

ExLinea® Pro Peptide Serum

Superior efficacy in microfold reduction, skin smoothness, and epidermal thickness

Introduction

Skin shows obvious and visible signs of aging as we get older, and aged skin is invariably dry, wrinkled, and rough.^{1,2} Many cosmetic products are designed to prevent or reverse the effects of skin aging. PCA SKIN®'s ExLinea® Pro Peptide Serum contains a proprietary technology with efficacious levels of biologically active ingredients such as neuropeptides, including acetyl octapeptide-3 and acetyl hexapeptide-8, proteins, amino acids, and marine extracts to help visibly improve the appearance of expression lines, skin roughness, and laxity while increasing skin hydration. When applied topically, ExLinea® Pro Peptide Serum deposits a monolayer on the skin that boosts moisture retention, enhances elasticity, and helps smooth and lift skin. 3D imaging and histological analysis of excised skin treated with ExLinea® Pro Peptide Serum demonstrates its benefits on the microfold reduction, smoothness, and epidermal thickness of skin.

Objective

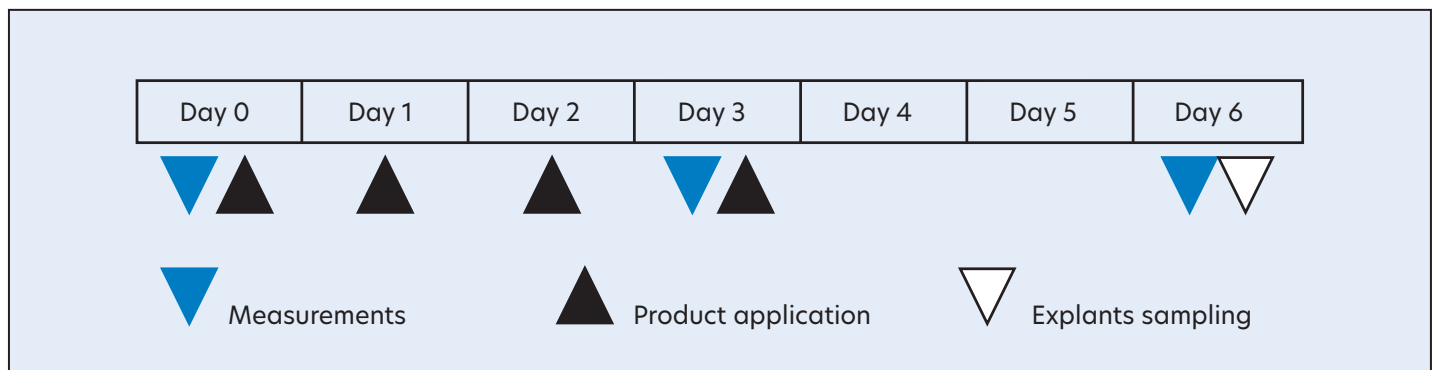
To evaluate the effects of ExLinea® Pro Peptide Serum on the microfold reduction, roughness, and epidermal thickness of human living skin explants using topographical and histological techniques, as compared to an untreated control and to a competitive product.

Experimental Design

Skin explants were taken from a Caucasian female who was undergoing an abdomoplasty. Five circular explants, 38 mm in diameter, were prepared. The explants were held on a specially-designed support composed of a reservoir of culture medium, surrounded by a grid on which the explant was placed. A Polytec TMS-500 (Polytec, Inc., Irvine, CA, USA) used light interferometry (a non-contact optical method for surface height measurement on 3-D structures) to create a 3D image of the surface of the skin explants. Images were taken before product application (Day 0) and after three daily product applications (Day 3). The product was applied at a concentration of 2 mg/cm². The 3D images were then analyzed using Olympus Cell^A D software to determine standard microfold and roughness parameters for the skin explants. In addition, epidermal thickness was measured three days after the final product application using standard histological techniques (Day 6).

Figure 1:

Illustration of product application, measurements, and explant sampling in experimental design.



