PSORIASIS

RIPK3 BIDIRECTIONAL REGULATION OF KERATINOCYTE FATE AND ITS MECHANISM OF ACTION IN PSORIASIS

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Background: Psoriasis is a common chronic inflammatory dermatosis. Receptor-interacting protein kinase 3 can induce inflammation associated with necroptosis and inflammatory responses independent of necroptosis in two different cellular outcomes, but the role in the pathogenesis of psoriasis has not been elucidated.

Objective: To study the mechanism of action of RIPK3 in psoriasis and the regulation of RIPK3 on keratinocytes fate.

Materials and Methods: Detecting the RIPK3 expression levels in human and mice psoriasis lesion by Western blot. In primary keratinocytes and Hek-a cells model of psoriasis, RIPK3 and inflammatory factors levels were detected by WB and q-PCR; Cell proliferation was detected by CCK-8; cell cycle and apoptosis were detected by flow cytometry, and cycle and apoptosis protein expression were detected by WB.

Results: Expression of RIPK3 protein and mRNA is increased in human and mice psoriatic lesions and psoriasis cell model. The mRNA expression levels of inflammatory factors were different elevated in psoriasis cell model, but decreased after siRNA knockdown. The cell proliferation ability and the number of G0/G1 and S phase decreased, and the cell division slowed down, while the number of apoptosis increased in si-RIPK3 cell. The expression level of inflammatory factors in RIPK3-overexpressed Hek-a cells by lentivirus are increased, but the number of cell in G0/G1 and S phases decreased, and the number of apoptosis cell increased.

Conclusion: RIPK3 is abnormally expressed in human and mice psoriatic lesions and can promote inflammation in primary keratinocytes and Hek-a psoriasis cells model in a necroptosis-independent manner. RIPK3 plays a dual role in keratinocytes, and that the expression of RIPK3 determines the outcome of keratinocytes is death or survival.