

Geraniin inhibits migration and invasion of human osteosarcoma cancer cells *GreenMedInfo Summary*

Abstract Title:

Geraniin inhibits migration and invasion of human osteosarcoma cancer cells through regulation of PI3K/Akt and ERK1/2 signaling pathways.

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Abstract:

Geraniin, an active compound isolated from *Geranium sibiricum*, was found to inhibit proliferation and induce apoptosis of tumor cells. However, the antimetastatic effects of geraniin remain elusive. Our study found the potential antitumor mechanisms of geraniin through inhibiting the migration and invasion of human osteosarcoma U2OS cells. The western blot, gelatin zymography, and reversed transcription-PCR analysis showed that geraniin suppressed matrix metalloproteinase-9 (MMP-9) expression in a concentration-dependent manner. Geraniin potently suppressed the phosphorylation of extracellular signal regulating kinase (ERK)1/2, phosphatidylinositide-3-kinase (PI3K), and Akt, but did not affect phosphorylation of p38 mitogen-activated protein kinase and c-Jun N-terminal kinase. Furthermore, when transforming growth factor- β 1 (TGF- β 1) was used as an agonist, geraniin inhibited TGF- β 1-mediated cell invasion and upregulation of MMP-9. These results suggested that geraniin inhibited U2OS cell migration and invasion by reducing the expression of MMP-9 through the PI3K/Akt and ERK1/2 signaling pathways.

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Study Type : In Vitro Study

Additional Links

Substances : [Germanium : CK\(12\) : AC\(7\)](#)

Diseases : [Cancer Metastasis : CK\(442\) : AC\(206\)](#), [Osteosarcoma : CK\(141\) : AC\(72\)](#)

Pharmacological Actions : [Anti-metastatic : CK\(634\) : AC\(414\)](#), [Matrix metalloproteinase-9 \(MMP-9\) inhibitor : CK\(212\) : AC\(128\)](#)