



# CASP-9 gene functional polymorphisms and cancer risk: a large-scale association study plus meta-analysis

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**ABSTRACT.** We investigated the association between CASP-9 polymorphisms and susceptibility to neoplasm. Fourteen studies with a total of 2733 neoplasm cases and 3352 healthy controls were included. Meta-analysis showed that the rs4645981\*T allele and the rs4645981\*T allele carrier were positively associated with neoplasm susceptibility [odds ratio (OR) = 1.43, 95% confidence interval (95%CI) = 1.12-1.81, P = 0.004; OR = 1.46, 95%CI = 1.10-1.93, P = 0.009, respectively]. However, the rs1052576\*A allele, rs1052576\*A carrier, rs2308941\*T allele, and rs2308941\*T carrier might decrease the risk of cancer (OR = 0.72, 95%CI = 0.58-0.89, P = 0.003; OR = 0.76, 95%CI = 0.63-0.92, P = 0.004; OR = 0.20, 95%CI = 0.09-0.45, P < 0.0001; OR = 0.21, 95%CI = 0.06-0.75, P = 0.02, respectively). There was no significant association between rs1263, rs1052571, rs2308950, rs4645978, rs4645980, rs4645982, and rs4646018 and cancer risk (all P > 0.05). In conclusion, this meta-analysis suggests that CASP-9 gene polymorphisms are involved in the pathogenesis of various cancers. The rs4645981\*T allele and the rs4645981\*T allele carrier might increase the risk of cancer, but the rs1052576\*A allele, rs1052576\*A carrier, rs2308941\*T allele, and rs2308941\*T carrier might be protective.

**Key words:** CASP-9; Gene polymorphisms; Cancer; Meta-analysis