



# Association between *XRCC1* Arg280His polymorphism and risk of hepatocellular carcinoma: a systematic review and meta-analysis

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**ABSTRACT.** Hepatocellular carcinoma (HCC) is one of the most life-threatening malignancies worldwide. Defects in DNA repair genes may increase the risk of HCC. X-ray cross-complementing group 1 gene (*XRCC1*) is a major DNA repair gene involved in base excision repair. Recently, several studies have indicated that an association exists between *XRCC1* polymorphism and HCC, particularly the Arg280His polymorphism. However, the data is inconsistent and incomplete. In this study, we conducted a meta-analysis to investigate the association

between the *XRCC1* Arg280His polymorphism and HCC risk. A total of 10 case-control studies included 1848 HCC cases and 1969 controls were examined in this analysis. Our results suggest that variant genotypes of the *XRCC1* Arg280His gene are associated with a significantly increased risk of HCC in homozygote comparison (HisHis vs ArgArg, odds ratio, 1.55, 95% confidence interval, 1.10-2.18, P = 0.013); no heterogeneity was observed ( $I^2 = 0\%$ ). Our analysis suggests that the *XRCC1* Arg280His polymorphism is associated with a higher risk of HCC.

**Key words:** Hepatocellular carcinoma; Meta-analysis; Single nucleotide polymorphism; *XRCC1*-Arg280His