

Therapeutic Effect of a New Mn(II)-Coordination Polymer on Osteosarcoma by Regulating the Expression of miRNA31 in Cancer Cells

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SUMMARY. In the present study, via using a bifunctional ligand 2,5-di(1H-1,2,4-triazol-1-yl)terephthalic acid (H₂dttpa) with both carboxylic acid and triazol groups, a new Mn(II)-based coordination polymer with the chemical composition of {[Mn(μ₄-dttpa)(H₂O)₂] 2H₂O}_n (**1**) has been successfully prepared via reaction of MnCl₂ with the H₂dttpa in a mixed solvent of DMF and water. The biological activity of the compound on osteosarcoma was evaluated and the mechanism was explored. Firstly, the inhibitory activity of the new compound on the cancer cell viability was determined with Cell Counting Kit-8 assay, and then the real time RT-PCR was conducted and the expression of miRNA31 in the liver cancer cells was measured.

RESUMEN. En el presente estudio, mediante el uso de un ligando bifuncional ácido 2,5-di(1H-1,2,4-triazol-1-il) tereftálico (H₂dttpa) con ambos grupos ácido carboxílico y triazol, un nuevo Mn (II)-polímero de coordinación basado en la composición química de {[Mn (μ₄-dttpa) (H₂O)₂] 2H₂O}_n (**1**) se ha preparado con éxito mediante la reacción de MnCl₂ con H₂dttpa en un disolvente mixto de DMF y agua. Se evaluó la actividad biológica del compuesto sobre el osteosarcoma y se exploró el mecanismo. En primer lugar, se determinó la actividad inhibidora del nuevo compuesto sobre la viabilidad de las células cancerosas con el ensayo Cell Counting Kit-8, y luego se realizó la RT-PCR en tiempo real y se midió la expresión de miARN31 en las células de cáncer de hígado.

KEY WORDS: coordination polymer, miRNA31, osteosarcoma, RT-PCR.

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