Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Core-shell $SrTiO_3$:Yb^{3+},Er^{3+}@mSiO_2 Nanoparticles for Controlled and Monitored Doxorubicin Delivery

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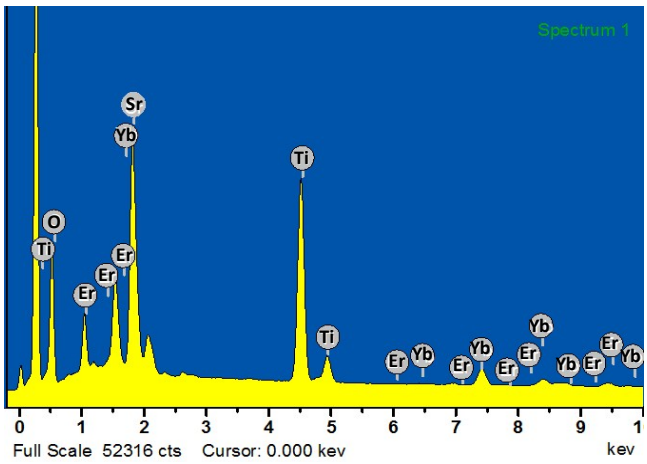

element	Weight percentage	Atom percentage
O K	43.35	78.53
Ti K	18.25	11.02
Sr L	25.14	8.32
Er L	1.21	0.19
Yb L	12.05	1.94
Total	100	100
Total	100.00	100

Figure S1. EDX examination of STO:Yb^{3+},Er^{3+} nanoparticles.

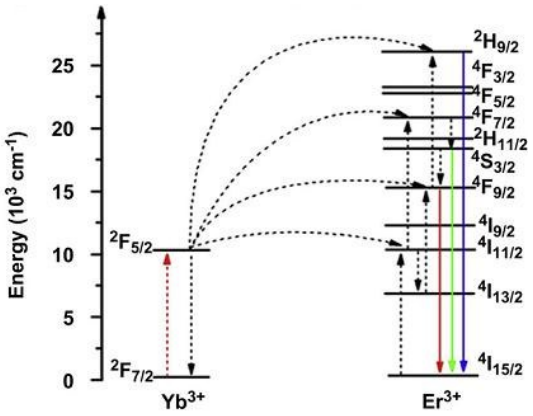

Figure S2. The energy level diagrams of the Yb^{3+}, Er^{3+} dopant ions and upconversion mechanisms following 980 nm laser diode excitation.

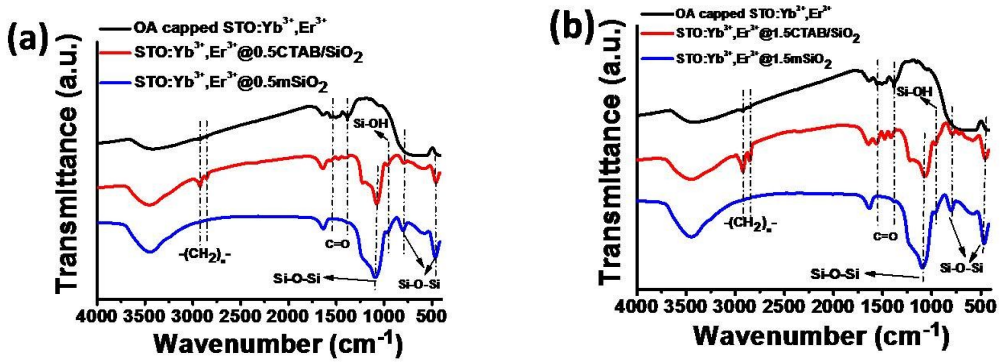

Figure S3. FTIR spectra of (a) STO:Yb^{3+},Er^{3+}@0.5mSiO_2; (b) STO:Yb^{3+},Er^{3+}@1.5mSiO_2 nanoparticles before and after surface modification with mesoporous SiO_2 layer.

