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Beauty Creations
The Passion for Beauty

Vit-A-Like™

Botanical alternative to retinol

BACKGROUND

Vitamin A and skin

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- Used for more that 20 years in cosmetics
- Application: anti-age products, anti-wrinkle
- Improvement of skin esthetic properties

Main action of retinol in the skin

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Retinol → **Biologically Active form**

Regulation of keratinisation process
Stimulation of ADN synthesis
Improvement of collagen synthesis
Inhibition of UV-induced MMPs

↓

Stimulation of epidermis cell renewal
Improvement of skin elasticity
Prevention of wrinkles formation
Anti-aging (intrinsic and photo-induced)
Anti-acne

Vitamin A: drawbacks

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- Tolerance
- Instability in formulation: sensitive to light and oxidation
- Important constraints for the manufacturing and packaging of the cosmetic preparations

Our proposition

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VIT-A-LIKE™

Botanical alternative to Retinol

The benefits of Vitamin A,

without the drawbacks

ORIGIN & DEFINITION

Characteristics

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- Natural / botanical active
- Stable and easy to handle in formulation
- Good tolerance
- Good efficacy:
  - by improving cell communication, stimulation of
    - cell metabolism
    - cell renewal
    - growth factor synthesis
    - collagen synthesis
  - anti wrinkle activity

Definition

- Extracted from the seeds of *Vigna aconitifolia* (Jacq.) Marechal
- Leguminous plant, very resistant to dryness
- Widely used in nutrition, particularly in Asia (South Asia, India)
- Seeds and pods are used in traditional medicine (febrifuge, stimulating, anti-burns…)
- Used as green fertilizer for cotton culture

EFFICACY TESTS

Summary

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- Stimulation of cellular turnover and cell communication
  - growth factor synthesis (HGF) by fibroblasts
  - stimulation of skin renewal (clinical test)

- Stimulation of collagen synthesis
  - gene expression on fibroblasts culture (qRT-PCR)
  - protein synthesis on reconstructed epidermis / fibroblasts culture (radio-labeling)

- Anti-wrinkle clinical study

EFFECT ON THE EPIDERMIS

IN VITRO TEST

in vitro stimulation of HGF release

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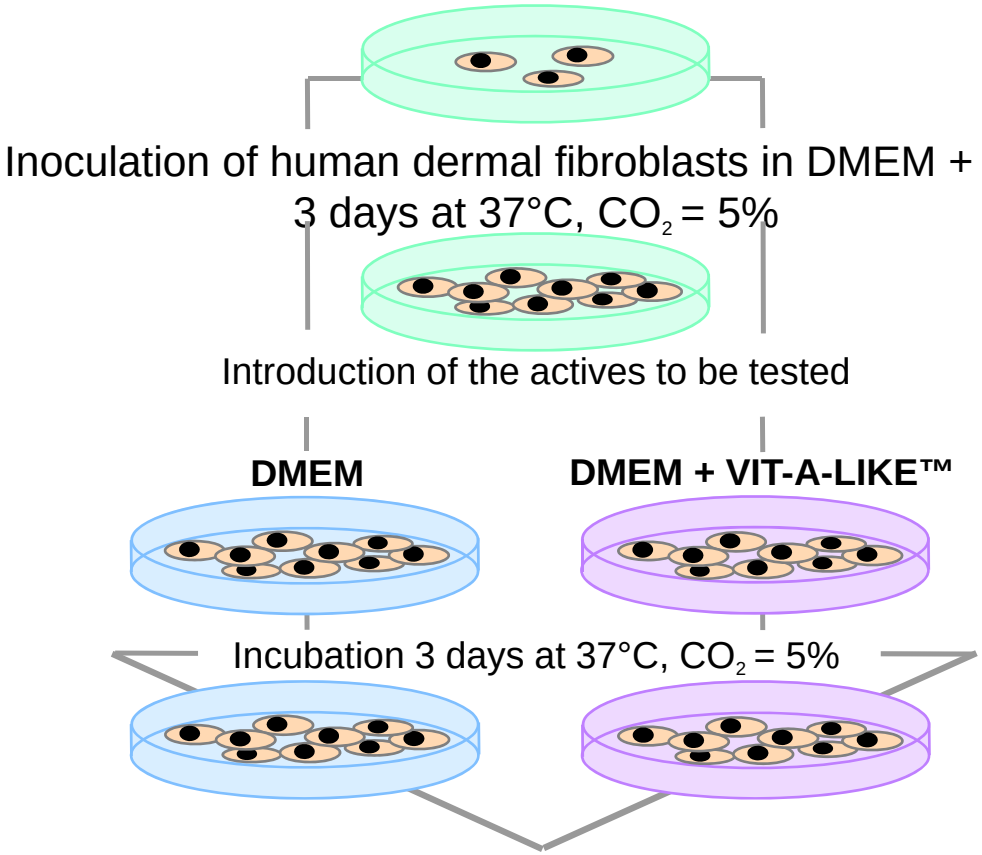
Protocol



