

Synthesis, luminescence, and anti-tumor properties of MgSiO₃:Eu-DOX-DPP-RGD hollow microspheres

Ruichan Lv,^a Chongna Zhong,^a Arif Gulzar,^a Shili Gai,^a Fei He,^a Rui Gu,^{b,*}

Shenghuan Zhang,^a Guixin Yang,^a and Piaoping Yang^{a,*}

^aKey Laboratory of Superlight Materials and Surface Technology, Ministry of Education, College of Material Sciences and Chemical Engineering, Harbin Engineering University, Harbin, 150001, P. R. China,^bDepartment of Orthopedics, China-Japan Union Hospital of Jilin University, Changchun, 130033, P. R. China

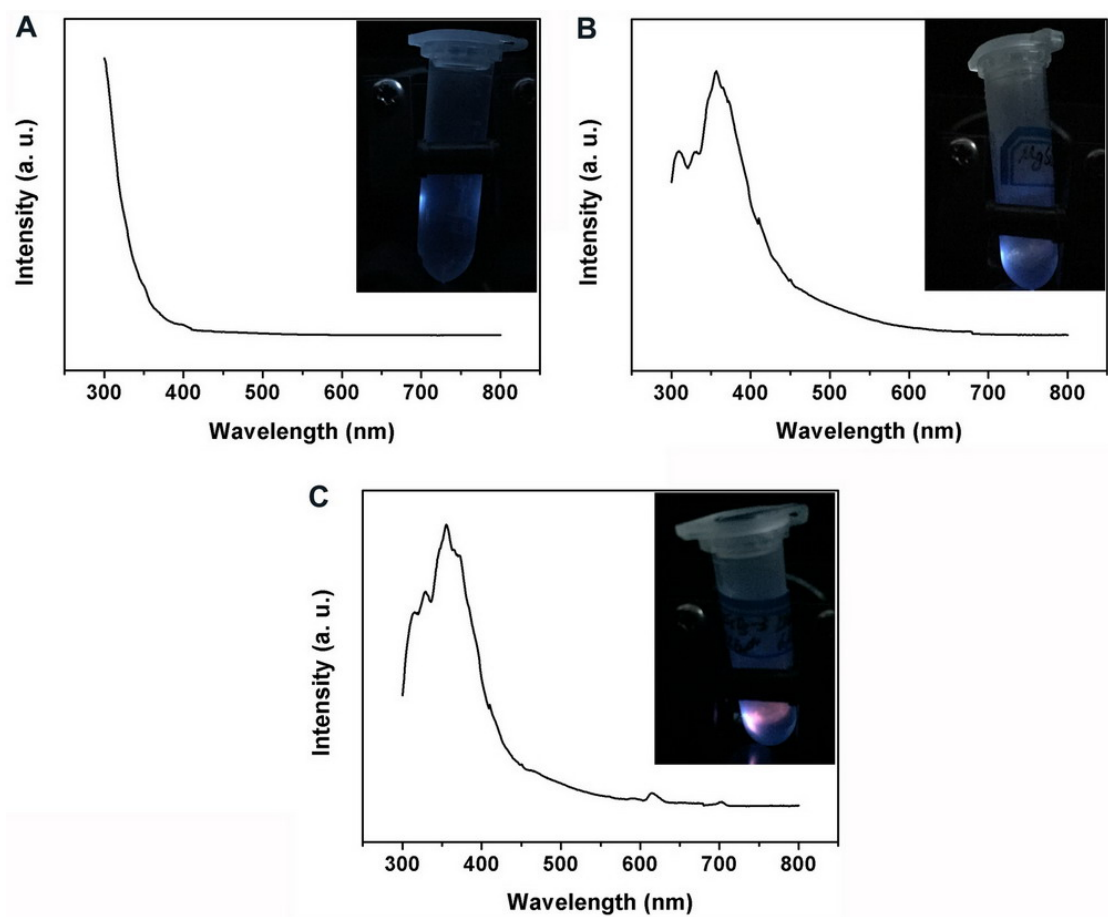


Fig. S1 The excitation spectra of (A) the sample holder, (B) $\text{MgSiO}_3:0\%\text{Eu}$, and (C) $\text{MgSiO}_3:\text{Eu}$ under the excitation at 265 nm.

