

Highlight of the moisturizing activity and the action on the repair of the skin barrier and on the skin differentiation of water on *ex vivo* skin explants.

Study 19E4523 SUBLIO

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Outreach note of the study report 19E4523 SUBLIO
According to the study plan D19-248

Highlight of the moisturizing activity and the action on the repair of the skin barrier and on the skin differentiation of water on *ex vivo* skin explants

Tested products **P** : Ionized water produced by
SUBLIO IONIC WATERBOX device

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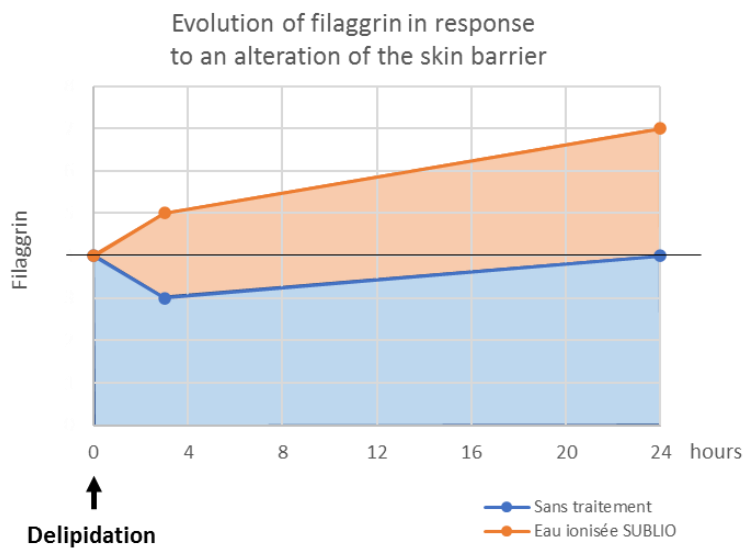
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For this study, we applied tap water (Longjumeau urban network) which was ionized using the device provided by Mr. Esnault (SUBLIO).

The first part of this study was to create dry skin by delipidating the surface of the skin. We evaluated the skin response with or without treatment by studying filaggrin, which is the major protein for hydration of the stratum corneum (outer layer of the skin).



Delipidation was performed at the beginning of the study; it alters the skin barrier, thus creating dry skin.

A) Effect on filaggrin which is naturally used to replenish the skin barrier after 3 hours.

- A-1) Without SUBLIO after delipidation, the level of filaggrin decreases.
- A-2) With application of SUBLIO water after delipidation, after 3 hours, it is observed that the level of filaggrin does not fall, but on the contrary, the level of filaggrin is higher than its initial level.

- **SUBLIO ionized water completely compensated for dry skin conditions and significantly overexpressed filaggrin, which is an essential element of skin hydration.**

B) Effect on filaggrin which is naturally used to reconstitute the skin barrier after 24 hours.

- B-1) Without SUBLIO after delipidation, filaggrin returns to its initial level.
- B-2) With SUBLIO after delipidation, the level of filaggrin is almost 2X higher than the initial level.

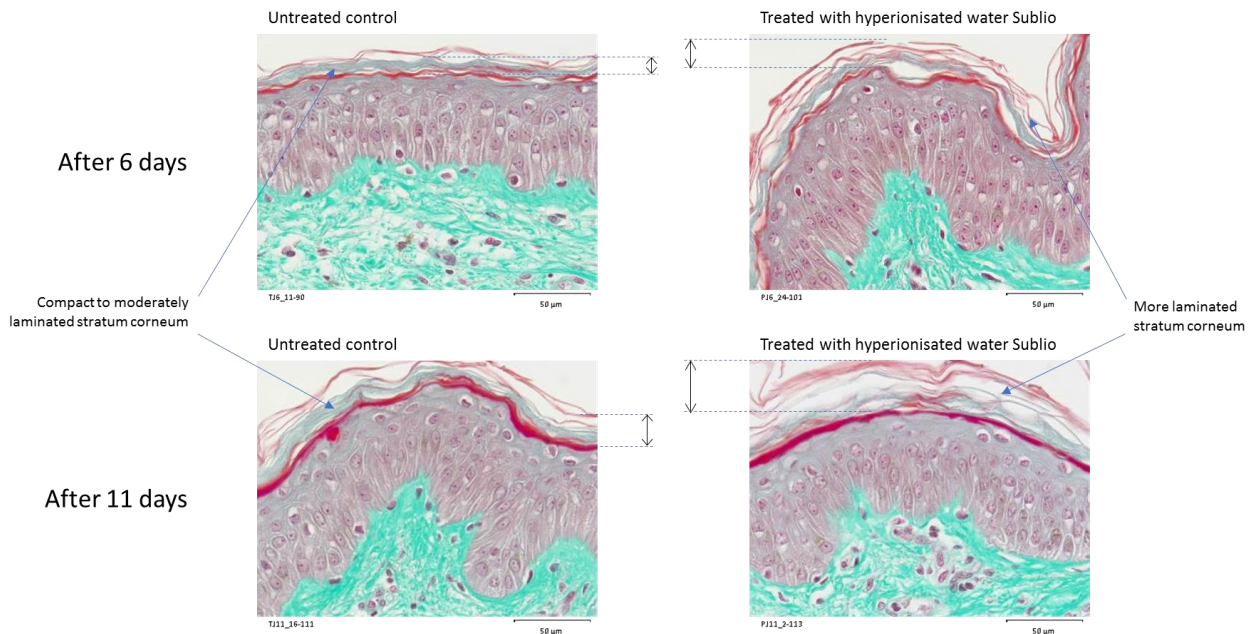
- **SUBLIO ionized water completely stopped the dryness of the skin and significantly overexpressed the filaggrin. This confirms the hydrating activity of SUBLIO ionized water.**

Usually these activities are obtained with complex cosmetic formulations (10 to 20 ingredients) containing lipids. The lipids thus quickly reform a skin barrier and have an important repairing effect..

This study shows that a single application of SUBLIO water offers the same repairing power in addition to offering a moisturizing effect over 24 hours.

The second part of the study consisted of chronically treating the skin with Sublio water and assessing markers of hydration.

Evaluation of the general morphology



- ➔ Effect of SUBLIO water after 6 days:
 - Increase in the thickness of the stratum corneum, increase in its laminated appearance.
- ➔ This effect persists and intensifies after 11 days of treatment.

⇒ Overexpression of involucrin (a protein involved in the formation of the stratum corneum). This suggests that SUBLIO water actively participates in strengthening the stratum corneum.

⇒ Reduced expression of aquaporin 3. This epidermal protein regulates water flow from the dermis to the stratum corneum.
The decrease in aquaporin 3 can be explained by the hydrating effect of SUBLIO water combined with its activity of strengthening the stratum corneum. These two activities allow you to maintain a good state of hydration, thus reducing the need for aquaporin 3.

- **SUBLIO ionized water exhibits an undeniable hydrating activity which is confirmed by the increase and improvement of the stratum corneum as well as by a decrease in the production of aquaporin.**

It should also be noted that this moisturizing activity is obtained with a dose of 2 mg/cm² applied to the surface of the skin. This dose is the dose commonly used for the evaluation of cosmetic products.