

TIMILINE®

PATENT

SLIMMING AGENT AT THE HEART
OF THE ADIPOCYTES



SLIMMING

TIMILINE®

PHYTOBIOACTIVE

BIOTECHNOLOGY

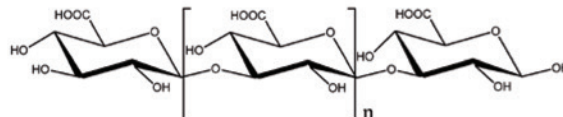
> ACTIONS

- Acts simultaneously on 4 new targets, straight to the heart of adipocytes
- Slims
- Firms
- Reduces orange peel appearance

ORIGIN

Obtained by a bacterial fermentation process, followed by a purification step:

TIMILINE®, **polyglucuronic acid**



> MECHANISM OF ACTION

This innovative approach acts on non-hormone-sensitive lipases, contrary to known biological pathways. It significantly reduces adipose tissue hyperplasia and hypertrophy thanks to direct and localised action on the adipocyte itself.

It causes the local over-expression of the FIAF gene (Fasting-Induced Adipose Factor), resulting in an increase in FIAF Adipokine synthesis.

> COSMETIC BENEFITS

- Skin is firmer, smoother, and free of the "orange peel" appearance of cellulitis.
- Slimming effect is clearly visible, with a slender, re-sculpted body.
- Face contours are redefined and remodelled.

> COSMETIC USES

- ▶ **Slimming, anti-cellulitis, anti-orange peel care products**
- ▶ **Re-sculpting and remodelling care products**
- ▶ **Firming care products**

> SCIENTIFIC PROCESS

• CELLULITIS

Cellulitis corresponds to fat storage in subcutaneous tissues, caused by an imbalance between lipogenesis and lipolysis. This storage starts as soon as fatty acids enter the adipocyte.

Dietary triglycerides are broken down to fatty acids and transferred to adipocytes thanks to the action of LPL (LipoProtein Lipase), where they activate the lipogenesis process.

During lipolysis, the triglycerides are broken down to fatty acids, carried outside the adipocyte and used as an energy source.

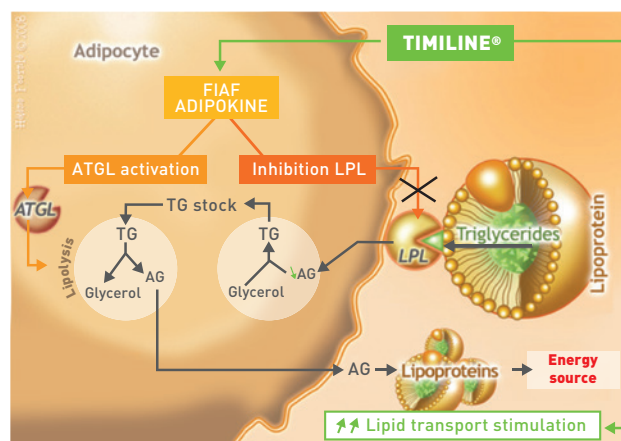
To date, known biological pathways acted on a Hormone-Sensitive Lipase (HSL), with limited results.

• TIMILINE®

This innovative active substance acts on non-hormonesensitive lipases. Indeed, the activities of LPL and ATGL (Adipose TriGlyceride Lipase) are modulated by a messenger: FIAF Adipokine, acting independently of hormonal and nutritional factors.

TIMILINE® acts simultaneously on 4 new specific targets:

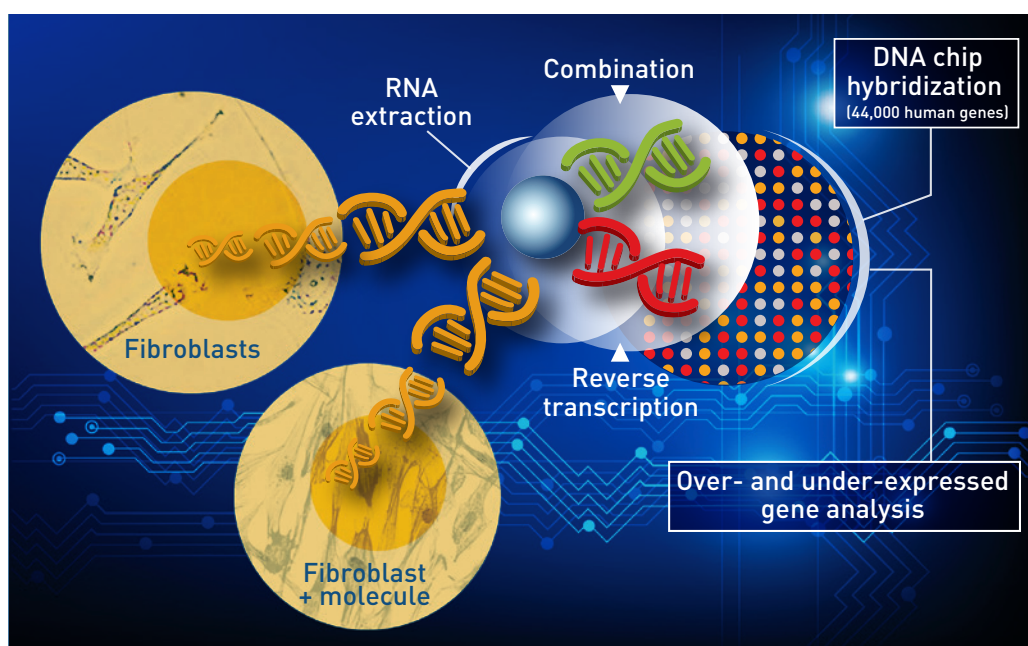
- > It reduces lipogenesis and hence fat storage, by inhibiting LPL enzymatic activity.
 - > It activates the ATGL enzyme, that plays a key role in lipolysis and fatty acids release.
 - > It promotes fatty acids transport from adipocytes to peripheral tissues for use as an energy source.
 - > It inhibits pre-adipocyte differentiation to adipocytes.
- Moreover, it enhances collagen, glycosaminoglycan and integrin synthesis.