- Quantification of cell number by measurement the rate of cellular proteins (Bradford's method)
- Measurement of HGF release (ELISA method)

in vitro stimulation of HGF release

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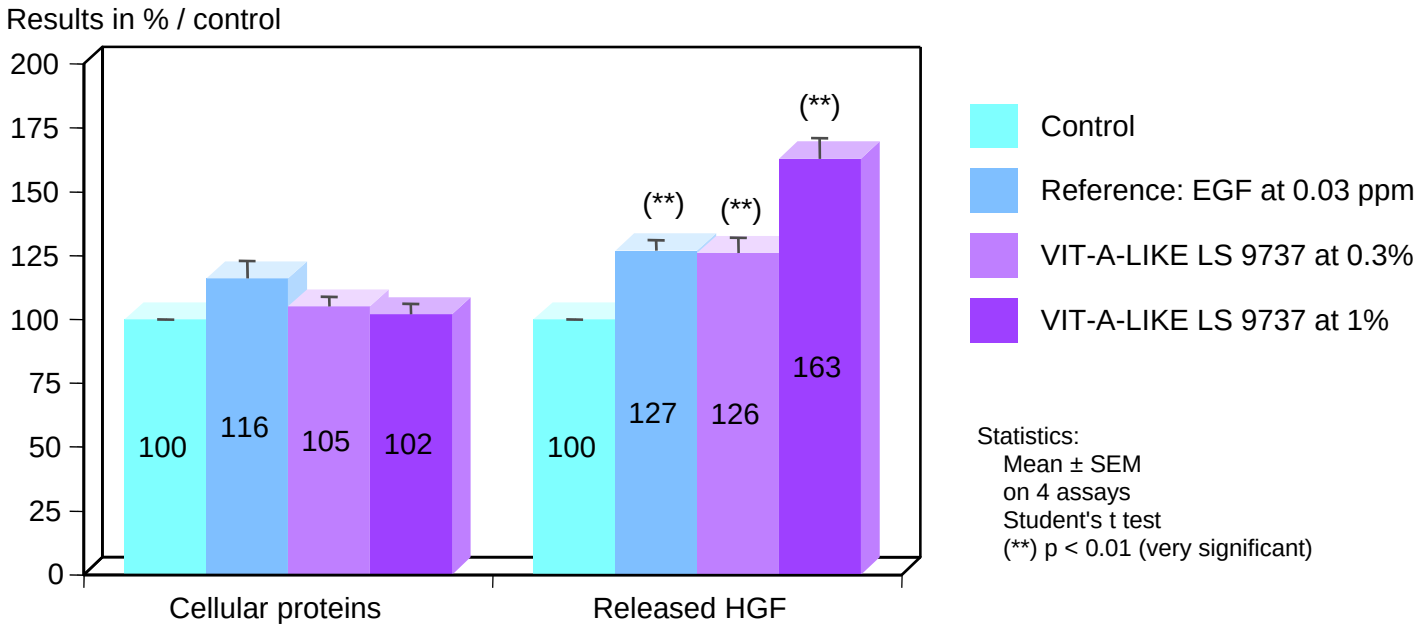
Results



VIT-A-LIKE LS 9737:
- rate of released HGF from human dermal fibroblasts: significant ↗,
- cell number: not changed.

Reference: cell number and rate of released HGF: moderate ↗.

Stimulation of communication between skin cells

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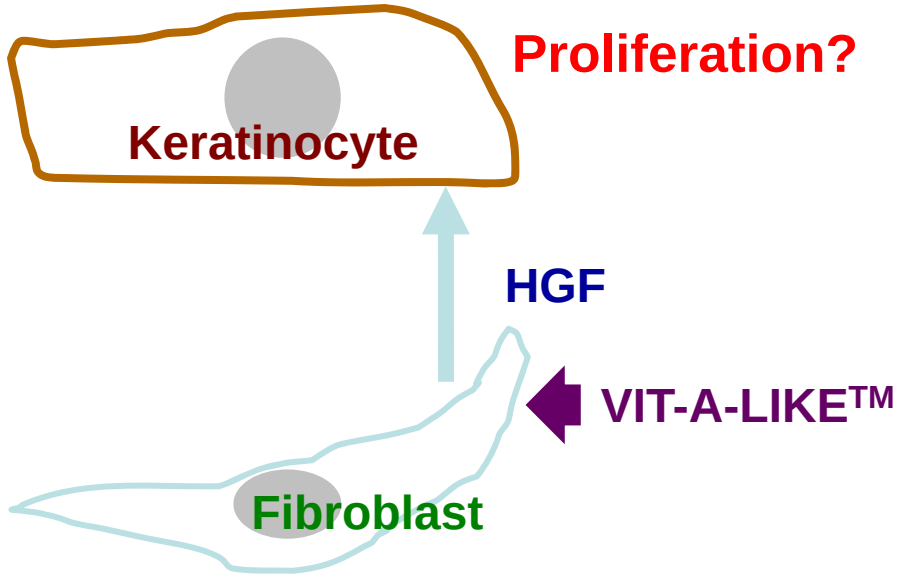
Concept

VIT-A-LIKE™ has induced HGF production by fibroblast.

HGF (Hepatocyte Growth Factor) is known to be a factor mitogenic to epidermal keratinocytes secreted from dermal fibroblasts.



