

Care
Creations™

Vit-A-Like™
by Beauty Creations

New anti-age concept

 **BASF**
The Chemical Company

Vitamin A is a powerful liposoluble vitamin which is approved for the use in cosmetics. Retinol, a form of vitamin A, is considered as a benchmark for anti-aging treatments and has a proven effect on cell renewal.

However, in formulation, retinol turns out to be unstable and difficult to work with, which imposes restrictions on manufacturing process and on the packaging of the end product. Moreover, retinol can induce skin irritation, which is not compatible with sensitive skin formulations.

Well aware of these issues, Beauty Creations has developed an alternative to retinol, Vit-A-Like™, with proven effects similar to retinol: comparable mechanism of action, equivalent performances; but with an improved tolerance and a better stability.

The main well-known effects of retinol are the regulation of keratinisation, the stimulation of DNA synthesis and the improvement of collagen synthesis. We have confirmed the retinol like effect of Vit-A-Like™ in clinical studies: stimulation of epidermis cell renewal and reduction of wrinkles.

Efficacy tests have demonstrated that Vit-A-Like™ acts both on epidermis and dermis to fight the effects of aging.

Epidermal Renewal

HGF (Hepatocyte Growth Factor) is known to be a mitogenic factor for epidermal keratinocytes, secreted from dermal fibroblasts. This growth factor enhances proliferation of keratinocytes (*in vitro* test).

By inducing HGF production by fibroblasts, Vit-A-Like™ contributes to epidermal renewal (clinical test), resulting in smoother and brighter skin.

Dermis strenghtening

Collagen is a natural fibrillar protein within dermal extracellular matrix (ECM). With skin aging, collagen decreases dramatically and becomes less flexible and skin's connective tissue loses its ability to naturally support skin. That is why the skin requires constant synthesis of new collagen to remain firm. Vit-A-Like™ enhances the release of soluble factors which are able to stimulate collagen synthesis by fibroblasts (*ex vivo* test).

Definition / Composition

Vigna aconitifolia Marechal or “Moth bean” is an annual herb belonging to the Leguminosae family. The pods contain 4 to 9 seeds which contain nutritive proteins. Colors of the seeds are light brown or yellow brown. This drought-resistant plant is native of India and Pakistan where it grows wild and can also be cultivated. Now, the plant can be found in China, Sri Lanka, Africa, United States and Thailand.



Fig. 1 – *Vigna aconitifolia*.

Green pods as well as ripe whole or split seeds are cooked and eaten. Seeds are medicinally used in diets against fevers and are used as earth fertilizer for cotton culture.

Main components:

The seeds of *Vigna aconitifolia* contain mainly carbohydrates (56 to 62%), proteins (22 to 24%), water (11%), lipids (1.9%) and polyphenols (1.3%). Vit-A-Like™ is a proteic extract from *Vigna aconitifolia* seeds.

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.

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.

Tolerance

Good.

Efficacy

Efficacy tests hereafter.

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

Efficacy tests on the epidermis

Stimulation of epidermal cellular renewal, via hepatocyte growth factor (HGF) release (*in vitro*)

Aim

To evaluate the capacity of Vit-A-Like™ LS 9793 to stimulate HGF release. HGF is a messenger released by fibroblasts to stimulate the growth of keratinocytes and consequently the epidermal renewal. The used positive control is EGF (Epidermal Growth Factor) known as a strong epidermal mitogenic factor.

Protocol

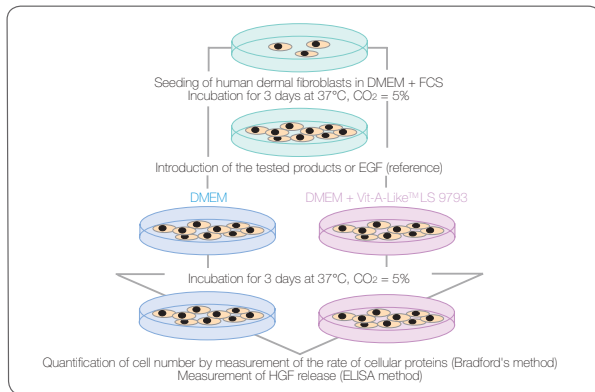


Fig. 2 – Schema of protocol.

