AESTHETIC AND COSMETIC DERMATOLOGY (LASERS SEPARATE CATEGORY)

3-IN-1 NIGHT SERUM CONTAINING MELATONIN, BAKUCHIOL AND ASCORBYL TETRAISOPALMITATE PROTECTS AGAINST UV-INDUCED MODULATION OF SPRR2A GENE EXPRESSION

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Introduction: Small proline rich protein (SPRR) 2A, has a key role in epidermal differentiation and wound repair. In normal skin it functions as a keratinocyte cross-linking protein that confers structural integrity to the cornified cell layer that is responsible for barrier function.

Objective: We looked at the effect of ultraviolet radiation (UVR) with or without topical application of a 3-in-1 night serum (NS) containing melatonin, bakuchiol and ascorbyl tetraisopalmitate (ATIP) on the modulation of SPRR2A gene expression in human skin explants.

Materials and Methods: Human skin was trimmed and maintained in nutritive culture media. Non-irradiated control was not irradiated. Irradiated control and treatment group NS received UVR (12.5 J/cm2 UVA + 50mJ/cm2 UVB) daily for 4 consecutive days followed by topical treatment applied 1 hour after. Tissues were collected on day 5 and total RNA extracted from lysed tissue. Complementary DNA was generated using routine RNA library preparation and change in mRNA levels was expressed relative to housekeeping genes.

Results: UV irradiation resulted in a significant modulation of SPRR2A expression (mRNA level fold change) in human skin explants compared to non-irradiated control skin tissue. Topical treatment with NS of the skin tissues post irradiation had a protective effect against the UVR-induced modulation of SPRR2A mRNA levels. Results suggest that NS can protect against UVR-induced changes such as SPRR2A modulation in skin explants.

Conclusions: UVR induces damage to skin barrier function which over time leads to visible changes termed as photoaging. Modulation of SPRR2A by UVR seems one of the changes at the molecular level affecting skin barrier function. 3-in-1 night serum contains active ingredients that help fight against UV-induced SPRR2A modulation. This mechanism can be a relevant target for photoaging research.