



Meta-analysis of the association between the rs7903146 polymorphism at the *TCF7L2* locus and type 2 diabetes mellitus susceptibility

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ABSTRACT. Type 2 diabetes mellitus (T2DM) is a chronic disease caused by genetic and environmental factors. T2DM has been associated with specific polymorphisms in the *TCF7L2* gene. This study evaluates the relationship between the rs7903146 locus polymorphism of the *TCF7L2* gene and T2DM susceptibility through meta-analysis; the overall aim is to provide a basis for evidence-based medicinal treatment of T2DM. Cohort and case-control studies from Medline, PubMed, EMBASE, CBM, CNKI, and academic conferences/dissertations that examined the correlation between T2DM and rs7903146 polymorphisms were evaluated. We determined whether the *TCF7L2* rs7903146 locus was associated with T2DM susceptibility by comparing alleles and genotypes. The Stata 11.0 software was applied for meta-analysis, and a random-effects model was adopted for heterogeneity testing and odds ratio (OR) calculation. A fixed-effect model was used for quantitative analysis of the heterogeneity between different studies, and for calculating the percentage of variability

¹². A total of 10 studies related to the rs7903146 loci and T2DM susceptibility were enrolled; this included 3404 cases of T2DM patients and 6473 control cases. Meta-analysis showed that the T allele of rs7903146 was significantly correlated with the risk of T2DM, with both a dominant fixed-effect model (OR = 1.653, 95%CI = 1.416-1.653) and a co-dominant-fixed effect model (OR = 1.525, 95%CI = 1.350-1.723). Meta-analysis revealed that the T allele of rs7903146 was also correlated with T2DM susceptibility.

Key words: T2DM; rs7903146; TCF7L2; Polymorphism; Meta-analysis