Electronic Supplementary Material (ESI) for Analytical Methods.

Supplementary Information

Quantum dots-based fluorescence sensor for sensitive and enzymeless detection of creatinine.

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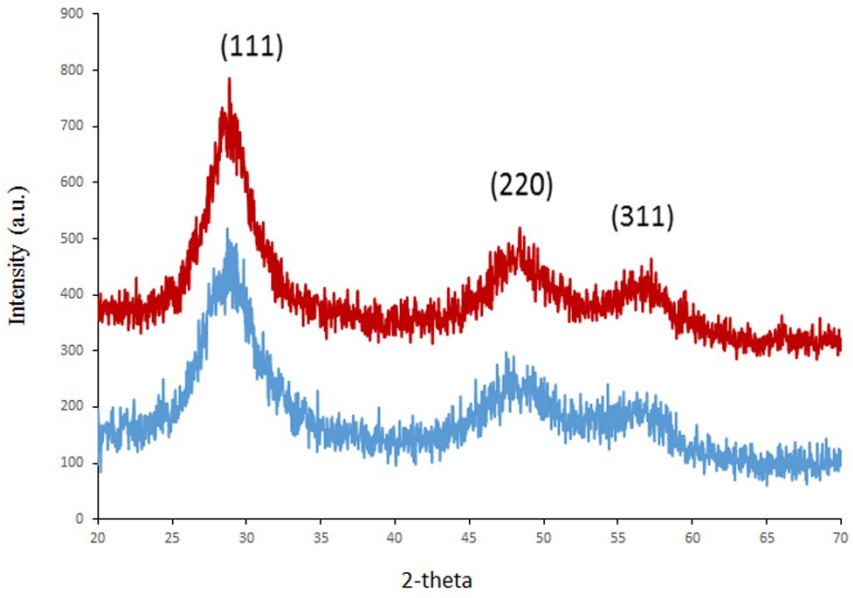

Fig.S1- Typical powder XRD patterns for (a) the ZnS: Mn QDs (b) the ZnS: Mn/ZnS QDs.

