

# Supplementary Information

## **A highly selective and sensitive fluorescent nanosensor for dopamine based on formate bridged Tb(III) complex and silver nanoparticles**

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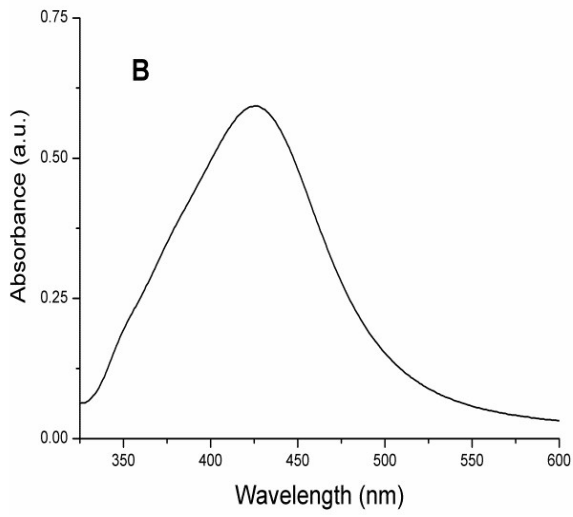
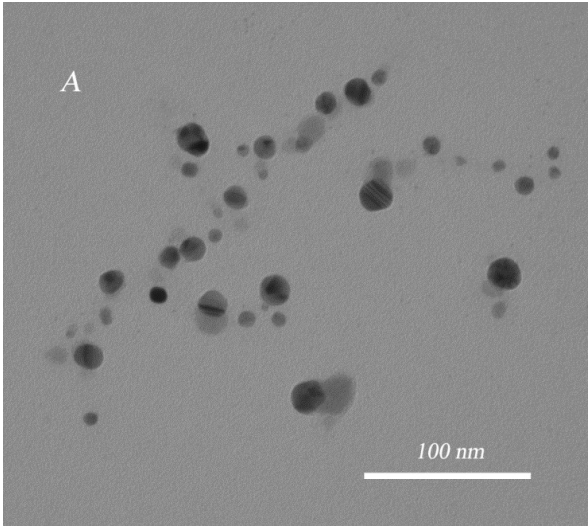
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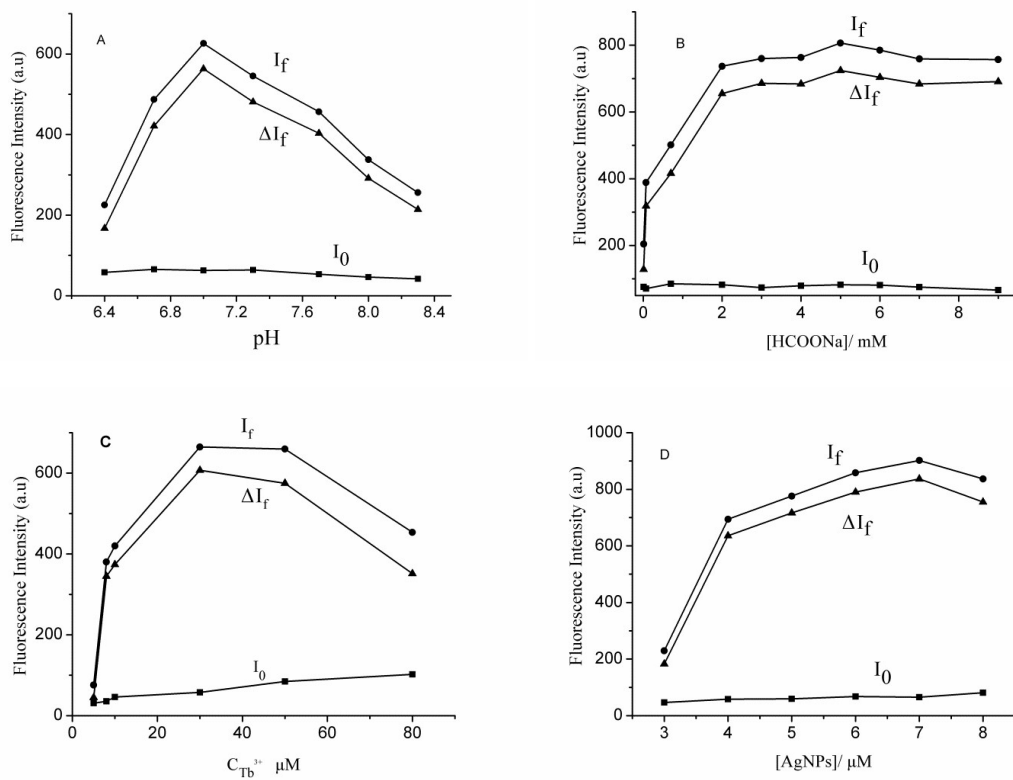
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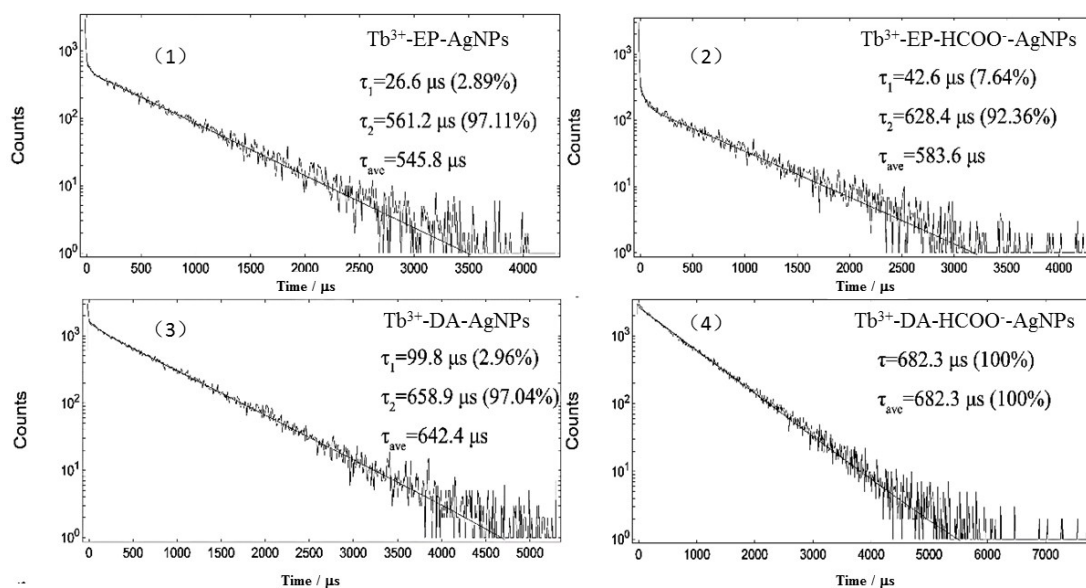
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**Figure S1.** TEM image (A) and UV-Vis spectrum (B) of AgNPs.