Results

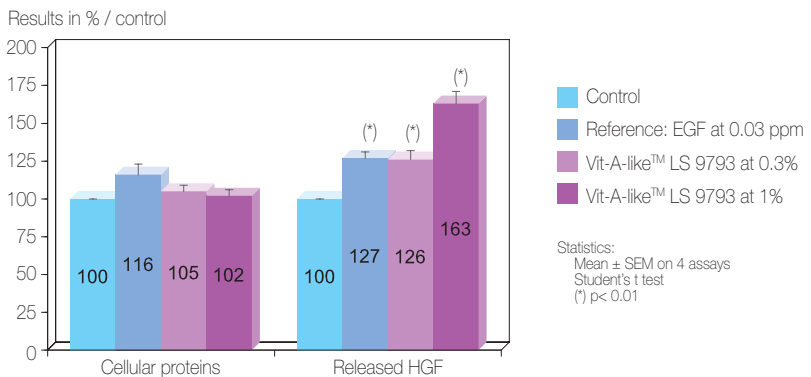


Fig. 3 – Results for *in vitro* stimulation of HGF release.

Conclusion

Vit-A-Like™ LS 9793 has significantly enhanced the rate of released HGF from human dermal fibroblasts without modification of cell number. While for the reference, cell number and rate of released HGF were moderately enhanced. HGF released from fibroblasts could activate epidermal keratinocytes and consequently epidermal turnover.

Stimulation epidermal cellular renewal in vivo

Aim

To demonstrate the increase of epidermal cellular turnover by 2 creams with 3% and 5% Vit-A-Like™ LS 9793 versus two creams with 0.2% and 0.5% retinyl palmitate and placebo.

The study is carried out in double blind with randomisation 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 (DHA). Vanishing of staining corresponds to renewal of stratum corneum.

Protocol

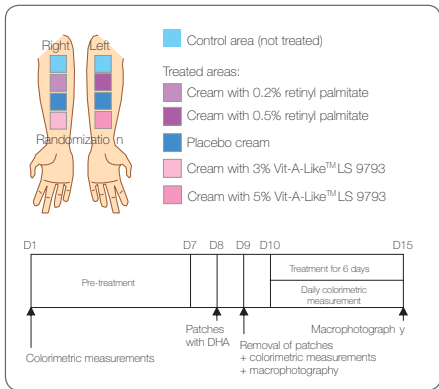


Fig. 4 – Schema of protocol.

Results

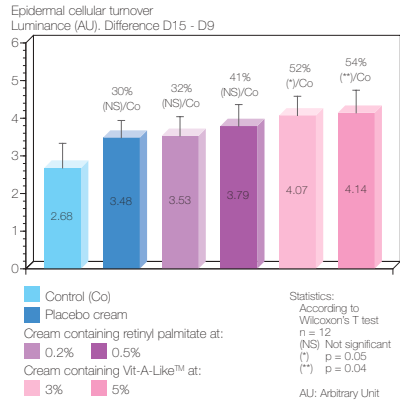


Fig. 5 – Cellular epidermal turnover. Quantitative measurements by colorimetry

Results

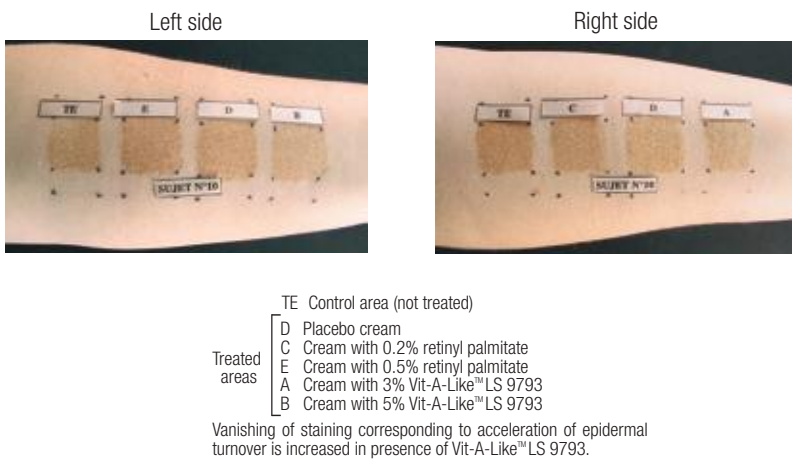


Fig. 6 – Stimulation activity of the epidermal cellular turnover. Visualization of the cutaneous color by macrophotography.

