



HAIR DISORDERS

SENESCENCE-ASSOCIATED INFLAMMATORY RESPONSES OF PROSTAGLANDIN D2 ON DERMAL PAPILLA CELLS: POTENTIAL CONTRIBUTION TO HAIR LOSS WITH AGING

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Background: Senescence causes activation of cell cycle arrest and upregulation of tumor suppressive markers and secretion of pro-inflammatory factors. NF- κ B signaling is a major signaling that stimulates the expression of senescence-associated secretory phenotype (SASP). When a pro-inflammatory challenge occurs, the function of prostaglandin D2 (PGD2) in human dermal papilla cells (hDPCs) presently remains unknown.

Objective: The aim of this study is to evaluate the effects of PDG2 on NF- κ B and senescence activation in hDPCs.

Method: First, hDPCs were treated with PGD2 (200nM) for 72 hours. And we performed senescence-associated beta-galactosidase (SA- β -gal) assay and wound scratch assay to test the effects of PGD2 in cell migration. Real time-PCR for target genes and western blot analyses for p53 and p21 were also performed.

Results: PGD2 increased the expression of SASP and pro-inflammatory cytokines such as IL-1b, IL-6, IL-8, and activated NF- κ B pathway. And PGD2 also increased SA- β -gal activity and the expression of p16 and p21.

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Conclusion: These data suggest that PGD2 could regulate the senescence-associated inflammatory genes and might affect the acceleration of hair aging.

