



Polymorphisms of the TIM-1 gene are associated with rheumatoid arthritis in the Chinese Hui minority ethnic population

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ABSTRACT. The T-cell immunoglobulin and mucin domain 1 (TIM-1) is known to be associated with susceptibility to rheumatoid arthritis (RA). We investigated the association of four single-nucleotide polymorphisms (SNPs) in the promoter region of the TIM-1 gene with susceptibility to RA in a Chinese Hui ethnic minority group. Using RFLP or sequence specific primer-PCR, 118 RA patients and 118 non-arthritis control individuals were analyzed for the -1637A>G, -1454G>A, -416G>C, and -232A>G SNPs in the TIM-1 gene. The polymorphisms -232A>G and -1637A>G in the promoter region of TIM-1 were found to be associated with susceptibility to the RA gene in the Hui population, while -416G>C and -1454G>A SNPs were not. Of these, the polymorphism of -232A>G is inconsistent with that found in a Korean population, suggesting that genetic variations of the TIM-1 gene contribute to RA susceptibility in different ways among different populations. Based on haplotype analysis, individuals with haplotypes AGCA ($\chi^2 = 22.0$, $P < 0.01$, OR (95%CI) >1), AGCG ($\chi^2 = 18.16$, $P < 0.01$, OR (95%CI) >1) and AGGA

($\chi^2 = 5.58$, $P < 0.05$, OR (95%CI) >1) are at risk to develop RA in the Chinese Hui population; those with the GAGA ($\chi^2 = 7.44$, $P < 0.01$, OR (95%CI) <1) haplotype may have a decreased likelihood of RA. GGCA and GGCG are more common in both RA and non-RA subjects. We conclude that -1637A>G and -232A>G polymorphisms of TIM-1 are associated with susceptibility to RA in the Chinese Hui population.

Key words: TIM-1; Polymorphism; Haplotype; Rheumatoid arthritis; Chinese Hui population