PSORIASIS

BACH2 REGULATES THE EXPRESSION AND FUNCTION OF TH17/TREG CELLS IN PSORIASIS

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Psoriasis is a common immune-mediated chronic inflammatory cutaneous disease. Th17/Treg immune imbalance has been reported to contribute to the pathogenesis of psoriasis. In this study, we found that Bach2 was significantly downregulated in the peripheral blood CD4+ T cells of psoriasis patients compared with healthy controls. Naive CD4+ T cells were isolated from human PBMCs and then activated under different polarizing conditions in vitro. We found significantly decreased Bach2 expression in Th17 cells and slightly increased Bach2 expression in Treg cells compared with Th0 cells. To directly determine whether Bach2 regulates Th cell differentiation, we transfected naive human CD4+ T cells with adenovirus-mediated inhibition of Bach2 or negative control and then cultured the cells under Th17 and inducible Treg polarizing (iTreg-polarizing) conditions in vitro. The results showed that the decreased Bach2 expression promoted Th17 differentiation but inhibited Treg differentiation. The percentage of induced Th17 cells (CD4+IL17+) was increased after knockdown of Bach2 under Th17 polarizing from naive human CD4+ T cells; Meanwhile, the mRNA expressions of its specific transcription factors retinoic acid-related orphan receptor γt (RORγt) and relevant cytokines IL-17 and IL-22 were also increased. In contrast, the percentage of induced Treg cells (CD25+FOXP3+) was decreased after knockdown of Bach2 under Treg polarizing from naive human CD4+ T cells; The mRNA expressions of its specific transcription factors head box protein 3 (FOXP3) and relevant cytokines IL-10 were also decreased. Our results provided a strong evidence that Bach2 regulates the expression and function of Th17/Treg cells and may contribute to the pathogenesis of psoriasis.