

Therapeutic Evaluation of a New Co(II)-coordination Complex Combined with Focused Ultrasound on Ovarian Cancer

Wenjian MING ^{1#}, Juan DONG ^{2#} & Ye LIN ^{2*}

¹ Department of Ultrasound Medicine, Yangxin People's Hospital,
Huangshi, Hubei, China

² Department of Ultrasound Medicine, Shiyan Maternal and Child Health Hospital,
Shiyan, Hubei, China

SUMMARY. When $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ reacted solvothermally with 1,10-phenanthroline (phen), a novel Co(II)-based coordination complex $[\text{Co}(\text{phen})_3](\text{H}_3\text{bptc})_2$ (**1**) has been created by employment of a templating reagent 2,3,3',4'-biphenyl tetracarboxylic acid (H_4bptc). In this paper, the structural characteristics and biological activity of the complex were evaluated. In addition, the therapeutic value of this compound for ovarian cancer and related mechanisms were also studied. Firstly, we used CCK-8 assay to determine the inhibitory activity of the new compounds on ovarian cancer survival. Then RT-PCR was used to detect the relative expression of estrogen receptor on ovarian cancer cells.

RESUMEN. Cuando $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ reaccionó solvotérmicamente con 1,10-fenantrolina (phen), se creó un nuevo complejo de coordinación basado en Co(II) $[\text{Co}(\text{phen})_3](\text{H}_3\text{bptc})_2$ (**1**) mediante el empleo de un reactivo de plantilla ácido 2,3,3',4'-bifenil tetracarboxílico (H_4bptc). En este trabajo se evaluaron las características estructurales y la actividad biológica del complejo. Además, también se estudió el valor terapéutico de este compuesto para el cáncer de ovario y los mecanismos relacionados. En primer lugar, utilizamos el ensayo CCK-8 para determinar la actividad inhibitoria de los nuevos compuestos sobre la supervivencia del cáncer de ovario. Luego se usó RT-PCR para detectar la expresión relativa del receptor de estrógeno en las células de cáncer de ovario.

KEY WORDS: coordination polymer, focused ultrasound, ovarian cancer.

* Author to whom correspondence should be addressed. E-mail: baobao189318@163.com

These authors contributed equally to this work.