PSORIASIS

A CRITICAL ROLE OF THE IL-1β-IL-1R SIGNALING PATHWAY IN SKIN INFLAMMATION AND PSORIASIS PATHOGENESIS

Feng Xue [1]

Department Of Dermatology, Ruijin Hospital, School Of Medicine, Shanghai Jiaotong University, Department Of Dermatology, Ruijin Hospital, School Of Medicine, Shanghai Jiaotong University, Shanghai [1]

Background: IL-1 signaling pathway has been shown to play a critical role in the pathogenesis of chronic, autoinflammatory skin diseases such as psoriasis.

Objective: However, the exact cellular and molecular mechanisms have not been fully understood.

Materials and Methods: Here, we show that IL-1β is significantly elevated in psoriatic lesional skin and imiquimod (IMQ)-treated mouse skin. In addition, IL-1R signaling appears to correlate with psoriasis disease progression and treatment response.

Results: IL-1 signaling in both dermal γδ T cells and other cells such as keratinocytes is essential to an IMQ-induced skin inflammation. IL-1β induces dermal γδ T cell proliferation and IL-17 production in mice. In addition, IL-1β stimulates keratinocytes to secrete chemokines which preferentially chemoattract peripheral CD27- CCR6+ IL-17 capable producing γδ T cells (γδT17). Further studies reveal that endogenous IL-1β secretion is regulated by skin commensals to maintain dermal γδT17 homeostasis in mice. Mouse skin associated with corynebacterium, bacterial enriched in human psoriatic lesional skin has increased IL-1β and dermal γδT17 cell expansion.

Conclusions: Thus, IL-1β-IL-1R signaling pathway may contribute to skin inflammation and psoriasis pathogenesis via the direct regulation of dermal IL-17-producing cells and stimulation of keratinocytes for amplifying inflammatory cascade.