Supporting Information

Multifunctional Core-Shell Nanoplatform for Enhanced Cancer Cells

Apoptosis and Targeted Chemotherapy†

Fei Zhou^a, Tingting Zheng^a, E. S. Abdel-Halim^b, Liping Jiang^{*}, and Jun-Jie

Zhu*^a

^aState Key Laboratory of Analytical Chemistry for Life Science, School of

Chemistry and Chemical Engineering, Nanjing University, Nanjing 210093,

P.R. China

^b b. Chemistry Department, College of Science, King Saud University, Riyadh

11451, P.O.Box 2455, kingdom of Saudi Arabia

*Correspondence - jjzhu@nju.edu.cn



Fig. S1 Typical XRD patterns of pristine AgNPs and as-prepared AgNPs@ MnO_2 nanostructure (A). The EDS spectrum of AgNPs@ MnO_2 nanostructure which marked three main elements of Ag, Mn, O and Si was ascribed to the base of ITO (B).



Fig. S2 The XPS spectrum of AgNPs@MnO₂ nanostructure (A). (B), (C) and (D) are high resolution XPS spectrum of Ag 3d, Mn 2p and O 1s, respectively. The results demonstrated that the manganese in the synthesized nanostructure was in the valence of IV, the XPS results revealed the formation of nanostructure.



Fig. S3 The UV-Vis spectra of Dox before and after loading onto AgNPs@MnO₂ nanostructure. The amount of loaded Dox was detected by the UV-Vis spectra of Dox (480 nm) in the supernatant and in the stock solutions (200 μ g/mL) after loading process. The Dox loading amount was calculated finally up to about 320 μ g/mg. The green curves was the supernatant of AgNPs@MnO₂-Dox after three days, which shows that the leak of the loading Dox is negligible.



Fig. S4 Overlapping between the fluorescence emission spectrum of Dox (blue) and the UV-vis absorption spectrum of AgNPs@MnO₂ nanostructure (red) (A). The fluorescence emission spectrum of gradual recovery fluorescence of Dox after incubated with different concentrations of GSH respectively. The overall results demonstrated that the MnO₂ acted as an efficient quencher to the fluorescence of Dox (B).



Fig. S5 Cells viability of HeLa cells incubated with different nanoprobes (denoted as AgNPs@MnO₂, AgNPs@MnO₂-Apt, MnO₂-Dox-Apt and AgNPs@MnO₂-Dox-Apt) in a dose-dependent way. Cells were incubated with various concentrations (0, 1, 5 and 10 μ g/mL) for 36 h.