Are SMAD7 rs4939827 and CHI3L1 rs4950928 polymorphisms associated with colorectal cancer in Egyptian patients?

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A wide variety of genes have been associated with colorectal cancer (CRC) development and progression. The SMAD7 gene encodes an intracellular protein, which inhibits the transforming growth factor beta (TGF-β) signaling pathway, thereby having a key role in the control of neoplastic processes in various organs. The CHI3L1 gene encodes glycoprotein YKL-40, which plays a role in cell proliferation, anti-apoptosis and angiogenesis. The present study aimed to evaluate the association of single nucleotide polymorphisms (SNPs) SMAD7 rs4939827 and CHI3L1 rs4950928, as well as circulating TGFβ-1 and YKL-40 levels with CRC in an Egyptian population of 77 CRC patients and 36 healthy controls. Polymorphisms in the SMAD7 rs4939827 and the CHI3L1 rs4950928 gene were determined using the real time polymerase chain reaction (RT-PCR). Both the SMAD7 rs4939827 TT genotype and the CHI3L1 rs4950928 C allele were associated with the rectal but not the colon cancer. In addition, the C allele of both SMAD7 rs4939827 and CHI3L1 rs4950928 was associated with increased serum levels of TGF-β1 and YKL-40, respectively. In conclusion, our data suggest that SMAD7 rs4939827 and CHI3L1 rs4950928 SNPs have no significant association with CRC. A significant association of SNP in SMAD7 rs4939827 and CHI3L1 rs4950928 was revealed between the rectal cancer and colon cancer patients.