Supporting Information

Nanomaterials with enzyme-like characteristics (nanozymes): next-generation artificial enzymes (II)

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Table S1. Nanomaterials with peroxidase-like activities

Nanomaterials		Comments	Ref.
Carbon	Carbon nanoparticles/clusters/quantum dots		1-10
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Abbreviations

COF	covalent organic framework
GO	graphene oxide
GOx	glucose oxidase
H_3BTC	1,3,5-benzenetricarboxylic acid
HKUST-1	Hong Kong University of Science and Technology
MIL	Material Institute of Lavoisier
MOF	metal organic framework
MWCNT	multi walled carbon nanotube
NP	nanoparticle
PB	Prussian blue
PCN	porous coordinated network
PPy	polypyrrole
rGO	reduced graphene oxide
TCPP	tetrakis(4-carboxyphenyl)porphyrin
ZIF	zeolitic imidazolate framework

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Table S2. Nanomaterials with oxidase-like activities

Enzymes	Nanomaterials		Comments	Ref.
Catechol oxidase	Metal	Pt		1, 2
	Bimetal	Au@Pt		3
	Metal oxide	CeO_2		4, 5
Cytochrome *c* oxidase	Metal oxide	Cu_2O		6
Ferroxidase	Metal	Pt		7, 8
	Bimetal	Au/Pt		9
Glucose oxidase	Carbon	Multi-walled carbon nanotubes	Ni, Co, B, P co-doped	10
	Metal	Au		11-31
	Multi-metal	Au@Pt		32, 33
		Au/Pt/Pd		34
		PdCu		35
	Metal oxide	Cu_2O		36
		Fe_2O_3		37
		MnO_2		38
	Composite	Au/2D metalloporphyrinic MOF		39
		Au/Al_2O_3		40
		Au/C		40
		Au/CeO_2		41
		Au-($Cs_xH_{3-x}PW_{12}O_{40}$)		42
		Au/graphene		43

		Au-mesoporous carbon		44
		Au/nanoporous carbon		45
		Fe_3O_4-Au		46
		Fe_3O_4-Au@mesoporous SiO_2		47
		FeSe-Pt@SiO_2		48
		Hemin-AuNPs-graphene-mesoporous silica		49
		Pd/Al_2O_3		50
		SiO_2-Au-DNAzyme-V_2O_5		51
Laccase	Carbon	Carbon dots	Cu^{2+} modified	52
	Metal	Pt		53
	Others	Cu/guanosine monophosphate framework		54
Sulfite oxidase	Metal oxide	MoO_3		55
Others	Carbon	Diamond		56
		Graphene	Hemin supported	57
		Nanotubes		58
		Porous carbon	Co, N co-doped	59
			N doped	60
	COF	Covalent triazine framework-1		61
	Metal	Ag		62-65
		Au		63, 66-73
		Pd		63, 74
			Nanosheets	75
		Pt		63, 71, 76-80

		Ru		81
	Multi-metal	Au/Ag		82
		Au/Ag/Te		83
		Au/Pt		71, 84-87
		Au@PtAg		88
		Hg/Ag		89
		NiPd		90
		Pd/Au		75
		Pd/Pt	Nanoplates	75
		PdPt alloy nanodots on the Au nanorods		91
		Pt/Co		92
		Pt/Se		93
	Metal oxide	CeO_2		94-106
			{110}	107
			Amino acid modified CeO_2 for stereoselective *L* & *D* dopamin	108
			Pr doped	109
			Single stranded DNA	110
			Ti doped	111
		$CoFe_2O_4$		112, 113
		Co_xO_y	Mixed valence state cobalt	114
		Co_3O_4		115
		CrO_x		115

		$CuFe_2O_4$		116
		CuO		117
		Fe_2O_3		118
		Fe_3O_4		119, 120
		$MgFe_2O_4$		116
		$MnCaO_x$		121
		$MnFe_2O_4$		122
		MnO_x		115, 123
		MnO_2		124-127
			Nanoflakes	128
			Nanosheets	129, 130
		Mn_3O_4		131
		$NiCo_2O_4$		132
		$NiFe_2O_4$		116
		NiO		115, 123
		Tb_2O_3		133
		V_6O_{13}		134
	MOF	Ce-MOF	Linker: H_3BTC	135
		Co/2Fe bimetallic MOF	Linker: H_3BTC	136
	Others	AgX	X = Cl, Br, I	137
		$CeVO_4$		138
		Co-Fe layered double hydroxide		139
		CoOOH		140

		CuS		141
		$FA_nPMo_{12-n}V_nO_{40}$	n = 1-3, FA for folic acid	142
		Iron-containing zeolites		143
		$K_5CuPW_{11}O_{39}$		144
		PB		145, 146
		Se		147
	Composite	$Ag@Ag_3PO_4$		148
		Ag/Au/AgCl		149
		Au@C	York shell	150
		Au-silica		151
		Carbon nanofibers/$MnCo_2O_{4.5}$		152
		CeO_2-capped mesoporous silica		153
		CeO_2/rGO		154
		$Fe_3C@C$		155
		Fe_2O_3-GO		156
		Fe_3O_4-Mn-doped ZnS quantum dots		157
		Fe_3O_4-Pd-3D rGO		158
		$K_5CuPW_{11}O_{39}$@HKUST-1		144
		MoS_2/PtCu		159
		MoS_2/WS_2		160
		Pd supported on $NiCl_2$ nanosheets		161

