Osteosarcoma e disulfiram

Disulfiram suppresses invasive ability of osteosarcoma cells via the inhibition of MMP-2 and MMP-9 expression.


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Cancer cells, characterized by local invasion and distant metastasis, are very much dependent on the extracellular matrix. The expression of matrix metalloproteinases (MMPs) has been implicated in the invasion and metastasis of cancer cells. In this study, we reported the effects of disulfiram, a clinically used anti-alcoholism drug, on tumor invasion suppression, as well as its effects on the activity of MMP-2 and MMP-9 in human osteosarcoma cells (U2OS). Disulfiram has been used for alcohol aversion therapy. However, recent reports have shown that disulfiram may have potential in the treatment of human cancers. Herewith, we showed that the anti-tumor effects of disulfiram, in an invasion assay using U2OS cells and that disulfiram has a type IV collagenase inhibitory activity that inhibits expression of genes and proteins responsible for both cell and non-cell mediated invasion on pathways. In conclusion, disulfiram inhibited expression of MMP-2 and MMP-9 and it regulated the invasion of human osteosarcoma cells. These observations raise the possibility of disulfiram being used clinical for the inhibition of cancer invasion.

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