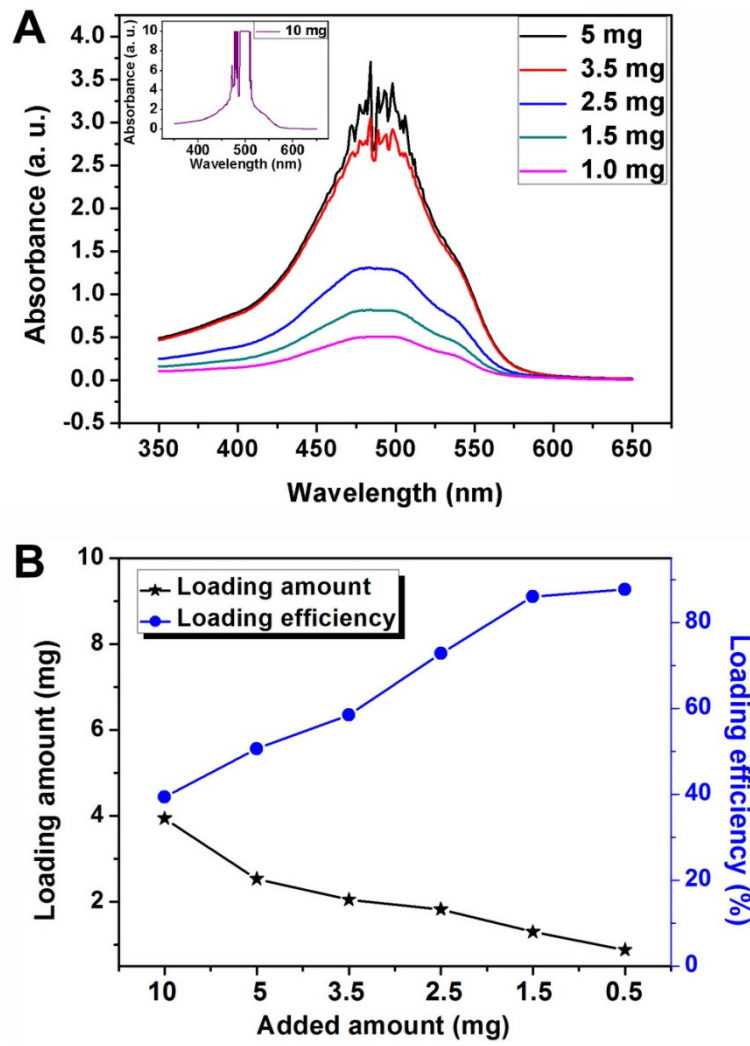


Fig. S2 (A) The absorbance spectra of the supernatants of the solutions after adding different amount of DOX. (B) The loading amount and loading efficiency of the samples versus the added DOX amount.

