Electronic Supplementary Information

Confinement of aggregated gold nanoclusters within metal–organic frameworks for real-time monitoring of drug release

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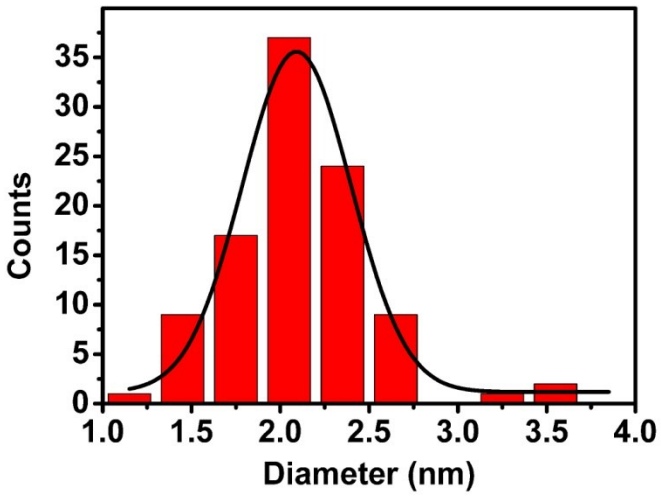

Fig. S1 Size distribution analysis of AuNCs.

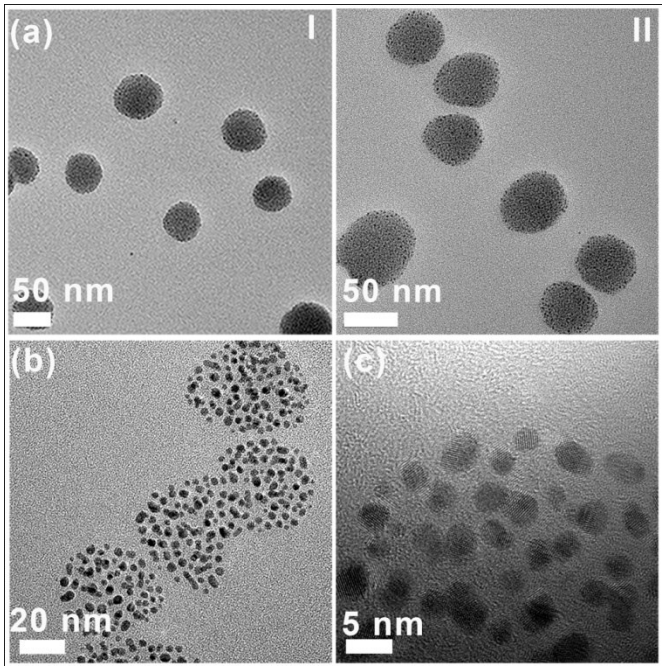

Fig. S2 TEM image of aAuNCs under different magnification. The size of aAuNCs ranged from 40 to 60nm with monodispersity.

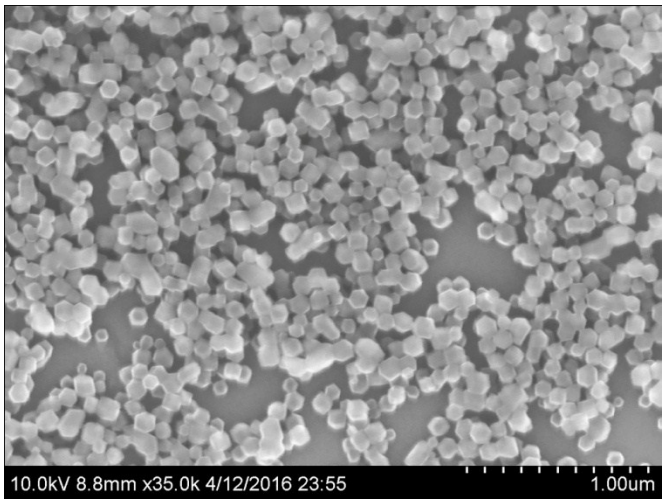

Fig. S3 SEM micrographs of pure MOF nanoparticles.

