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Dr.sc.hum.

Polymorphisms in transforming growth factor-beta 1 signaling pathway and epithelial-mesenchymal transition pathway with the risk of colorectal cancer

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This thesis focuses on the association between the SNPs in several genes in TGFB1 pathway and EMT pathway with CRC susceptibility and prognosis. Although some polymorphisms in our study were selected based on known association with cancer and their putative function, they were not positively associated with CRC. However, a significant positive association between the 6A/6A genotype of 9A/6A polyalanine polymorphism in TGFBR1 and CRC risk can not be excluded. It needs to be further investigated with a lager sample set. From statistics it was observed, that the GA genotype of TGFBR1 IVS7G+24A protects against CRC risk, the GG genotype of LTBP4 Thr750Ala and the TA genotype of BAMBI T-779A protect against CRC progression and the TC genotype of FURIN C-231T increases the risk of CRC prognosis.

However, the functional effects of the three SNPs with CRC need to be validated in further studies. As this is the first study about the influence of LTBP4, BAMBI and FURIN SNPs on CRC progression, they should be validated in larger independent studies. Identification of new predisposing gene variants and gene variant combinations are important for understanding the etiology of a disease, for risk estimation and might give hints for new drug targets. Therefore, our findings might pave the way for a better understanding of the pathogenesis of CRC susceptibility and prognosis.