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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 bloting 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