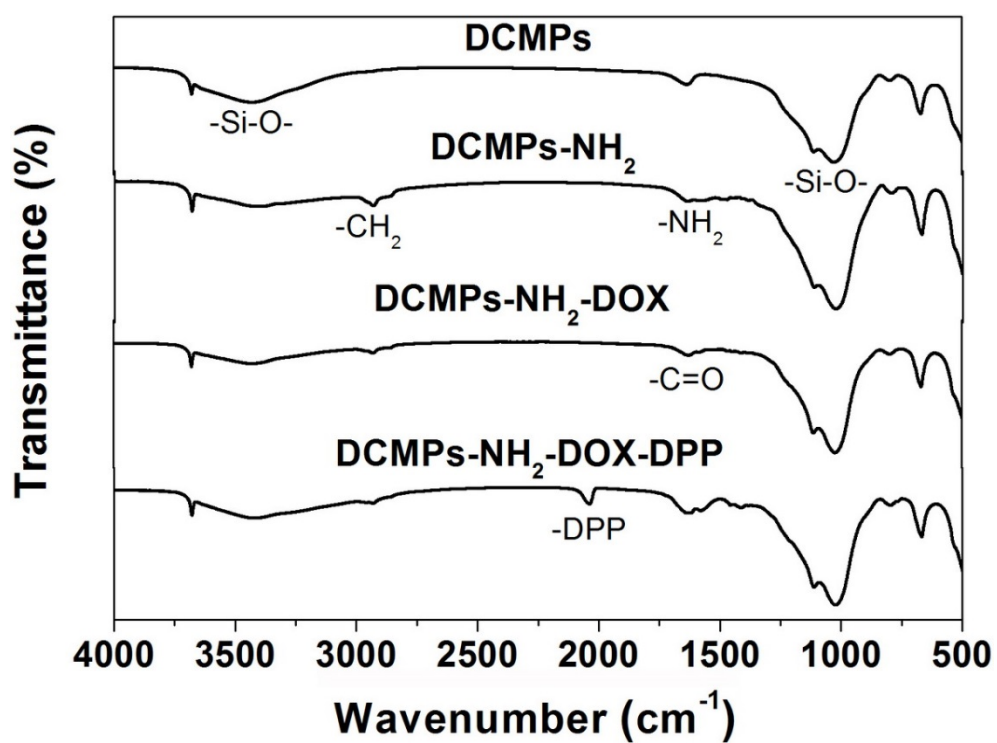


Fig. S3 the FT-IR spectra of DCMPs, DCMPs-NH₂, DCMPs-NH₂-DOX, and DCMPs-NH₂-DOX-DPP.

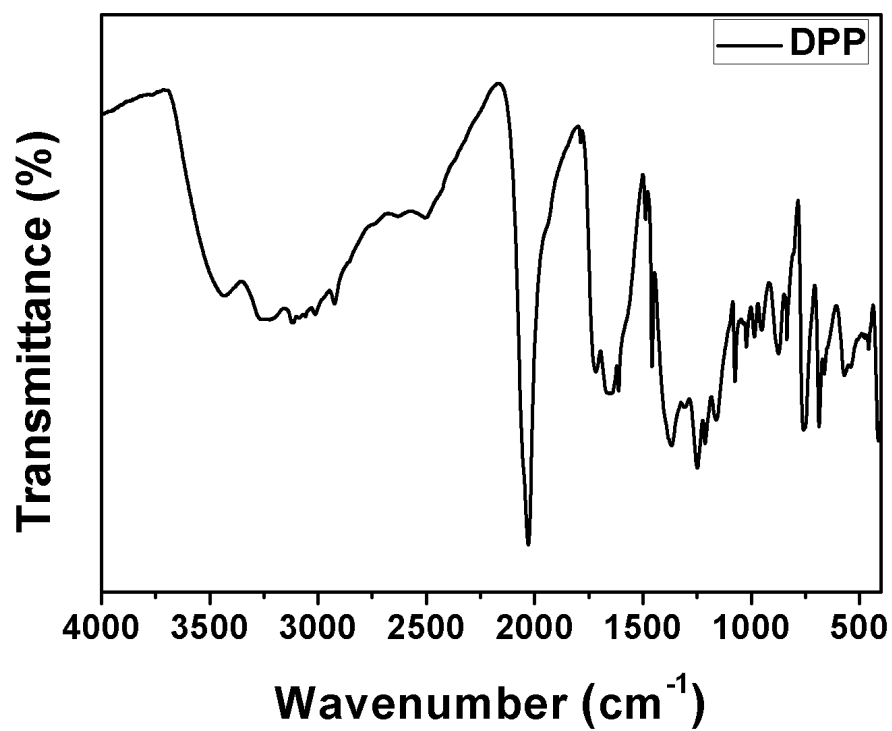


Fig. S4 FT-IR spectrum of light-activated DPP.