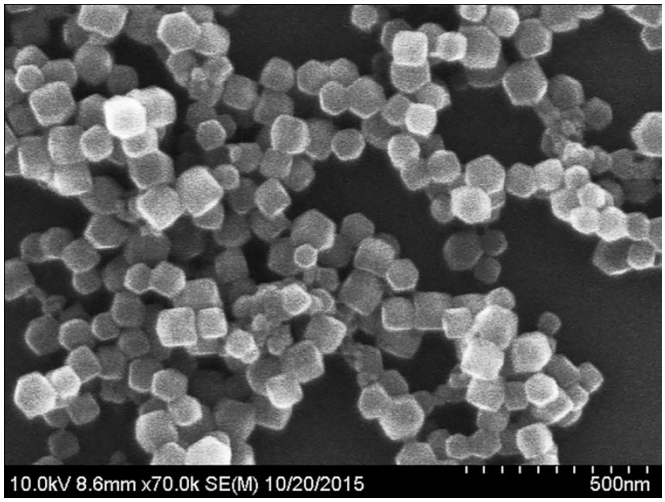

Fig. S4 SEM micrographs of aAuNCs-MOF nanoparticles.

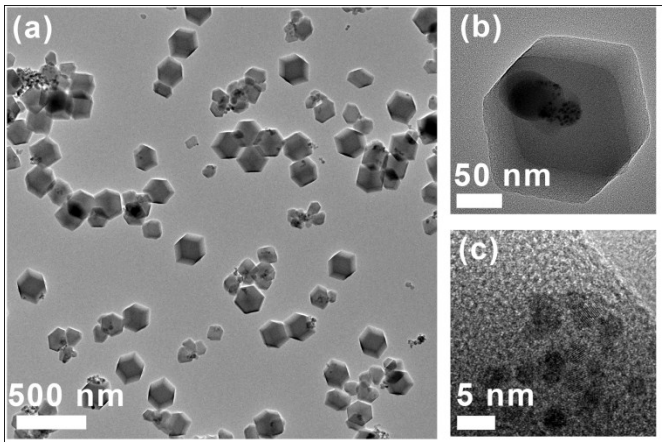

Fig. S5 TEM image of aAuNCs-MOF under different magnification. The dark spots in ZIF-8 were aAuNCs.

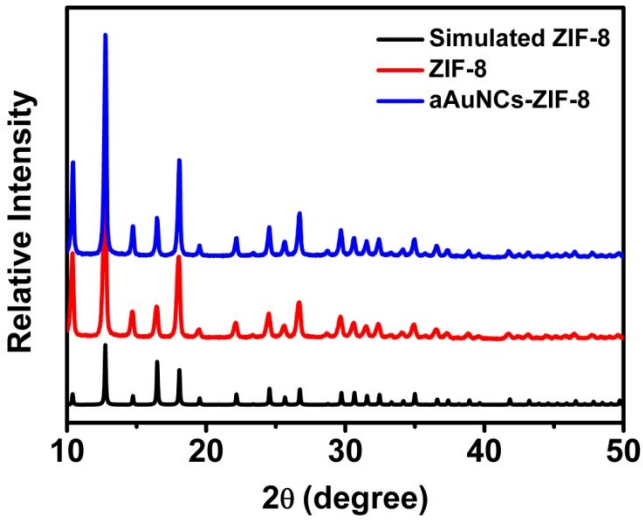

Fig. S6 Wide-angle XRD pattern of pure MOF and aAuNCs-MOF.

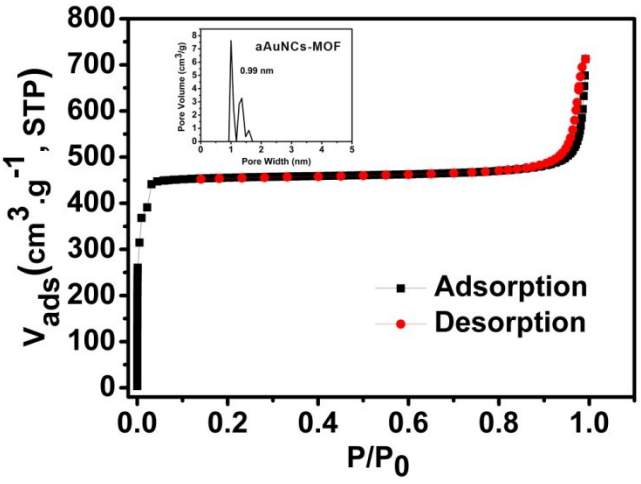

Fig. S7 The N_2 adsorption–desorption isotherms of aAuNCs-MOF. Inset is the pore size distribution.

