Electronic Supplementary Material (ESI) for Analyst.

Orange red emitting PVP-Copper nanocluster for endogenous GSH sensing to drive cancer cell recognition

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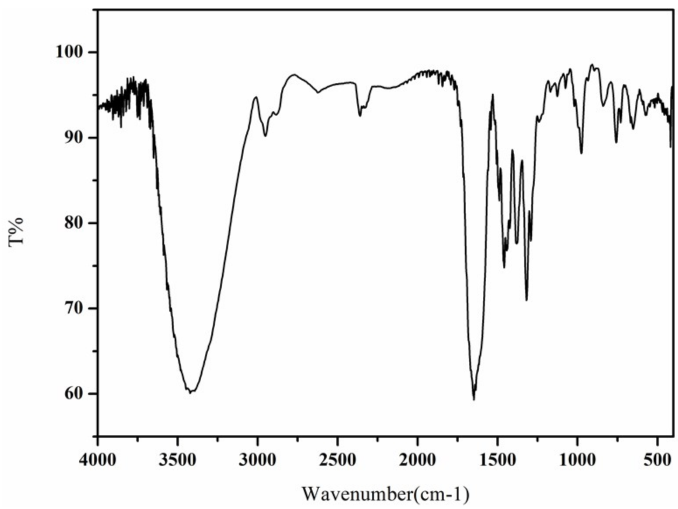

