ABSTRACT BOOK ABSTRACTS



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AESTHETIC AND COSMETIC DERMATOLOGY (LASERS SEPARATE CATEGORY)

IN VITRO EFFECT OF RETINOIDS ON SKIN HEALTH DURING AGEING AND EXPOSURE TO ENVIRONMENTAL STRESSORS

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Introduction: Exposure to environmental stressors (eg. pollution particulates, UV) as part of modern lifestyles combined with an ageing population has detrimental effects on skin health.

Retinoids, a family of compounds derived from vitamin A are stored in the liver as retintyl esters and circulated as retinol, which is converted by target cells to active all-trans retinoic acid (ATRA). ATRA has important roles in skin health maintenance, including maintenance of normal collagen production and epidermal proliferation. For this reason, we aim to study the ability of retinoid compounds to overcome phenotypic changes associated with ageing and stressor exposure in novel 3D in vitro engineered skin equivalents.

Objective: This study aims to apply retinoid compounds to robust and reproducible epidermal and dermal skin equivalents to assess their effects on healthy and stress-induced skin models. This includes evaluation of ECM production/turnover in the dermis, epidermal proliferation and differentiation in both healthy skin models and skin models challenged with environmental stressors.

Materials & Methods: Application of a range of concentrations (0.01-10 μ M) of retinoid compounds (retinyl propionate (RP), retinol (ROL), ATRA and synthetic retinoid EC23) to epidermal and dermal 3D constructs. Models were harvested following a single dose 3 day treatment for downstream analysis.

Results: Epidermal thickening was observed following a single dose of RP or ROL. In addition to this epidermal structure and barrier function were maintained and an increase in the number of proliferative basal cells was observed. Within the dermal compartment, increased expression of both collagens I and III were evident following retinoid treatment.

Conclusions: Derivatives of vitamin A can be applied to in vitro skin equivalents to enhance properties of both epidermal and dermal compartments. This class of molecules also has











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the potential to improve the appearance of skin due to aging and exposure to stressors such as UV light.



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