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Supplementary Information

Reversible stimuli-responsive controlled release using mesoporous silica nanoparticles functionalized with smart DNA molecule-gated switch

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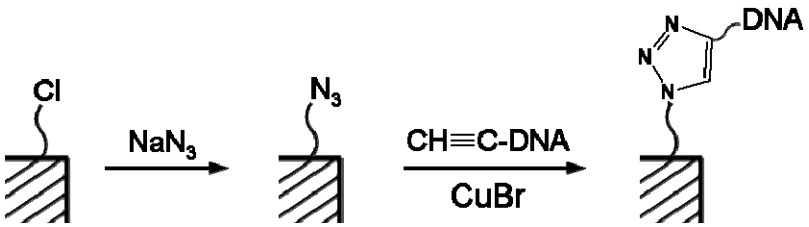

Scheme S1. Schematic outline of synthesis of MSN-N_3 and MSN-DNA.

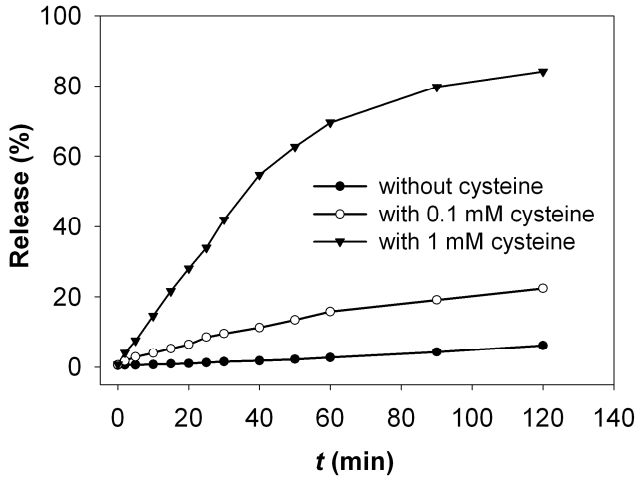

Figure S1. The cysteine-responsive release profiles of $Ru(bipy)_3^{2+}$ from the MSN-dsDNA system.

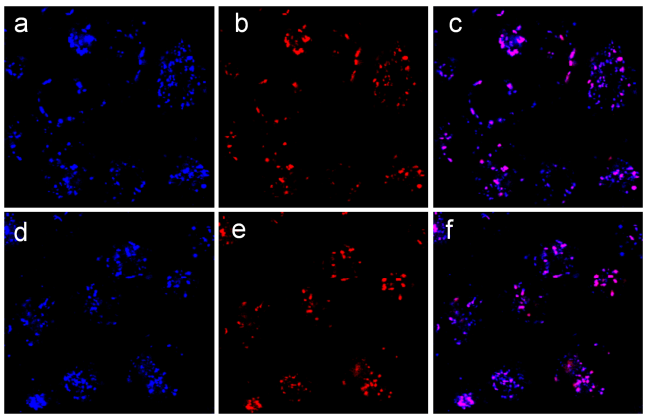

Figure S2. CLSM images of the cellular uptake and controlled-release behaviors of $Ru(bipy)_3^{2+}$ molecules (red fluorescence) from the self-complementary duplex DNA-capped MSN after incubation with HeLa cells for 3 h (a–c) and 8 h (d–f) at 37 °C. Lysotracker blue (blue fluorescence) was used to stain the lysosomes. Cells were imaged using a 100× oil-immersion objective. The localization of nanoparticles inside of lysosomes was shown based on the merge of blue and red spots (orange).