عنوان مقاله:

Cytotoxicity of curcumin against CD۴۴± prostate cancer cells: Roles of miR-۳۸۳ and miR-۷۰۸

محل انتشار:

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خلاصه مقاله:

Objective: Cancer stem cells (CSCs) remaining in the tumor tissues after applying treatments may cause recurrence or metastasis of prostate cancer (PC). Curcumin has the promising potential to target CSCs. Here, we aim to evaluate the cytotoxic effects of curcumin on the expression of miR-۳۸۳-۵p and miR-۷۰۸-۵p and their target genes in CD۴۴+ CSCs and CD۴۴- non-CSCs isolated from the PC۳ prostate cancer cell line.Materials and Methods: We used MTT assay to determine the optimal cytotoxic dose of curcumin on CD۴۴± PC cells. Then, we assessed nuclear morphological changes using DAPi staining. We used Annexin V-FITC/PI to quantify apoptotic cell death. qRT-PCR was also used to detect miRNA and gene expression levels after curcumin treatment.Results: Curcumin significantly enhanced the apoptosis in both CD۴۴- and CD۴۴+ PC cells in a dose-dependent manner (p < ۰.۰۵). The cytotoxicity of curcumin against CD۴۴- cells (IC۵۰ ۴۰.۳۰±۲.۳۲ μM) was found to be greater than that against CD۴۴+ cells (IC۵۰ ۸۳.۳۱±۲.۹۱ μM). Also, curcumin promoted miR-۳۸۳-۵p and miR-۷۰۸-۵p overexpression while downregulating their target genes LDHA, PRDX۳, and RAP۱B, LSD۱, respectively.Conclusion: Our findings indicate that curcumin, by promoting the expression of tumor suppressors, miR-۳۸۳-۵p and miR-۷۰۸-۵p, and inhibiting their target genes, induced its cytotoxicity against CD۴۴± PC cells. We trust that curcumin could be established as a promising adjuvant .therapy to current PC treatment options following more research in clinical settings

کلمات کلیدی:
Prostate neoplasms, microRNAs, hsa-miR-۷۰۸-۵p, hsa-miR-۳۸۳-۵p, Natural products, Curcumin