

Title: Evaluating the effects of Curcumin Nano-chitosan on miR-221 and miR-222 expression and Wnt/ β -catenin pathways in MCF-7, MDA-MB-231 and SKBR3 cell lines

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Abstract:

Breast cancer is one of the most common diseases worldwide. miR-221 and miR-222 are two microRNAs with pivotal roles in many cellular processes which regulate the Wnt/ β -catenin pathway. Curcumin (CUR), a yellow polyphenolic compound, targets numerous pathways relevant to cancer therapy. The main aim of this study was to compare the ability of chitosan curcumin nanoparticle (CC-CUR) with the curcumin in modulating *miR-221* and *miR-222* expression through Wnt/ β -catenin pathway in MCF-7, MDA-MB-231 and SK-BR-3 breast cancer cells. Chitosan-cyclodextrin-tripolyphosphate containing curcumin nanoparticles (CC-CUR) were prepared. Experimental groups including CC-CUR, CUR and negative control were designed. The expression of *miR-221* and *miR-222* and Wnt/ β -catenin pathway genes was measured. The level of *miR-221* and *miR-222* and β -catenin genes decreased in MCF-7 and MDA-MB-231 cells and *WIF1* gene increased in all cells in CC-CUR group. However, in SK-BR-3 cells miRs and *WIF1* gene expressions were increased following CC-CUR administration and β -catenin decreased by administration of CUR. Significant decreasing of β -catenin and increasing of *WIF1* gene in almost all three cell lines, indicates that this formulation exerts its effect mainly through the Wnt/ β -catenin pathway. These preliminary findings may pave the way for the use of curcumin nanoparticles in the treatment of some known cancers.

Biography:

Dr. Vida Mirzaie, 34 years old, married with two daughters. 8 and 3 years old. I am an assistant professor of Anatomy in Kerman University of Medical Sciences, Iran.

In addition to teaching anatomy, embryology and histology, I have researches in the field of cellular and molecular, gene expression, nano delivery and I am working on cancer cell lines mostly breast cancer and glioblastoma. I am very interested in sharing and gaining new experiences and I love traveling, reading books and watching movies.

