

## Inhibitory Effect of a New Cu(II) Complex on Uterine Fibroids

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**SUMMARY.** In the current study, via using the 6-(4-carboxyphenyl)-3-(2-chloroimidazo[1,2-a]pyridin-3-yl)picolinic acid (H<sub>2</sub>L) ligand featuring both pyridine and carboxylic acid groups, a new Cu(II)-containing coordination complex with the chemical formula of [Cu(L<sub>2</sub>)(H<sub>2</sub>O)<sub>2</sub>]<sub>n</sub>·2H<sub>2</sub>O (**1**) has been successfully prepared via reaction of Cu(NO<sub>3</sub>)<sub>2</sub>·3H<sub>2</sub>O with the ligand HL in a mixed solvent of DMF and CH<sub>3</sub>CN. Its inhibitory effect and mechanism on the uterine fibroids were determined, and the related mechanism was explored at the same time. Firstly, the inhibitory activity of the new compound on the viability of the uterine fibroids was evaluated with CCK-8 assay, and then the relative expression of the estrogen receptor on the uterine fibroids was measured with real time RT-PCR. Molecular docking simulation shows that the Cu(II) complex has formed multiple binding interactions towards the estrogen receptor, suggesting excellent biological capability.

**RESUMEN.** En el estudio actual, mediante el uso del ligando del ácido 6- (4-carboxifenil)-3-(2-cloroimidazo [1,2-a] piridin-3-il) picolínico (H<sub>2</sub>L) con grupos piridina y ácido carboxílico, nuevo complejo de coordinación que contiene Cu (II) con la fórmula química de [Cu(L<sub>2</sub>)(H<sub>2</sub>O)<sub>2</sub>]<sub>n</sub>·2H<sub>2</sub>O (**1**) se ha preparado con éxito mediante la reacción de Cu(NO<sub>3</sub>)<sub>2</sub>·3H<sub>2</sub>O con el ligando HL en un disolvente mixto de DMF y CH<sub>3</sub>CN. Se determinó su efecto inhibitorio y mecanismo sobre los miomas uterinos, y al mismo tiempo se exploró el mecanismo relacionado. En primer lugar, se evaluó la actividad inhibitoria del nuevo compuesto sobre la viabilidad de los fibromas uterinos con el ensayo CCK-8, y luego se midió la expresión relativa del receptor de estrógenos en los fibromas uterinos con RT-PCR en tiempo real. La simulación de acoplamiento molecular muestra que el complejo Cu (II) ha formado múltiples interacciones de unión hacia el receptor de estrógeno, lo que sugiere una excelente capacidad biológica.

**KEY WORDS:** coordination complex, molecular docking, uterine fibroids.

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