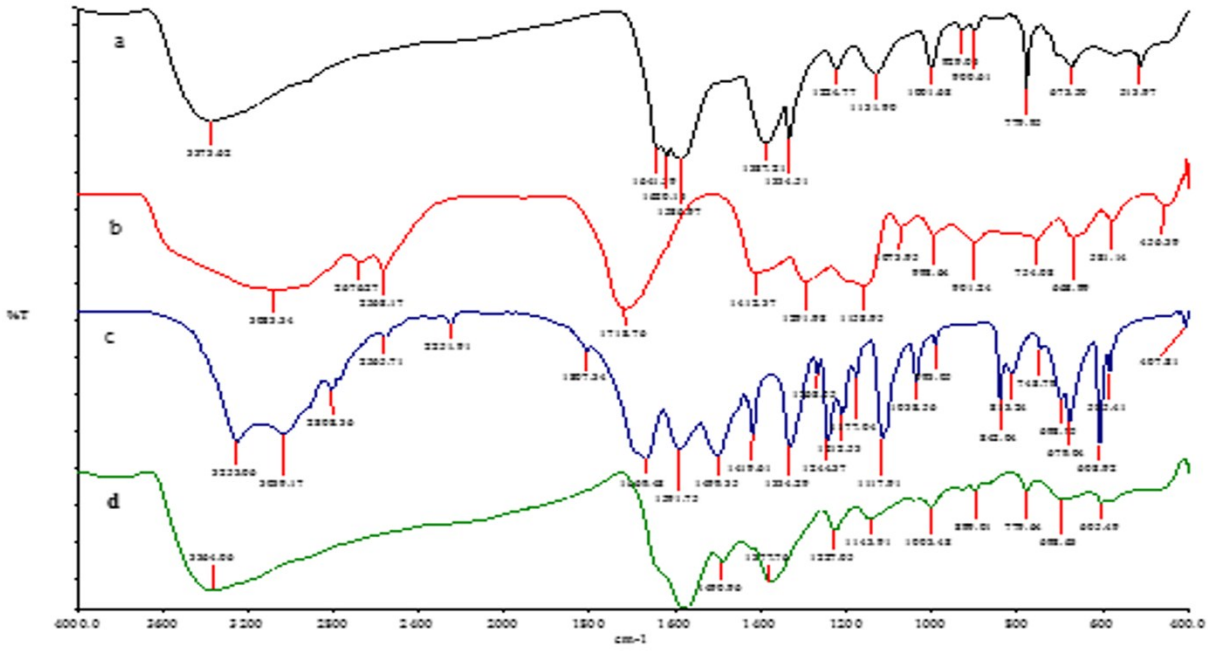

Fig.S2. FTIR spectra of (a) TGA capped ZnS: Mn/ZnS QDs-creatinine. (b) TGA (c) creatinine (d) TGA capped ZnS: Mn/ZnS QDs.

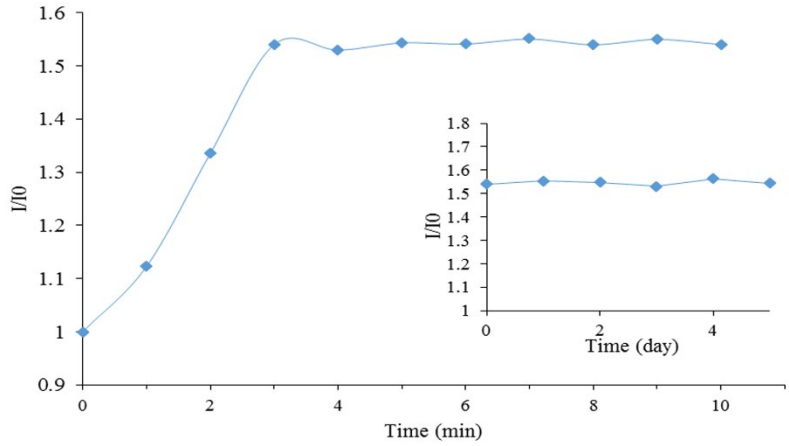

Fig. S3 -The effects of different incubation time on the fluorescence enhancement (I/I_0) of TGA-capped ZnS: Mn/ZnS QDs by Crn (0.2 μM) in PBS (pH=6 in PBS) solution.

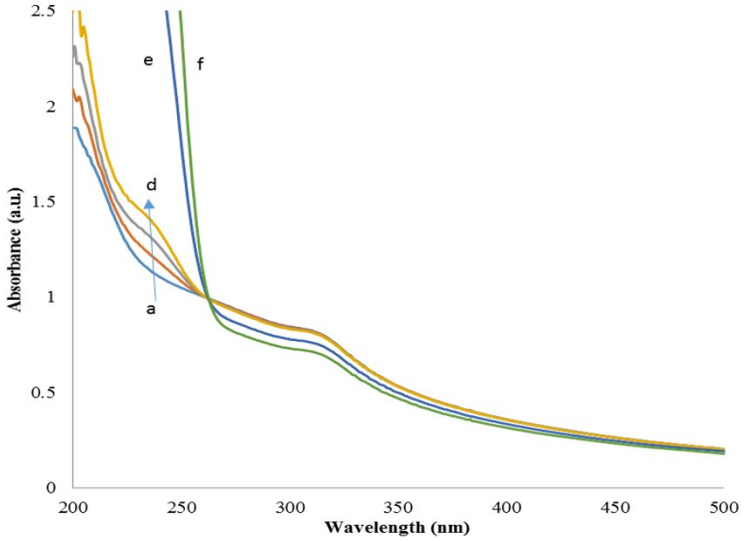

Fig S4-The absorption spectra of TGA-capped ZnS: Mn/ZnS QDs in the presence of (a-f =0, 0.06, 0.08, 0.1, 100,200 μM) Crn (pH=6 in PBS).

