PSORIASIS

RUTAECARPINE INHIBITED IMIQUIMOD-INDUCED PSORIASIS-LIKE DERMATITIS VIA INHIBITING NFκB AND TLR7 PATHWAY IN MICE

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Background: Psoriasis is a chronic, immune-related and inflammatory skin disease. As psoriasis rarely occurs in non-human animals, the lack of an ideal animal model reflecting histopathological and molecular immunological characteristics of psoriasis remains an urgent issue.

Objective: This study aimed to establish the psoriasis-like dermatitis model. To sure TLR7 and NF-κB signaling are considered to be involved in imiquimod-induced psoriasiform dermatitis. Moreover, to determine that RUT could improve imiquimod-induced psoriasis-like dermatitis through an effect on plasmacytoid dendritic cells (pDCs) and Th17 and associated cytokines via NF-κB and TLR7 signaling.

Materials and Methods: BALB/C mice were treated with 5% imiquimod cream, and examined for indexes including morphological changes, PASI scores, and Baker scores. H&E staining, immunohistochemistry examination for CD3 and Gr1 levels, measurement of pDC and Th17-associated cytokines, and evaluation of p65 phosphorylation and TLR7 expression. Moreover, the changes of the TLR7, IFN-α, IL-17A, NF-κB, and TLR7 pathway were examined using Immunoblotting or ELISA.

Results: The above data indicate the successful establishment of imiquimod-induced psoriasis-like dermatitis model in BALB/C mice. The expression of TLR7, MyD88, TRAF6, and phosphorylation level of p65 in imiquimod-treated skin lesions was significantly increased on day 4 and day 8 of imiquimod treatment ($P<0.01$). The levels of IL-23p9, IL-17A, and IFN-α in skin lesions and serum were all significantly reduced by RUT

cream(P<0.01). Furthermore, 0.5%, 1% RUT and DXM treatment significantly decreased the protein levels of TLR7, MyD88, and TRAF6 p-p65 but did not cause changes in p65 protein levels.

Conclusion: This study demonstrates that RUT could improve imiquimod-induced psoriasis-like dermatitis through an effect on pDC and Th17 and associated cytokines via NF-κB and TLR7 signaling.