

Gene Expression Testing of Floraesters K-20W[®] Jojoba



What: Floraesters[®] K-20W Jojoba [INCI: Hydrolyzed Jojoba Esters (and) Water (Aqua)] is a multifunctional, film forming ingredient used in a variety of skin and hair care products.

Purpose: To understand how topical materials influence gene expression in the skin. The study was conducted on 5% Floraesters K-20W Jojoba in glycerin¹ using a full-thickness (epidermis + dermis) *in vitro* culture model (EFT-400, MatTek).

Results: 5% Floraesters K-20W Jojoba delivers statistically significant change (*i.e.* up or down-regulation) in gene expression over the vehicle (glycerin) for the following genes and associated biological functions in the skin:

Increased Skin Hydration

↗ AQP3 / ↗ AQP5 suggests an increase in skin hydration

Application to skin care: These genes help facilitate water and/or glycerol past the epidermal barrier, which in turn increases skin hydration.

Reduced Inflammatory Response

↘ TNF suggests a reduction in inflammatory response

Application to skin care: Inflammation, barrier disruption, and a lack of skin hydration triggers up-regulation of TNF. A decrease in this gene can indicate a reduction in inflammation and barrier disruption, and an increase in skin hydration.

Increased Antioxidant Response

↗ TXN / ↗ TXNRD1 / ↗ CAT suggests an increase in antioxidant response

Application to skin care: The TXN genes allow the skin to adapt to oxidative stress, and the CAT gene protects the skin as a response to UV and reactive oxygen species (ROS). An increase in these genes allows the skin to better adapt to oxidative stress, resulting in less skin damage.

Reduced Proliferation

↘ MKI67 is in agreement with anti-aging literature

Application to skin care: An increase in MKI67 is an indicator of cell proliferation up-regulation during wound healing. A decrease in this gene means lower cell proliferation, and decreased expression has been associated with anti-aging.

Increased Desquamation

↗ KLK5 / ↗ KLK6 / ↗ KLK7 suggests an increase in stratum corneum shedding and keratinocyte turnover

Application to skin care: An increase in these genes can indicate an increase in stratum corneum shedding and keratinocyte turnover, which in turn can result in a decrease in age spots and brighter looking skin.

Decreased Pigmentation / Increased Brightening

↘ EDN1 suggests a reduction in pigmentation / brightening effects

Application to skin care: UV exposure stimulates EDN1, which in turn stimulates the production of melanin resulting in increased pigmentation. Increased skin pigmentation can result in age spots.



1. Gene-expression testing of Floraesters K-20W Jojoba was conducted by Genemarkers, LLC (Kalamazoo, MI). Final report available upon request.