Abbreviations

COF	covalent organic framework
GO	graphene oxide
H_3BTC	1,3,5-benzenetricarboxylic acid
HKUST	Hong Kong University of Science and Technology
MOF	metal organic framework
PB	Prussian blue
rGO	reduced graphene oxide

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Table S3. Nanomaterials with catalase-like activities

Nanomaterials		Comments	Ref.
Carbon	Diamond		1
	Fullerene (C_{60})		2
	Graphene oxide quantum dots		3
	Mesoporous carbon	N doped	4
Metal	Ag		5
	Au		5-10
		Nanorods	11
	Ir		12
	Pd		5, 13, 14
	Pt		5, 8, 13, 15-29
Multi-metal	Au@Ag		30
	Au@Ag/Pt		31
	Au/Cu		32
	Au@Pt		8, 33
	Au@PtAg	Core/shell nanorods	34
	Pt/Ag		35
	Pt/Au		36
Metal oxide	CeO_2		2, 37-57
		Ce^{3+}/Ce^{4+} doped bioactive glasses	58
		Eu doped	59

		Zr doped	60
	$CoFe_2O_4$		61
	Co_3O_4		62-68
			69
	Copper ferrite nanospheres		70
	$CuFe_2O_4$		71
	CuO		72
	Fe_2O_3		73, 74
	Fe_3O_4		74-78
		Porphyrin modified	79
	IrO_2		80
	$LaCoO_3$		81
	$MgFe_2O_4$		71
	$MnFe_2O_4$		82
	MnO_2		83-87
	Mn_3O_4		88, 89
	$NiFe_2O_4$		71
	RuO_2		90
	V_6O_{13}		91
	Y_2O_3		52
	ZrO_2		92
Metal sulfide	MoS_2	Nanosheets	93
	PbS	Quantum dots	22

Others	Prussian blue		94, 95
	Si		96
Composite	rFeO_x-mesoporous silica nanoparticle	Iron engineered framework of mesoporous silica	97
	Fe_3O_4 loading with TiO_2		98
	Prussian blue-ferritin		94
	Prussian blue-MnO_2		99
	Pt-MOF (PCN-224)	PCN for porous coordination network	99
	SiO_2-Au-DNAzyme-V_2O_5		100

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Table S4. Nanomaterials with superoxide dismutase-like activities

Nanomaterials		Comments	Ref.
Carbon	Carbon nanoparticles/clusters		1-3
	Carbon nitride	Graphitic carbon, nanosheets	4
	Fullerene (C_{60})		5-13
	Graphene		14
	Graphene quantum dots		15
	Mesoporous carbon	N doped	16
Metal	Ag		17
	Au		17-20
	Pd		17, 21, 22
	Pt		17, 22-31
Bimetal	Au/Ag		17
	Au/Pd		17
	Au/Pt		17, 32
Metal oxide	CeO_2		31, 33-71
		La doped nanocubes	72
		Ti doped	42, 45
		Zr doped	64
	Co_3O_4		73
	MnO		74
	MnO_2		75

	Mn_3O_4		76-78
	NiO		79
	TiO_2	Ce-intercalated titanate nanosheets	80
Others	$Co_3(PO_4)_2$		81
	$Cu(OH)_2$		82
	$FePO_s$		83
	$FePO_4$		84
	$Mn_3(PO_4)_2$		85-88
	MoS_2	Nanosheets	89
	Prussian blue		90-92
Composite	Au@CeO_2	Core-shell	93
	Au@polyoxometalate-hepta-peptide		94
	Au@PtAg	Core-shell nanorods	95
	Au@SiO_2		96
	SiO_2-Au-DNAzyme-V_2O_5		97
	V_2O_5@polydopamine@MnO_2		98
	ZnO/CeO_xhollow microspheres		99

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Table S5. Nanomaterials with hydrolase-like activities

Enzymes	Nanomaterials		Comments	Ref.
Amidase/protease	MOF	HKUST-1(Cu)	HKUST-1for Hong Kong University of Science and Technology	1
	Composite	CeO_2/polyoxometalate		2
		GO-peptide hybrid hydrogel		3
Carbonate ester-hydrolase	Carbon	Multi-walled nanotubes	Peptide modified	4, 5
	Metal	Au	Modified with N-Methylimidazole	6
	Composite	Au@dendrimer-like mesoporous silica nanoparticles	Pickering emulsion	7
		Fe_3O_4@SiO_2	With different ligands	8
Nuclease	Carbon	Fullerene (C_{60})		9-12
			Complexed with porphyrin	13
	Metal	Au	With metal ion based ligands	14-22
			β-cyclodextrin modified	23
			With guanidine based ligands	18
	Metal oxide	CeO_2		24
Phosphesterase	Carbon	GO		25, 26
	Metal	Ag	Imidazole-coated	27
		Au	With metal ion based ligands	14, 16, 28-30
			Imidazole-coated	27
	Bimetal	AgAu	Imidazole-coated	27
	Metal hydroxide	$Zr(OH)_4$		31-33

	Metal oxide	Al_2O_3		34, 35
			Supported KF	36
			Supported oxime	37
		CeO_2		38-43
		Iron oxide		44
		Mg^{2+}, Al^{3+}mixed oxides		45
		MgO		46
		MoO_3		47
		MoO_4		48
		SnO_2	SnO_2{110} surface	49
		TiO_2		34, 50-54
			Loaded with $H_3PW_{12}O_{40}$	55
			Nanotubes	54
			Zr doped	56
		$Ti_xCe_{1-x}O_2$		57
		$Ti_xZr_{1-x}O_2$		57
		WO_4		48
		ZnO		34
	MOF	Ce-BDC		58
		Cu-BDC		59
		DUT-84(Zr)	DUT for Dresden University of Technology	60
		MIL-101(Cr)		61
		Mixed ligand $[Zr_6O_4(OH)_4(BDC)_{6(1-x)}$(BDC-	x = 0, 0.25, 0.5, 0.75, 1.	62

