

Hydroveg[®] R^{np}

Functional specialty with fast, deep and long lasting moisturizing power



Dermoaffinity

Hydroveg[®] R^{np} is a skin-friendly active ingredient mainly obtained from plant sources. Its peculiar composition mimics the natural skin moisturizing factor (NMF), providing high dermoaffinity and functional value to cosmetic formulations.

Moisturizing Power

Clinical tests and innovative studies conducted on biological models of reconstructed skin prove the effectiveness of **Hydroveg[®] R^{np}** in bringing stressed skin back to a condition of physiological balance with an active mechanism working at a molecular level.



with hydrolyzed rice protein

Skin radiance and tone

Hydroveg[®] R^{np} favours cellular vitality and renewal, skin smoothness and brightness, allowing an overall improvement of the appearance.

Hair gloss

Hydroveg[®] R^{np} plays a positive effect even on stressed hair, reducing the scales and improving hair structure and gloss.

INCI Name

Hydroveg[®] R^{np}: Aqua, Sodium PCA, Diglycerin, Urea, Hydrolyzed Rice Protein, Sorbitol, Lysine, PCA, Allantoin, Lactic Acid.

Preservatives: none

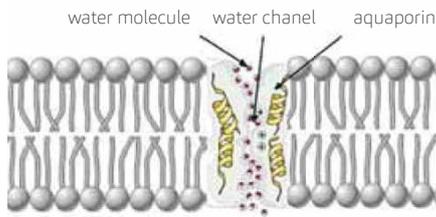
Gluten free

ISO 16128

Natural Index: 0.51-0.55

Natural Origin Index: 0.80-0.85

Skin moisturization / Key elements



The softness of the epidermal surface is correlated to the presence of the hydrophilic coat and the imbibition of the corneal lamellae by hydrophilic substances defined in their entirety as Natural Moisturizing Factor (NMF), whose main role is to capture and retain water, helping to keep the skin properly hydrated.

Furthermore, the presence of fast and selective channels, formed by specific transmembrane proteins, the Aquaporins, allows the transport of water through the multilayered skin structure.

Similarities between NMF and Hydroveg® R^{np}

Skin NMF	Hydroveg® R ^{np}
Amino acids and peptides	Hydrolyzed rice protein
PCA	PCA Na & PCA
Urea and lactates	Urea, allantoin, lactic acid
Sucrose and polyols	Sorbitol and diglycerin

Similarly to what occurs at a physiological level, the cosmetic properties of **Hydroveg® R^{np}** result from the specific and synergistic action of each single component, giving it unique long lasting moisturizing properties together with a soft and pleasant skin feel.

In vitro skin dryness model

To highlight the capability of **Hydroveg® R^{np}** to counteract the molecular and physical modifications occurring in dry skin, a skin dryness model applied on reconstructed human epidermis (RHE) was used.

The moisturizing efficiency of **Hydroveg® R^{np}** was evaluated against glycerin by simultaneously monitoring the localization and expression levels of aquaglyceroporine-3 (AQP3), a membrane protein whose role is to transport and distribute water and glycerin and regulate the skin cellular differentiation.

AQP3 genic expression: qRT-PCR

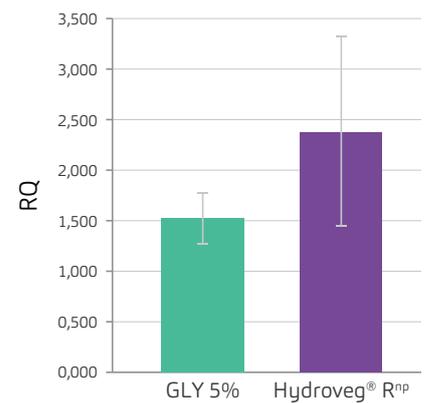


Figure 3 - The treatment with **Hydroveg® R^{np}** significantly increases the expression of the AQP3 gene (RQ>2), while glycerin gave no significant results (RQ <2).

Immunolocalization of AQP3 in RHE



Figure 1a - RHE in normal condition: the expression of AQP3 is preferentially localized in the basal and suprabasal skin layer.

