



## ***TNF- $\alpha$* G-308A polymorphism is associated with insulin resistance: a meta-analysis**

H.G. Wang<sup>1,2\*</sup>, J. Yang<sup>3\*</sup>, H. Han<sup>4</sup>, F. Xu<sup>4</sup>, Y. Bian<sup>4</sup>, H. Zhang<sup>4</sup> and J.L. Wang<sup>4</sup>

<sup>1</sup>Institute of Immunopharmacology and Immunotherapy, School of Pharmacy, Shandong University, Jinan, China

<sup>2</sup>Department of Pharmacy, Qilu Hospital, Shandong University, Jinan, China

<sup>3</sup>Department of Pediatric, Qilu Hospital, Shandong University, Jinan, China

<sup>4</sup>Department of Emergency, Qilu Hospital, Shandong University, Jinan, China

\*These authors contributed equally to this study.

Corresponding author: J.L. Wang

E-mail: wangjiali\_2000@126.com

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**ABSTRACT.** Tumor necrosis factor- $\alpha$  (*TNF- $\alpha$* ) promoter polymorphisms has been reported to be associated with obesity and insulin resistance and gained widespread attention. However, results obtained so far are quite conflicting. We therefore performed a meta-analysis to address this issue, basing on 17 studies from electronic databases (MEDLINE and EMBASE). No evidence of significant effect of *TNF- $\alpha$*  G-308A polymorphism on body mass index (BMI) or obesity risk was detected (BMI:  $WMD_{RE} = 0.05$ , 95%CI: -0.62 to 0.73; risk of obesity:  $OR_{FE} = 1.09$ , 95%CI: 0.87 to 1.35). G-308A variant was significantly associated with increased insulin levels in the overall ( $SMD_{FE} = 0.12$ , 95%CI: 0.03 to 0.20) and obese subgroup analysis ( $SMD_{FE} = 0.16$ , 95%CI: 0.03 to 0.29). In total, no significant result was observed for the association between *TNF- $\alpha$*  G-308A variant and HOMA-IR index. Nevertheless, subgroup analysis showed G-308A polymorphism was significantly associated with increased HOMA-IR in Caucasians ( $WMD_{FE} = 0.49$ , 95%CI: 0.03 to 0.94). Our results

indicate that *TNF- $\alpha$*  G-308A polymorphism has a significant effect on insulin resistance. However, it is unlikely that G-308A variant contributes to obesity.

**Key words:** *TNF- $\alpha$* ; Insulin resistance; Obesity; Polymorphism; Meta-analysis