



## Relationship between serum GAD-Ab and the genetic polymorphisms of *GAD2* and type 2 diabetes mellitus

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**ABSTRACT.** In this study, we investigated the relationship between serum glutamic acid decarboxylase (GAD) autoantibody (Ab) levels and single nucleotide polymorphisms (SNPs) of the glutamic acid decarboxylase 2 (*GAD2*) 5'-untranslated region and the susceptibility to type 2 diabetes in the Han population. The distributions of patients with SNPs in the *GAD2* 5'-untranslated region (rs2236418, rs185649317, and rs8190590) and type 2 diabetes and that of the healthy group were genotyped and analyzed using Sequenom MassArray SNP genotyping. GAD-Ab levels were also detected. The frequency distributions of the AA, AG, and GG genotypes in the polymorphic site rs2236418 in the diabetes GAD-Ab-positive group were 45.9, 42.8, and 11.4%, respectively, whereas those in the control group were 36.6, 43.7, and 19.8%, respectively. The difference between the 2 groups was statis-

tically significant ( $P < 0.05$ ). Unlike the GG genotype, the AA and AA + AG genotypes increased the risk of GAD-Ab (odds ratios (95% confidence intervals) = 2.623 (1.351-4.937) and 2.152 (1.375-4.202), respectively). The associations of the 3 SNPs of the *GAD2* gene 5'-untranslated region polymorphisms with susceptibility to type 2 diabetes in the Chongqing Han population were significant. The SNP of rs2236418 in the Chongqing Han population of diabetic patients with serum GAD-Ab levels was significantly correlated with the SNPs rs185649317 and rs8190590.

**Key words:** Diabetes mellitus; Glutamic acid decarboxylase 2; GAD-Ab; Single nucleotide polymorphism