Supplementary materials

Terbium functionalized ZIF-8 nanosensor for rapid and

sensitive detection of anthrax spore biomarker

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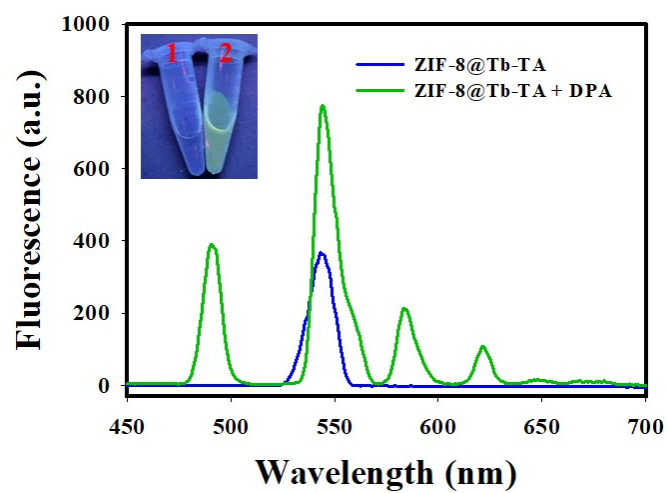[a] School of Materials Science and Engineering, Linyi University, Linyi 276000, P. R. China

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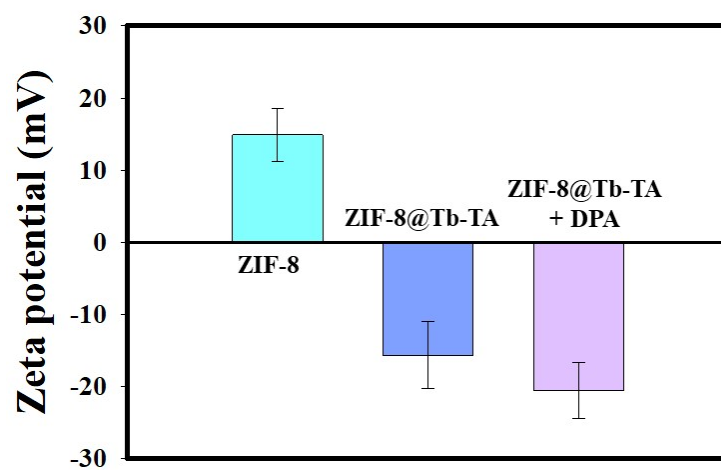
* Corresponding author:

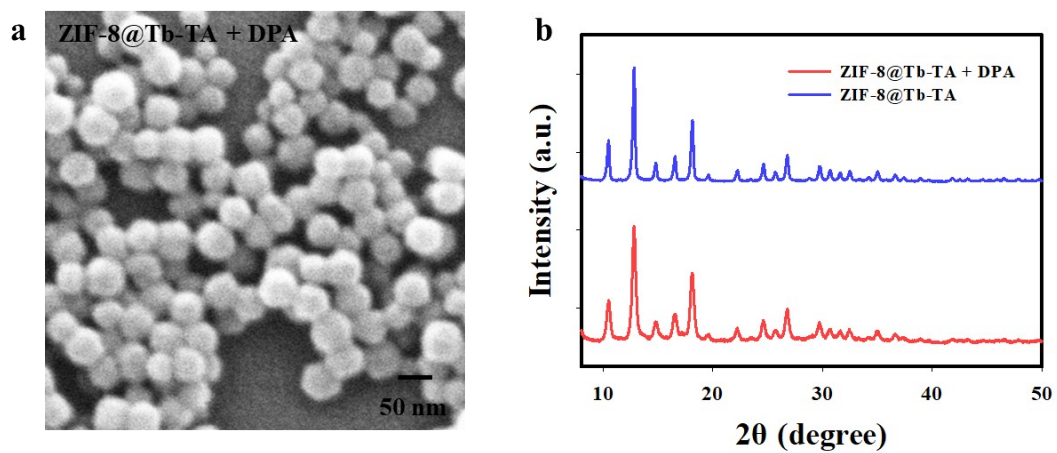Dr. Xiangyu Meng, E-mail address: mengxiangyu1@lyu.edu.cn
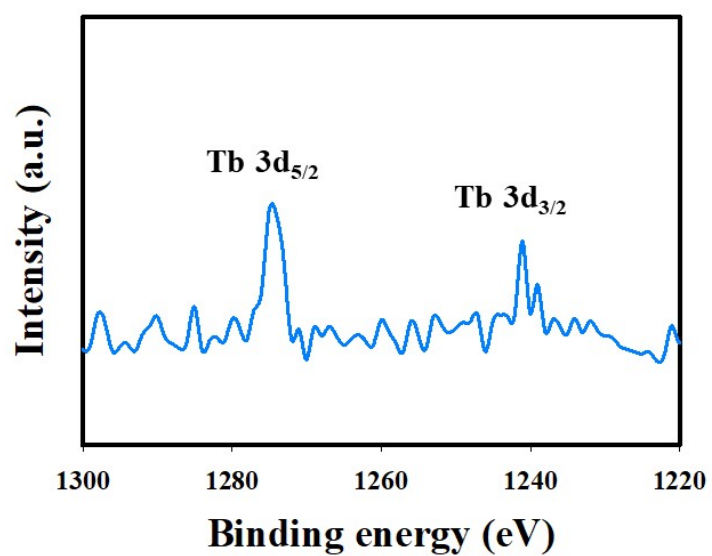
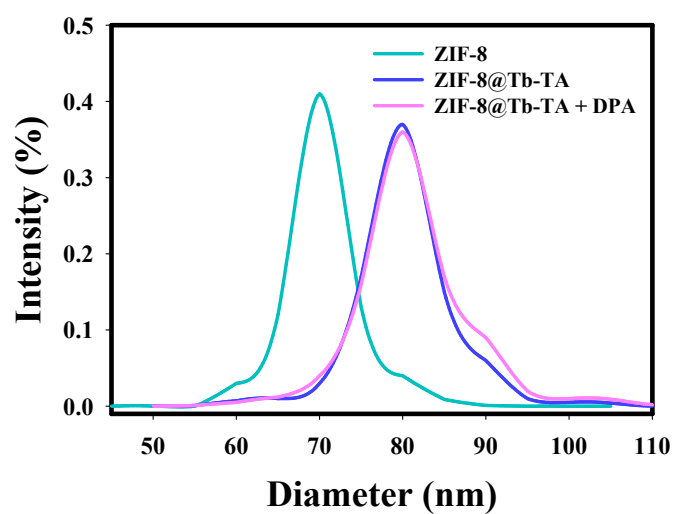**Figure S1** The high-resolution XPS spectrum of Tb 3d of ZIF-8@Tb-TA.

