

Genetic variants of the *CYP1B1* gene as predictors of biochemical recurrence after radical prostatectomy in localized prostate cancer patients

Chengyuan Gu^{1,2}, Xiaojian Qin^{1,2}, Yuanyuan Qu^{1,2}, Gaoxiang Li^{1,2}, Huiyang Xie^{1,2}, Bo Tang^{1,2}, Junlong Wu^{1,2}, Xiaolin Lu^{1,2}, Kun Chang^{1,2}, Yao Zhu^{1,2}, Dingwei Ye^{1,2}

¹ Department of Urology, Fudan University Shanghai Cancer Center, Shanghai, China;

² Department of Oncology, Shanghai Medical College, Fudan University, Shanghai, China;

BACKGROUND: Clinically localized prostate cancer is curative. Nevertheless many patients suffered from biochemical recurrence (BCR) after radical prostatectomy (RP). The *CYP1B1* plays an important role in tumorigenesis and cancer progression via endogenous hormones and xenobiotics metabolism.

HYPOTHESIS: We hypothesize that genetic variants of the *CYP1B1* gene may influence clinical outcome in clinically localized prostate cancer patients.

METHODS: We genotyped nine tagging single nucleotide polymorphisms (SNPs) from the *CYP1B1* gene in 312 patients treated with RP. For replication, these SNPs were genotyped in an independent cohort of 426 patients. The expression level of *CYP1B1* in the adjacent normal prostate tissues was quantified by reverse transcription and real-time polymerase chain reaction. Kaplan-Meier analysis and Cox proportional hazard models were utilized to identify SNPs that correlated with BCR.

RESULTS: *CYP1B1* rs1056836 was significantly associated with BCR [HR: 0.69; 95% confidence interval (CI): 0.40-0.89, $P = 0.002$] and relative *CYP1B1* mRNA expression. Our findings suggest inherited genetic variation in the *CYP1B1* gene may contribute to variable clinical outcomes for patients with clinically localized prostate cancer.