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Inhibition effect of Oncostatin M on metastatic human lung cancer cells 95-D *in vitro* and on murine melanoma cells B16BL6 *in vivo*

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ABSTRACT

Oncostatin M (OSM) is a multifunctional regulator of cell growth and differentiation. It inhibits the growth of many types of tumor cells, but its role in metastasis is unknown. We studied the human OSM expressed and purified from reconstructed *E. Coli* on its activity of inhibiting metastasis of tumor cells by a series of assays *in vitro* and *in vivo*. Clone formation assay in soft agar was used to measure the inhibition activity of OSM on the proliferation of high metastatic human lung cancer cells 95-D. Cell attachment assay, cell migration assay and cell invasion assay were used to evaluate inhibition by OSM on 95-D cells of the adhesion ability, the migration ability, and the ability of cells to cross tissue barriers, respectively. Inhibition of OSM on secretion of MMP-2 and -9 secretion in 95-D cells was determined by Western blot. The *in vivo* inhibitory effect of OSM on metastasis of murine melanoma cells B16BL6 was examined in the pulmonary metastasis model. *In vitro* studies showed that OSM inhibited the proliferation of 95-D cells at low concentration. OSM also reduced the adhesion and invasion ability of 95-D cells and inhibited the secretion of MMP-2 and MMP-9 in OSM treated cells. *In vivo* results showed that OSM (20 μg/kg/d for 7 days) inhibited pulmonary metastasis at a rate of 20.7%. There were no differences in animal weights among the groups. These results suggest that OSM has the potential of being a clinical inhibitor on metastasis of some cancer cells.

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