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miR-200c as a Biomarker for 5-FU Chemosensitivity in Colorectal Cancer

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Abstract : 5-FU is a chemotherapeutic agent that has been used in colorectal cancer (CRC) treatment. However, it is usually associated with the acquired resistance, which decreases the therapeutic effects of 5-FU. miR-200c is involved in chemotherapeutic drug resistance, but its mechanism is not fully understood. In this study, the effect of inhibition of miR-200c in sensitivity of HCT-116 CRC cells to 5-FU was evaluated. HCT-116 cells were transfected with LNA-anti- miR-200c for 48 h. mRNA expression of miR-200c was evaluated using quantitative real- time PCR. The protein expression of phosphatase and tensin homolog (PTEN) and E-cadherin were analyzed by western blotting. Annexin V and propidium iodide staining assay were applied for apoptosis detection. The caspase-3 activation was evaluated by an enzymatic assay. The results showed LNA-anti-miR-200c inhibited the expression of PTEN and E-cadherin protein, apoptosis and activation of caspase 3 compared with control cells. In conclusion, these results suggest that miR-200c as a prognostic marker can overcome to 5-FU chemoresistance in CRC.

Keywords : colorectal cancer, miR-200c, 5-FU resistance, E-cadherin, PTEN
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