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Results

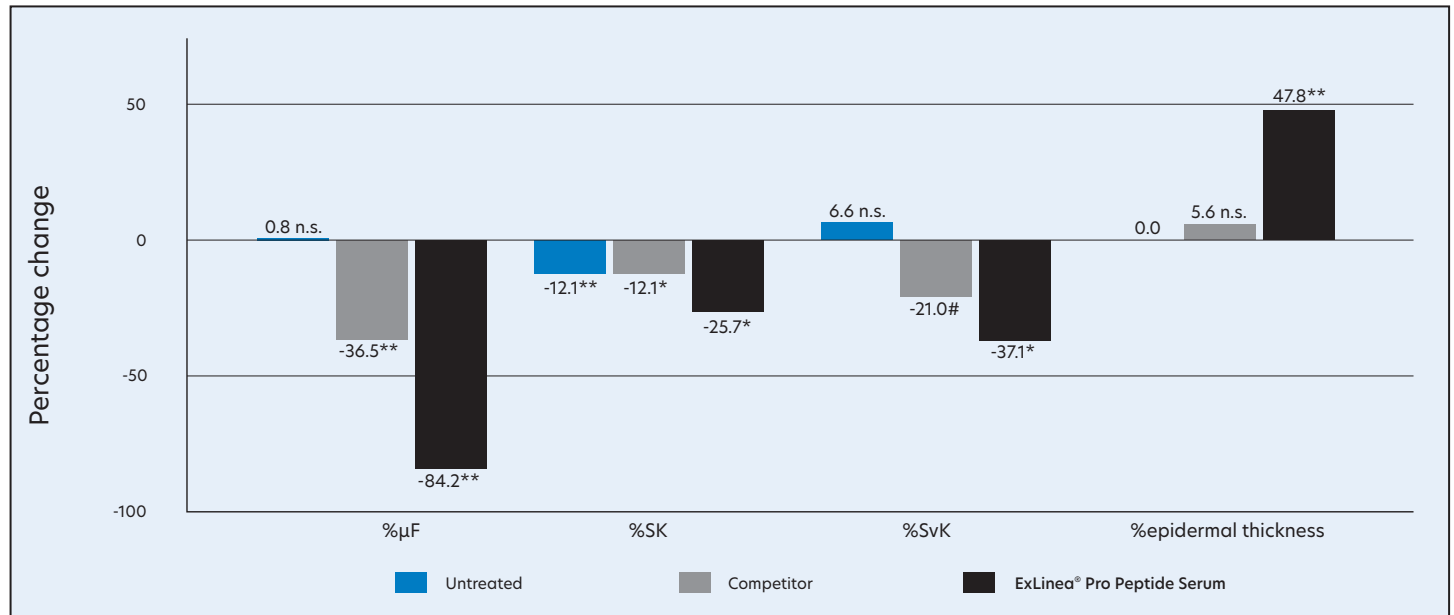
Table 1. Study Parameter Key

Parameter	What it Measures	What it Means
%μF	Area occupied by skin microfolds	A decrease in %μF indicates a tensor effect
%SK (μm)	Average reduced amplitude of core roughness; this reflects the main microrelief	A decrease in %SK indicates a smoothing effect
%SvK (μm)	Measures the depth of folds of the microrelief	A decrease in %SvK indicates a filling effect on the skin's surface
%epidermal thickness	Depth of the epidermal layer of the skin	An increase in %epidermal thickness indicates plumper, thicker skin

As shown in Figures 2 and 3, ExLinea® Pro Peptide Serum showed higher efficacy on Day 3 than the competitor product and the untreated control in terms of a reduction in the skin microfold surface (%μF), demonstrating a tensor effect. Additionally, Figure 2 shows that ExLinea® Pro Peptide Serum demonstrated a smoothing effect through a reduction in average core roughness (%SK), and a filling effect through a reduction in the mean depth of the folds or valleys (%SvK) as compared to the competitor product and to the untreated control. Furthermore, the competitor product was not significantly different from the untreated control with respect to %SK. Finally, ExLinea® Pro Peptide Serum demonstrated a redensifying effect, as seen through an increase in epidermal thickness compared to the untreated control. The competitor product was no different than the untreated control, as seen in Figures 2 and 4.

Figure 2:

Percentage change in microfold and roughness parameters on Day 3 as well as in epidermal thickness on Day 6. Statistical significance is shown for each product in comparison to pre-treatment values for %μF, %SK, and %SvK. Statistical significance is shown for %epidermal thickness relative to the untreated control.



n.s.: Non-significant; # p<0.1; *p<0.05; ** p<0.01

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Figure 3. Tensor Effect

Explants treated with ExLinea® Pro Peptide Serum showed a superior reduction in the percent of skin surface occupied by microfolds after 3 days of treatment as compared to the untreated control and explants treated with the competitor product.