=> In vivo study of epidermal renewal after treatment by VIT-A-LIKE™

Hamoen E et al.: Cell Transplant, 11:385-395, 2002

EFFECT ON THE EPIDERMIS

CLINICAL TEST

In vivo test: aim

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To demonstrate comparatively an accelerating activity of the epidermal cellular turnover of 2 creams at 3% and 5% VIT-A-LIKE™ versus 2 creams at 0.2% and 0.5% of vitamin A palmitate and versus placebo.

In vivo test: stimulation of epidermal turnover

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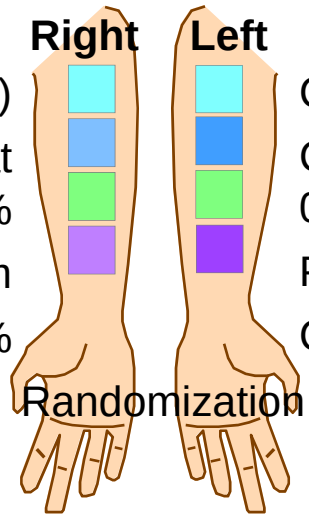
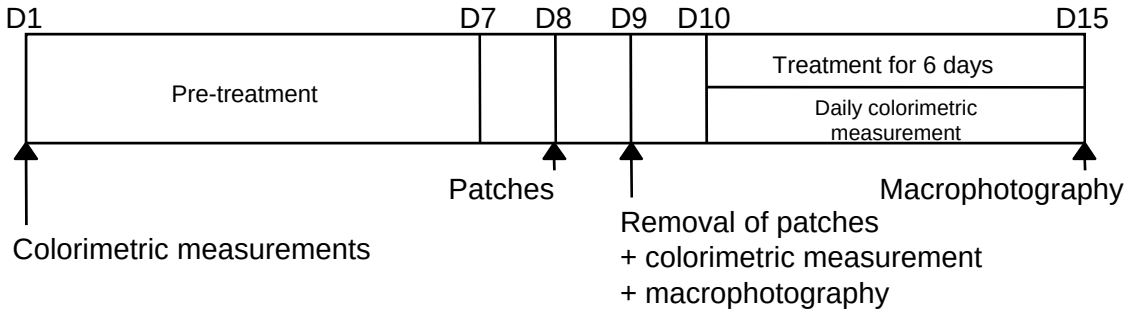
Protocol

Study carried out in double blind on 12 female volunteers, aged from 18 to 55 years old.
Comparative assessment of the intensity of the skin brown color after staining by dihydroxyacetone.



Right	Left
Control area (not treated)	Control area (not treated)
Cream containing vitamin A palmitate at 0.2%	Cream containing vitamin A palmitate at 0.5%
Placebo cream	Placebo cream
Cream containing VIT-A-LIKE™ at 3%	Cream containing VIT-A-LIKE™ at 5%

Randomization



In vivo test: stimulation of epidermal turnover

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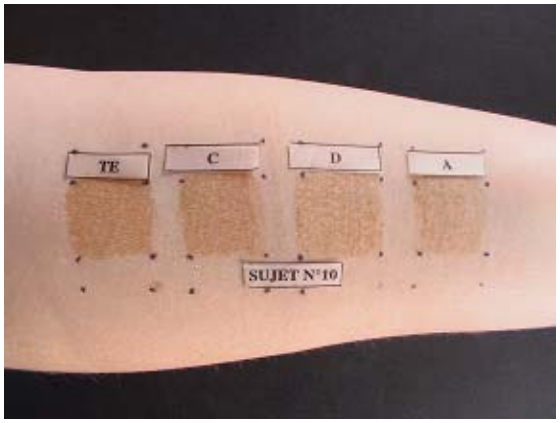
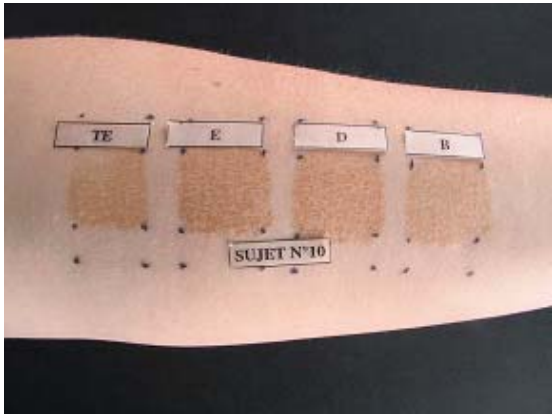
Results

Visualization of the cutaneous color by macrophotography 6 days after the removal of DHA patch on one volunteer

RIGHT SIDE



LEFT SIDE



TE Control area (not treated)

Treated areas
- D Placebo cream
- C Cream containing 0.2% of vitamin A palmitate
- E Cream containing 0.5% of vitamin A palmitate
- A Cream containing 3% of VIT-A-LIKE™
- B Cream containing 5% of VIT-A-LIKE™

A more important disappearance of the brown color provoked by DHA is due to the acceleration of the epidermal cellular turnover in presence of VIT-A-LIKE™