Conclusion

Creams with 3% and 5% Vit-A-Like™ LS 9793 have significantly accelerated the epidermal cellular turnover. This effect is superior to those of the creams with 0.2% and 0.5% retinyl palmitate. Via stimulation of growth factors implied in cellular renewal, Vit-A-Like™ LS 9793 stimulates epidermis renewal with an efficacy comparable to vitamin A.

Collagen synthesis: on directly treated human dermal fibroblasts

Aim

To evaluate the capacity of Vit-A-Like™ LS 9793 to stimulate the type I collagen synthesis.

Protocol

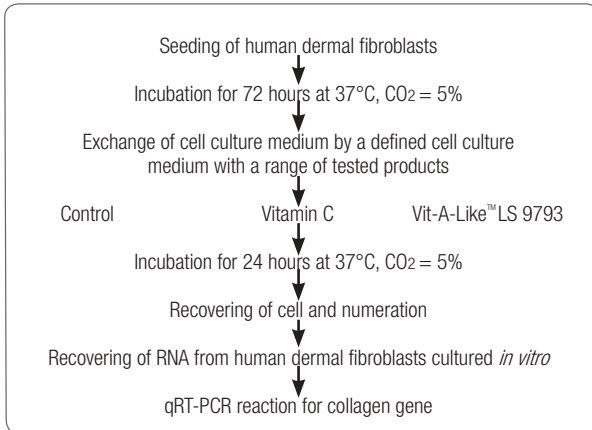


Fig. 7 – Schema of protocol.

Results

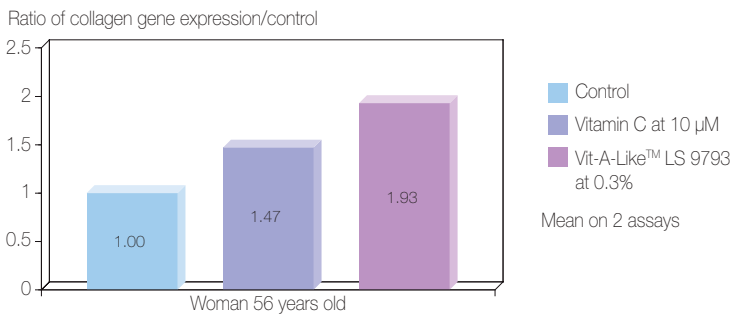


Fig. 8 – Results for collagen synthesis on human dermal fibroblasts.

Conclusion

Results of 2 different assays have shown a distinct enhancement of the type I collagen gene expression by human dermal fibroblasts *in vitro*.

Aim

To investigate the mechanism of type I collagen induction by Vit-A-Like™ LS 9793. To measure the collagen synthesis from human dermal fibroblasts incubated in cell culture medium preconditioned by human reconstructed epidermis treated by Vit-A-Like™ LS 9793.

Protocol

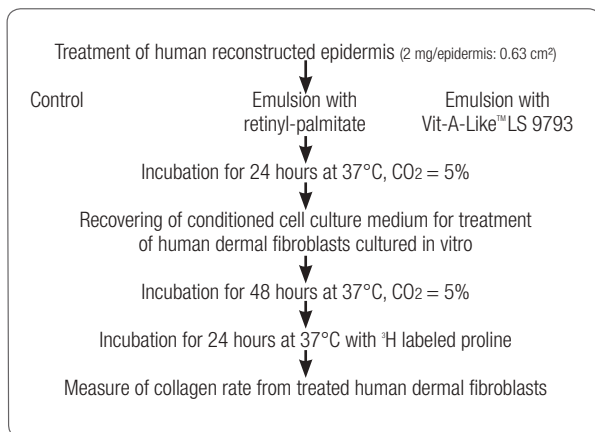


Fig. 9 – Schema of protocol.