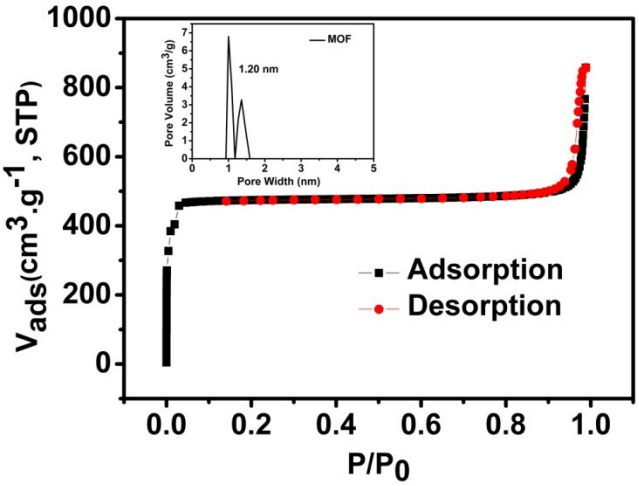

Fig. S8 The N_2 adsorption–desorption isotherms of pure MOF. Inset is the pore size distribution.

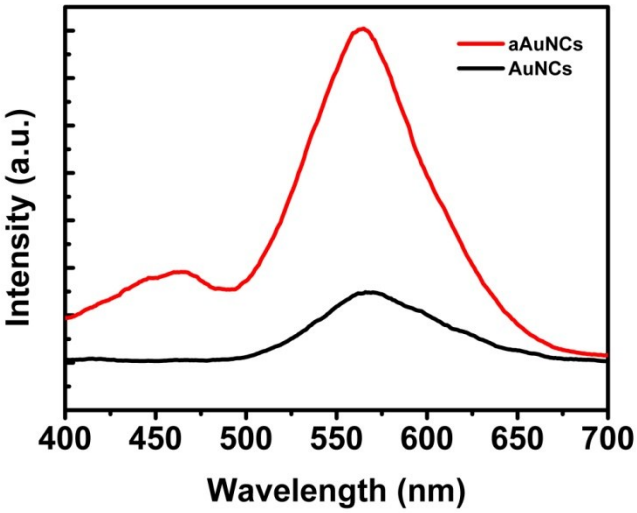

Fig. S9 Luminescent spectrum of the AuNCs in PBS buffers (pH 7.4) and aAuNCs in methanol.

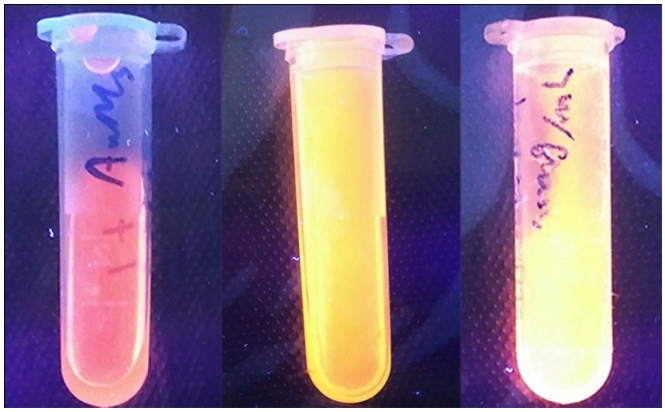

Fig. S10 Fluorescence photograph of AuNCs and aAuNCs-MOF nanoparticles in PBS, and aAuNCs in methanol under ultraviolet radiation.(From left to right is AuNCs, aAuNCs and aAuNCs-MOF)