TG: TriGlycerides
 FA: Fatty Acids
 LPL: LipoProtein Lipase
 ATGL: Adipose TriGlyceride Lipase
 FIAF: Fasting-Induced Adipose Factor

> TRANSCRIPTOMIC ANALYSIS ON DNA CHIP

At the adipocyte level, TIMILINE® induces over-expression of the FIAF gene, and hence stimulates FIAF Adipokine protein synthesis.

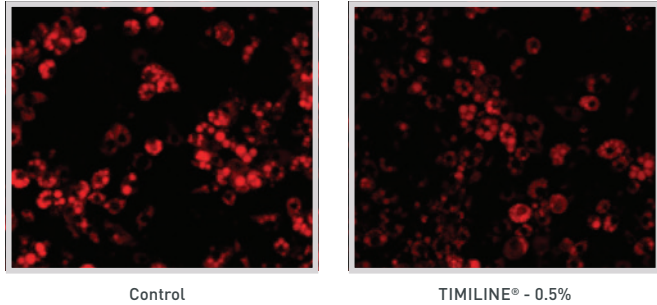


> PROVEN EFFICACY



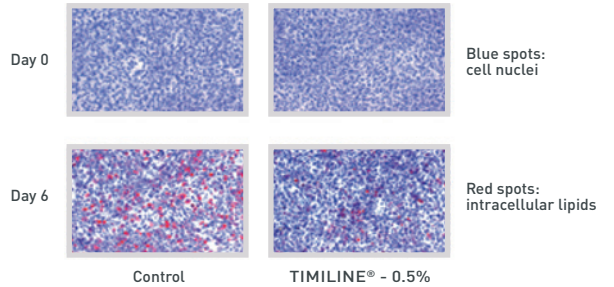
ADIPOCYTE STORAGE
(Adipored® labelling)

- **26%** drop in the quantity of lipids in adipocytes. TIMILINE® (at a concentration of 0.5%) thus acts on the different key steps of lipid metabolism.



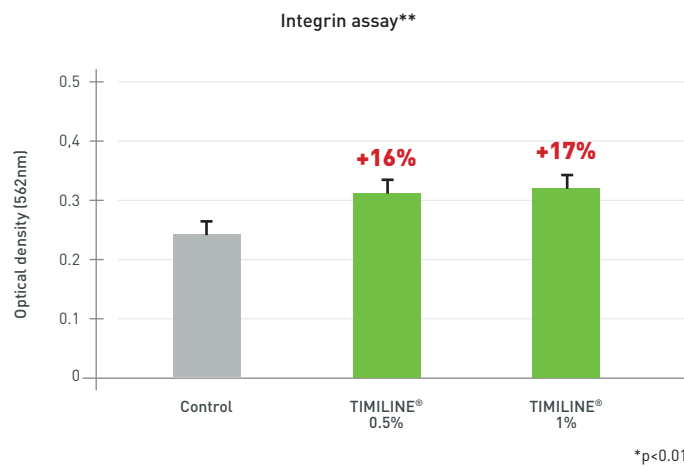
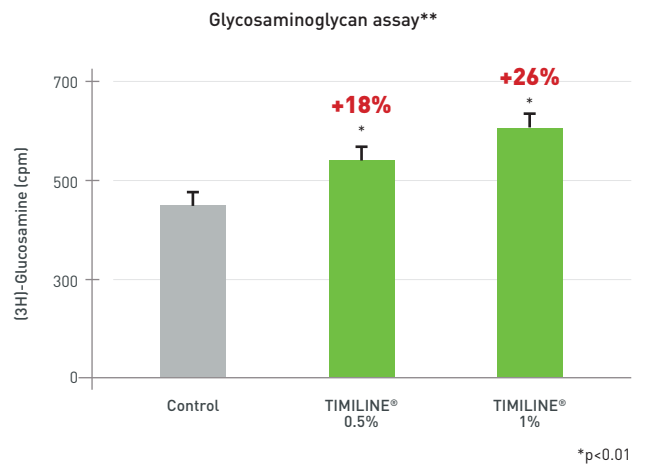
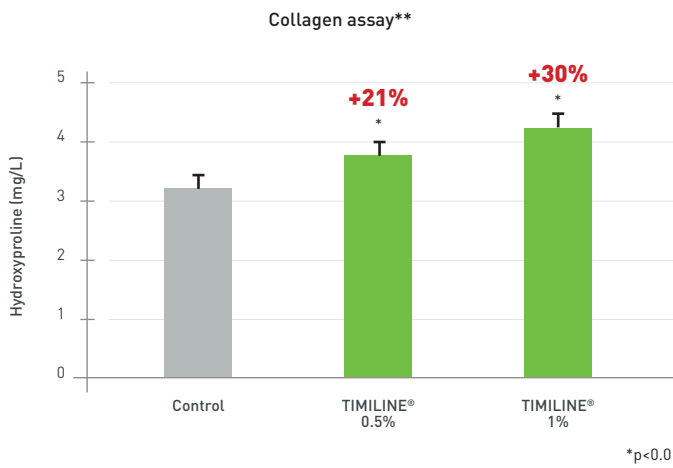
PRE-ADIPOCYTE DIFFERENTIATION TO ADIPOCYTES
(Adipored® labelling)

