Contribution of MGP, FGF2 and RUNX2 as important predictor factors to differentiate prognosis amongst patients with colorectal adenocarcinomas

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Introduction

Colorectal cancer (CRC) is one of the most frequent types of cancers. Matrix Glia protein (MGP) is a secreted extracellular matrix protein involved in inhibition of tissue calcification and recently its expression was related to cellular differentiation and tumor progression. We intended to perceive how MGP expression and two of its known transcriptional regulators, RUNX2 and FGF2 contributed to differentiate disease prognosis amongst CRC patients. Results showed an overall overexpression of MGP, RUNX2 and FGF2 mRNAs in tumoral mucosa when compared to the adjacent normal mucosa and healthy control tissues. Furthermore, high levels of MGP, FGF2 and RUNX2 were shown to be important predictor factors to profile patients according to their prognosis.

Workflow

Hypothesis

Is MGP, FGF2 and RUNX2 good prognosis predictor factors in CRC patients?

qRT-PCR of normal and tumoral biopsies from 23 CRC patients and 9 healthy controls and statistical analysis

Results

Correlation of MGP with RUNX2 and FGF2 gene expression in the tumoral tissue of CRC patients

MPG expression in tumor tissue vs

FGF2 expression in tumor tissue

MPG expression in tumor tissue vs

RUNX2 expression in tumor tissue

Positive correlation between MGP and the transcription factors RUNX2 and FGF2 gene expression

Positive correlation between MGP, FGF2 and RUNX2 expression in CRC, indicating a correlation of MGP by these transcription factors

Patients in cluster 1 and cluster 2 were divided hierarchically through the higher levels of importance in the separation of patients. It was established a correlation between the variation of MGP, FGF2 and RUNX2 expression and the remaining variables with an unfavorable prognosis

Conclusion

MGP, FGF2 and RUNX2 mRNA was overexpressed in CRC tissue in agreement with the available literature

Positive correlation between MGP, FGF2 and RUNX2 expression in CRC, indicating a regulation of MGP by these transcription factors

Patients were divided into clusters with a worst prognosis and a lower survival rate

MGP, FGF2 and RUNX2 are good predictor factors to differentiate CRC prognosis amongst patients

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References


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