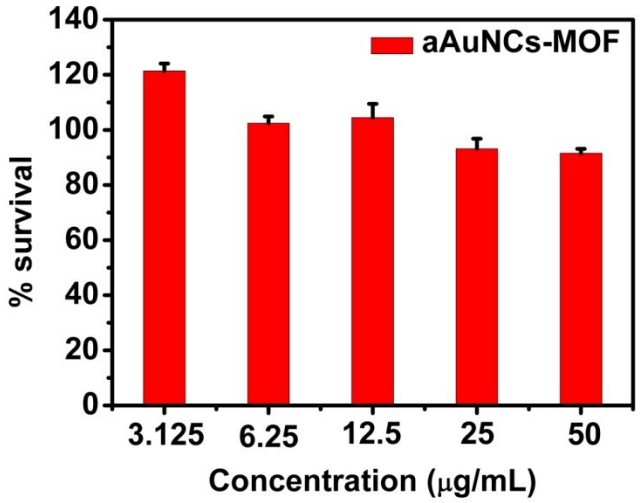

Fig. S11 In vitro cell viability of HeLa cells in the presence of aAuNCs-MOF.

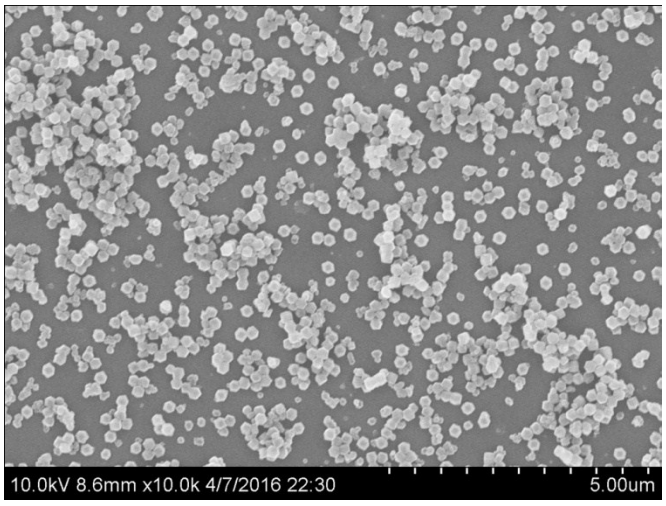

Fig. S12 SEM micrographs of CPT@aAuNCs-MOF nanoparticles.

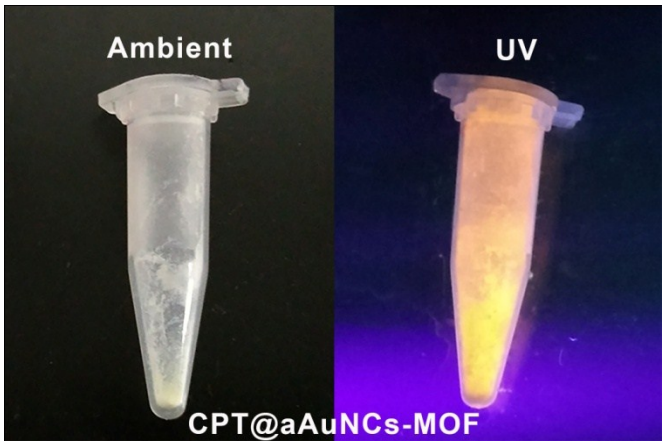

Fig. S13 Fluorescence photograph of CPT@aAuNCs-MOF (Ambient light (left) and under UV light (365 nm; right)).

