



HAIR DISORDERS

## NOVEL HAIR TREATMENT TO PREVENT AGING AND HAIR LOSS IMPROVING HAIR SHAFT GROWTH

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**Introduction:** Environmental factors play a key role in the extrinsic hair aging. A classic example is ultraviolet (UV) radiation, which is responsible for the degradation of collagen XVII $\alpha$ 1 (COL17A1) present in hair follicle (HF) resulting in aging hair phenotype – thinning, depigmentation and hair loss). In addition, dermal papilla cells are also present in HF and play a crucial role in morphogenesis and hair cycle through mechanisms involving Wnt signaling pathway. This signaling pathway is required for the development and regeneration of HF and hair growth that is mediated by the stabilization and translocation of the key signal transducer  $\beta$ -catenin.

**Objective:** In this study, we evaluate the ability of a hair treatment including a shampoo (ShPi) and a tonic (HtPi) to prevent hair aging using ex vivo human scalp submitted to UV radiation.

**Material and Methods:** COL17A1 semi-quantification and stimulation of hair shaft growth were performed. In parallel, we evaluated the effects of an active complex (AcPi) present in hair products to improve Wnt signaling by  $\beta$ -catenin quantification in dermal papilla cells.

**Results:** Our results demonstrated that associated treatment with the ShPi and HtPi is able to stimulate hair shaft growth by 31.49% in relation to basal group and to prevent the excessive degradation of COL17A1 in HF exposed to UV radiation in 2.6- fold when compared to UV radiation group. In addition, AcPi acts to prolong the anagen phase increasing  $\beta$ -catenin production by 47.79% in dermal papilla cells.

**Conclusions:** Taken together our results show that associated treatment with ShPi and HtPi products promotes the growth, strengthening and vitality of hair shaft, besides protecting HF from the deleterious effects of UV radiation preventing the appearance of an ageing hair phenotype and hair loss.

