

A new ERA for global Dermatology 10 - 15 JUNE 2019 MILAN, ITALY

AESTHETIC AND COSMETIC DERMATOLOGY (LASERS SEPARATE CATEGORY)

MECHANISM OF COLLAGEN FIBER ACCUMULATION IN THE PAPILLARY DERMIS RESULTING FROM THE SUPPRESSION OF BASEMENT MEMBRANE DISRUPTION AT THE DERMAL EPIDERMAL JUNCTION

Shunsuke Iriyama⁽¹⁾ - Saori Nishikawa⁽¹⁾ - Junichi Hosoi⁽¹⁾ - Satoshi Amano⁽¹⁾

Shiseido, Global Innovation Center, Yokohama, Japan⁽¹⁾

Introduction: The epidermal basement membrane deteriorates as a result of sun-exposure and aging. We previously reported that the suppression of basement membrane disruption not only maintains epidermal stem/progenitor cells in the epidermis, but also increases collagen fibers in the papillary dermis. Collagen fibers in the papillary dermis are known to be reduced with aging. However, the role of the basement membrane in maintaining collagen fibers in the papillary dermis remains unclear.

Objective: The purpose of this study was to explore the mechanism of collagen fiber accumulation in the papillary dermis by applying MMP inhibitor and heparanase inhibitor treatments to suppress basement membrane disruption.

Materials and Methods: Papillary fibers were evaluated by means of immunohistochemistry and transmission electron microscopy. Skin equivalent model and organotypic human skin model were cultured with or without MMP inhibitor and heparanase inhibitor.

Results: First, we analyzed transmission electron microscopic scans using an organotypic human skin model after treatment with these inhibitors. We found that the density of collagen fiber in the papillary dermis increased as a result of the treatments with these inhibitors. In addition, type V collagen increased in the papillary dermis in the presence of these inhibitors. As we hypothesized that the MMP inhibitor and heparanase inhibitor treatments promoted cytokine expression from the epidermis, we examined the membrane antibody array. PDGF-BB increased in epidermis as a result of the treatments. Further, PDGFRB was expressed in the papillary fibroblasts. In addition, expression of type V collagen increased in the fibroblasts due to the treatment of PDGF-BB.

Conclusions: Taken together, our data suggests that suppressing basement membrane disruption with MMP inhibitor and heparanase inhibitor treatments may promote PDGF-BB expression from keratinocytes in the epidermis, inducing type V collagen expression in the





International League of Dermatological Societies Skin Health for the World







A new ERA for global Dermatology 10 - 15 JUNE 2019 MILAN, ITALY

papillary fibroblasts which receive PDGF-BB from the epidermis.



24TH WORLD CONGRESS OF DERMATOLOGY MILAN 2019



International League of Dermatological Societies Skin Health for the World