		$NH_2)_{6x}$] (UiO-66-xNH$_2$) and [$Zr_6O_4(OH)_4(BPDC)_{6}(1-x)(BPDC-(NH_2)_2)_{6x}$] (UiO-67-x($NH_2)_2$) systems		
		MOF-808(Zr)		60, 63-65
		NU-1000(Zr)		63, 66-71
		PCN-128y(Zr)		72
		PCN-222/MOF-545(Zr)		73
		PCN-777		63
		SNNU-101		74
		Spirof-MOF(Zr)	$[Zr_6(\mu_3\text{-}O)_8(C_{53}H_{28}O_8)_2(H_2O)_8]$	75
		UiO-66(Ce)		76
		UiO-66(Zr)		60, 64, 71, 77-79
		UiO-66-NH_2(Zr)		63, 79, 80
		UiO-66-NO_2(Zr)		79
		UiO-66-$(OH)_2$(Zr)		79
		UiO-67(Zr)		64, 81
		UiO-67-NMe_2(Zr)		82
		Zr-BDC		58
	Others	Aluminosilicatezeolite framework	Ag^+	83
		Cp_2MoCl_2	Bis(cyclopentadienyl)-molybdenum(IV) dichloride	84
		$Cs_8Nb_6O_{19}$		85, 86
		$K_{12}[Ti_2O_2][GeNb_{12}O_{40}]\cdot 19H_2O$		87
		Mesoporous silica nanoparticles		88

		Molybdenum peroxo polymer		89
		SiO_2	With guanidine-based polymerligand	90
		Zinc peroxide nanoparticles		91
	Composite	Aluminum-titanate-supported erbium oxide		92
		CeO_2-Fe_2O_3		93
		Co_3O_4/rGO		94
		Cu-BTC and g-C_3N_4		95
		CuO-ZnO		96
		FeO/Fe_3O_4/Coke composite		97
		Fe_3O_4@SiO_2-rGO		98
		Ferrihydrite deposited on cotton textiles		99
		$H_5PV_2Mo_{10}O_{40}$@MIL-101(Cr)		100
		Polyamide-6@TiO_2@UiO-66-NH_2		101
		Polypyrrole/NiOBPC	NiOBPC for nickel octabutoxyphthalocyanine	102
		Polystyrene/UiO-66-NH_2		103
		Zinc-iron and copper-iron mixed (hydr)oxides		104
		$Zn(OH)_2$/GO		105

Abbreviations

BDC benzene-1,4-dicarboxaldehyde

BDC-NH_2 benzene-2-amino-1,4-dicarboxylate

BPDC 4,4'-biphenyldicarboxylate

BPDC-$(NH_2)_2$ 2,2'-diamino-4,4'-biphenyldicarboxylate

BTC 1,3,5-benzenetricarboxylic acid

g-C_3N_4	graphitic carbon nitride
GO	graphene oxide
MIL	Material Institute of Lavoisier
MOF	metal–organic framework
PCN	porous coordination network
rGO	reduced graphene oxide
UiO	University of Oslo

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Table S6. Representative nanozymes with multi-enzyme-mimicking activities

Materials		Multi-enzyme-mimicking activity	Applications	Ref.
Carbon	Diamond	Catalase and oxidase	Detection of immunoglobulin G; Protecting against H_2O_2-induced cellular oxidative damage	1
	Porous carbon	Catalase, oxidase, peroxidase, and superoxide dismutase	*In vivo* tumor catalytic therapy	2
COF	Covalent triazine framework-1	Oxidase and peroxidase	Detecting biothiols without using any oxidizing agents	3
Metal	Ag	Peroxidase, catalase, oxidase, superoxide dismutase, and phosphesterase		4, 5
	Au	Peroxidase, catalase, glucose oxidase, laccase, oxidase, superoxide dismutase, and phosphesterase	Detecting cholesterol and cascade catalysis of glucose; Detecting trypsin; Antibacterial; Logic gate	4-12
	Ir	Catalase, superoxide dismutase, and peroxidase	Cellular protective effect against H_2O_2-induced oxidative damage	13
	Pd	Catalase, oxidase, peroxidase, and superoxide dismutase	Detection of H_2O_2 and glucose; Antibacterial	4, 5, 14, 15

	Pt	Peroxidase, catalase, catechol oxidase, ferroxidase, laccase, oxidase, and, superoxide dismutase	Scavenging ROS	4, 5, 16
	Ru	Oxidase and peroxidase	Catalyzing the oxidation of substrate TMB, OPD, DA and NaA	17
Metal oxides	CeO_2	Catalase, catechol oxidase, other oxidases, superoxide dismutase, nuclease, phosphesterase, and peroxidase	Assays for single-nucleotide polymorphism; Blood-Brain Barrier crossing and protection for stroke treatment; Downregulation of tumor growth and invasion; Fighting chronic inflammation; Inhibiting pathological neovascularization; Scavenging ROS	10, 18-29
	Co_3O_4	Catalase, oxidase, peroxidase, and superoxide dismutase	Immunohistochemical detection of EGFR expression in non-small cell lung cancer tissues; Determination of H_2O_2 and glucose; Detection of VEGF in tumor	30-32

