



# Racial disparities in the association between diabetes mellitus-associated polymorphic locus rs4430796 of the *HNF1 $\beta$* gene and prostate cancer: a systematic review and meta-analysis

Y.Z. Xiang<sup>1\*</sup>, S.B. Jiang<sup>1\*</sup>, J. Zhao<sup>2</sup>, H. Xiong<sup>1</sup>, Z.L. Cui<sup>1</sup>, G.B. Li<sup>1</sup> and X.B. Jin<sup>1</sup>

<sup>1</sup>Minimally Invasive Urology Center, Provincial Hospital Affiliated to Shandong University, Jinan, China

<sup>2</sup>Department of Emergency, Provincial Hospital Affiliated to Shandong University, Jinan, China

\*These authors contributed equally to this study.

Corresponding author: X.B. Jin

E-mail: jinxunbo@163.com

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**ABSTRACT.** Polymorphism 17q12 rs4430796 within *HNF1 $\beta$*  is a genetic variant associated with both diabetes mellitus and prostate cancer, but findings on the correlations of rs4430796 with prostate cancer risk specifically are not in agreement, especially among diverse populations. To shed some light on the contradictory findings, therefore, we carried out a meta-analysis by pooling the odds ratios (ORs) with corresponding 95% confidence intervals (CIs) of all currently available case-control studies located within PubMed and Embase databases up to December 2012. A total of 16 studies comprising 30 datasets that collectively involved 25,535 prostate cancer patients and 25,726 controls were ultimately included in this analysis. The meta-analysis of all the studies revealed that the rs4430796 polymorphism was significantly associated

with an increased risk of prostate cancer in all contrast models ( $OR_{A \text{ vs } G} = 1.25$ , 95%CI = 1.21-1.30,  $P_{OR} < 0.001$ ;  $OR_{AA \text{ vs } GG} = 1.53$ , 95%CI = 1.45-1.62,  $P_{OR} < 0.001$ ;  $OR_{AG \text{ vs } GG} = 1.24$ , 95%CI = 1.16-1.34,  $P_{OR} < 0.001$ ;  $OR_{AA \text{ vs } AG+GG} = 1.36$ , 95%CI = 1.30-1.42,  $P_{OR} < 0.001$ ;  $OR_{AA+AG \text{ vs } GG} = 1.37$ , 95%CI = 1.30-1.44,  $P_{OR} < 0.001$ ). After subgroup analyses stratified by ethnicity, however, the rs4430796 polymorphism was significantly associated with prostate cancer in both Caucasians and Asians but not in African-Americans. In conclusion, our meta-analysis identified a significant association between the 17q12 rs4430796 polymorphism and prostate cancer risk, although the degree of this association and frequency of the causative allele varied among men of different races.

**Key words:** *HNF1 $\beta$* ; Genetic polymorphisms; Prostate cancer; Diabetes mellitus; Meta-analysis