CONTACT DERMATITIS AND OCCUPATIONAL DERMATOSES

MANAGING ALLERGIC CONTACT DERMATITIS: SCREENING OF MOLECULES WITH POTENTIAL FOR PREVENTING THE DISEASE

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Background: Allergic contact dermatitis (ACD) is one of the most common skin diseases with a high prevalence rate of 15-20% over the general population. This high prevalence results in a large cost for the healthcare system and also greatly affects the quality of life of the affected patients, highlighting the relevance for the development of preventive strategies.

Objective: This work is focused on the screen of a panel of selected molecules with the capacity to chemically sequester skin allergens thus avoiding its interaction with skin proteins (the first key event of the adverse outcome pathway for skin sensitization) and consequently preventing the development of allergic contact dermatitis.

Materials and Methods: The THP-1 cell line was used as a dendritic cell surrogate. Since a certain level of cytotoxicity is essential for effective DC maturation the concentration of 3 skin allergens corresponding to their EC30 was selected for the experiments. Then, and in accordance with the OECD guidelines for skin sensitization assessment, one non-animal approach (maturation of THP-1 cells through up-regulation of the CD54 and CD86 protein levels by flow cytometry) was performed aiming to uncover whether a panel of selected molecules (confidential) could prevent the DC maturation profile evoked by 3 the skin allergens: 1-Fluoro-2,4-dinitrobenzene (DNFB), Methylisothiazolinone (MI) and Hydroxymethylpentylcyclohexenecarboxaldehyde (Li).

Results: Our preliminary results indicate that one of the molecules tested (reference IS01) inhibited the up-regulation of CD54 evoked by DNFB, MI and Li in 70, 95 and 59%,

respectively. The dendritic cell maturation marker CD86 was inhibited in 49, 21 and 11 % after cells culture with the skin allergens DNFB, MI, and Ly, respectively. Concerning the molecule IS02 the results obtained were quite similar.

Conclusions: This work allows the identification of two molecules able to chemically sequester skin allergens and consequently with the potential to prevent ACD.

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