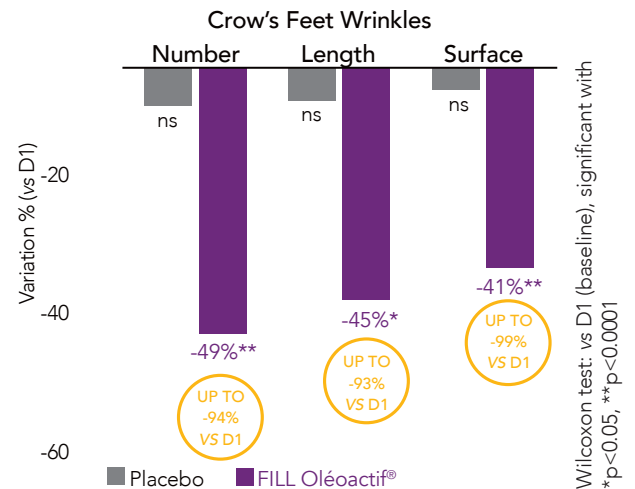


Wrinkle filler effect

Silicone resin impressions (Silflo®) of crow's feet wrinkles are obtained at D1 (baseline) and D29, then analyzed by Quantirides® software (video image analysis system). Compared to placebo and after 28 days of use, FILL Oléoactif® significantly reduces:

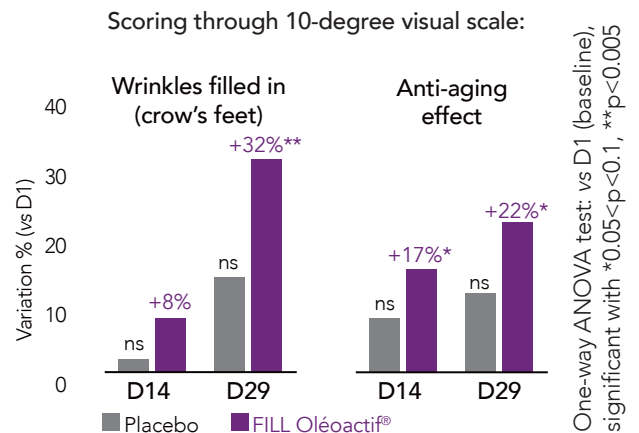
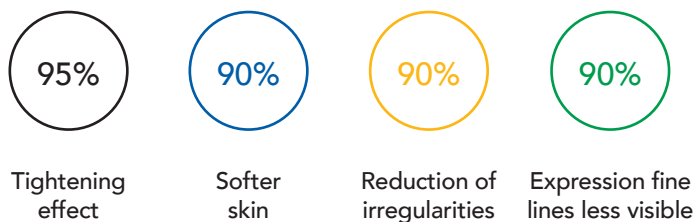
- the number of wrinkles by -49%** (up to -94%)
- the length of wrinkles by -45%* (up to -93%)
- the surface of wrinkles by -41%** (up to -99%)

FILL Oléoactif® visibly erases wrinkles, as illustrated below in the negative replica and high-resolution digital photographs taken with VISIA®.



Perceptible benefits

Benefits are noticed by the panelists after application of FILL Oléoactif®. Percentage of volunteers that agree after 28 days:



TECHNICAL AND REGULATORY DATA

INCI NAME:	Olea Europaea (Olive) Fruit Oil (and) Polyglyceryl-4 Oleate (and) Myrtus Communis Leaf Extract (and) Olea Europaea (Olive) Leaf Extract
RECOMMENDED DOSE:	1% - 5%
RECOMMENDED pH:	3-10
SOLUBILITY:	Liposoluble
FORMULATION:	In the fatty phase before emulsification or at the end of the formulation process or directly in anhydrous formulas
APPLICATIONS:	Suitable for mature skin. Smoothing care, wrinkle filler care, anti-aging care. Make-up, anhydrous formula, cleansing products, oily serums, primer, color cosmetics



[1] R.Sgonc and J.Gruber. Age-related aspects of cutaneous wound healing: a mini-review. Gerontol. 2013; 59(2):159-164
 [2] C.C. Zouboulis et al. Human skin stem cells and the ageing process. Exp. Gerontol. 2008; 43:986-997
 [3] A. Martin. The use of antioxidant in healing. Dermatol Surg. 1996; 22(2):156-160
 [4] B. Poljsak et al. Intrinsic skin aging: the role of oxidative stress. Acta Dermatovenereol Alp Pannonica Adriat. 2012;1(2):33-6

