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technology

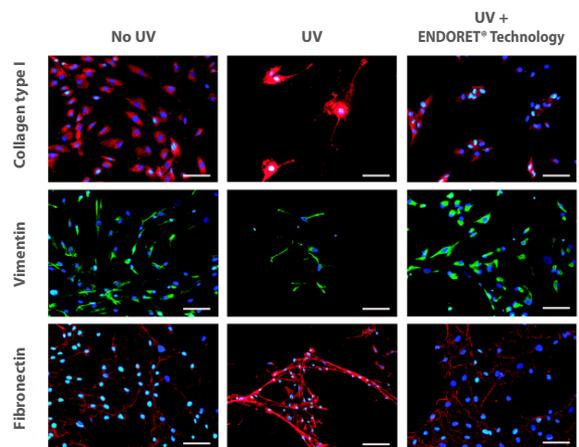
SKIN PHOTODAMAGE

PLASMA RICH IN GROWTH FACTORS IMPROVES WOUND HEALING AND PROTECTS AGAINST PHOTOOXIDATIVE STRESS IN DERMAL FIBROBLASTS AND 3D SKIN MODELS

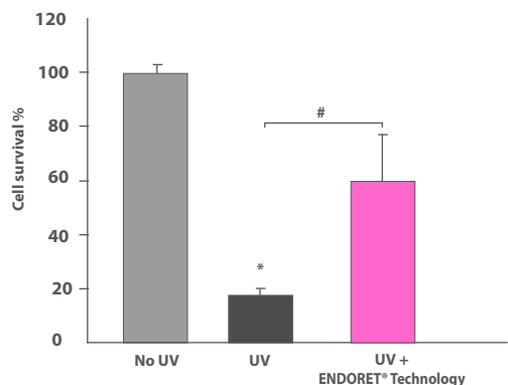
ENDORET[®] TECHNOLOGY PROTECTS AND PREVENTS DAMAGE FROM UV RADIATION IN SKIN FIBROBLAST



ENDORET[®] TECHNOLOGY
RESTORES DERMAL
EXTRACELULAR MATRIX
ESTRUCTURE



FIBROBLAST SURVIVAL IS
ENHANCED 3.4 TIMES WHEN
TREATED WITH ENDORET[®]
TECHNOLOGY AND EXPOSED TO
UV RADIATION



ABSTRACT

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Plasma Rich in Growth Factors Inhibits Ultraviolet B Induced Photoageing of the Skin in Human Dermal Fibroblast Culture

BACKGROUND

Ultraviolet irradiation is able to deeply penetrate into the dermis and alter fibroblast structure and function, leading to a degradation of the dermal extracellular matrix.

OBJECTIVE

The regenerative effect of plasma rich in growth factors (PRGF) on skin ageing was investigated using UVB photo-stressed human dermal fibroblasts as an *in vitro* culture model.

METHODS

PRGF was assessed over the main indicative features of ultraviolet B irradiation, including ROS formation, cell viability and death detection, apoptosis/ necrosis analysis and biosynthetic activity measurement. Four different UV irradiation protocols were tested in order to analyze the beneficial effects of PRGF.

RESULTS

Ultraviolet irradiation exhibited a dose dependent cytotoxicity and dose of 400mJ/cm² was selected for subsequent experiments. PRGF increased the cell viability and decreased the cell death comparing to the non-treated group. The apoptosis and necrosis were significantly lower in PRGF treated fibroblasts. ROS production after UV irradiation was significantly reduced in the presence of PRGF. Procollagen type I, hyaluronic acid and TIMP-1 levels were higher in the when treated with PRGF.

CONCLUSION

This preliminary *in vitro* study suggests that PRGF is able to prevent UVB derived photooxidative stress and to diminish the cell damage caused by ultraviolet irradiation.