	$CoFe_2O_4$	Catalase, oxidase, and peroxidase	Reacting with luminol to yield a chemiluminescence without H_2O_2	33
	$CuFe_2O_4$	Catalase, oxidase, and peroxidase	Detection of glucose	34
	CuO	Cysteine oxidase, and peroxidase	Cysteine sensing	35
	Fe_2O_3	Catalase, glucose oxidase, other oxidases, and peroxidase	Studying the cytotoxicity based on their enzyme-like activities	36
	Fe_3O_4	Catalase, oxidase, and peroxidase	Studying the cytotoxicity based on their enzyme-like activities	36
	$LaCoO_3$	Catalase and peroxidase	Dopamine biosensing	37
	$MgFe_2O_4$	Catalase, oxidase, and peroxidase	Detection of glucose	34
	MnO_2	Catalase, glucose oxidase, glutathione peroxidase, other oxidases, superoxide dismutase, and peroxidase	Cytoprotective shells for individual living cell encapsulation; Scavenging ROS; Detection of glucose	38-40
	Mn_3O_4	Catalase, glutathione peroxidase, other oxidase, superoxide dismutase, and peroxidase	Cytoprotection to human cells in a Parkinson's disease model	41, 42

	$NiFe_2O_4$	Catalase, oxidase, and peroxidase	Detection of glucose	34
	RuO_2	Catalase and peroxidase	Detection of DNA	43
	V_6O_{13}	Catalase, oxidase, and peroxidase	Biosensor for the glutathione detection and a fluorescent system for the detection of H_2O_2 and glucose	44
	ZrO_2	Catalase and peroxidase	Generating ROS	45
Metal sulfide	MoS_2	Glutathione oxidase, catalase, peroxidase, and superoxide dismutase	Scavenging free radicals including hydroxyl radicals, nitrogen-centered free radicals, and nitric oxide	46
MOF	MOF (Co/2Fe)	Oxidase and peroxidase	Detection of H_2O_2	47
Others	AgX (X = Cl, Br, and I)	Oxidase and peroxidase	Cancer cell detection	48
	$CeVO_4$	Catechol oxidase, other oxidase, and peroxidase	Discrimination of hydroquinone from resorcinol and catechol	49
	Iron phosphates (FePOs)	Superoxide dismutase, and peroxidase	Detection of H_2O_2	50

	Prussian blue	Catalase, oxidase, superoxide dismutase, and peroxidase	Inhibiting the anti-cancer efficiency of ascorbic acid; Scavenging ROS	51, 52
	Si	Catalase, peroxidase, and reductase	Degrading various organic azo dyes	53

Abbreviations

DA	dopamine hydrochloride
EGFR	epidermal growth factor receptor
MNPs	magnetic nanoparticles
MOF	metal–organic framework
NaA	sodium L-ascorbate
OPD	o-phenylenediamine
ROS	reactive oxygen species
TMB	3,3,5,5-tetramethylbenzidine
VEGF	vascular endothelial growth factor

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Table S7. Representative nanozymes with multi-functionalities

Materials		Enzyme-mimicking activity	Novel functions	Applications	Ref.
Noble metal based	Ag	Peroxidase	Surface enhanced resonance Raman scattering	Detection of H_2O_2	1
	Ag	Peroxidase	Surface enhanced resonance Raman scattering	Detection of human C-reactive protein	2
	Ag@carbon dots	Peroxidase	SERS	Detection of H_2O_2	3
	Ag-Cu_2O/reduced graphene oxide	Peroxidase	SERS	Detection of H_2O_2 and glucose	4
	Au	Glucose oxidase	Localized surface plasmon resonance	Detection of adenosine triphosphate	5
	Au	Glucose oxidase	Localized surface plasmon resonance	Detection of DNA hybridization	6
	Au	Glucose oxidase	Localized surface plasmon resonance		7
	Au	Glucose oxidase	Localized surface plasmon resonance		8
	Au	Peroxidase	SERS	Detection of H_2O_2	9
	Au	Peroxidase	Localized surface plasmon resonance	Determination of various ultratrace analytes such as protein avidin, breast cancer	10

				antigen, thyroid hormone, and methamphetamine	
	Au/CuS	Peroxidase	SERS	Degradation of dye molecules	11
	Au/FeS (Au/Co_3O_4)	Peroxidase	SERS	Degradation of organic pollutants	12
	AuNPs@MIL-101	Peroxidase	SERS	Detection of glucose and lactate	13
	Au@Pt	Peroxidase	Photodynamic and photothermal therapy	Cancer therapy	14
	Au@Pt	Peroxidase	SERS	Detection of H_2O_2	15
	Au clusters	Peroxidase	Fluorescence imaging	Tumor molecular colocalization diagnosis	16
	BSA-stabilized Au nanoclusters	Peroxidase	Fluorescence imaging	Detection of dopamine	17
	Chitosan-modified popcorn-like Au-Ag	Peroxidase	SERS	Detection of melamine in milk powder	18
	CoS_2/Au	Peroxidase	SERS	Degradation of Rhodamine 6G	19
	Fructus Broussonetia-like Au@Ag@Pt	Peroxidase	SERS	Detection of H_2O_2 and glucose	20