In vivo test: stimulation of epidermal turnover

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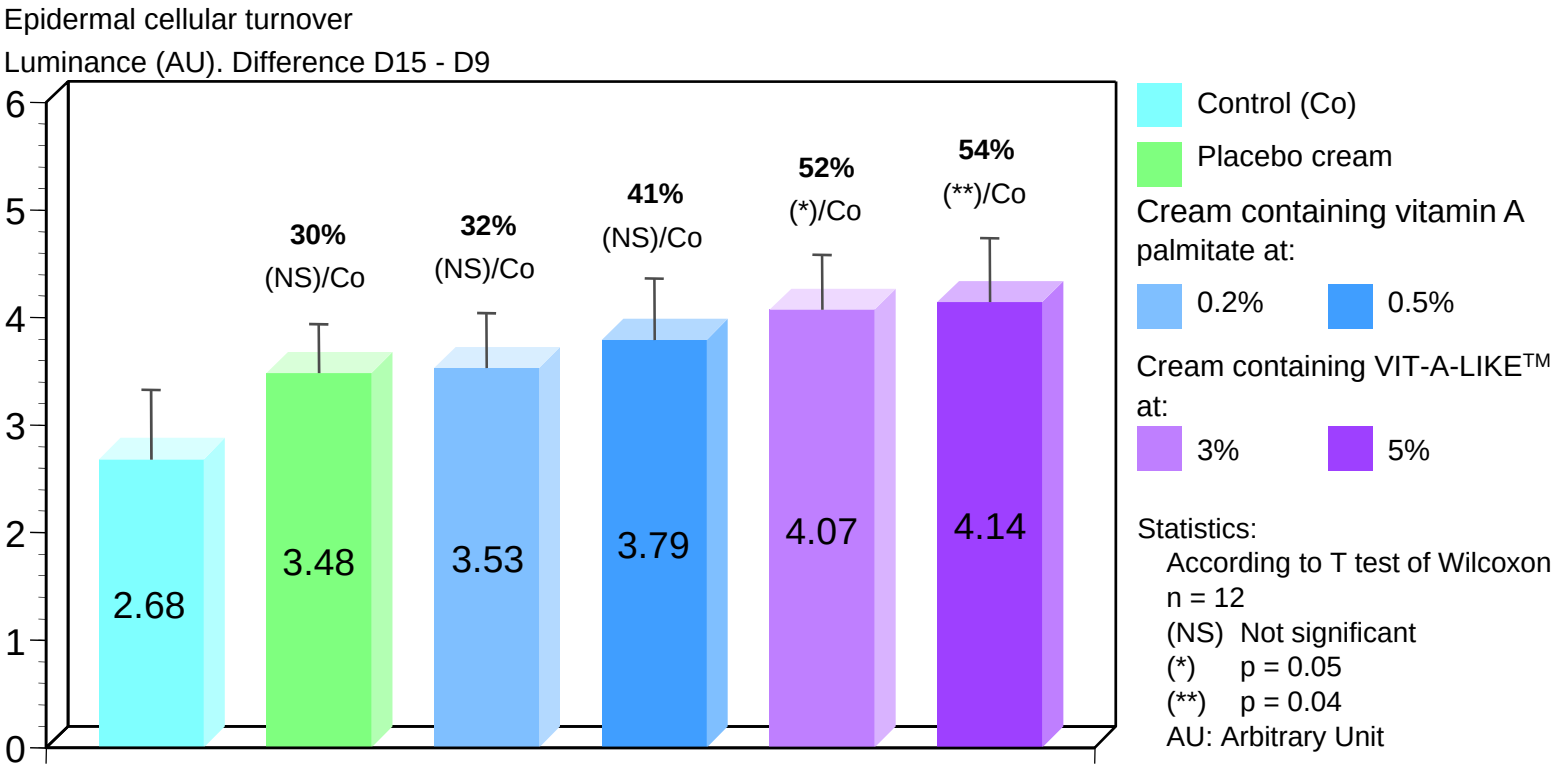
Results

Evolution of luminance between D15 (6 days after removal of patches) and D9 (just after the removal of patches)
Quantitative measurements by colorimetry



In vivo test: stimulation of epidermal turnover

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Conclusion

VIT-A-LIKE™ LS 9737 stimulates the release of HGF from fibroblasts.

This factor activates keratinocytes proliferation.

So VIT-A-LIKE™ LS 9737 accelerates the renewal of epidermis (*in vivo*).

EFFECT ON THE DERMIS

IN VITRO TEST

Analysis of collagen synthesis

- gene expression on fibroblasts culture (qRT-PCR)
- protein synthesis on reconstructed epidermis / fibroblasts culture (radio-labeling)

