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Effect of miRNA-203 on cervical cancer cells and its underlying mechanism

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ABSTRACT. miRNA-203 is involved in the development and progression of various types of cancer. However, its role in cervical cancer remains unclear. The aim of this study was to investigate the effect of miRNA-203 on the proliferation and migration of HeLa cervical cancer cells, as well as survivin expression in these cells. A miRNA-203 primer probe was designed according to a sequence obtained from NCBI. The expression of miRNA-203 in cervical epithelial cells and cervical cancer cells was detected by quantitative reverse transcriptase-polymerase chain reaction. The miRNA-203 expression pattern was compared between these two cell lines. The cervical cancer cells were transfected with miRNA-203 mimic or inhibitor to determine their effects on proliferation and migration. The expression of the miRNA-203 target protein (survivin) was analyzed by western blot. Cervical cancer cells showed reduced miRNA-203 expression compared to cervical epithelial cells. Transfection of miRNA-203

mimic upregulated the expression of miRNA-203, suppressed cell proliferation and migration, and downregulated survivin expression ($P < 0.05$). However, downregulation of miRNA-203 expression did not affect proliferation, migration, and survivin expression in cervical cancer cells ($P > 0.05$). In conclusion, upregulation of miRNA-203 in cervical cancer cells inhibits the proliferative and migratory capacities of these cells by downregulating the expression of survivin.

Key words: Cervical cancer; Survivin; miRNA-203; Proliferation; Migration