UbcH10 expression can predict prognosis and sensitivity to the antineoplastic treatment for colorectal cancer patients.

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Abstract

Colorectal cancer (CRC) is one of the most frequent and deadly malignancies worldwide. Despite the progresses made in diagnosis and treatment, the identification of tumor markers is still a strong clinical need, because current treatments are efficacious only in a subgroup of patients. UbcH10 represents a potential candidate biomarker, whose expression levels could be employed to predict response or resistance to chemotherapy or targeted agents. UbcH10 mRNA and protein expression levels have been evaluated in a large group of CRC patients and correlated with clinico-pathological characteristics, including KRAS mutations. Moreover, the endogenous levels of UbcH10 and its role on cell growth have been evaluated in CRC cells. Finally, to investigate the impact of UbcH10 protein expression on the response to irinotecan, its active metabolite SN-38 and cetuximab treatment, UbcH10 silencing experiments were carried-out on two colon carcinoma cell lines, Caco-2, and DLD1. Overexpression of UbcH10 mRNA and protein was observed in the vast majority of patients analyzed. UbcH10 suppression decreased CRC cell growth rate (at least in part through deregulation of Cyclin B and ERK1) and sensitized them to pharmacological treatments with irinotecan, SN-38 and cetuximab (at least in part through a down-regulation of AKT). Taken together, these findings indicate that UbcH10 expression regulates CRC growth and could play an important role in the personalization of the therapy of CRC patients. © 2015 Wiley Periodicals, Inc.

KEYWORDS:

KRAS; UbcH10; cetuximab; colorectal cancer; irinotecan