Inhibitory effect of survivin-targeting small interfering RNA on gastric cancer cells


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ABSTRACT. A pair of inverted repeated sequences of the gene survivin was designed for stable double-stranded RNA establishment. After stable transfection, the biological behaviors of gastric cancer cells were observed. The interference rates of survivin-targeting siRNA (siRNA-survivin) in BGC823, MKN45, SGC7901, and cisplatin-resistant SGC7901 groups were 55.363 ± 3.974, 71.433 ± 3.774, 69.433 ± 7.336, and 76.767 ± 3.541%, respectively, compared with those in the control group. After siRNA-survivin interference, survivin protein expression noticeably decreased, apoptotic rates markedly increased, and cell proliferation was inhibited to varying degrees. Mitochondrial cytochrome C protein expression decreased and the levels of cytoplasmic cytochrome C and caspase-3 increased, which showed significant differences compared with values before transfection. pRNA-shSU eukaryotic expression vectors were constructed. After plasmid transfection, green fluorescent protein expression increased and survivin protein expression noticeably increased in BGC823 and SGC7901. siRNA-survivin promotes GC cell apoptosis and inhibits cell proliferation by downregulating survivin mRNA and protein expression. The underlying mechanisms
are correlated with a decrease in mitochondrial cytochrome C and cytoplasmic cytochrome C and caspase-3.

**Key words:** Survivin; Gastric cancer; Small interfering RNA; Apoptosis