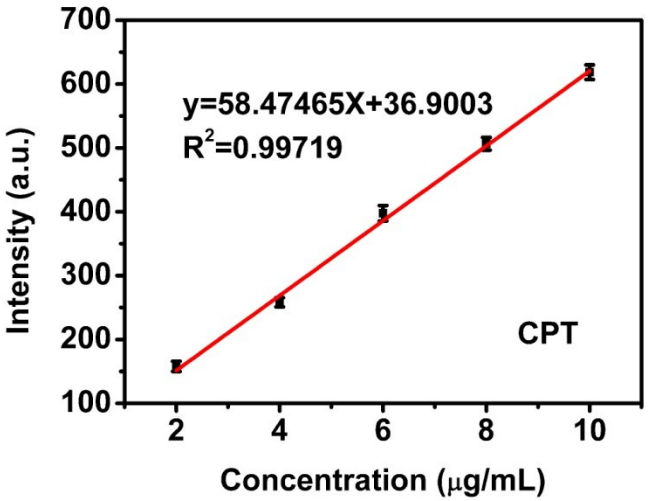

Fig. S14 Standard addition method used for the determination the encapsulation capacity of CPT in aAuNCs-MOF.

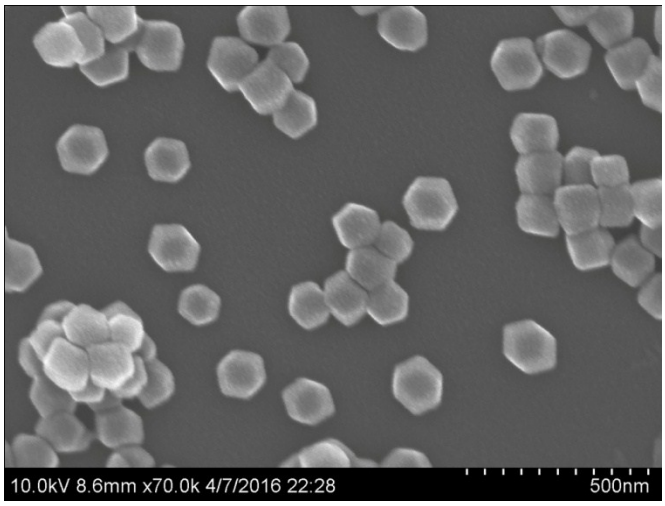

Fig. S15 SEM micrographs of fluorescein@aAuNCs-MOF nanoparticles.

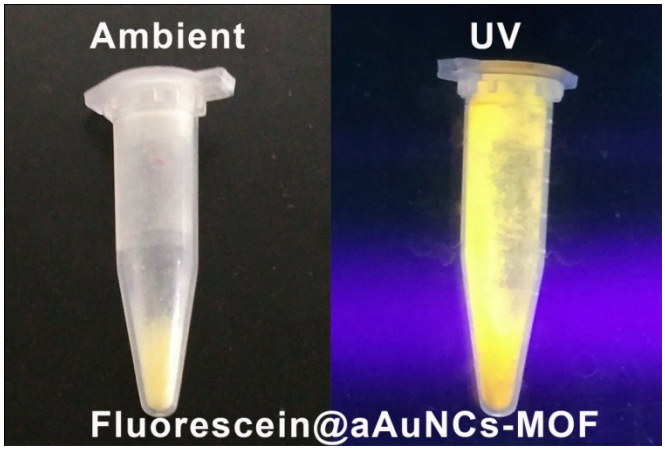

Fig. S16 Fluorescence photograph of fluorescein@aAuNCs-MOF (Ambient light (left) and under UV light (365 nm; right)).

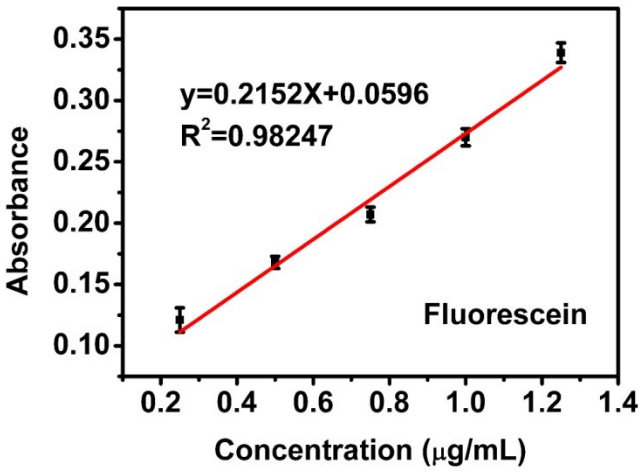

Fig. S17 Standard addition method used for the determination the encapsulation capacity of fluorescein in aAuNCs-MOF.