- New adipocyte formation is markedly reduced from day 1. TIMILINE® (at a concentration of 0.5%) blocks pre-adipocyte differentiation to mature adipocytes.



FIRM SKIN

- TIMILINE® acts on skin firmness by strengthening skin's structures. At concentrations of **0.5** and **1%**, it increases the synthesis of skin regeneration markers: collagens, glycosaminoglycans and integrins.



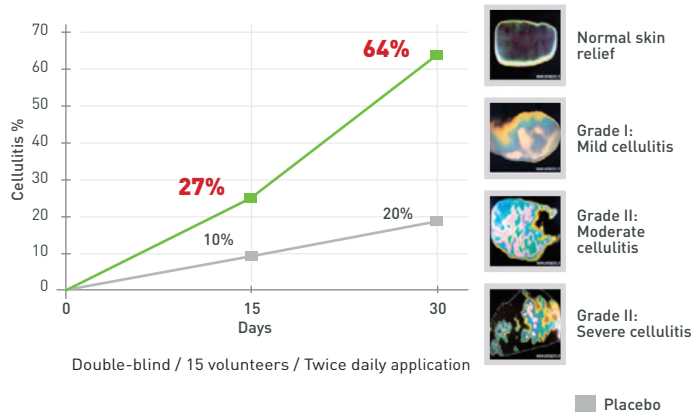
**Total on fibroblasts

> PROVEN EFFICACY

IN VIVO
TESTS

CELLULITIS REDUCTION: from grade III to grade II

- At a concentration of 3%, TIMILINE® caused a reduction of cellulitis for **44%** of volunteers, vs placebo



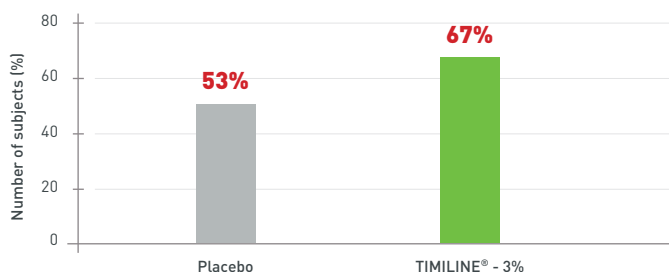
THIGH CIRCUMFERENCE REDUCTION: 2 cm in 8 weeks

- At a concentration of 1%, TIMILINE® is **1.5** times more effective than a simple massage

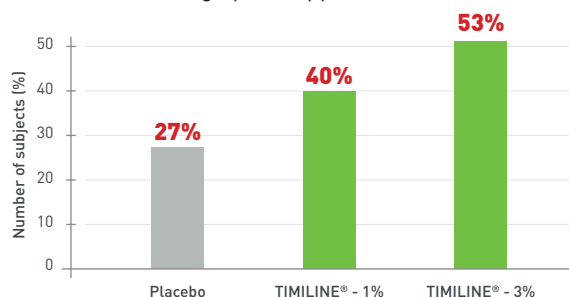


SELF-EVALUATION

- Improved skin firmness*



- Reduced of "orange peel" appearance*



*After 30 days

FORMULATION

Concentration for use: 0.5 to 3%**Caution for use:**

Add to emulsions, at the end of the preparation process, either cold or at 35-40 °C, during cooling. Solubilize beforehand in water.

TECHNICAL DATA

Characteristics

Organoleptic	Appearance: powder Colour: white to beige
Solubility	Water: (10%) Syrupy to viscous appearance

Storage

Keep in a dark place, in the original packaging and at ambient temperature (15-25 °C). Use rapidly once opened, or transfer to sterile packaging.

Tolerance tests

- Eye irritation: mildly irritating
- Skin irritation: non-irritant
- Mutagenicity: non-mutagenic and non-pro-mutagenic
- Sensitisation: hypoallergenic

INCI name: Polyglucuronic Acid

Preservative: Several versions available, see specifications

Authorized:

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