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Integrated Barrier Repair and Anti-Hyperpigmentation Efficacy of a New SPF50+ Repairing Cream: Clinical and In Vitro Evidence

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Introduction & Objectives

UV radiation is a well-established factor in the induction and exacerbation of **pigmentary disorders**, **particularly when the epidermal barrier is disrupted and skin repair processes are still ongoing** [1, 2]. In the context of dermatological procedures or inflammatory skin conditions, strict photoprotection is recommended to minimize the risk of post-inflammatory hyperpigmentation. However, complete avoidance of UV exposure is difficult to achieve on chronically photo-exposed areas such as the face, where incidental exposure is frequent. In this setting, a topical treatment combining barrier-repairing properties with high, broad-spectrum photoprotection may represent a relevant strategy to support optimal skin recovery and to prevent UV-induced pigmentation. This present work aimed to assess the efficacy of a new SPF50+ repairing cream. The cream contains a post-active ingredient from thermal spring water and features a unique filter that protects against UVA, UVB, and Blue light, offering broad-spectrum SPF50+ protection. The evaluations used both in vivo and in vitro models to assess its impact on skin healing and its ability to prevent UV-induced hyperpigmentation.

Materials & Methods

The repairing and anti-marks efficacy of the cream was first evaluated in vivo in a 3 weeks clinical study under dermatological supervision in 87 subjects presenting various types of skin irritation, including post-dermatological procedures (peels, laser), excoriated acne, post-tattoo irritation and superficial scratches. Clinical scorings and spectrophotometric measurements were performed to assess irritation resolution and residual marks.

In parallel, a standardised skin injury model using an Erbium:YAG laser was conducted on the forearms of 18 women, with two comparable lesions induced per subject: according to a randomisation scheme, one lesion was treated with the product twice daily for 18 days, while the contralateral lesion remained untreated. Lesion evolution was documented over a 3 weeks period using standardised macrophotography to compare the kinetics of skin repair.

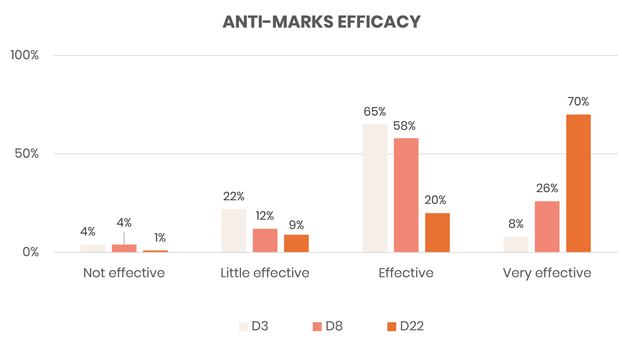
Finally, the preventive effect of the repairing cream against UV-induced hyperpigmentation was investigated in vitro on melanised reconstructed human epidermis exposed to UV stress, by evaluating its ability to limit the formation of pigmented spots.

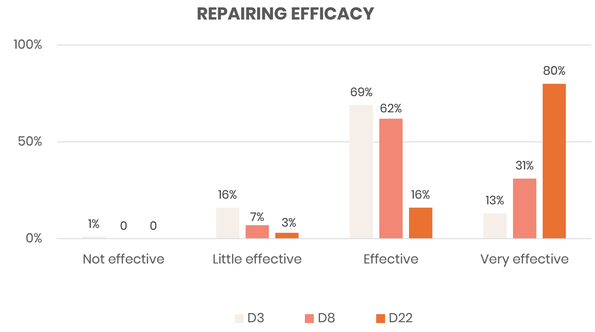
Results

REPAIRING AND ANTI-MARKS EFFICACY THROUGH CLINICAL STUDY UNDER DERMATOLOGICAL SUPERVISION

The repairing efficacy of the cream was rated effective or very effective by the investigator in 82% of subjects after 2 days of application and in 97% after 3 weeks, while anti-marks efficacy reached effective or very effective levels in 74% and 89% of subjects at the same time points, respectively.