Figure S2 The emission spectra of ZIF-8@Tb-TA and ZIF-8@Tb-TA in the presence of DPA (4 μmol L^{-1}).
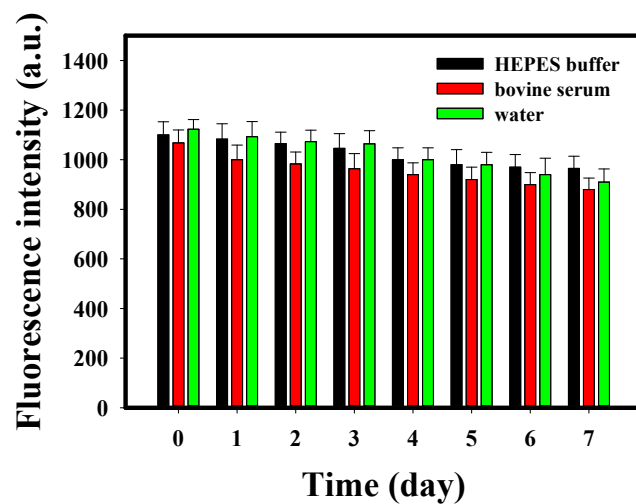
Figure S3 Zeta potential of ZIF-8, ZIF-8@Tb-TA, and ZIF-8@Tb-TA + 10 μmol L^{-1}

of DPA.

Figure S4 (a) SEM images of ZIF-8@Tb-TA with 10 μmol L^{-1} of DPA, (b) XRD patterns of ZIF-8@Tb-TA before and after reacting with 10 μmol L^{-1} of DPA for 3 min.

Figure S5 Diameter change of ZIF-8@Tb-TA after incubation with 10 μmol L^{-1} of DPA.

Figure S6 Changes in fluorescence of ZIF-8@Tb-TA for DPA detection after immersion in different media for various periods.
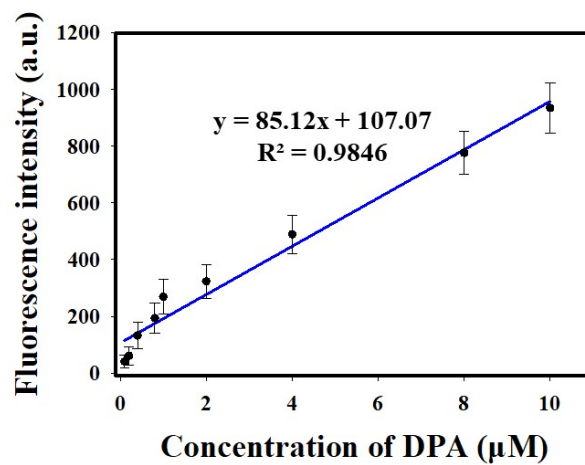
Figure S7 Linear relationship of fluorescence intensity and DPA concentration in simulated actual samples.

Table S1 Summary of the current DPA-sensing nanoplatforms.

Nanoprobe	Linear Range	Detection Limit	Reference
pSiNPs-Tb	0-10 μM	1250 nM	[1]
Eu/Tb-MOF	0-600 μM	248 nM	[2]
CDs-Tb	0.5-6 μM	35.9 nM	[3]
His@ZIF-8/Tb^{3+}	0.08-10 μM	0.02 μM	[4]
Fe$_3$O$_4$-Tb NPs	0.02-1 μM	5.4 nM	[5]
Tb-PTA-OH	0.05-6 μM	13.4 nM	[6]
ZIF-8@Tb-TA	0-12 μM	12.3 nM	This study

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Table S2 Analytical results in simulative real samples.

Sample	Concentration (μM)	Detection (μM)	Recovery (%)	RSD (%, n = 5)
	0	/	/	/
	0.2	0.19	95.00	0.38
10% bovine	0.5	0.5	100.00	0.23
serum	2	1.99	99.50	1.2
	5	4.9	98.00	0.93
	8	8.04	100.5	1.05

/: not detected