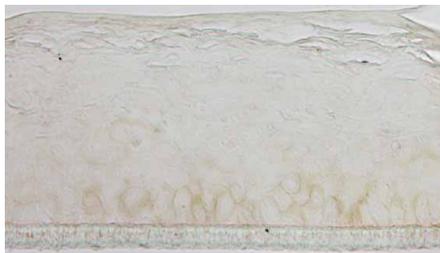


Figure 1b - RHE induced to skin dryness conditions: a dramatic decrease of AQP3 occurs.



Figure 2a - RHE after the treatment with glycerin at 5%: no significant change compared to the "dry skin" control (**Figure 1b**).



Figure 2b - RHE after the treatment with **Hydroveg® R^{np}** at 2.5%: significant increase of AQP3 expression with a high basal level intensity, as observed in physiological conditions (**Figure 1a**).

The test results show that **Hydroveg® R^{np}** widely supports and reinforces the physiological activity of the natural skin moisturizing factor (NMF), restoring the efficiency of the channels that transport water and bringing the skin back to physiological homeostasis conditions (**Figures 1a** and **2b**), with a moisturization mechanism working at the molecular level (**Figure 3**).

Moisturizing power

New studies demonstrate the capability of **Hydroveg® R^{np}** to balance the skin's moisturizing levels with an immediate and long lasting effect. The increase of the moisturizing index compared to the initial value was observed at 4 and 8 hours from the application of the product and 14 days after a biweekly use (**Figure 4**).

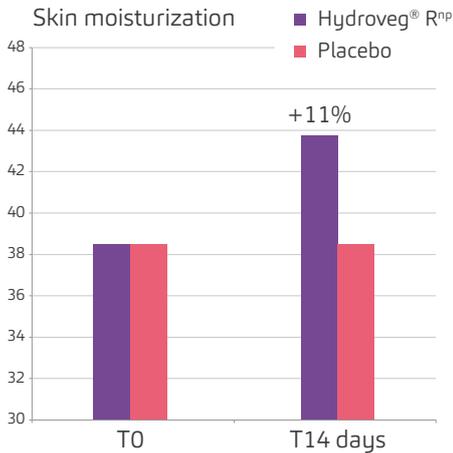


Figure 4

Hydration values 14 days after the application of **Hydroveg® R^{np}** at 2.5%.

Corneometer® CM 825

Test formulation

Moisturizing gel

Phase	Ingredients	%
A	Demin. water	qs
	Hydroveg® R ^{np}	2.5
	Xanthan gum	0.5
B	Preservatives	qs

Microrelief / Skin brightness

Hydroveg® R^{np} improves the skin's microrelief and brightness, showing in vivo an increase of skin radiance already after 4 hours from the first application and 14 days after a biweekly use (**Figure 5**).

Figure 5
Skin radiance 4h and 14 days after the application (4 treatments)
Glossymeter GL 200

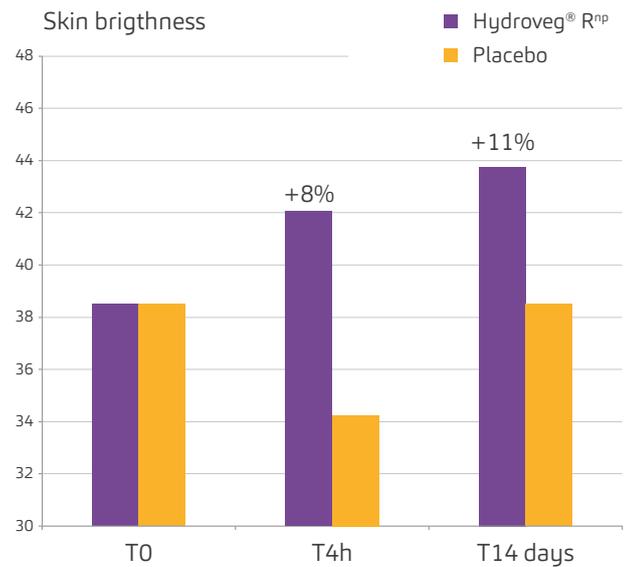


Figure 6a

Skin before treatment



Figure 6b

Skin 4 hours after the treatment with **Hydroveg® R^{np}**

Videocap®



Hair structure, scales and gloss

Following tests on natural and damaged hair locks with raised scales, it was demonstrated that **Hydroveg® R^{np}** at 2.5% has the capability to improve hair gloss, showing an immediate effect and lasting up to 8 hours from the application.