	Gold nanohalo	Glucose oxidase	Localized surface plasmon resonance	Quantitative plasmonic imaging of single-particle catalysis	21
	PtCo	Oxidase	Magnetism for separation	Detection of cancer cell	22
	Reduced graphene oxide/CuS/Au	Peroxidase	SERS	Detection of H_2O_2	23
	Silver nanoparticles/carbon dots	Peroxidase	SERS	Detection of H_2O_2 and p-aminothiophenol	24
Iron oxide NPs based	3D rGO_Fe_3O_4-Pd	Oxidase and peroxidase	Magnetism for reusability	Detection of glucose	25
	Ag@Au-Fe_3O_4	Peroxidase	Magnetism for separation	Detection of human IgG	26
	Amino-functionalized Fe_3O_4	Peroxidase	Magnetism for separation and reusability	Sandwich immunoassay of hCG	27
	Aminopropyltriethoxysilane-modified Fe_3O_4	Peroxidase	Magnetism for separation	Detection of clenbuterol	28
	Amorphous iron nanoparticles	Peroxidase	Magnetism for enrichment and MRI	Cancer therapy	29
	Au@Fe_3O_4	Peroxidase	Magnetism for separation	Aptasensing of ochratoxin A	30

	Au-Fe_3O_4	Peroxidase	Fluorescence imaging and MRI	Dual modal imaging and the detection of cancer cells	31
	Au/Fe_3O_4/GO	Peroxidase	Magnetism for reusability and separation	Detection and removal of Hg^{2+}	32
	Casein-Fe_3O_4	Peroxidase	Magnetism for reusability	Detection of H_2O_2 and glucose	33
	Carbon nanotube/magnetic nanoparticle	Peroxidase	Magnetism for separation	Oxidation of phenols	34
	CeO_2/γ-Fe_2O_3	Phosphatase	Magnetism for separation	Degradation of the organophosphate pesticide parathion methyl and certain nerve agents	35
	Chitosan-modified Fe_3O_4	Peroxidase	Magnetism for separation and enrichment	Immunosorbent assay for detection of mouse IgG and CEA	36
	$Co_xFe_{3-x}O_4$	Peroxidase	Magnetism for separation	Determination of dopamine	37
	CTAB@Fe_2O_3	Peroxidase	Magnetism for reusability and separation	Tuning activities by CTAB coating	38
	Dimercaptosuccinic acid modified Fe_3O_4	Peroxidase	Magnetism for separation	Detect epidermal growth factor receptor over-expressed	39

				on the membrane of esophageal cancer cell	
	Epichlorohydrin-modified Fe_3O_4 microspheres	Peroxidase	Magnetism for reusability	Oxidation of benzyl alcohol to benzaldehyde	40
	Fe-doped polydiaminopyridine nanofusiforms	Catalase	MRI	Enhanced multimodal tumor theranostics	41
	γ-Fe_2O_3@Cu/Al-MCM-41	Peroxidase	Magnetism for separation and reusability	Degradation of phenol	42
	Fe_3O_4	Peroxidase	Magnetism for reusability	Degradation of bisphenol A	43
	Fe_3O_4	Peroxidase	Magnetism for separation	Degradation of methylene blue	44
	Fe_2O_3	Peroxidase	Magnetism for separation	Detection of thioglycolic acid	45
	Fe_3O_4	Peroxidase	Magnetism for reusability	Catalyse lipid peroxidation in liposomes	46
	Fe_3O_4	Peroxidase	Magnetism for separation	Detection of As, Sb, and Bi	47
	Fe_3O_4	Peroxidase	Magnetism for separation	Detection of H_2O_2 and glucose	48

	Fe_3O_4	Peroxidase	Magnetism for separation	Detection of various pesticides	49
	Fe_3O_4	Peroxidase	Magnetism for separation and reusability	Immunoassay for capture, separation and detection	50
	Fe_3O_4	Peroxidase	Magnetism for enrichment and separation	Promoting angiogenesis	51
	Fe_3O_4	Peroxidase	Magnetism for enrichment and separation	Rapid local diagnosis of Ebola	52
	Fe_3O_4	Peroxidase	Magnetism for enrichment and separation	Determination of arsenic and antimony in fish samples	53
	Fe_3O_4	Peroxidase	Magnetism for reusability	Determination of triacetone triperoxide	54
	Fe_3O_4	Peroxidase	Magnetism for reusability	Degradation of pentachlorophenol	55
	Fe_3O_4	Peroxidase	Magnetism for reusability	Degradation of 4-chlorophenol	56
	Fe_3O_4	Peroxidase	Magnetism for reusability	Colorimetric quantification of galactose	57
	Fe_3O_4	Peroxidase	Magnetism for reusability	Detection of H_2O_2 and glucose and degradation of phenol and Congo red dye	58

	Fe_3O_4	Peroxidase	Magnetism for reusability	Detection of alcohol	59
	Fe_3O_4	Peroxidase	Magnetism for reusability	Detection of cholesterol and glucose	60
	Fe_3O_4	Peroxidase	Magnetism for reusability and separation	Detection of circulating tumor cells	61
	Fe_3O_4	Peroxidase	Magnetism for separation	Detection of nucleic acids	62
	Fe_3O_4	Peroxidase	Magnetism for separation	Oxidation of pyrogallol by H_2O_2	63
	Fe_3O_4	Peroxidase	Magnetism for reusability and separation	Removal of phenol and aniline	64
	Fe_3O_4	Peroxidase	Magnetism for separation	Detection of melanoma circulating tumor cells	65
	Fe_3O_4	Peroxidase	Magnetism for reusability	Removal of organic pollutants	66
	Fe_3O_4	Peroxidase	Magnetism for reusability	Removal of Navy blue	67
	Fe_3O_4	Peroxidase	Magnetism for reusability	Synthesis of fluorescent polydopamine for light-up Zn^{2+} detection	68
	Fe_3O_4	Peroxidase	Magnetism for reusability	Dye decolorization	69
	Fe_3O_4	Peroxidase	Magnetism for enrichment and reusability		70

