



# Vascular endothelial growth factor +405G/C and -2578C/A polymorphisms and breast cancer risk: a meta-analysis

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**ABSTRACT.** This study aimed to analyze the association between the 405G/C and -2578C/A polymorphisms of the vascular endothelial growth factor (*VEGF*) gene and breast cancer risk by meta-analysis. A systematic computerized search of PubMed, Google Scholar, and Web of Science databases was performed to identify relevant publications. After rigorous searching and screening, 9 eligible case-control studies were included in this meta-analysis. The associations between the *VEGF* gene 405G/C and -2578C/A polymorphisms and breast cancer risk were estimated by pooled ORs and 95% CIs using fixed- or random-effect models. Meta-analysis results showed no significant association between the 405G/C polymorphism and breast cancer risk (CC vs GG: OR = 1.04, 95%CI = 0.92-1.17; CC vs GC: OR = 1.04, 95%CI = 0.93-1.17; dominant model: OR = 0.95, 95%CI = 0.85-1.06; recessive model: OR = 0.92, 95%CI = 0.70-1.20). The results also did not show significant association for the -2578C/A polymorphism: (AA vs CC: OR = 1.03, 95%CI = 0.91-1.15; AA vs GA: OR = 0.99, 95%CI = 0.89-1.10; dominant model: OR = 1.00, 95%CI = 0.90-1.10; recessive

model: OR = 1.03, 95%CI = 0.94-1.13). Similar results were observed in the subgroup analyses on ethnicity, sample size, and Hardy-Weinberg equilibrium. These findings suggested a lack of association between the *VEGF* gene 405G/C and -2578C/A polymorphisms and breast cancer susceptibility.

**Key words:** *VEGF*; 405G/C; -2578C/A; Breast cancer; Meta-analysis; Genetic polymorphism