# CD133 and CD44 - Stem Cell Markers for Prediction of Clinically Aggressive Form of Colorectal Cancer

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**Abstract :** Introduction:Colorectal carcinoma (CRC) is one of the most common malignancies in the world. The cancer stem cell (CSC) markers are associated with aggressive cancer types and poor prognosis. The aim of study was to determine whether the expression of colorectal cancer stem cell markers CD133 and CD44 could be significant in prediction of clinically aggressive form of CRC. Materials and methods: Our study included ninety patients (n=90) with CRC. Patients were divided into two subgroups: with metatstatic CRC and non-metastatic CRC. Tumor samples were analyzed with standard histopathological methods, than was performed immunohistochemical analysis with monoclonal antibodies against CD133 and CD44 stem cell markers. Results: High coexpression of CD133 and CD44 was observed in 71.4% of patients with metastatic disease, compared to 37.9% in patients without metastases. Discordant expression of both markers was found in 8% of the subgroup with metastatic CRC, and in 13.4% of the subgroup without metastatic CRC. Statistical analyses showed a significant association of increased expression of CD133 and CD44 with the disease stage, T - category and N - nodal status. With multiple regression analysis the stage of disease was designate as a factor with the greatest statistically significant influence on expression of CD133 ($p < 0.0001$) and CD44 ($p < 0.0001$). Conclusion: Our results suggest that the coexpression of CD133 and CD44 have an important role in prediction of clinically aggressive form of CRC. Both stem cell markers can be routinely implemented in standard pathohistological diagnostics and can be useful markers for pre-therapeutic oncology screening.

**Keywords :** colorectal carcinoma, stem cells, CD133+, CD44+
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