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 25µL 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.
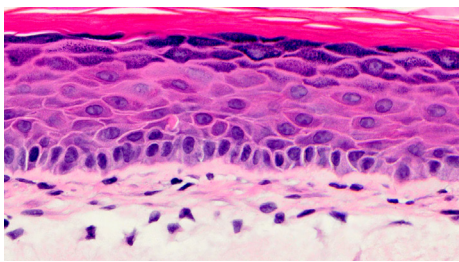

Figure 1. Histology of EpiDermFT H&E stained cross-section showing that the tissue morphology of EpiDermFT closely parallels that of normal human skin. The epidermis contains basal, spinous, granular and stratum corneum layers, and the dermis contains viable fibroblasts (400X).

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).
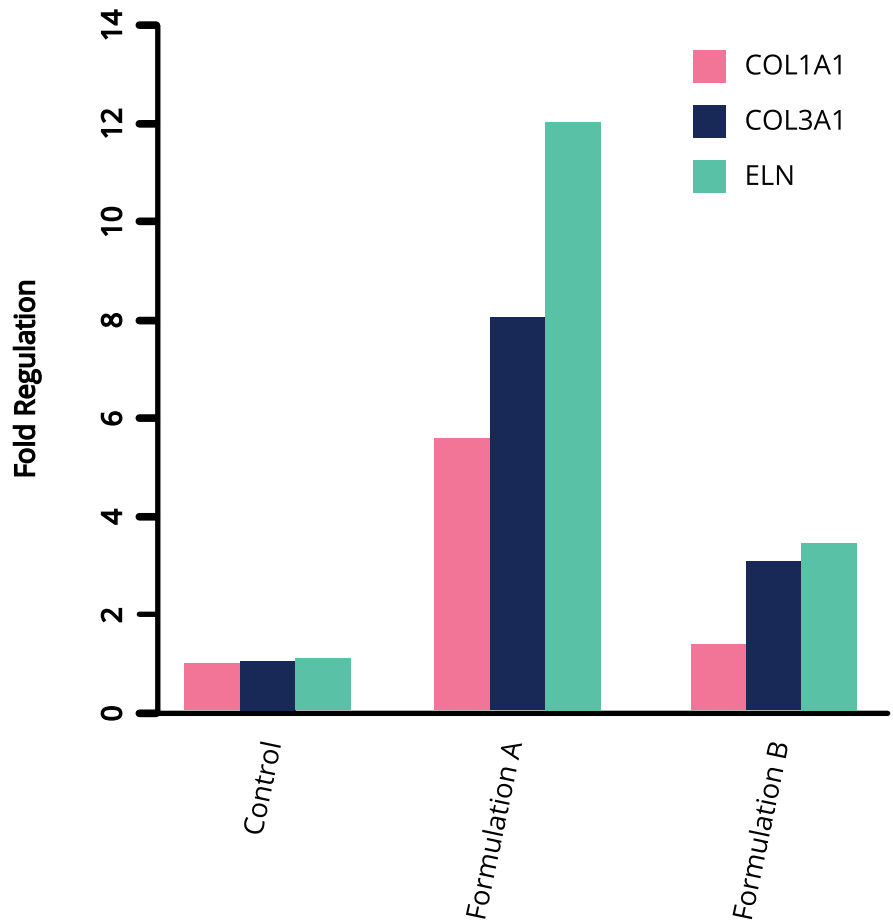

Figure 2. Gene Expression of EpiDermFT. Genes of interest are compared to untreated controls. Data are presented as the average fold regulation of experimental replicates.

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).