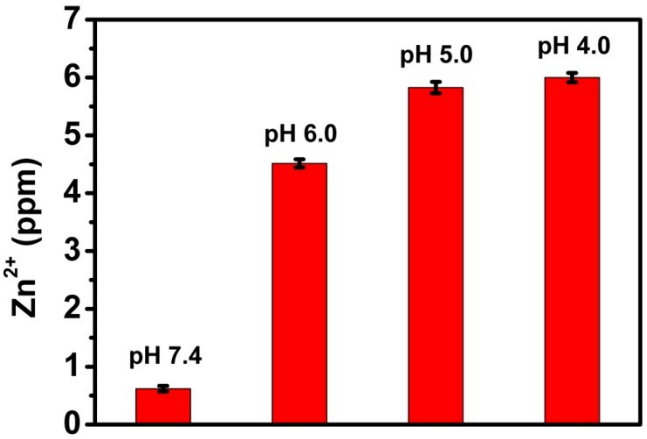

Fig. S18 The release of Zn^{2+} from the fluorescein@aAuNCs-MOF in PBS at different pH values after 24h.

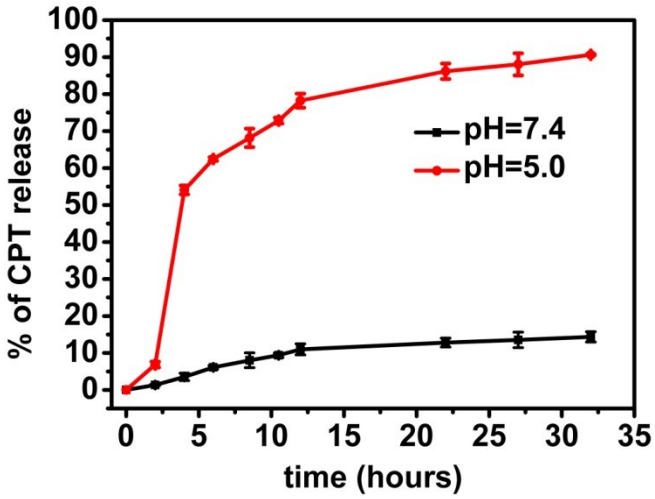

Fig. S19 Real time monitoring the release of CPT from the CPT@aAuNCs-MOF in PBS at different pH values for 32 h.

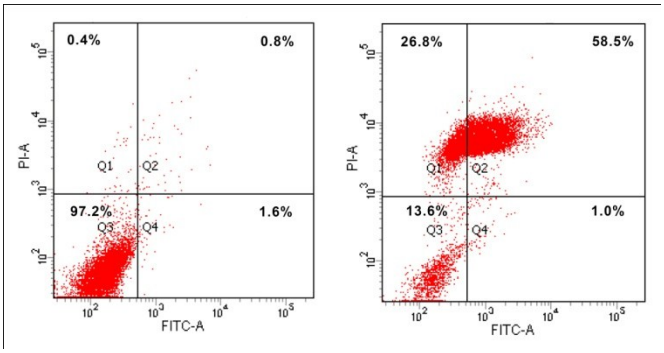

Fig. S20 Flow cytogram representing apoptosis assay based on Annexin V-FITC and PI staining. Left is control cells and right is cells treated 150 µg/mL CPT@aAuNCs-MOF.In the flow cytogram, the cells in Q3 region denotes live cells, Q4: apoptotic, Q2: late apoptotic and Q1: necrotic cells.

samples	A (365 nm)	I (ex 365 nm)	QY
Quinine sulfate	0.03816	32895.9	57.7%
AuNCs	0.07255	5021.09	4.63%
AuNCs-MOF	0.09495	10984	7.74%

Table S1. QY of AuNCs and AuNCs-MOF.

QY of AuNCs (or aAuNCs-MOF) was determined by measuring the integrated fluorescence intensities of the AuNCs (or aAuNCs-MOF) and the reference (quinine sulfate solution in 0.1M H_2SO_4 , QY = 57.7%) under 365 nm excitation.