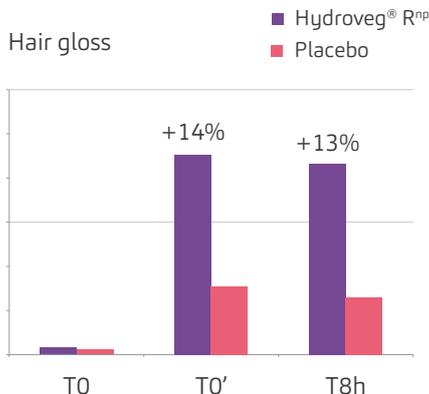


Figure 8
Gloss of the hair locks treated with **Hydroveg® R^{np}** at 2.5% and with placebo at T0' and 8 hours after the application of the product.

Clinical analysis of the hair structure, performed by using a digital microscope system, showed an improvement of the integrity of the shaft and hair structure in just 8 hours from the application. In addition, SEM images showed a noticeable reduction of the scales just after the application and after using the product twice a week over a 14 days period.

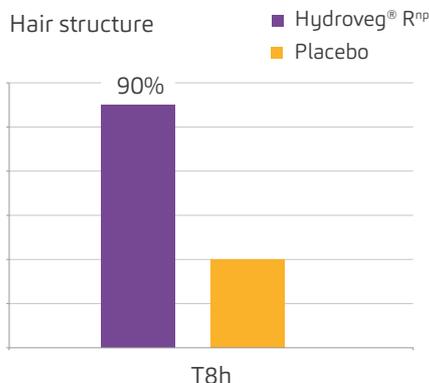


Figure 9
Hair locks percentage showing hair structure improvement after treatment with **Hydroveg® R^{np}** and with placebo.

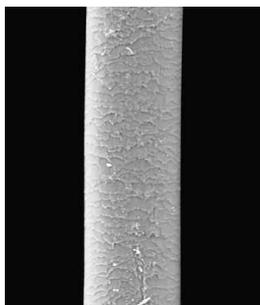
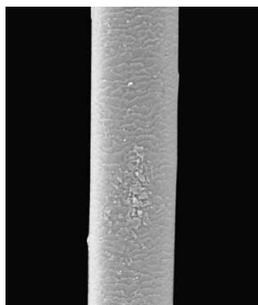
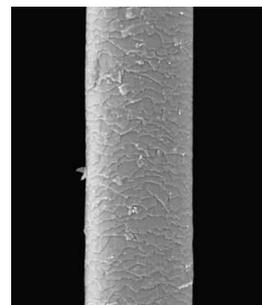


Figure 10a

Hair lock treated with **placebo** before treatment (T0), just after the treatment (T0'), after 4 treatments (T4)



T0'



T4

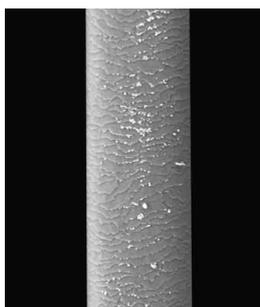
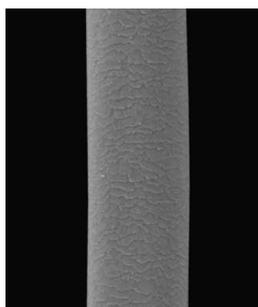
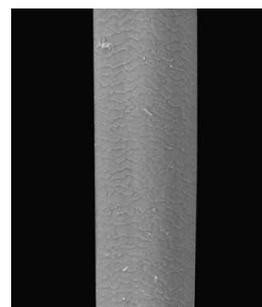


Figure 10b

Hair lock treated with **Hydroveg® R^{np}** before treatment (T0), just after the treatment (T0'), after 4 treatments (T4)
SEM images - 400X



T0'



T4

Applications

Hydroveg® R^{np}, due to its well documented moisturizing and brightening properties, enhances the functional properties of cosmetic products designed to restore a correct epidermal hydration and give hair a new shininess.



Hydroveg® R^{np} is suitable for different kind of formulations, such as:

- Hand and body creams
- Moisturizing and illuminating day creams
- Anti-age and moisturizing masks
- Treatment creams for hyperkeratotic skins
- Facial cleansers
- Shampoos for dry scalp
- Restructuring hair conditioners
- Glossing hair styling products

Safety profile

Results from in vivo tests show no evidence of adverse effects. For specific details, refer to the toxicological dossier.

Suggested dosage

1 - 5%

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