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Prognostic and predictive role of vascular endothelial growth factor polymorphisms in breast cancer.

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Abstract

Current evidence indicates that angiogenesis plays an important role in the pathogenesis of several malignancies, including breast cancer. The vascular endothelial growth factor (VEGF) pathway has been investigated extensively, due to its important role in angiogenesis. The major mediator of tumor angiogenesis is VEGF-A, frequently referred to as VEGF, which activates the VEGF receptor-2. The VEGF gene is located on chromosome 6 and constitutes a highly polymorphic gene. Numerous SNPs in the promoter, 5'- and 3'-untranslated regions (UTR) of VEGF gene have been recognized. This genetic variability possibly influences the production and function of VEGF. Subsequently, the VEGF SNPs may have an impact on breast cancer risk and disease outcome. Moreover, these SNPs may be of predictive value in patients receiving agents targeting the VEGF pathway. This review presents an update on the potential role of VEGF SNPs as prognostic and/or predictive markers in patients with breast cancer.