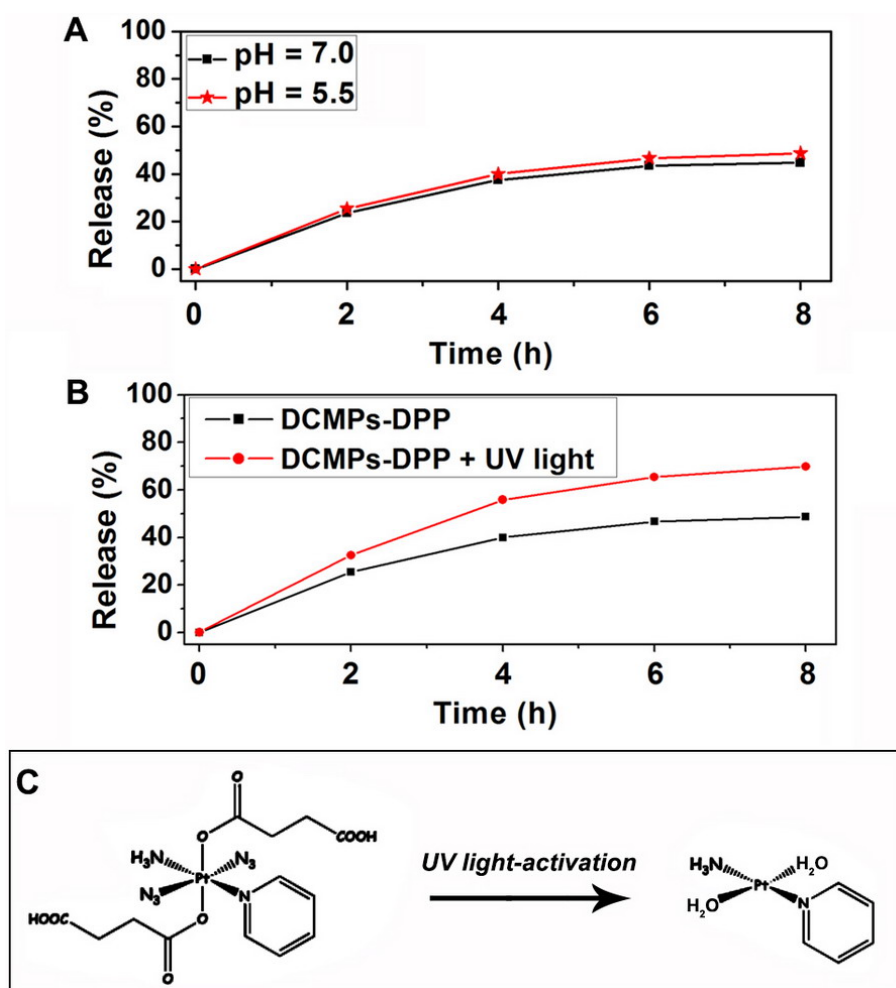


Fig. S5 The release efficiency of Pt from DCMPs-DPP (A) with different pH values of 5.5 and 7.0 (without UV light irradiation), and (B) with and without UV light irradiation (pH = 5.5). (C) The postulated drug release pathway of DPP to Pt(II) drugs

Table S1. The ICP-MS result of MgSiO₃:x%Eu DCMPs

MgSiO ₃ :x%Eu (stoichiometric ratio)	0.5%	1%	2%	5%	10%
MgSiO ₃ :x%Eu (measured ratio)	0.55%	1.16%	2.35%	5.33%	10.67%

Table S2. The loading property with different added amount of DOX

Added amount	Absorbance of supernatant	Loading amount	Loading efficiency
10	5.7	3.94	39.38
5	3.1	2.53	50.60
3.5	2.7	2.05	58.46
2.5	1.3	1.82	72.76
1.5	0.81	1.29	86.06
1.0	0.48	0.88	87.69