	Fe_3O_4	Peroxidase	MRI	Anti-bacterial and *in vivo* tumor treatment	71
	Fe_3O_4-Au	Peroxidase	Magnetism for enrichment and reusability		72
	Fe_3O_4/Au	Peroxidase	Magnetism for reusability	Degradation of methyl orange	73
	Fe_3O_4-Au@mesoporous SiO_2 microspheres	Glucose oxidase and peroxidase	Magnetism for separation	Detection of H_2O_2 and glucose	74
	Fe_3O_4@C	Peroxidase	Magnetism for separation	Detection of H_2O_2 and glucose	75
	Fe_3O_4/CeO_2	Peroxidase	Magnetism for reusability	Degradation of 4-chlorophenol	76
	Fe_3O_4@CTAB	Peroxidase	Magnetism for reusability and separation	Detection of H_2O_2	77
	Fe_3O_4@Fe_3O_4/C	Peroxidase	Magnetism for reusability	Degradation of chlorophenols	78
	Fe_3O_4/hydrogel	Peroxidase	Magnetism for reusability	Detection of H_2O_2	79
	Fe_3O_4@mesoporous silica nanoparticle	Peroxidase	Magnetism for reusability	Detection of glucose	80
	Fe_3O_4@MIL-100(Fe)	Peroxidase	Magnetism for reusability and separation	Detection of cholesterol	81
	Fe_3O_4@mSiO_2@HP-β-CD	Peroxidase	Magnetism for reusability	Colorimetric assay for β-estradiol	82
	Fe_3O_4/MWCNTs	Peroxidase	Magnetism for reusability	Detection of glucose	83

	$Fe_3O_4/P_{β\text{-}CD}$	Peroxidase	Magnetism for reusability	Detection of glucose	84
	Fe_3O_4@Pt	Peroxidase	Magnetism for enrichment	Point-of-care bioassay	85
	Fe_3O_4 nanospheres/rGO	Peroxidase	Magnetism for separation	Detection of acetylcholine	86
	Fe_3O_4/rGO	Peroxidase	Magnetism for reusability	Removal of organic dyes from aqueous solutions	87
	Fe_3O_4/rGO	Peroxidase	Magnetism for reusability and separation	Rhodamine B adsorption	88
	Fe_3O_4/SiO_2	DNase	Magnetism for reusability	Killing biofilm-encased bacteria and eradiating biofilms	89
	Fe_3O_4@SiO_2@Au	Peroxidase	Fluorescence imaging and magnetism for separation	Detection of H_2O_2 and glucose	90
	Fe_3O_4 magnetic beads	Peroxidase	Magnetism for separation	Detection of prostate-specific antigen	91
	Fe_3O_4 magnetic nanoparticles and Mn-doped ZnS QD nanocomposites	Peroxidase	Magnetism for enrichment and separation	Detection and degradation of Trinitrotoluene	92
	Fe_3O_4 nanoparticles-carbon nitride nanotube hybrids	Peroxidase	Magnetism for separation	Study of peroxidase-mimetic activity	93
	Fe_3O_4 nanoparticles decorated Al pillared bentonite	Peroxidase	Magnetism for reusability	Degradation of Rhodamine B	94
	Fe_3O_4 nanorod bundles	Peroxidase	Magnetism for reusability	Degradation of crystal violet	95

	Ferrimagnetic H-ferritin	Peroxidase	MRI	Detect MDA-MB-231 breast cancer cells	96
	Ferrofluidic nanoparticulate	Peroxidase	Magnetism for separation	Assay for single-nucleotide polymorphism genotyping	97
	Ferucarbotran	Peroxidase	MRI	Promotion of human mesenchymal stem cell proliferation	98
	$FeVO_4$ nanobelts	Peroxidase	Magnetism for reusability	Detection of H_2O_2	99
	GO-Fe_2O_3 hybrids	Catalase and peroxidase	Magnetism for enrichment and separation	Degradation of Rhodamine B	100
	GO-Fe_3O_4	Peroxidase	Magnetism for separation	Detection of glucose	101
	GOx/Fe_3O_4/GO	Peroxidase	Magnetism for reusability	Determination of glucose and hydrogen peroxide	102
	Graphene supported Au-Pd-Fe_3O_4	Peroxidase	Magnetism for reusability and separation	Catalysts for liquid-phase reaction	103
	GQDs/Fe_3O_4	Peroxidase	Magnetism for reusability	Removal of phenolic compounds	104
	Humic acid coated Fe_3O_4	Peroxidase	Magnetism for reusability	Complete mineralization of sulfathiazole	105
	Hydrogel-coated Fe_3O_4	Peroxidase	Magnetism for reusability	Degradation of phenol	106
	Hydrogel-supported Fe_3O_4	Peroxidase	Magnetism for reusability	Detection of H_2O_2	107

