

**Figure S1.** (A) Cell viability of 786-O cells incubated with different concentrations of AS1411-liposome-PEG-MnO nanocomplex. (B) Histological images of the heart, liver, spleen, kidney and lung of mice 1 day or 7 day post-injection of AS1411-liposome-PEG-MnO nanocomplex.



Figure S2. The blood circulation half-life determination of liposome-PEG-MnO NPs.



**Figure S3.** (A) UV-vis spectra of AS1411 aptamer, liposome-PEG-MnO nanoparticles and AS1411-liposome-PEG-MnO nanoprobe. (B) Zeta potentials of PEG-MnO NPs, AS1411 aptamer, liposome-PEG-MnO NPs and AS1411-liposome-PEG-MnO nanoprobe.



**Figure S4.** UV-vis absorption spectra of PTX with different concentrations (A) and the corresponding linear curve (B).



**Figure S5.** The encapsulation and drug loading efficiencies of liposome-PEG-MnO nanoparticles in the presence of different amount PTX (2mg, 3mg, 4mg, and 5mg).