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Biological Responses to UV Radiation and Photo-pollution: Impact on Skin Regeneration and Aging

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Abstract

In this lecture, I will talk about the impact of UV radiation on skin regeneration and in particular on epidermal regeneration. Indeed, the regeneration of the epidermis is enabled by the activities of interfollicular stem cells and their progenitor cells. These cells are a direct target of UV radiation which will induce inflammation and DNA damage. The accumulation of DNA damage and the lack of DNA repair (exacerbated by ageing), will result in premature ageing and consequently a decrease in epidermal regeneration. In addition, the skin, as an interface with the external environment, will come into contact with other pollutants which will act in synergy to induce skin anomalies. Therefore, I will also talk about the effect of a co-exposure of the skin to UV and a pollutant that is widely answered (Benzo(a)Pyrene). We have very recently shown that this co-exposure significantly decreases the induction of autophagy, a very important cellular process to regenerate cells and oppose the phenomenon of senescence. Knowing the molecular mechanisms responsible for skin ageing due to the exposome is essential for finding preventive or curative strategies against skin ageing.