Collagen synthesis on human dermal fibroblasts *in vitro*

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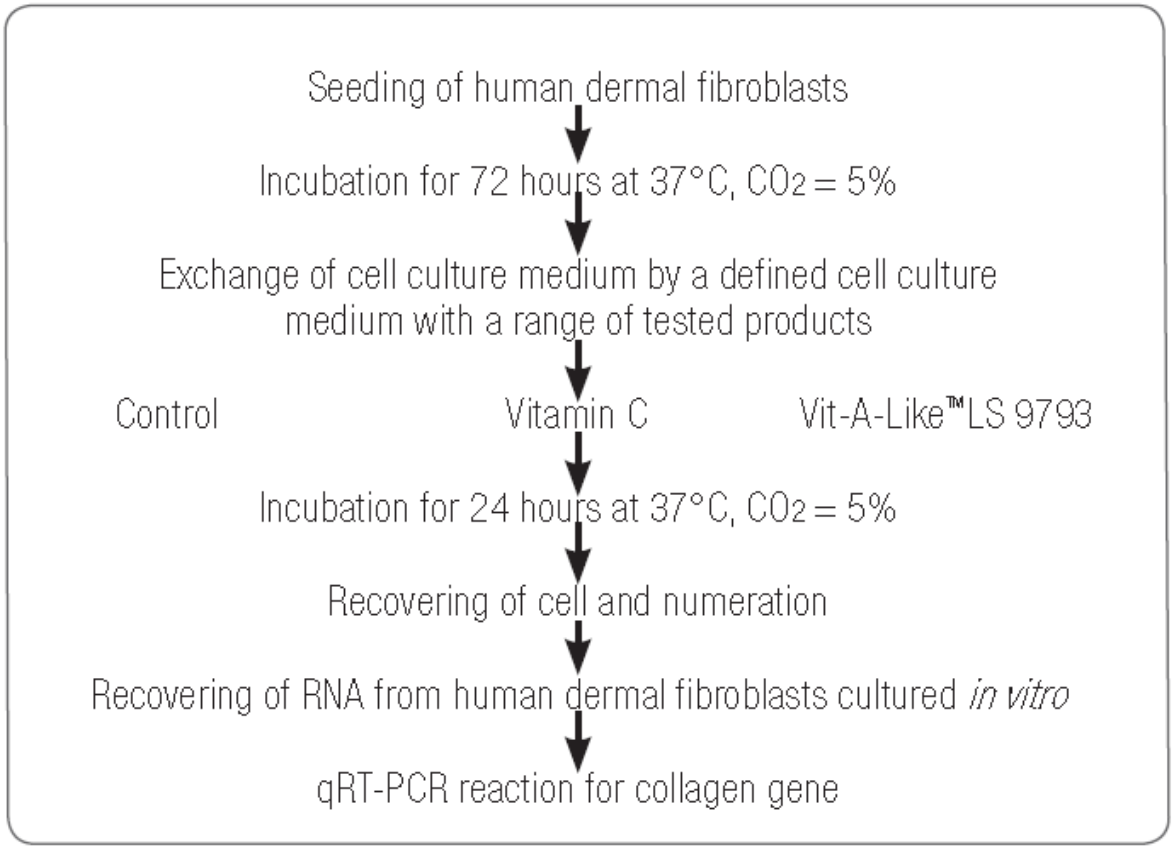
Protocol

To evaluate the capacity of Vit-A-Like™ to stimulate the type I collagen synthesis.



Collagen synthesis on human dermal fibroblasts *in vitro*

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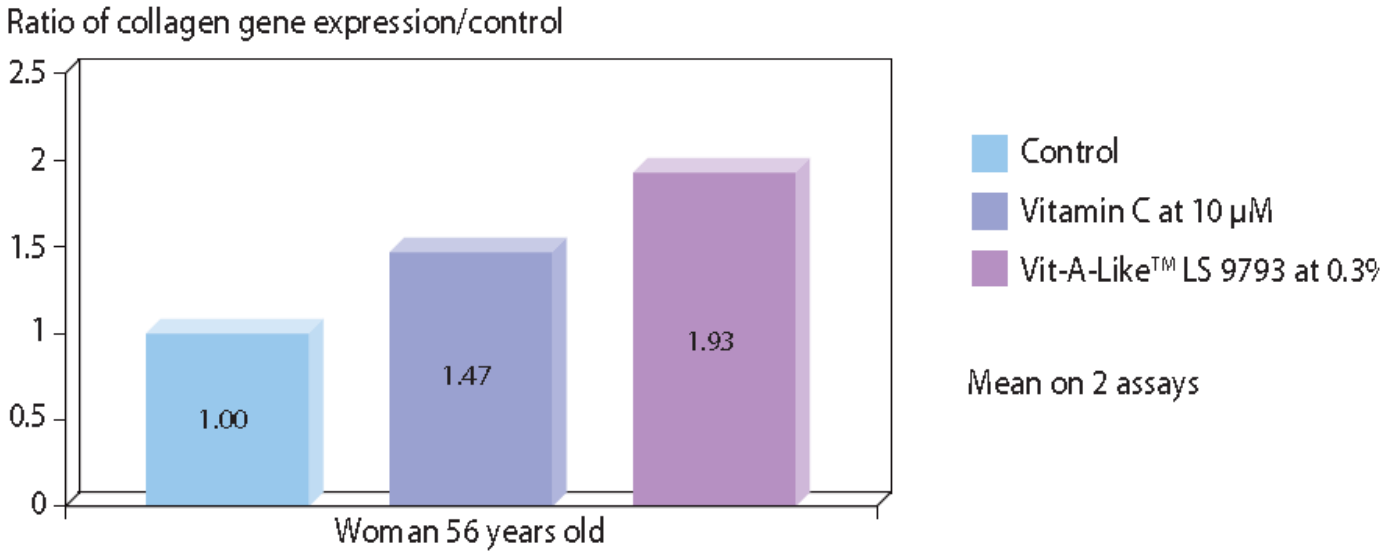
Results



