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Increment of growth factors in mouse skin treated with non-thermal plasma

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Abstract

Non-thermal plasma (NTP) has several beneficial effects, and can be applied as a novel instrument for skin treatment. Recently, many types of NTP have been developed for potential medical or clinical applications, but their direct effects on skin activation remain unclear. In this study, the effect of NTP on the alteration of mouse skin tissue was analyzed. After NTP treatment, there were no signs of tissue damage in mouse skin, whereas significant increases in epidermal thickness and dermal collagen density were detected. Furthermore, treatment with NTP increased the expression of various growth factors, including TGF-α, TGF-β, VEGF, GM-CSF, and EGF, in skin tissue. Therefore, NTP treatment on skin induces the expression of growth factors without causing damage, a phenomenon that might be directly linked to epidermal expansion and dermal tissue remodeling.

Keywords: Clinical application; Growth factor; Non-thermal plasma; Skin regeneration.

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Conflict of interest statement

Competing Interests: The authors have declared that no competing interest exists.

Figures

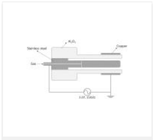


Figure 1 The structure of the non-thermal...

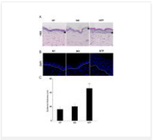


Figure 2 The effect of NTP on...

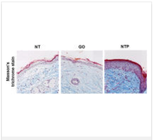
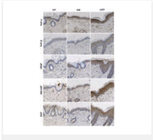


Figure 3 The expression of collagen on...



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