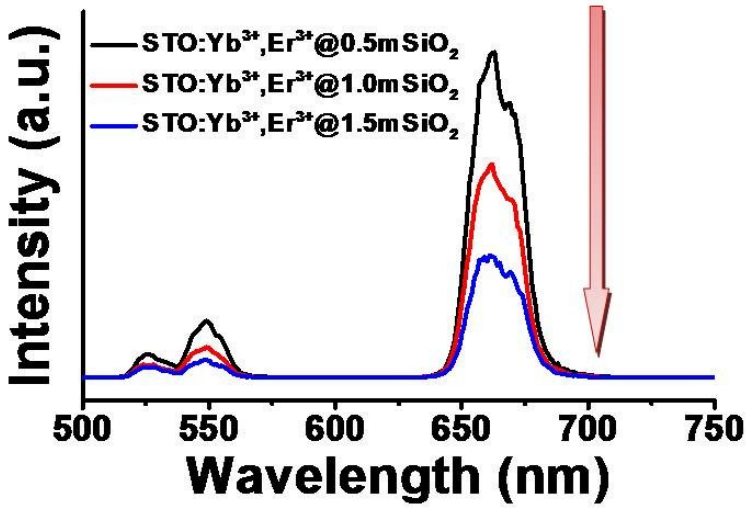

Figure S4. UCL spectra of STO:Yb^{3+},Er^{3+}@0.5mSiO_2, STO:Yb^{3+},Er^{3+}@1.0mSiO_2 and STO:Yb^{3+},Er^{3+}@1.5mSiO_2.

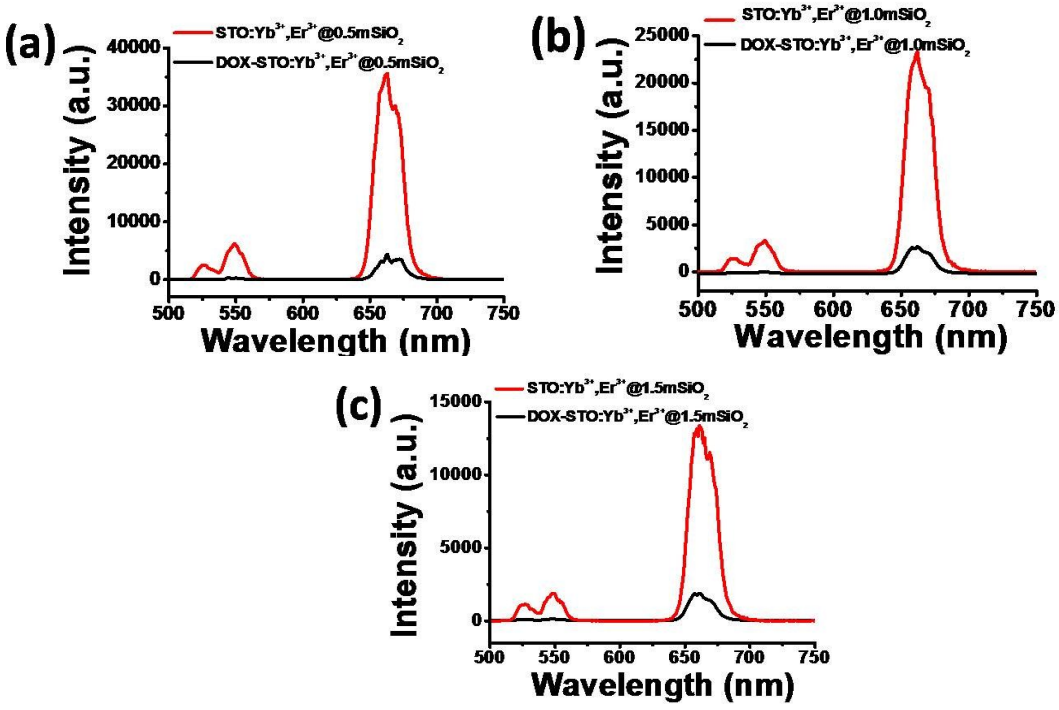

Figure S5 UCL spectra before and after drug loading of the three samples.

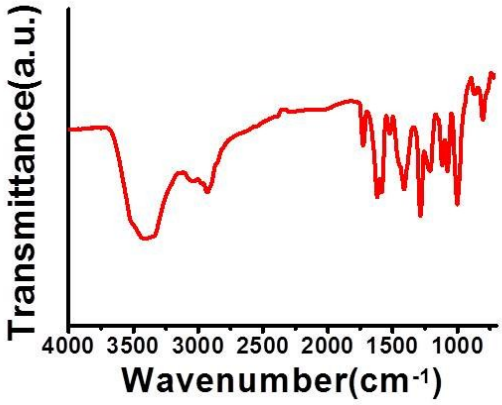

Figure S6. FTIR spectrum of DOX molecules.