Conclusion: distinct enhancement for **2 different assays** of the type I collagen gene expression from human dermal fibroblasts cultured in vitro VIT-A-LIKE™ as well as Vitamin **C.**

Stimulation of collagen synthesis with reconstructed epidermis

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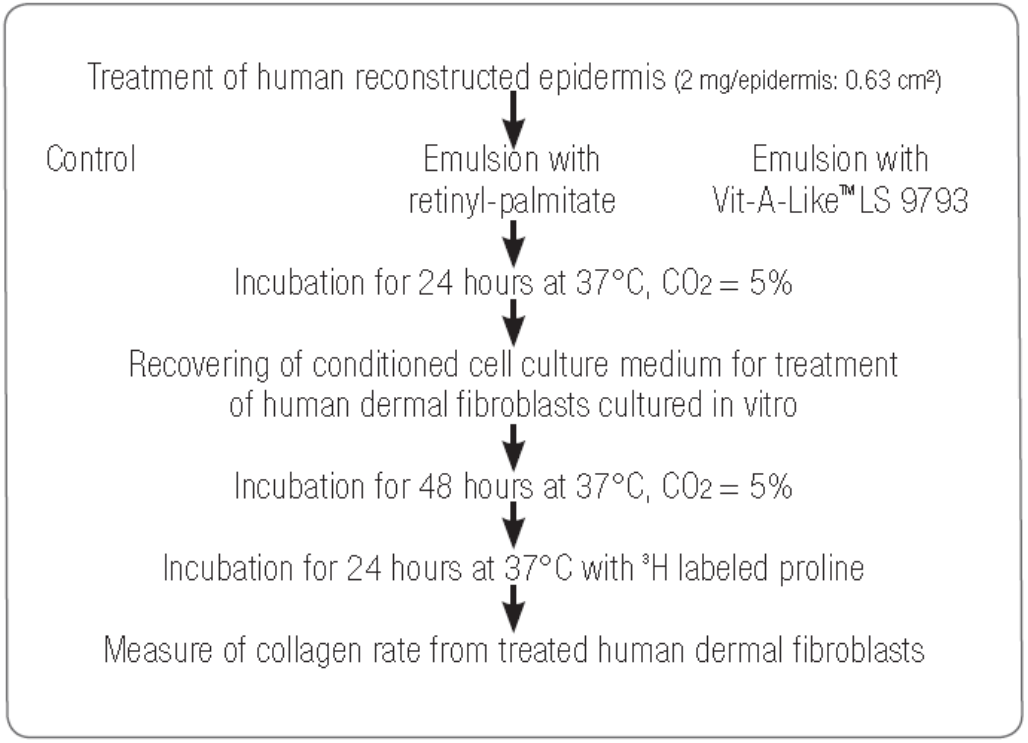
Protocol

To investigate the mechanism of type I collagen induction by Vit-A-Like™. To measure the collagen synthesis from human dermal fibroblasts incubated in cell culture medium preconditioned by human reconstructed epidermis treated by Vit-A-Like™.



Stimulation of collagen synthesis with reconstructed epidermis

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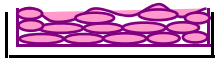
Protocol

