Supplementary Information

G-triplex based molecular beacon for label-free fluorescence "turn-on" detection of bleomycin

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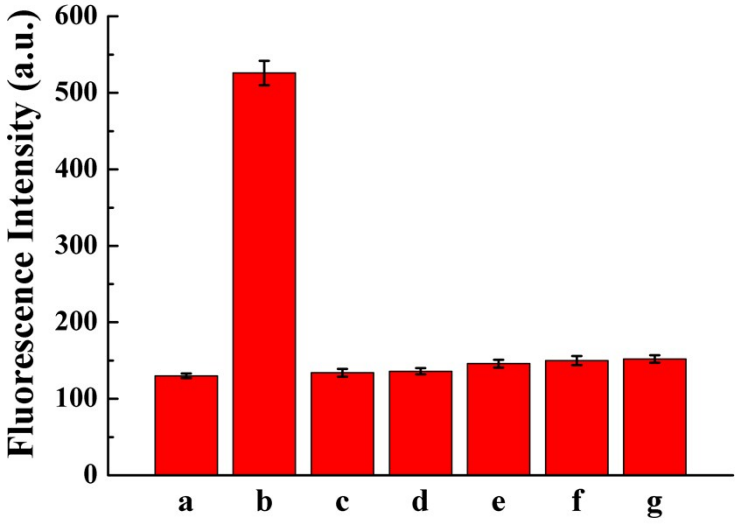

Fig. S1. Fluorescence responses of G3MB sensing system at different conditions: (a) blank, (b) 500 nM BLM-Fe(II), (c) 2 μM Fe(II), (d) 4 μM Fe(II), (e) 6 μM Fe(II), (f) 8 μM Fe(II), (g) 10 μM Fe(II). The concentrations of ThT and G3MB are 6 μM and 100 nM, respectively. Error bars were estimated from three replicate measurements.

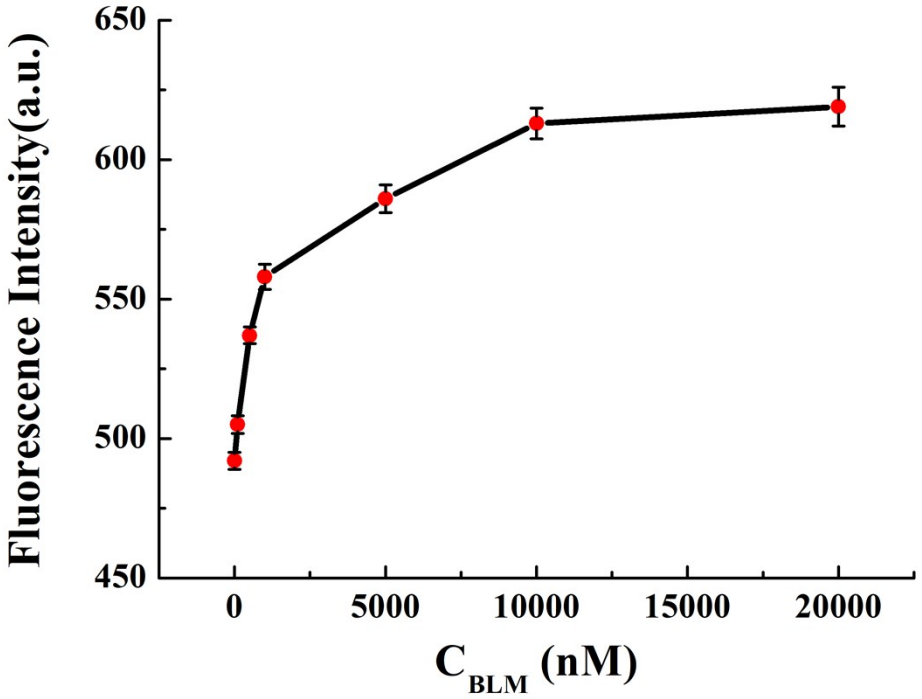

Fig. S2. The relationship between BLM concentration and fluorescence intensity at 487 nm under the excitation at 442 nm for G4MB sensing system. Error bars were estimated from three replicate measurements.

Table S1. Comparison of the assay performance of various methods for BLM detection

Method and materials	LOD (nM)	Linear range (nM)	Total Time	Ref.
Electrochemistry (ferrocene-modified hairpin DNA)	0.1	0.1～1000	6.5 h	1
Electrochemistry (graphene oxide–phenylboronic acid labeled ssDNA)	0.01	0.02～1200	>20 h	2
Electrogenerated chemiluminescence (SH-modified hairpin DNA/ $Ru(phen)^{2+}_3$)	0.00003	0.00001～0.05	12 h	3
Colorimetry (unmodified gold nanoparticles)	2	2～150	7.5 min	4
Colorimetry (Fe(II)-H_2O_2-ABTS)	16	25～1000	20 min	5
Fluorescence (exonuclease III-aided DNA recycling amplification)	0.00038	0.001～10	40 min	6
Fluorescence (DNA-templated silver nanoclusters)	54	100～700	60 min	7
Fluorescence (graphene oxide-DNA complex)	0.2	5～1000	30 min	8
Fluorescence (WS_2 nanosheet-DNA complex)	0.3	0.5～1000	23 min	9
Fluorescence (DNA-perylene complex)	0.2	0.5～100	40 min	10
Fluorescence (bicyclo-hairpin probe)	0.34	2～220	100 min	11
Fluorescence (G-triplex based molecular beacon)	0.2	0.5～1000	30 min	This work

Table S2. Detection of BLM spiked in human serum samples with the fixed Fe (II) concentration at 100 nM.

Sample	Added (nM)	Found (nM)	Recovery (%)	RSD (n=3, %)
Serum I	20.0	20.8	104.0	3.3
	100.0	99.7	99.7	2.9
	500.0	118.6	23.7	5.8
Serum II	20.0	19.5	97.5	4.6
	100.0	101.9	101.9	3.4
	500.0	113.5	22.7	5.2

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