Electronic Supplementary Information

A novel fluorescence nanoprobe based on DNA silver nanoclusters for the detection of DEQ

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Table S1 Names and sequences of the oligonucleotides.

Oligonucleotids	Sequences (5´- 3´)
D-DNA	CCCTCCCTCCCC
D1-DNA	CGAACCCTCCCTCCCC

Table S2 The lifetimes of D-DNA-Ag NCs in the absence and presence of different concentration of DEQ.

Samples	[DEQ] (μM)	τ (ns)	χ^2
1	0	3.52	1.2835
2	40	3.61	1.2832
3	80	5.09	1.2928

Table S3 The detection methods and LOD of some of cationic surfactants

Surfactant	Method	Limit of detection	Reference
Cetyltrimethylammonium bromide	DNA-Ag NCs	4.7×10^{-5} mg/L	20
Ditallowmdimethyl-ammonium	HPLC	15–80 mg/kg	34
Alkylbenzyl-ammonium salts	HPLC	50 mg/L	35
DEQ	DNA-Ag NCs	2.0 μM (0.72 mg/L)	This work

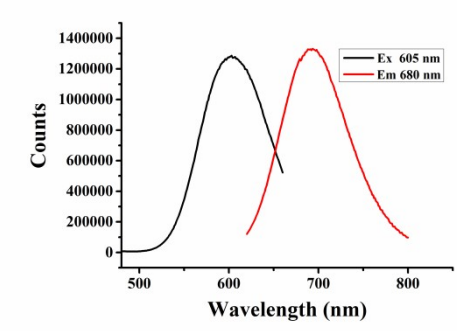

Fig. S1 the excitation and emission spectra of D1-DNA- AgNCs.

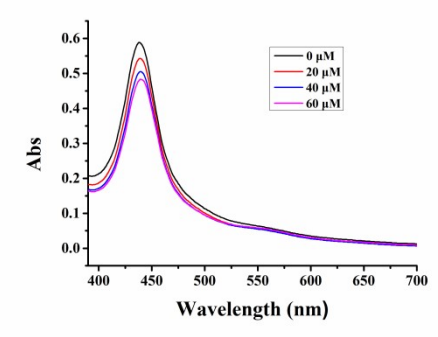

Fig. S2 UV-Vis absorption spectra of D-DNA-Ag NCs in the absence and presence of DEQ

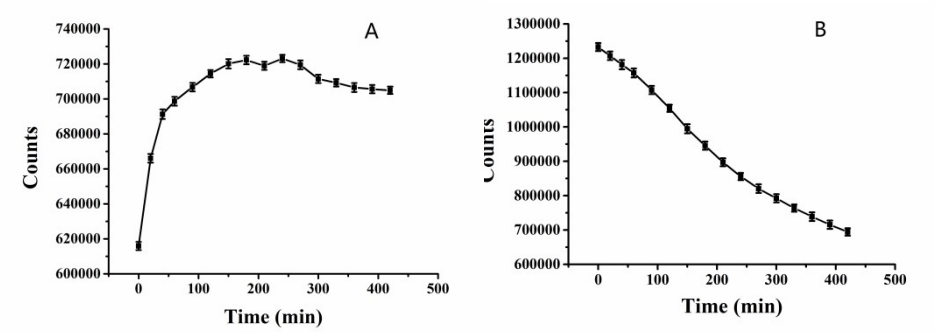

Fig. S3 The change of fluorescence intensity of D-DNA-Ag NCs (A), D1-DNA-Ag NCs (B) against the increasing time. Error bars represent the standard deviation of three independent measurements. c(DNA) = 3.0 μM.

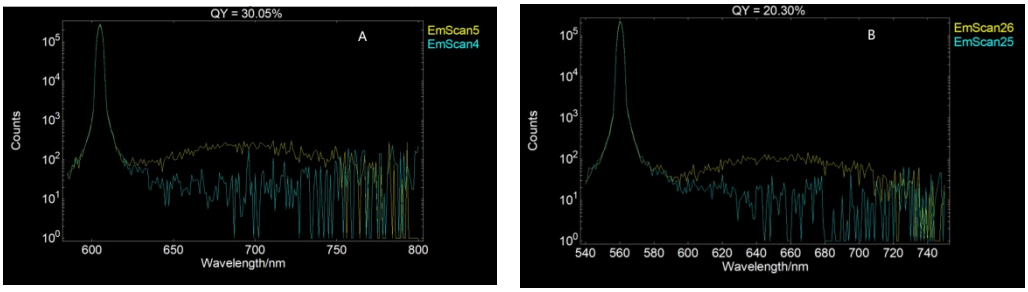

Fig. S4 The quantum yields (QY) of D-DNA-AgNCs (λ_{ex}=560nm, integrated wavelength range: 540-750 nm) (A), D1-DNA-AgNCs (λex=605nm, integrated wavelength range: 585-800 nm) (B).