VIT-A-LIKE™ or retinyl palmitate

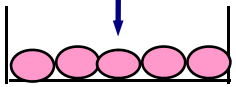


Reconstructed epidermis SkinEthic

Incubation for 24h at 37°C

Recovering of “conditioned” culture medium

Conditioned” culture medium



Cultured Human dermal fibroblasts

Incubation for 48 h at 37°C

Incubation for 24 hours at 37°C with labeled proline H^3

Measure of the soluble and deposited collagen rate

Stimulation of collagen synthesis with reconstructed epidermis

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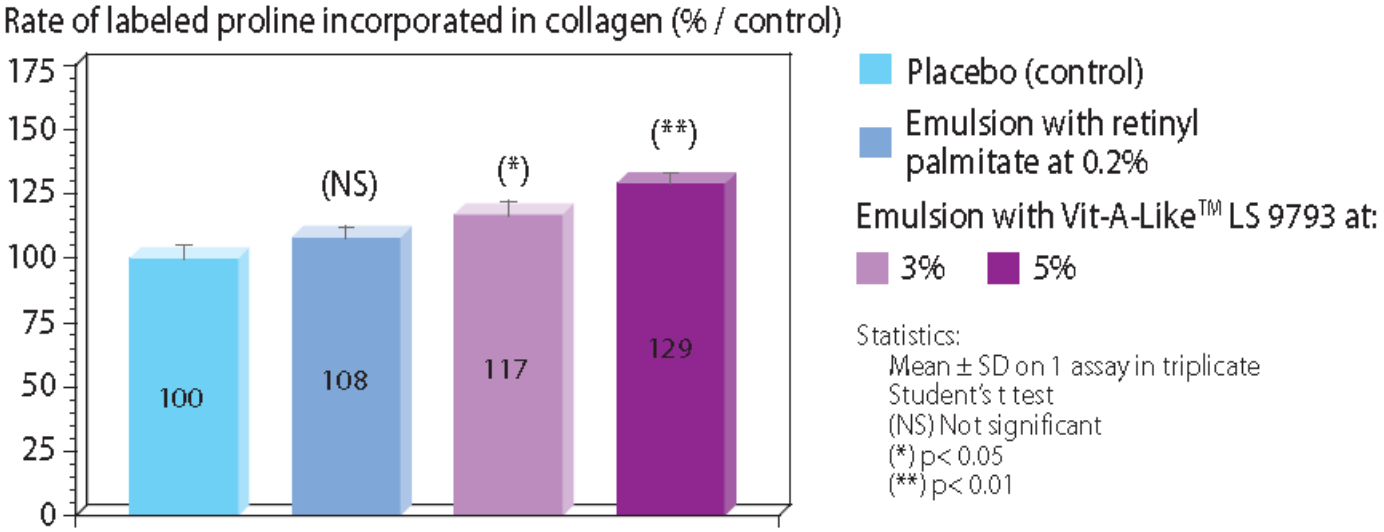
Results



Conclusion: stimulation of collagen synthesis from human dermal fibroblasts by cell culture medium which were conditioned by human epidermis treated by VIT-A-LIKE™

Effect of VIT-A-LIKE™ > Retinyl-palmitate.

Conclusion

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The results have shown the stimulation of collagen synthesis by human dermal fibroblasts cultured in the cell culture medium which was preconditioned by Vit-A-Like™ treated human reconstructed epidermis.

By these two tests, in addition to its effect on epidermal renewal, Vit-A-Like™ has shown good activity on dermis.

ANTI WRINKLE ACTIVITY

CLINICAL TEST

Anti wrinkle efficacy clinically proven

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Protocol

2 groups of 14 female volunteers (45 to 65 years old)
Wrinkles on the crow's foot area

Cream with 2.5% encapsulated retinol
or
Cream with 5% Vit-A-Like™ LS 9793

Placebo cream

2 months of treatment

Measurement of wrinkle volume by fringe projection on wrinkle Silflo prints of the crow's foot area, before and after treatment

Anti wrinkle efficacy clinically proven

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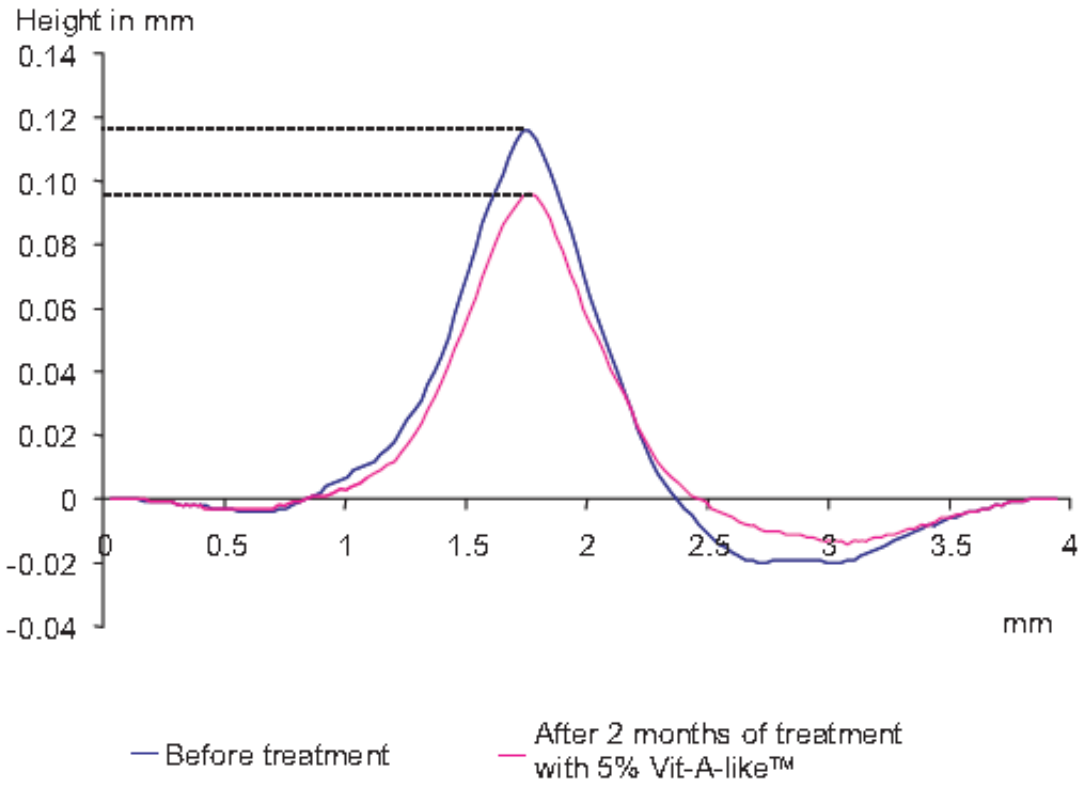
Results

