Electronic Supplementary Material (ESI) for RSC Advances. This journal is © The Royal Society of Chemistry 2016



S.Fig.2 A. TEM images of ferritin (samples were negatively stained for 2 min; scale bars: 50 nm);B. Photographs in parts (a), and (b) show solutions of ferritin, and apoferritin.



**S.Fig.3** A. Photographs of Cdots solutions under visible light (a) and UV beam of 365nm (b) in comparison with only water; B. Effect of pH on the fluorescence intensity of Cdots; C. down-conversion fluorescent properties of Cdots at different excitation wavelengths; D. Up-conversion fluorescent properties of Cdots at different excitation wavelengths.



**S.Fig.5** The size and TEM image of nanoparticles. A) and B) DLS analysis results of ferritins and Cdots; The TEM image of Cdots(C),  $Fe_3O_4(D)$ ,  $Fe_3O_4$ –AFn/DOX–Cdots composite(E).



S.Fig.6 UV-vis absorption spectra.



**S.Fig.10** C. H&E stained tumor tissues harvested from the mice with different treatments. a-d: Control, DOX,  $Fe_3O_4$ -AFn/DOX-Cdots,  $Fe_3O_4$ -AFn/DOX-Cdots/magnet. Data were presented as mean  $\pm$  standard deviation (n=5).



**S.Fig.11** Magnetic properties of the  $Fe_3O_4$ -AFn/DOX-Cdots conjugate. A. T<sub>2</sub>-weighted MR images of the  $Fe_3O_4$ -AFn/DOX-Cdots conjugate at different concentrations; B. Magnetization loops.