



Analysis of the haplotype and linkage disequilibrium of PPAR γ gene polymorphisms rs3856806, rs12490265, rs1797912, and rs1175543 among patients with metabolic syndrome in Kazakh of Xinjiang Province

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ABSTRACT. We investigated the relationship between haplotype and linkage disequilibrium of the PPAR γ gene polymorphisms rs3856806, rs12490265, rs1797912, and rs1175543 and metabolic syndrome (MS) in the Kazakh people of Xinjiang Province. For PPAR γ , rs3856806, rs12490265, rs1797912, and rs1175543 genotypes were detected in 489 subjects (including 245 MS patients and 244 controls) using matrix-assisted laser desorption-ionization time-of-flight mass spectrometry. Frequencies of rs3856806T, rs12490265A, rs1797912C, and rs1175543G alleles in MS patients were significantly lower than those of controls [rs3856806T allele: 12.53 vs 17.01% (P = 0.044), rs12490265A allele: 31.84 vs 38.52% (P = 0.029), rs1797912C allele: 35.31 vs 43.24% (P = 0.011), rs1175543G allele: 40.61 vs 47.54% (P = 0.029)]. Significant

linkage disequilibrium was observed between the PPAR γ rs1797912 and rs1175543 polymorphisms as well as between the rs12490265 and rs1175543 polymorphisms. A total of 14 haplotypes were found. Patients with rs3856806T, rs12490265A, rs1797912C, and rs1175543G were observed 0.267 times more frequently [95% confidence interval = 0.126-0.566] than those with rs3856806C, rs12490265G, rs1797912A, and rs1175543A, respectively. The PPAR γ gene polymorphisms rs3856806, rs12490265, rs1797912, and rs1175543 were associated with MS in Kazakh subjects. Very strong linkage disequilibrium was found between the PPAR γ rs1797912 and rs1175543 polymorphisms as well as between the rs12490265 and rs1175543 polymorphisms. AGCC and GAAT haplotypes may serve as protective factors against MS. The rs3856806T, rs12490265A, rs1797912C, and rs1175543G alleles may enhance the protective effect of MS.

Key words: Kazakh; Metabolic syndrome; PPAR γ ; Polymorphism; Haplotype; Linkage disequilibrium