Quantitative measurement of wrinkle volume on the crow's foot area (subject n°32)
Evolution of the wrinkle profile



Anti wrinkle efficacy clinically proven

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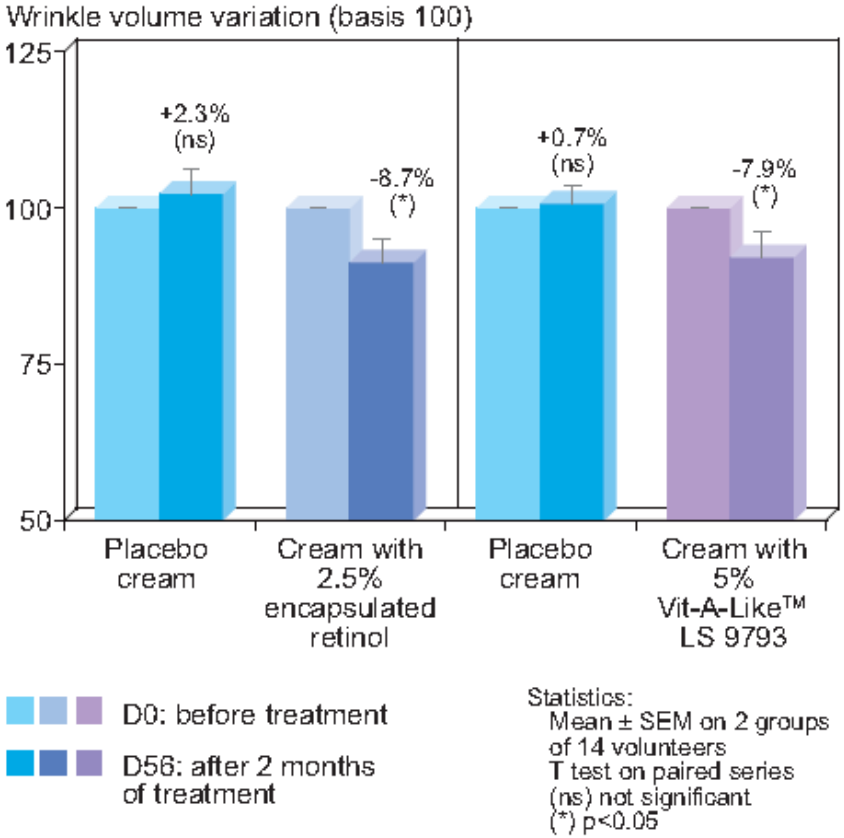
Results

Quantitative measurement of wrinkle volume on the crow's foot area



The efficacy of VIT-A-LIKE™ is comparable with the one of the market benchmark.

Anti wrinkle efficacy clinically proven

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Results

Macrophotograph of the crow's foot area (subject n°32)
Cream with 5% VIT-A-LIKE™ LS 9737

D0: before treatment

D56: after 2 months of treatment

Anti wrinkle efficacy clinically proven

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Results

Macrophotograph of the crow's foot area
Cream with 2.5% encapsulated retinol

D0: before treatment

D56: after 2 months of treatment

Vit-A-Like™

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THE BOTANICAL ALTERNATIVE TO RETINOL

A cream with 5% Vit-A-Like™ has shown an anti-wrinkle efficacy on the crow's foot area ; as good as the benchmark (cream with 2.5% encapsulated retinol).

Thanks to its cellular renewal activity, Vit-A-Like™ visibly refines skin texture.

We have confirmed the retinol like effect of Vit-A-Like™ in the *in vivo* studies: stimulation of the epidermis cell renewal and reduction of wrinkles.

Vit-A-Like™ has demonstrated a general anti-wrinkle activity comparable to that of vitamin A, via equivalent mechanism of action.

ADDITONAL DATA

Technical data

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Dosage / Solubility / Mode of incorporation

1. Dose of use:
Vit-A-Like™ LS 9793: 3 to 5%
Vit-A-Like™ LS 9898: 0.21 to 0.35%
Vit-A-Like™ LS 9898 is 12x more concentrated than liquid version Vit-A-Like™ LS 9793

2. Solubility: soluble in water, insoluble in oils and fats.

3. Mode of incorporation: must be incorporated at temperature below 60°C in the final phase or at room temperature for cold processing.
Optimal pH: 3 - 8

Analytical characteristics

1. Aspect:
Vit-A-Like™ LS 9793: yellow liquid with a characteristic odor.
Vit-A-Like™ LS 9898: white powder.

2. Specifications: upon request.

Storage

In its original packaging, at 15 - 25°C.

INCI name

Vit-A-Like™ LS 9793: Water (and) Vigna Aconitifolia Seed Extract (and) Sodium Cocoyl Glutamate
Vit-A-Like™ LS 9898: Vigna Aconitifolia Seed Extract (and) Maltodextrin

Cosmetic applications

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Skin benefits

Stimulates cell renewal.
Stimulates collagen synthesis.
Decreases wrinkles.
High level tolerance.

Cosmetics use

Renewing and regenerating skin care preparations.
Anti-age skin care products.

Disclaimer

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