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ABSTRACT

Selenium—as a trace element—is nutritionally essential for humans. It prevents cancerous growth by inhibiting the telomerase activity but the mechanism involved in regulation of telomerase activity in normal telomerase-positive cells remains to be elucidated. Here, we find out whether the effect of sodium selenite and selenomethionine on telomerase activity in human umbilical cord-derived mesenchymal stem cells (hUCMSCs) is associated with different levels of *c-Myc* and *p53* expression. The use of different staining methods including ethidium bromide/acridine orange and DAPI in addition to telomeric repeat amplification protocol assay and real-time PCR indicated that different forms of selenium have opposite impacts on *c-Myc* and *p53* expressions in both hUCMSCs and AGS, a gastric adenocarcinoma cell line, as a positive control. Our findings suggest that the signaling pathways involved in the regulation of telomerase activity in malignant and normal telomerase-positive cell types are somewhat different, at least on the *c-Myc* and *P53* expression levels.

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