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Exogenous truncated IK protein ameliorates inflammatory arthritis by HIF-1α induced A20

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IK protein was first isolated from the cultured media of K562, leukemia cell line. It is known as an inhibitory regulator of constitutive and interferon-γ-induced major histocompatibility complex (MHC) class II expression. Previously, we found the reduction of pathogenic Th17 cells that have been known to be involved in the development of rheumatoid arthritis (RA), in polarizing condition in the truncated IK (tIK)-transgenic (Tg) mice as compared with that in the wild type (WT) Balb/c mice. Based on this finding, we investigated the therapeutic effect and protection mechanism of exogenous tIK protein produced by insect expression system for the RA mouse disease model (collagen antibody-induced arthritis, CAIA). Injection of tIK protein alleviated the symptoms of RA and reduced Th17 cell population in the CAIA model. Interestingly, the computer modeling structure of IK protein is similar to IL-10 structure. It can be speculated that tIK protein may belong to the IL-10 protein family. In addition, treatment of tIK protein on cultured T cells induced A20, as a negative regulator in NFκB pathway, through hypoxia-inducible factor-1α (HIF-1α) and reduced several transcriptional factors related to T cell activation. Based on these results, we suggest that tIK protein has a potential to act as a new therapeutic agent for RA patients, because it has a different mode of action as compared with the currently used biologics for RA, such as monoclonal antibody drugs.

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Investigation of IL-12B gene polymorphism (rs3212227) in Iranian patients with Alopecia areata

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Objective: Alopecia areata (AA) is an autoimmune disease characterized by patchy hair loss affecting both scalp and body hair. Although the etiology and pathogenesis of this disease is still unknown, a polymorphism within IL-12B gene have been described in few studies to be associated with AA susceptibility. Yet, these findings had so far not been independently replicated, and no data on a possible association of IL-12B mutation and AA in Iranian population were available.

Methods: This study contains 30 AA patients and 15 healthy controls. Genomic DNA was isolated using DNG-plus and PCR-RFLP analysis was performed to detect IL-12B rs3212227 polymorphism. Several relevant information such as demographic data (age, gender, …) or clinical characteristics were analyzed for a possible effect of these factors on susceptibility to AA in patients who carry CC, AC, and AA genotypes.

Results: No association between the IL-12B rs3212227 mutation and susceptibility to AA was observed in our Iranian cohort. PCR-RFLP results showed that frequency of CC genotype (13.3% vs. 6.6%) are similar in both patient and control groups. AC genotype was detected in 46.6% and 6.6% of patients and controls, respectively. The AA genotype which is wild genotype had higher frequency in healthy individuals. Statistical analysis indicate that there no significant difference in distribution of genotypes between patients and controls (P= 0.12). Although the C allele frequency of IL-12B was higher in the patients than control subjects (36.6% vs. 10% respectively) but there is no significant difference (P= 0.12).

Conclusion: We here demonstrate that the IL-12B rs3212227 polymorphism is not associated with the risk to develop AA in our Iranian cohort. Therefore, this study failed to confirm reported association between gene mutation and susceptibility to AA. Hence, the genetic predisposition to develop AA greatly varies among different ethnic groups.

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