



0D/2D Co(II)-Coordination Compounds: Biological Function in Anesthesia by Reducing Choline Receptor Expression when Combined with Dexmedetomidine

Fang JIA¹ & Lu YIN^{2*}

¹ Department of Anesthesiology, ² Department of Hand Microsurgery,
Tianjin Hospital, Tianjin, China

SUMMARY. In this paper, two new coordination compounds (CPs) involving Co(II), that is, [Co(hpcH₂)₂(H₂O)₂] (1) and [Co(hpcH)(H₂O)₂]•H₂O (2) (hpcH₃ is 5-hydroxy-1H-pyrazole-3-carboxylic acid) were produced solvothermally, which were characterized specifically through the SCXRD, EA, IR spectroscopy, TGA and PXRD. The CP's biological function in anesthesia was valued when combined with dexmedetomidine. The duration of anesthesia and the wake time was measured after treating with the CPs. Through employing the real time RT-PCR, the choline receptor relative expression on the nerve cells could be identified.

RESUMEN. En este artículo, dos nuevos compuestos de coordinación (CP) que involucran Co(II), es decir, [Co(hpcH₂)₂(H₂O)₂] (1) y [Co(hpcH)(H₂O)₂]•H₂O (2) (hpcH₃ es ácido 5-hidroxi-1H-pirazol-3-carboxílico) fueron producidos solvotérmicamente, los cuales fueron caracterizados específicamente a través de SCXRD, EA, espectroscopía IR, TGA y PXRD. Se valoró la función biológica de la CP en anestesia cuando se combina con dexmedetomidina. Se midió la duración de la anestesia y el tiempo de vigilia después del tratamiento con los CP. Mediante el empleo de la RT-PCR en tiempo real, se pudo identificar la expresión relativa del receptor de colina en las células nerviosas.

KEY WORDS: anesthesia, coordination complexes, dexmedetomidine.

* Author to whom correspondence should be addressed. *E-mail:* LuYin6173@163.com