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Curcumin inhibits telomerase activity through human telomerase reverse transcriptase in MCF-7 breast cancer cell line.

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The inhibitory effect of curcumin, the yellow-colored pigment from turmeric, on telomerase activity was analyzed in human mammary epithelial (MCF-10A) and breast cancer (MCF-7) cells. Telomerase activity in MCF-7 cells is 6.9-fold higher than that of human mammary epithelial cells. In MCF-7 cells, telomerase activity decreased with increasing concentrations of curcumin, inhibiting about 93.4% activity at 100 microM concentration. The inhibition of telomerase activity in MCF-7 cells may be due to down-regulation of hTERT expression. Increasing concentrations of curcumin caused a steady decrease in the level of hTERT mRNA in MCF-7 cells whereas the level of hTER and c-myc mRNAs remained the same. Our results suggest that curcumin inhibits telomerase activity by down-regulating hTERT expression in breast cancer cells and this down-regulation is not through the c-myc pathway.

PMID: 12104041 [PubMed - indexed for MEDLINE]