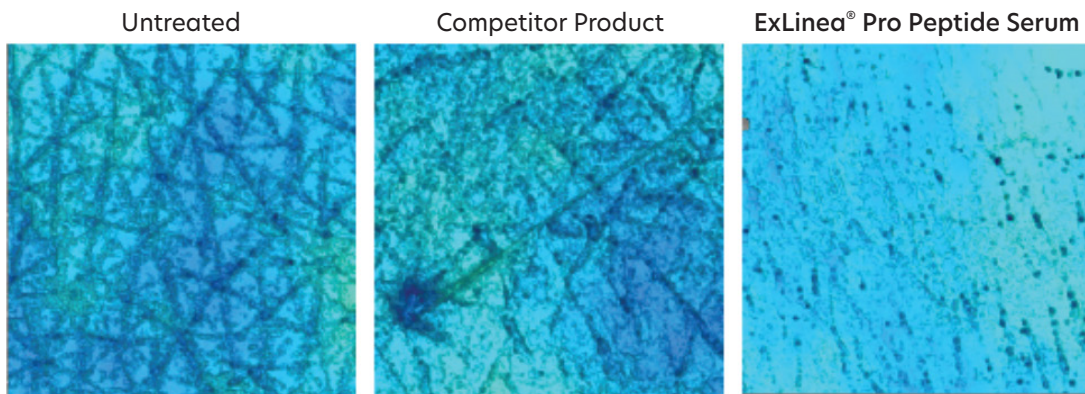
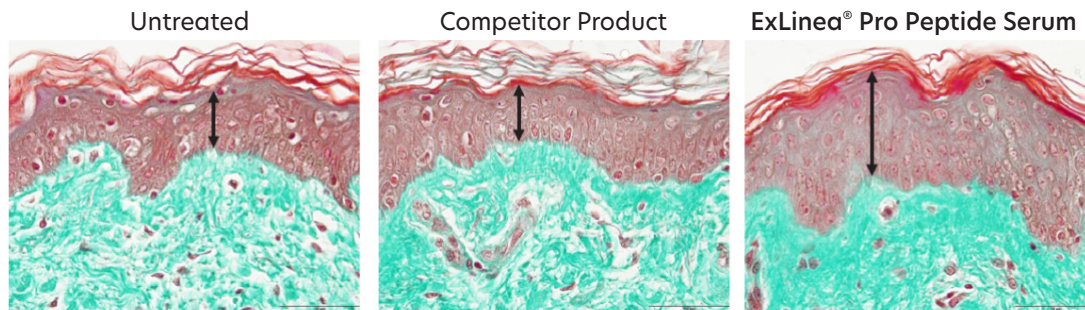


Figure 4. Increase in Epidermal Thickness

Explants treated with ExLinea® Pro Peptide Serum showed a significant improvement in epidermal thickness relative to the untreated control after 6 days as compared to explants treated with the competitor product.



Conclusion

ExLinea® Pro Peptide Serum contains a proprietary technology with proven efficacious levels of neuropeptides, proteins, amino acids, and marine extracts to help visibly improve the appearance of expression lines, skin roughness, and laxity while increasing skin hydration. This experiment used 3D imaging and histological analysis of excised skin treated with ExLinea® Pro Peptide Serum to demonstrate its anti-aging benefits on the microfold reduction, smoothness, epidermal thickness, and hydration of skin.

References

1. Haydont V, Bernard BA, Fortunel NO. (2019). Age-related evolutions of the dermis: Clinical signs, fibroblast and extracellular matrix dynamics. *Mech Ageing Dev.* 177:150-156. <https://doi.org/10.1016/j.mad.2018.03.006>
2. Augustin M, Kirsten N, Körber A, Wilsmann-Theis D, Itschert G, Staubach-Renz P, Maul JT, Zander N. (2019). Prevalence, predictors and comorbidity of dry skin in the general population. *J Eur Acad Dermatol Venereol.* 2019 Jan;33(1):147-150. <https://doi.org/10.1111/jdv.15157>