Electronic Supplementary Material (ESI) for Analytical Methods.

Supporting Information

Construction of logic gate computation for nerve agent sarin assay based on an AChE-based dual-channel sensing system

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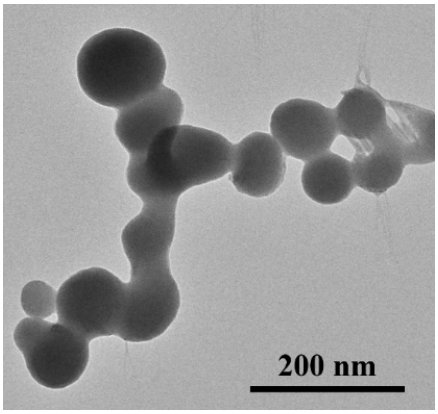

Fig. S1 TEM image of Ce^{3+}-GSH-Au NCs.

Table S1. Comparison of AChE activity assay performance of different systems.

Materials	Linear range (U/L)	LOD (U/L)	Method	Refs.
Nanoceria nanozyme	unknown	0.263	Colorimetry	1
MnO_2 NFs	0.1~15	0.035	Colorimetry	2
Carbon dots	14.2~121.8	4.25	Fluorimetry	3
Polythiophene-derivative	unknown	0.2	Colorimetry	4
FITC/BSA-Au NCs	0.8~12	0.4	Fluorimetry	5
Poly T-CuNPs	0.11~2.78	0.05	Fluorimetry	6
CoOOH NFs	0.05~20	0.033	Colorimetry	7
Metal coordination polymer	unknown	0.04	Fluorimetry	8
Quantum dots	10~2000	10	Fluorimetry	9
DNA-templated copper/silver nanoclusters	0.05~2	0.05	Fluorimetry	10
Ag^{+}@CTAB-AuNPs	0.075~25	0.075	Colorimetry	11
Perylene probe/MnO_2 NS	5~100	2.5	Fluorimetry	12
oxTMB/Ce^{3+}-GSH-Au NCs	0~15	0.037/0.031	Colorimetry/ Fluorimetry	This work

Table S2. Comparison of GB detection performance of various systems.

Materials	Linear range (nM)	LOD (nM)	Method	Logic gate	Refs.
AChE modified screen-printed electrode	0~10	1	Electrochemistry	No	13
β-Cyclodextrin Derivative	5.10×10^2~ 2.14×10^3	71.43	Surface Acoustic Wave	No	14
AChE modified carboxylated single-walled carbon nanotube	20~60	25	Electrochemistry	No	15
Molecularly imprinted polymer	unknown	178.57	Fluorimetry	No	16
$[Eu(Phen)_2(NO_3)_3]\cdot(H_2O)_x$	unknown	$>2.5\times10^6$	Fluorimetry	No	17
High-Energetic Photons for Ionization	unknown	1.21	Ion Mobility Spectrometer	No	18
Guinea Green B and Fuchsin	unknown	7.14	Colorimetry	No	19
Fluorophore containing benzimidazole group	unknown	357.14	Fluorimetry	No	20
Polyhedral oligomeric silsesquioxane	0~3.57×10^6	171.42	Surface Acoustic Wave	No	21
Hexafluoroisopropanol functionalized poly(3,4-ethylenedioxythiophene)	unknown	71.43	Surface Acoustic Wave	No	22
Chromatography-mass spectrometry	1.42×10^2~ 8.57×10^3	221.43	UPLC–TOF–MS	No	23
oxTMB solution/GSH-Au NCs	0~3.06×10^2	2.46/1.18	Colorimetry/ Fluorimetry	Yes	This work

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