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Influence of the *DCC* gene on proliferation and carcinoembryonic antigen expression in the human colorectal cancer cell line SW1116

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ABSTRACT. This study investigated the effects of stable transfection of the exogenous wild-type *DCC* gene on growth of the human colorectal carcinoma cell line SW1116 *in vitro*. The *DCC* gene was amplified from normal human colon tissue by reverse transcription-polymerase chain reaction and used to construct a recombinant expression plasmid, pcDNA3.1(+)-DCC. *DCC*-negative SW1116 cells were transfected with pcDNA3.1(+)-DCC. Cell viability was tested by the methyl thiazolyl tetrazolium (MTT) assay. Immunofluorescence staining was used to determine the effects of pcDNA3.1(+)-DCC on carcinoembryonic antigen (CEA) expression in transfected cells. The number of cells in the population transfected with pcDNA3.1(+)-DCC was lower than in that transfected with the control pcDNA3.1(+) plasmid or in normal cells ($t1 = 3.645$, $P1 < 0.05$, $t2 = 3.132$, $P2 < 0.05$) at 3-6 days after transfection, and the proliferation rate of pcDNA3.1(+)-DCC transfected cells was also lower ($t1 = 2.134$, $P2 < 0.05$; $t2 = 2.736$, $P2 < 0.05$). The total viability of pcDNA3.1(+)-DCC transfected cells was lower than that of normal cells ($t1 = 3.053$, $P1 < 0.05$) at 2-6 days after transfection, and of control-transfected cells ($t2 = 2.816$, $P2 < 0.05$) after 2, 4, 5, and 6 days. The population of pcDNA3.1(+)-

DCC transfected colored of green fluorescent cells and their fluorescent intensities were lower than those of control-transfected and normal cells. Therefore, the transfected *DCC* gene can suppress cell proliferation and lead to downregulation of CEA expression in SW1116 cells, which might weaken its infiltration and metastasis abilities.

Key words: Colorectal neoplasms; Transfection; *DCC* gene

