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Chemosensitive effects of Astragaloside IV in osteosarcoma cells via induction of apoptosis and regulation of caspase-dependent Fas/FasL signaling

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Abstract

Background: The response of conventional chemotherapy for osteosarcoma treatment is usually poor, and chemotherapy-related severe side effects and drug resistance remain a problem. Abundant evidence has shown that Astragaloside IV, extracted from *Astragalus membranaceus* Bunge, strongly inhibits the growth of many carcinomas. We aimed to investigate the chemosensitive effects of Astragaloside IV in osteosarcoma in vitro and in vivo.

Methods: Human osteosarcoma cell lines MG-63 and 143B, and BALB/c nu/nu mice xenograft were used. MTT, Clonogenic assay, Annexin V/PI assay and Western blotting analysis were carried out.

Results: Our present study found that Astragaloside IV was a critical chemosensitizing agent for osteosarcoma treatment. Astragaloside IV suppressed cell proliferation and enhanced chemosensitivity in osteosarcoma cell lines and xenograft. Caspase-dependent Fas/FasL signaling was involved in cisplatin-induced apoptosis which was enhanced by Astragaloside IV.

Conclusion: It indicated that Astragaloside IV might be a promising therapeutic agent for osteosarcoma treatment.

Keywords: Astragaloside IV; Osteosarcoma; Apoptosis; Caspase; Fas

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