Polymorphisms of DNA repair-related genes with susceptibility and prognosis of prostate cancer

X.J. Zhang, P. Liu and F. Zhu

Urology Department,
The First Affiliated Hospital of Xinxiang Medical University,
Weihui, Henan, China

Corresponding author: X.J. Zhang
E-mail: zhangxinjun_xmu@163.com

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ABSTRACT. We aimed to investigate the association between genetic variants of the DNA repair genes XPG, CSB, XPC, CCNH, and MMS19L in the nucleotide excision repair (NER) pathway and risk of prostate cancer in a population in China. This study included 229 patients with newly diagnosed and histopathologically confirmed primary prostate cancer and 238 healthy controls. Genotyping of XPG, CSB, XPC, CCNH, and MMS19L were performed on a 384-well plate on the MassARRAY platform. Associations between the polymorphisms of the six genes and risk of prostate cancer were analyzed using conditional logistical regression. We found that the variant genotype TT of the XPG rs2296147 polymorphism was moderately significantly associated with a higher risk of prostate cancer compared to the wild-type genotype CC (odds ratio (OR) = 1.79, 95% confidence interval (CI) = 1.01-3.25), and individuals carrying the GG genotype of the CSB rs2228526 polymorphism were associated with an increased risk of prostate cancer (OR = 1.95, 95%CI = 1.02-3.74). The combination genotype of the XPG T allele and the CSB G allele was associated with a moderately higher risk of prostate cancer risk (OR = 1.84, 95%CI = 1.06-3.20). In conclusion, we found that polymorphisms in XPG rs2296147 and CSB rs2228526 were significantly associated with prostate...
cancer susceptibility in the Chinese population analyzed. Our results support the hypothesis that naturally occurring genetic variation of DNA repair genes increases susceptibility to prostate cancer.

**Key words:** *XPG; CSB; DNA repair-related genes; Prostate cancer*