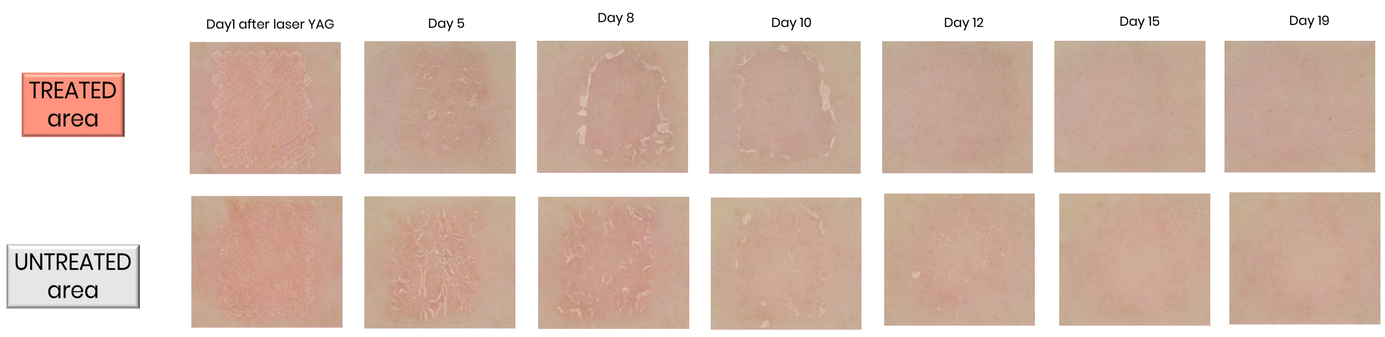
These clinical assessments were consistent with a significant reduction in physical signs (–27%, $p<0.0001$) and functional symptoms (–86%, $p<0.0001$) from day 2, as well as a significant decrease in erythema, with the a* parameter reduced by –17% after 2 days and –34% after 3 weeks (both $p<0.0001$), supporting the anti-redness effect of the product.





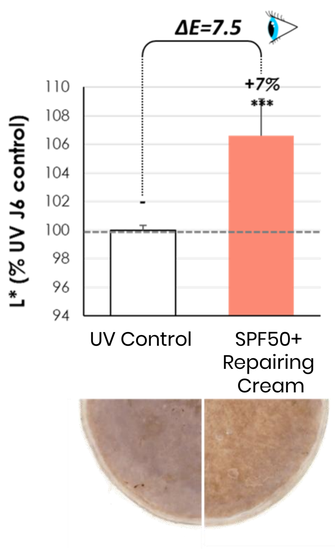
REPAIRING EFFICACY THROUGH STANDARDISED SKIN INJURY MODEL USING AN Erbium:YAG LASER

Skin repair was significantly faster in treated area compared with untreated control with a 4 days gain in healing time ($p<0.0001$). After 3 weeks, residual erythema persisted on untreated area, whereas no residual erythema was observed on treated lesion.



IN VITRO STUDY OF UV-INDUCED HYPERPIGMENTATION

In the in vitro model of UV-induced hyperpigmentation using melanised reconstructed human epidermis, preventive applications of the repairing cream resulted in a significant increase in lightness (L* +7%, $p<0.001$ vs UV control), corresponding to a marked colour change perceptible to the human eye (ΔE=7.5), indicating an effective prevention of UV-induced hyperpigmentation.



Conclusions

This new SPF50+ repairing cream delivers rapid relief of irritated skin, speeds up post-procedure repair, reduces residual erythema and marks, and prevents UV-induced hyperpigmentation in vitro.

These findings support its use as an integrated dermocosmetic option to **optimize post-irritation and post-procedure outcomes** and to **limit secondary pigmentary disorders** for all the photo-exposed areas.

References

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[2] Passeron T, Desai SR, Abdallah M, Al-Niaimi F, Dlova N, Grimes PE, et al. Global consensus on the management of melanin hyperpigmentation disorders. J Eur Acad Dermatol Venereol. 2025;00:1–13.

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