

Combination of Notch1 and Notch2 as Prognostic Marker on Patients with Colorectal Cancer

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Background: Aberrantly activated Notch signaling has been shown to play a key role in carcinogenesis and progression of various human malignancies. However, the prognostic roles of Notch1 and Notch2 are still uncertain. In this study, we investigated the expression of Notch1 and Notch2 in colorectal cancer to determine their prognostic value.

Methods: The protein expression of Notch1 and Notch2 was examined by immunohistochemistry in 1003 clinical colorectal cancer specimens. Statistical analysis was carried out to assess associations of Notch1 and Notch2 expression with survival of patients with colorectal cancer.

Results: Significantly negative correlation between Notch1 and Notch2 was found in colorectal cancer ($P < 0.001$). Notch1 and Notch2 were proved to be inversely correlated with tumor differentiation, depth of invasion, lymph node metastases, distant metastasis, TNM stage and survival of patients, suggesting opposite function of the two receptors. Notch1 and Notch2 were proved to be adverse independent prognostic predictors ($P < 0.001$). Moreover, a synergistic effect of positive Notch1 and negative Notch2 coexpression on predicting poor overall survival was proved.

Conclusion: Notch1 and Notch2 may be independent adverse prognostic predictors for patients with colorectal cancer. These results would contribute to identify more efficient prognostic predictors and therapeutic targets.