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The effect of melanogenic differentiation by non-thermal atmospheric biocompatible plasma

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Skin pigmentation is an important human phenotypic trait that gives human skin, hair, and eyes their color. It is also influenced by predetermined genetic factors such as age and ethnicity. Melanin is produced in melanosomes by cells called melanocytes in a complex process, melanogenesis. In disorders of hypopigmentation and depigmentation are related with skin color that reduced skin colour or increased skin colour. This disorder is poorly understood. In this study, we investigated the different device to generate non-thermal biocompatible plasma using atmospheric soft jet plasma, micro-DBD plasma from Kwangwoon University, Republic of Korea, and kINPen device from INP at Griefswald, Germany. Non-thermal bioplasma is published that various biological effects on cells such as wound healing, cancer therapy, and also differentiation of stem cells. For this study we compared those devices on different melanoma cell lines such as MNT-1, FM55, SK MEL 28, SK MEL 31, G 361 et al. We analyzed and evaluated the mechanism of its effect on melanogenesis by qPCR, immunoblot, and melanin contents through a absorbance. In our result it is affected by non-thermal biocompatible plasma of melanogenesis on melanoma cell lines. It might be a new application for treatment of patients with abnormal skin color.

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