

Interleukin-1 receptor antagonist gene polymorphism in human colorectal cancer.

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Abstract: Several studies indicate that local immunoregulation and associated cytokines have a putative role in the development of cancer. There is evidence that pro-inflammatory cytokines such as interleukin-1 (IL-1) are critically involved with tumour progression. IL-1 receptor antagonist (IL-1Ra) is known to down-regulate and limit the inflammatory response. Therefore we attempted to examine the influence of the known polymorphism of the IL-1Ra gene on the development of human colorectal cancer (CRC). The study included 125 patients with CRC and 134 controls. Variable number tandem repeat (VNTR) polymorphism in intron 2 of the IL-1Ra gene was analysed by the polymerase chain reaction method. There was a significant difference in genotype distribution between CRC patients and controls ($P=0.025$) and also in allelic frequencies ($P=0.012$). In detail the carriage rate of allele 3 in CRC patients was significantly increased compared with controls ($P=0.007$). We also found that the allelic distribution differs significantly between colon and rectum ($P=0.041$) and that allele 3 was overabundant in colon. The frequency of allele 1 in CRC patients with localized disease (Dukes A+B) was higher compared with disseminated disease (Dukes C+D), ($P=0.035$). These findings therefore suggest that the IL-1Ra polymorphism is associated with colorectal carcinogenesis.

Index Keywords: cytokine; IL1RN protein, human; interleukin 1 receptor blocking agent; sialoglycoprotein; agar gel electrophoresis; aged; allele; article; biological model; colorectal tumor; disease course; female; gene expression regulation; gene frequency; genetic polymorphism; genetics; genotype; human; inflammation; intron; male; metabolism; middle aged; neoplasm; nucleotide repeat; polymerase chain reaction; statistical model; variable number of tandem repeat; Aged; Aged, 80 and over; Alleles; Colorectal Neoplasms; Cytokines; Disease Progression; Electrophoresis, Agar Gel; Female; Gene Expression Regulation, Neoplastic; Gene Frequency; Genotype; Humans; Inflammation; Interleukin 1 Receptor Antagonist Protein; Introns; Male; Middle Aged; Minisatellite Repeats; Models, Genetic; Models, Statistical; Neoplasms; Polymerase Chain Reaction; Polymorphism, Genetic; Repetitive Sequences, Nucleic Acid; Sialoglycoproteins

Year: 2005

Source title: Oncology reports.

Volume: 14

Issue: 4

Page : 915-918

Cited by: 5

Link: [Scopus Link](#)

Chemicals/CAS: Cytokines; IL1RN protein, human; Interleukin 1 Receptor Antagonist Protein; Sialoglycoproteins

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ISSN: 1021335X

PubMed ID: 16142351

Language of Original Document: English

Abbreviated Source Title: Oncology reports.

Document Type: Article

Source: Scopus

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