

## **Analysis of Cytokine mRNA Expression Induced by haptens or irritants in human organ culture system**

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In order to predict the contact allergens or irritants in various chemicals, we analyzed mRNA of cytokines expressed in epidermis by stimulation of various chemicals in a human skin organ culture systems. After painting haptens, primary irritants or vehicle control on human skin specimens sliced to 1 mm thickness and cut into approximately 5×5 mm blocks, the pieces were cultured in serum-free medium. After separating epidermis from dermis, total mRNA was extracted and mRNA of cytokines was assessed by the reverse transcriptase-polymerase chain reaction. Only haptens but not irritants induced IL-1 $\beta$ mRNA at 1-3 hours. TNF- $\alpha$ mRNA was induced 9 hours after application of haptens and 1 hour after application of primary irritants. IL-1 $\alpha$ mRNA was not induced by either haptens or primary irritants. Thus, cytokine mRNA expression induced by haptens in epidermis from that induced by primary irritants.

These results indicate that analysis of the epidermal cytokines mRNA expression induced by chemicals in a human skin organ culture system is useful methods to predict haptens or primary irritants from various chemicals.