Results

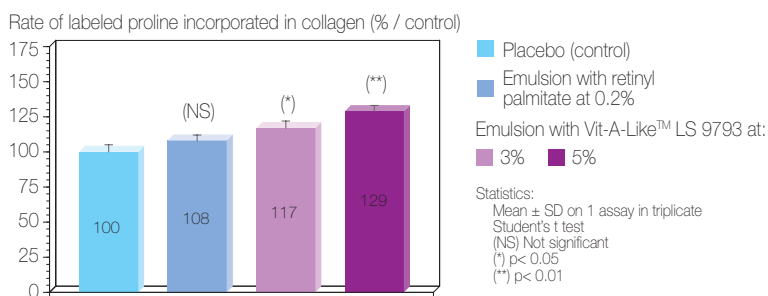


Fig. 10 – Results for collagen synthesis in reconstructed epidermis.

Conclusion

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™ LS 9793 treated human reconstructed epidermis.

By these two tests, in addition to its effect on epidermal renewal, Vit-A-Like™ LS 9793 has shown good activity on dermis.

Anti-wrinkle activity - Crow's foot area (clinical test)

Aim

To demonstrate the anti-wrinkle activity of Vit-A-Like™ LS 9793 in comparison with encapsulated retinol.

Protocol

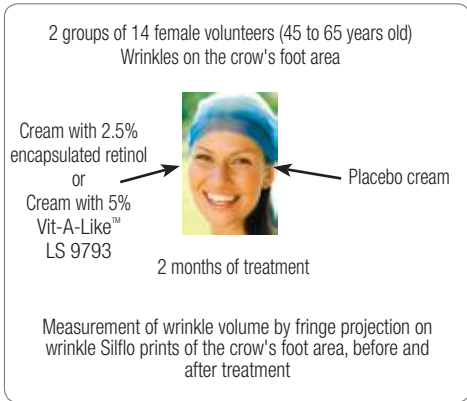


Fig. 11 – Schema of protocol.

Results

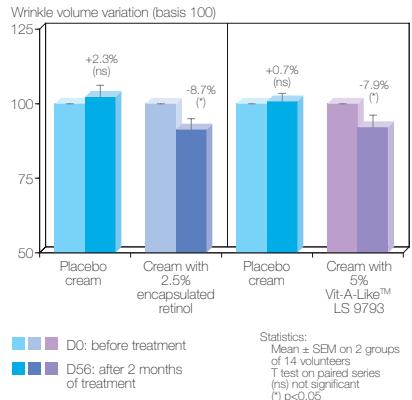


Fig. 12 – Quantitative measurement of wrinkle volume on the crow's foot area

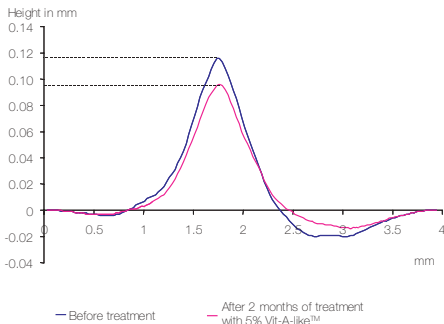


Fig. 13 - Quantitative measurement of wrinkle volume on the crow's foot area. Evolution of the wrinkle profile.

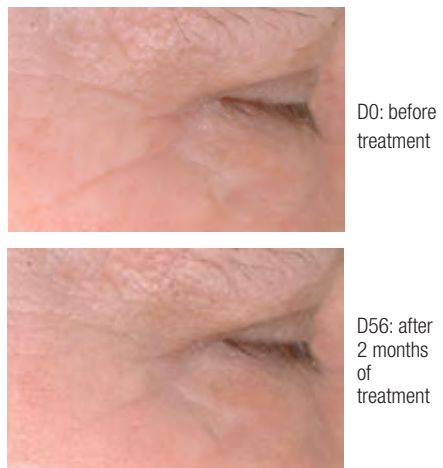


Fig. 14 - Macrophotographs of the crow's foot area before and after 2 months of treatment with 5% Vit-A-Like™ LS 9793 cream.

Conclusion

A cream with 5% Vit-A-Like™ LS 9793 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™ LS 9793 visibly refines skin texture.

We have confirmed the retinol like effect of Vit-A-Like™ LS 9793 in the *in vivo* studies: stimulation of the epidermis cell renewal and reduction of wrinkles.

Vit-A-Like™ LS 9793 has demonstrated a general anti-wrinkle activity comparable to that of vitamin A, *via* equivalent mechanism of action.

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