Association of the *PPARγ2* Pro12Ala polymorphism with increased risk of cardiovascular diseases

Y. Li[1]*, J. Zhu[2]* and J.Q. Ding[3]

[1]Department of Pharmacy, Ministry of Health Beijing Hospital, Beijing, China
[2]Medical Department, Henan Provincial Corps Hospital of The Chinese People's Armed Police Force, Zhengzhou, China
[3]Department of Pharmacy, Henan Provincial Corps Hospital of the Chinese People's Armed Police Force, Zhengzhou, China

*These authors contributed equally to this study.
Corresponding author: J.Q. Ding
E-mail: dingjianqiang222@163.com

ABSTRACT. This meta-analysis investigated the correlation between the *PPARγ2* Pro12Ala polymorphism and cardiovascular disease (CVD). Electronic database and manual searches were conducted to retrieve studies published relevant to the *PPARγ2* Pro12Ala polymorphism and CVD. Rigorous inclusion and exclusion criteria were employed for selection of high-quality patients-control studies. Statistical data analyses on allelic, dominant, homozygous, heterozygous, and recessive inheritance models were performed using the R 3.1.0 and Stata 12.0 software. We enrolled 12 case-control studies consisting of 10,189 patients with CVD [1070 with myocardial infarction (MI), 7849 with coronary artery disease (CAD), and 1270 with acute coronary syndromes (ACS)] and 17,899 controls. The results of meta-analyses revealed that the *PPARγ2* Pro12Ala (rs1801282) polymorphism was correlated with a higher risk of CVD under both allelic and dominant models, while no statistical significance was found under

homozygous, heterozygous, or recessive models. Subgroup analysis based on disease showed that the *PPARγ2* Pro12Ala (rs1801282) polymorphism was correlated with a higher risk of MI under both allelic and dominant models, while no statistical significance was found for association with CAD or ACS under allele or dominant models. Furthermore, under homozygous, heterozygous, and recessive models, the *PPARγ2* Pro12Ala (rs1801282) polymorphism had no statistically significant association with MI, CAD, or ACS. The results of this meta-analysis suggest that the *PPARγ2* Pro12Ala (rs1801282) polymorphism might be correlated with a higher risk of CVD, particularly MI, and could serve as an important early indicator for CVD.

Key words: Cardiovascular disease; *PPARγ2*; Polymorphism; Gene; Meta-analysis; Coronary artery disease