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MEETING ABSTRACTS

ATOPIC DERMATITIS MODEL OF HUMAN KERATINOCYTES *IN VITRO*

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Atopic dermatitis (AD) is a chronic inflammatory skin disease, which is still not fully understood. Crucial roles in the pathogenesis play Th2 immune response dysregulation and epidermal barrier alterations. Defects of this skin barrier have been considered in the initial step of AD development. Inflammatory skin conditions AD have a negative wide-ranging impact on a patient's life quality. However, testing methods and/or treatment options for this disease are unsatisfactory nowadays.

To study the anti-inflammatory effect of substances on AD pathogenesis we established inflammatory models by stimulating HaCaT cells with tumor necrosis factor-α (TNF-α) and interferon-γ (IFN-γ). We designed two different treatment models (pre- and post-treatment) to mimic keratinocytes' inflammatory conditions of AD that simulate relapse and therapy. HaCaT cells are a suitable model to follow the release of inflammatory mediators interleukin-6 (IL-6) and interleukin-8 (IL-8) in response to TNF-α and IFN-γ treatment. The AD-like models were verified by using natural flavonoid quercetin and synthetic glucocorticoid dexamethasone. Both substances should be associated with the inhibition of inflammatory cytokines production in the skin. Based on the data obtained, these models could open the way for screening of new preventive or therapeutic AD agents. The details of the experiments will be discussed in our poster contribution.

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Keywords: Atopic dermatitis; inflammation; cytokines; keratinocytes; quercetin

References

1. Beken B, Serttas R, Yazicioglu M, Turkekul K, Erdogan S. Quercetin Improves Inflammation, Oxidative Stress, and Impaired Wound Healing in Atopic Dermatitis Model of Human Keratinocytes. Pediatric allergy, immunology, and pulmonology. 2020;33(2):69-79.
2. De Vuyst E, Salmon M, Evrard C, Lambert de Rouvroit C, Poumay Y. Atopic Dermatitis Studies through *In Vitro* Models. Frontiers in medicine (Lausanne). 2017;4:119.