**Figure S2.** Effects of pH (A), HCOONa (B),  $Tb^{3+}$  (C) and AgNPs (D) on fluorescence intensities.



**Figure S3.** Fluorescence lifetime decay curves of (1)  $\text{Tb}^{3+}$ -EP-AgNPs, (2)  $\text{Tb}^{3+}$ - EP-HCOO<sup>-</sup>-AgNPs, (3)  $\text{Tb}^{3+}$ -DA-AgNPs, (4)  $\text{Tb}^{3+}$ - DA-HCOO<sup>-</sup>-AgNPs. Experimental conditions: 30  $\mu\text{M}$   $\text{Tb}^{3+}$ , 7.0  $\mu\text{M}$  AgNPs, 5.0 mM HCOO<sup>-</sup>, 10  $\mu\text{M}$  EP and DA for Abs and 0.10  $\mu\text{M}$  DA for FL in 0.01 M, HEPES-NaOH, pH =7.00 buffer solutions

**Table S1.** Comparison of the detection limit of DA with other proposed analytical methods

Sensing material	Detection method	Linear range	LOD <sup>a</sup> (nM)	Refs
Ag <sup>+</sup> -TMB <sup>b</sup>	Colorimetry	0.1 -1.0 μM, 1.0 -20.0 μM	50	(1)
AuNPs/CPE <sup>c</sup>	Electrochemical	0.1 -25 μM	24	(2)
CdSe QDs <sup>d</sup>	Electrochemiluminescence	0.010 -3.0 μM	3.0	(3)
FB-AuNPs/NsNHS-AuNPs <sup>e</sup>	Absorbance	5 -100 nM	1.2	(4)
	Fluorescence	5 -100 nM	2.9	(4)
N-GQDs <sup>f</sup>	Fluorescence	1 -200 μM,	70	(5)
Conjugated polymer nanoparticles	Fluorescence	0.025 -10 μM	38.8	(6)
Polydopamine nanoparticles	Fluorescence	0.1 -20 μM	40	(7)
SiNP <sup>g</sup>	Fluorescence	0.005 -10.0 μM,	0.3	(8)
This method	Fluorescence	0.5 -100 nM	0.15	This work

<sup>a</sup> Limit of determination ; <sup>b</sup> 3,3',5,5'-tetramethylbenzidine

<sup>c</sup> Gold nanoparticles chemically modified carbon paste electrode;

<sup>d</sup> Mercaptopropionic acid and modium hexametaphosphate dual-stabilizers-capped CdSe quantum dots;

<sup>e</sup> Fluorescein modified gold nanoparticles and Nile blue modified gold nanoparticles;

<sup>f</sup> Nitrogen-doped graphene quantum dots; <sup>g</sup> water-soluble silicon nanoparticle with rich amidogens

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