	Janus γ-Fe_2O_3/SiO_2	Peroxidase	Magnetism for reusability	Detection of glucose	108
	Magnetite/mesocellular carbon foam	Peroxidase	Magnetism for reusability and separation	Removal of phenol and arsenic	109
	Magnetic polymeric nanoparticle	Peroxidase	Magnetism for separation	Detection of vibrio cholerae	110
	Magnetic silica nanoparticles clicked on multiwalled carbon nanotubes	Peroxidase	Magnetism for separation	Detection of copper ions	111
	Magnetic zeolitic imidazolate framework 8	Peroxidase	Magnetism for reusability	Detection of glucose	112
	Magnetoferritin	Peroxidase	Magnetism for enrichment	Targeting and visualizing tumour tissues	113
	MFe_2O_4 (M = Mg, Ni, Cu)	Catalase and peroxidase	Magnetism for separation	Detection of glucose	114
	MFe_2O_4 (M = Mg, Fe, Co, Ni, Cu, and Zn)	Peroxidase	Magnetism for reusability		115
	$MnFe_2O_4$	Oxidase	Magnetism for reusability		116
	$MnFe_2O_4$ nanoparticle-anchored mesoporous silica nanoparticles	Peroxidase	MRI	Improving therapeutic outcomes of photodynamic therapy for tumors *in vivo*	117
	MNP@Tb-MOFs	Peroxidase	Fluorescence	Detection of H_2O_2	118
	Nitrogen-doped graphene functionalized with magnetic nanoparticles	Peroxidase	Magnetism for separation	Detection of H_2O_2 and glucose	119
	Pd/Fe_3O_4-PEI-rGO	Peroxidase	Magnetism for separation	Detection of H_2O_2	120

	Porous Fe_3O_4 nanospheres	Peroxidase	Magnetism for reusability and separation	Degradation of xylenol orange	121
	Porphyrin-Fe_3O_4	Peroxidase	Magnetism for reusability	Detection of glucose	122
	Porphyrin functionalized γ-Fe_2O_3	Catalase and peroxidase	Magnetism for separation	Detection of H_2O_2 and glucose	123
	Prussian blue modified γ-Fe_2O_3	Peroxidase	Magnetism for separation	Detection of IgG	124
	Prussian blue modified γ-Fe_2O_3	Peroxidase	Magnetism for reusability and separation	Degradation of methylene blue	125
	rGO-Fe_3O_4	Peroxidase	Photothermal therapy	Antibacterial	126
	Rhombic dodecahedral Fe_3O_4 nanocrystals	Peroxidase	Magnetism for reusability	Degradation of methylene blue dye	127
	$ZnFe_2O_4$@MWNTs	Peroxidase	Magnetism for reusability	Detection of CEA	128
Iron sulfide	FeS	Peroxidase	Magnetism for reusability	Detection of H_2O_2	129
	FeS	Peroxidase	Magnetism for reusability	Detection of H_2O_2	130
	FeS and FeSe	Peroxidase	Magnetism for reusability	Detection of H_2O_2	131

Other	α-MnSe	Peroxidase	Reusability		132
	Au@porous hollow carbon shell nanospheres	Oxidase and peroxidase	Photothermal therapy	Tumor treatment	133
	CeF_3:Tb	Catalase	Luminescence	Protecting cells against oxidative stress	134
	CeO_2:Eu^{3+}	Catalase	Luminescence	Detection of ethanol	135
	$CePO_4$:Tb,Gd hollow nanospheres	Peroxidase	MRI and fluorescent imaging	Antioxidant and multimodal imaging	136
	$C_1H_{0.677}O_{0.586}N_{0.015}Na_{0.069}$	Peroxidase	Fluorescence imaging	Detection of glucose	137
	Copper-containing carbon dots	Laccase	Fluorescence imaging	Detection of hydroquinone	138

	Cu_2ZnSnS_4@BSA	Peroxidase	MRI, photoacoustic imaging and photothermal therapy	Tumor photothermal therapy	139
	Fe^{III}-doped two-dimensional C_3N_4 nanofusiform	Peroxidase	MRI and photodynamic therapy	Antitumor therapy	140
	FeSe-Pt@SiO_2 nanospheres	Glucose oxidase and peroxidase	Magnetism for separation	Detection of H_2O_2 and glucose	141
	$Gd(OH)_3$ and Gd_2O_3 nanorods	Peroxidase	MRI	Sensing of L-cysteine	142
	Graphene oxide nanosheet/PEI/OA-Fe_3O_4 NP/PEI/TOABr-Pd NP	Peroxidase	Magnetism for reusability		143
	Graphitic carbon nitride nanosheets	Superoxide dismutase	Fluorescence		144
	Magnetic molecularly imprinted catalytic polymers	Peroxidase	Magnetism for separation	Oxidation of the indoleamine metabolite tumor marker	145

	MnO	Superoxide dismutase	MRI	Enhancing the MRI contrast when exposed to superoxide radicals	146
	MnO_2 nanosheets anchored with upconversion nanoprobes	Catalase	Upconversion luminescent imaging, photodynamic therapy and radiotherapy	Concurrent pH-/H_2O_2-responsive upconversion luminescent imaging and oxygen-elevated synergetic therapy	147
	Nano-MoS_2	Peroxidase	Photothermal	Wound antibacterial	148
	Nickel telluride	Peroxidase	Magnetism for reusability	Detection of H_2O_2 and glucose	149
	Phthalic acid-Tb-Cu MOF	Peroxidase	Fluorescence	Detection of H_2O_2	150
	Prussian blue	Catalase	MRI and ultrasound imaging	*In vitro* and *in vivo* diagnosing H_2O_2	151

