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Anti-Aging | Application Note

In vitro Evaluation of Cosmetic Formulations and Moisturizers for Anti-Aging Using EpiDermFT™

Objective

To evaluate the anti-aging efficacy of topically applied cosmetic ingredients and formulations by measuring the expression of ECM components in the EpiDermFT™ *in vitro* human skin model.

Methods

EpiDermFT tissues were treated with 25 µL of each formulation topically and then cultured at 5% CO_2, 37 degrees, 95% humidity for 24hrs. After treatment, EpiDermFT tissues were processed for total RNA isolation. Total RNA was utilized for gene expression analysis by quantitative PCR.

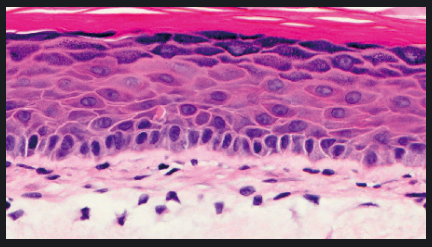

Figure 1. Histology of EpiDermFT™ H&E stained cross-section showing that the tissue morphology of EpiDermFT™ closely parallels that of normal human skin. The epidermis contains basal, spinous, granular and stratum corneum layers, and the dermis contains viable fibroblasts (400X).

Results

EpiDermFT™ tissues treated with Formulation A showed significant increases in Collagen 1A1, Collagen 3A1 and Elastin gene expression. Tissues treated with Formulation B showed significant increases in COL3A 1 expression (Figure 2).

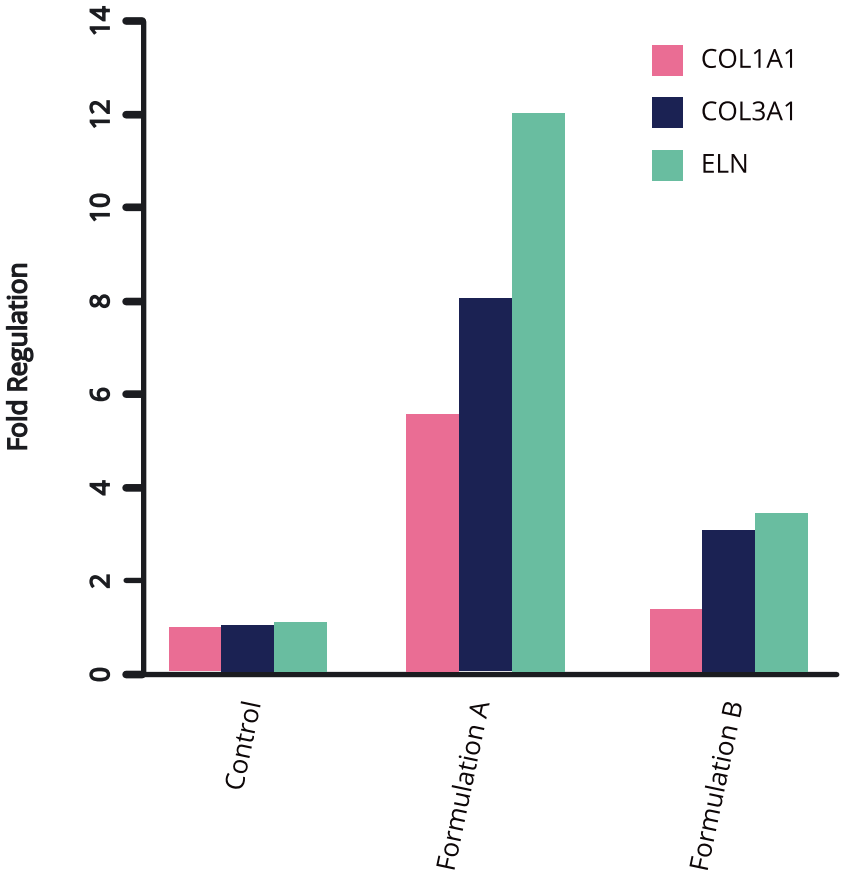

Figure 2. Gene Expression of EpiDermFT™. Genes of interest are compared to untreated controls. Data are presented as the average fold regulation of experimental replicates.

Conclusion

Evaluation of ECM components by quantitative PCR in the EpiDermFT™ *in vitro* human skin model can be used in efficacy and claims substantiation studies.

Vega et al., “Differential modulation of ECM components and GFR by retinoic acid and a physiologically balanced GF formulation”, J. Invest. Dermatol., 133, S155 (2013).