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# Photocatalytic Property of a Cd(II) Complex and Loaded with Temozolomide-gel Particles in Treatment and Clinical Nursing Against Glioma

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**SUMMARY. Using tetramethylammonium cations as templates, a new Cd(II) compound, namely {[$(CH_3)_4N]_2$[$Cd_3$(4,4'-bpdc)$_4$]}$_n$ (1, 4,4'-$H_2$bpdc = 4,4'-biphenyldicarboxylic acid), has been synthesized under hydrothermal environment successfully. Moreover, under UV light irradiation, the 1's photocatalytic performance was also examined. Hyaluronic acid (HA) and carboxymethyl chitosan (CMCS) retained the biocompatibility of natural polysaccharides, and HA/CMCS hydrogel was prepared by chemical synthesis method. SEM showed that the gel had a three-dimensional porous structure and was an excellent drug carrier. Using the clinical drug temozolomide for glioma, we developed and synthesized a novel temozolomide-loaded metal gel and evaluated its inhibitory effect on glioma growth. The results showed that the temozolomide-loaded metal gel was able to significantly inhibit the overproliferation of glioma cells.**

***RESUMEN***. Utilizando cationes de tetrametilamonio como plantillas, se creó un nuevo compuesto de Cd(II), a saber, {[(CH3)4N]2[Cd3(4,4'-bpdc)4]}n (1, 4,4'-H2bpdc = 4,4'-ácido bifenildicarboxílico), se ha sintetizado con éxito en un ambiente hidrotermal. Además, bajo irradiación con luz ultravioleta, también se examinó el rendimiento fotocatalítico del 1. El ácido hialurónico (HA) y el carboximetilquitosano (CMCS) conservaron la biocompatibilidad de los polisacáridos naturales, y el hidrogel HA/CMCS se preparó mediante el método de síntesis química. SEM mostró que el gel tenía una estructura porosa tridimensional y era un excelente portador de fármacos. Utilizando el fármaco clínico temozolomida para el glioma, desarrollamos y sintetizamos un nuevo gel metálico cargado de temozolomida y evaluamos su efecto inhibidor sobre el crecimiento del glioma. Los resultados mostraron que el gel metálico cargado con temozolomida fue capaz de inhibir significativamente la sobreproliferación de células de glioma.

**KEY WORDS:** complex, glioma, hydrogel, temozolomide,

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