GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Lack of association between the interleukin 6 gene -174G>C polymorphism and colorectal cancer: evidence from a meta-analysis

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Genet. Mol. Res. 12 (3): 2205-2214 (2013)
Received December 21, 2012
Accepted March 10, 2013
Published July 8, 2013
DOI http://dx.doi.org/10.4238/2013.July.8.2

ABSTRACT. Interleukin 6 (*IL6*) is a pleiotropic cytokine involved in physiological processes and in a variety of human malignancies. It is thus a logical candidate for being a causative factor underlying colorectal cancer (CRC). The association between the *IL6* -174G>C polymorphism and CRC has been widely evaluated; yet, there is a lack of agreement between studies on the role of this polymorphism in CRC. We performed a meta-analysis to evaluate this association signal. Articles published before May 10, 2012 were included in the meta-analysis. A total of 11 populations incorporating 6481 cases and 7935 controls were included in our analysis. A random-effect model was applied irrespective of between-study heterogeneity. Data and study quality were assessed in duplicate. Overall, the association of the -174G>C polymorphism with CRC was not significant in an allelic comparison model [odds ratio (OR) = 0.99; 95% confidence interval

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(95%CI) = 0.90-1.09; P = 0.827], a homozygote model (OR = 0.98; 95%CI = 0.83-1.15; P = 0.805), a dominant model (OR = 0.99; 95%CI = 0.87-1.13; P = 0.906), or a recessive model (OR = 0.97; 95%CI = 0.88-1.08; P = 0.610). Furthermore, the analyses of subgroups created based on common study design, genotyping methods, and ethnicity failed to find a significant association of this polymorphism with CRC. Therefore, our results collectively suggest that the *IL6* -174G>C polymorphism might not be a potential candidate for CRC risk.

Key words: Colorectal cancer; *IL6* gene; Polymorphism; Meta-analysis; Association signal

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