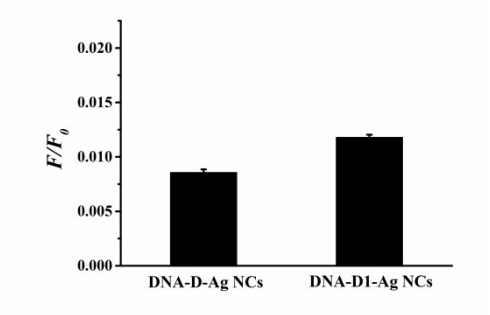

Fig. S5 The relative fluorescence intensity (F/F_0) of different DNA-AgNCs. F_0 and F are the emission intensity of the DNA-Ag NCs before and after the addition of 110 μM DEQ, respectively. The error bars represent the standard deviation of three independent measurements.

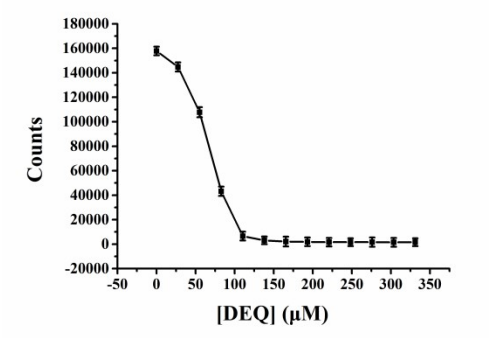

Fig. S6 The change of fluorescence intensity of D-DNA-Ag NCs against the increasing DEQ concentration.

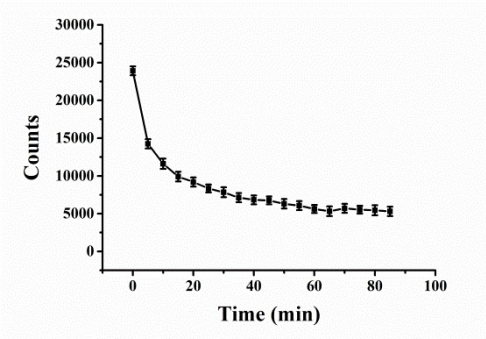

Fig. S7 The fluorescence intensity of D-DNA-Ag NCs with 100 μM DEQ against the reaction time.

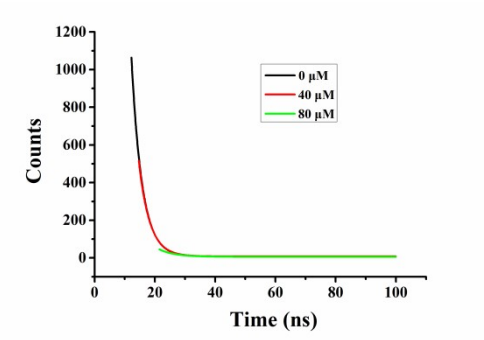

Fig. S8 The fluorescence lifetimes of D-DNA-Ag NCs (excitation at 560 nm and emission at 650 nm) in the absence and presence of DEQ.

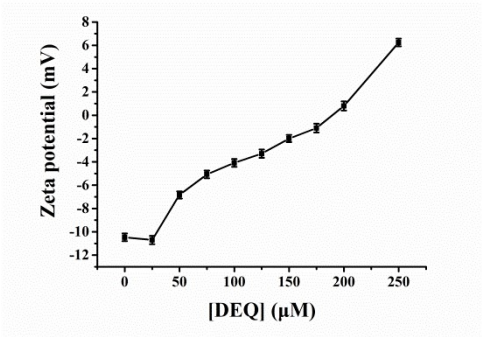

Fig. S9 The change of the zeta potential of D-DNA-Ag NCs against the increasing DEQ concentration.