Fig. S1 FTIR spectra of PVP--2-mercaptobenzothiazole and CuNCs

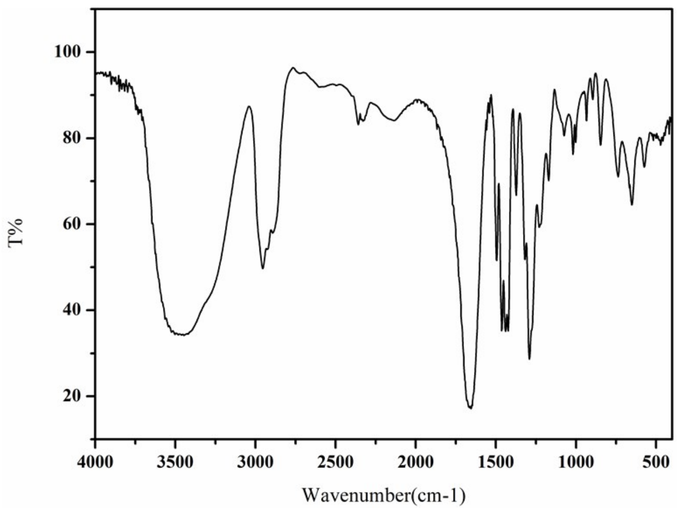

Fig. S2 FTIR spectra of PVP

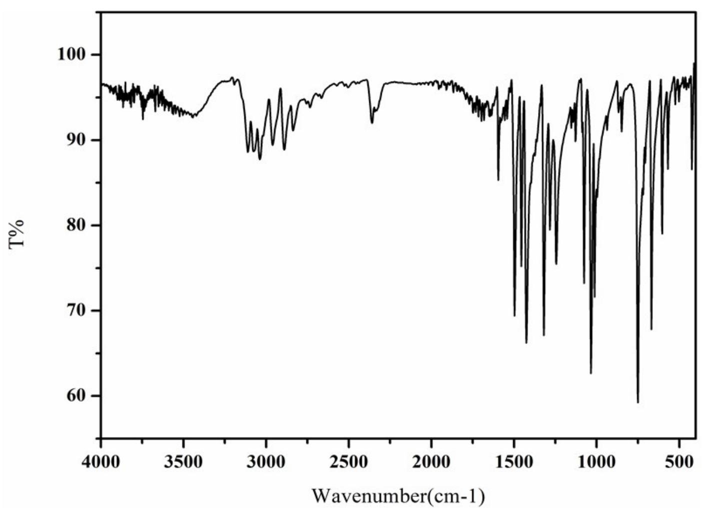

Fig. S3 FTIR spectra of MBT

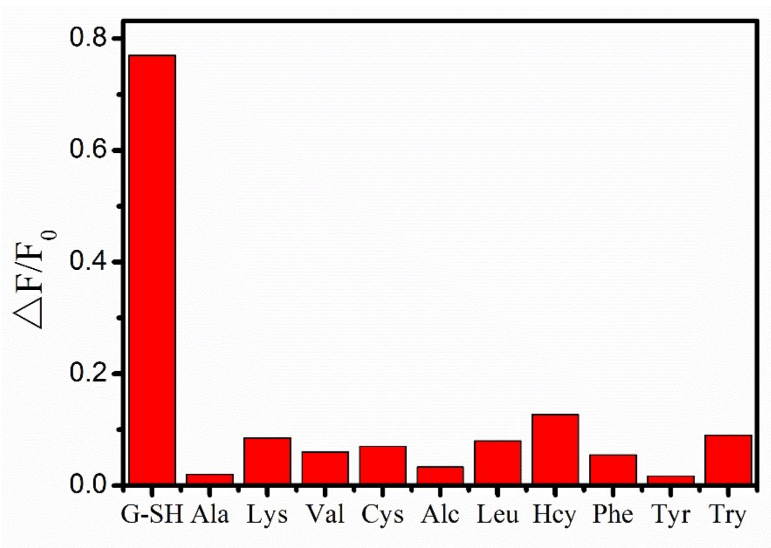

Fig. S4 Relative emission intensity ($\Delta F/F_0$) of the CuNCs in the presence of various interfering substances (Nitrite、Tryptophan、Phenylalanine、Leucine、Valine 、Alanine、Cysteine、Tyrosine、Lysine).

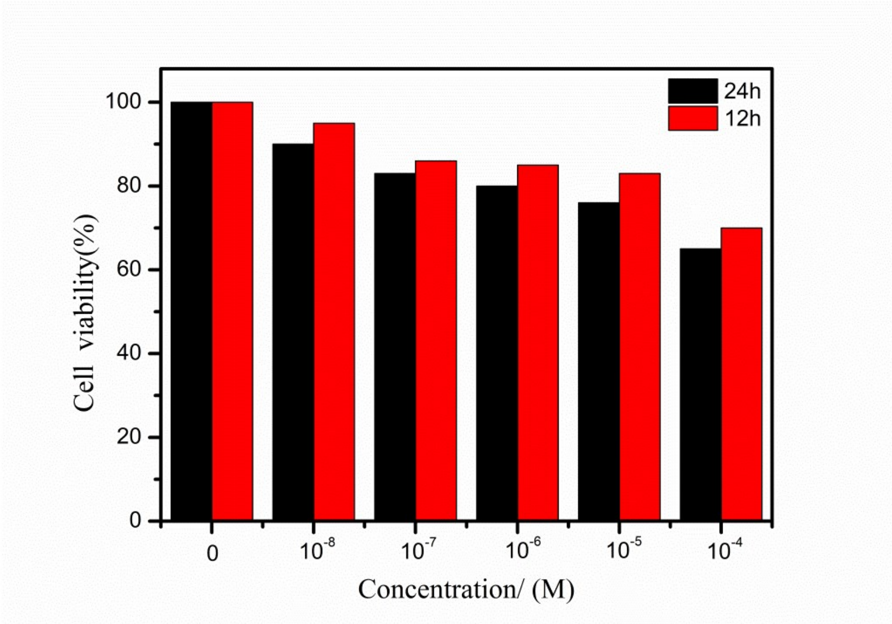

Fig. S5 Cell viability after incubation with CuNCs

Table S1 Comparison of property for red CuNCs.

main reagent	wavelength	Detection object	quantum yield	Reference
L-methionine	590 nm	norfloxacin	4.37%	[1]
cysteine	605 nm	Zn^{2+}	-	[2]
BSA	650 nm	RDX	20.3%	[3]
HSA	646 nm	bilirubin	3.6%^	[4]
ovalbumin	625 nm	FA	3.95%	[5]
Penicillamine	650 nm	acid phosphatase	8.9%	[6]
MBT/PVP	606 nm	GSH	75%	The work

BSA: Bovine Serum Albumin

HAS: human serum albumin

MBT: 2-mercaptobenzothiazole

RDX: 1,3,5-trinitrotriazine

FA: Folic acid

Table S2 Comparison of methods for GSH determination.

Nanomaterials	Sensing strategy	Linear range (μM)	Detection Limit (μM)	Reference
Cu/Ag NCs	FL ratiometric	0.1-70	0.06	[7]
BSA –MnO_2	Nanozyme	0.26-26	0.1	[8]
C-dot	Nanozyme	0-7	0.3	[9]
AuNPs-AA	Aggregation	0.25-2.5	0.1	[10]
AuNPs	Aggregation	0.5-2.5	0.5	[11]
AgNPs	Etching	0.5-10	0.368	[12]
GNR/ AgNPs	Aggregation	1-75	0.23	[13]
CuNDs	Aggregation	0.06-40	0.012	The work

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