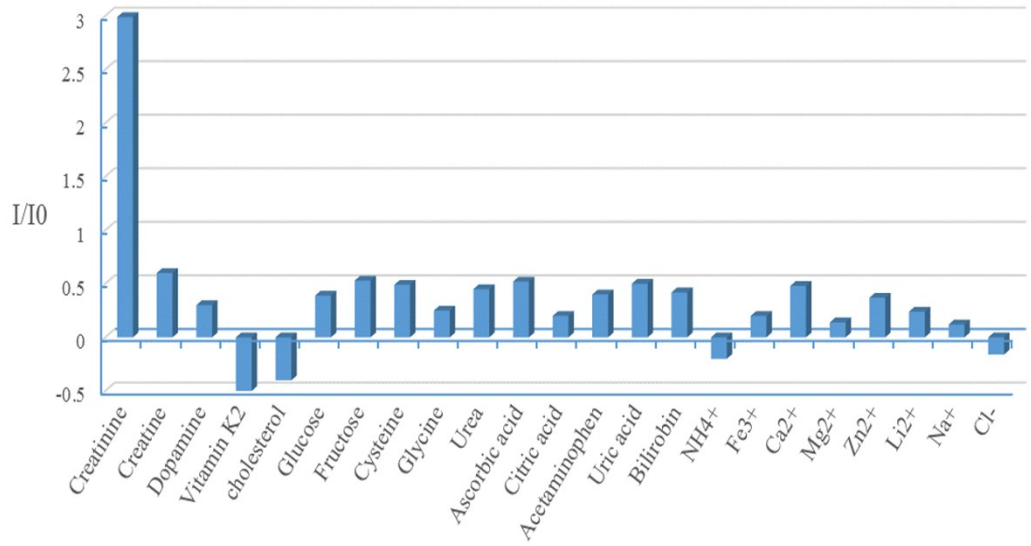

Fig. S5- Effect of Crn and other relevant analytes on the fluorescence intensity of TGA-ZnS: Mn/ZnS QDs. The concentration of Crn was 0.2 μM. For others, concentrations were10 μM (pH=6 in PBS).

Table S1- Analytical recovery of creatinine in human serum samples[a,b].

Sample Number	Human Serum Samples					Standard method				
	Creatinine estimated by this method (μM)	Addition of Creatinine (μM)	Found (μM)	Recovered (μM)	Recovery* (%)	Creatinine estimated by this method (μM)	Addition of creatinine (μM)	Found (μM)	Recovered (μM)	Recovery* (%)
1	54.8	50 100	103.73 156.67	48.93 101.87	97.86 101.87	56.08	50 100	105.52 159.68	49.44 103.6	98.88 103.6
2	70 .37	50 100	120.5 168.64	50.13 98.27	100.26 98.27	68 .48	50 100	118.76 169.76	50.28 101.38	100.56 101.38
3	103.9	50 100	152.75 201.89	48.85 97.99	97.7 97.99	109.87	50 100	160.85 210.35	50.98 100.48	101.96 100.48
4	125.55	50 100	175.94 226.27	48.39 101.2	100.78 100.72	123.09	50 100	172.98 223.87	49.89 100.78	99.78 100.78

[a] Mean of duplicate measurement.

[b] Diluted factors are calculated.

*Recovery=[(Found creatinine concentration-initial concentration)/added creatinine concentration)].

Table S2- Analytical recovery of creatinine in human urine samples[a,b].

Sample Number	Human Urine Samples					Standard Method				
	Creatinine estimated by this method (μM)	Addition of Creatinine (μM)	Found (μM)	Recovered (μM)	Recovery* (%)	Creatinine estimated by this method (μM)	Addition of creatinine (μM)	Found (μM)	Recovered (μM)	Recovery* (%)
1	63.88	50 100	113.99 163	50.11 99.12	100.22 99.12	64.05	50 100	114.08 165.45	50.03 101.4	100.06 101.4
2	76.42	50 100	127 175.98	50.58 99.56	101.16 99.56	76.98	50 100	125.50 174.58	48.52 97.6	97.04 97.6

[a] Mean of duplicate measurement.

[b] Diluted factors are calculated.

*Recovery=[(Found creatinine concentration-initial concentration)/added creatinine concentration)].