	Prussian blue nanocubes	Peroxidase	MRI		152
	Prussian blue/manganese dioxide	Catalase	MRI, photoacoustic imaging and photothermal imaging	Oxygen regulation of the exografted breast cancer	153
	Quantum dot-Au nanoparticle@silica mesoporous microsphere	Glucose oxidase	Photoluminescence	Detection of glucose	154

Abbreviations

β-CD	β-cyclodextrin
BSA	bull serum albumin
CEA	carcinoembryonic antigen
CTAB	cetyltrimethyl ammonium bromide
GO	graphene oxide
GOx	glucose oxidase
GQD	graphene quantum dot
hCG	human chorionic gonadotrophin
HP-β-CD	hydroxypropyl β-cyclodextrin
IgG	immunoglobulin G
iPS	induced pluripotent stem
MIL	Materials of Institute Lavoisier

MNP	magnetic nanoparticle
MOF	metal organic framework
MRI	magnetic resonance imaging
MWCNT	multi-walled carbon nanotube
NP	nanoparticle
OA	oleic acid
PEI	polyetheylenimine
QD	quantum dot
rGO	reduced graphene oxide
SERS	surface-enhanced Raman scattering
TOABr	tetra(octylammonium bromide)

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Table S8. H_2O_2 detection with peroxidase mimics

Nanozymes	**Meth.**	**Linear range**	**LOD**	**Comments**	**Ref.**
Ag NCs+WS_2 nanosheets	CL	2.5−1500 nM	0.6 nM	A mixture of WS_2 nanosheet and Ag NCs	1
$CoFe_2O_4$ NPs-β-cyclodextrins	CL	0.1−4 μM	0.02 μM	$CoFe_2O_4$ NPs form complexes with β-cyclodextrins.	2
$CoFe_2O_4$ NPs	CL	0.1−10 μM	10 nM	H_2O_2 in natural water was tested.	3
$CoFe_2O_4$ NPs	CL	0.001−4 μM	0.5 nM	$CoFe_2O_4$ NPs was coated with chitosan. H_2O_2 in natural water was tested.	4
CuO NPs	CL	0.10−5.0 μM	0.01 μM		5
M-phthalic acid-Tb-Cu MOF	CL	0−500 μM	0.2 μM	Substrate: ascorbic acid H_2O_2 in milk samples was tested.	6
3D hierarchical porous PtCu dendrites	Color.	0.3−325 μM	0.1 μM	Substrate: TMB This colorimetric H_2O_2 sensor was successfully applied to the determination of H_2O_2 in dairy milk products with satisfactory results.	7
Ag NPs/GQDs	Color.	0.1−100 μM	33 nM		8
Ag_2S-montmorillonites	Color.	0.2−1.2 mM	19.16 μM	Substrate: TMB The determination of hydrogen peroxide in the milk samples purchased from the supermarket in Qingdao (China) was executed under optimal conditions.	9
$AgVO_3$ nanobelts	Color.	0.075−0.5 mM	5 μM	Substrate: TMB	10
Au@Ag heterogeneous nanorods	Color.	0.01−10 mM	6 μM	Substrate: ABTS	11
Au@Cu_xOS yolk-shell nanomaterials	Color.	0.1−32 μM	0.03 μM	Substrate: TMB	12
Au NC@BSA	Color.	0.5−20 μM	20 nM	Substrate: TMB	13
Au NPs	Color.	18−1100 μM	4 μM	Substrate: TMB Cysteamine was the ligand for Au NPs.	14
Au NPs	Color.	0.06−4.29 mM	0.06 mM	Substrate: TMB	15
Au NP@Ag–hemin–rGO nanocomposites Au nanostar@Ag–hemin–rGO nanocomposites	Color.	10−35 nM 10−35 nM	3.096 nM 1.26 nM	Substrate: TMB Substrate: TMB	16
Au NPs@DNA hydrogel	Color.	5−100 μM and	1.7 μM	Substrate: ABTS	17

		100−5000 μM			
Au@PtAg core/shell nanorods	Color.	10−1000 μM	8.9 μM	Substrate: TMB	18
Au@Pt core/shell nanorods	Color.	45−1000 μM	45 μM	Substrate: OPD	19
Au-Pt/SiO_2 nanospheres	Color.	0.1 pM−1 mM and 1 mM−10 M	0.1 pM	Substrate: TMB The method was further validated by the determination of H_2O_2 in HeLa cells with low cellular cytotoxicity.	20
Au@TiO_2 yolk-shell nanostructure	Color.	5−100 μM	4.0 μM	Substrate: TMB	21
BiOI hierarchical nanoflowers	Color.	0.25−20 μM	0.05 μM	Substrate: TMB	22
BSA-$Cu_3(PO_4)_2 \cdot 3H_2O$ hybrid nanoflower	Color.	1−2000 μM	0.45 μM	Substrate: ABTS	23
Carbon based-AuPd bimetallic nanocomposite	Color.	5−500 μM and 0.5−4 mM	1.6 μM	Substrate: TMB	24
Carbon dot/NiAl-layered double hydroxide hybrid material	Color.	0.2−20 μM	0.11 μM	Substrate: TMB The proposed method is successfully applied for the determination of H_2O_2 in milk samples.	25
Carbon dots	Color.	2−500 μM	1 μM	Substrate: TMB	26
Carbon dots/Fe_3O_4 hybrid nanofibers	Color.	1−20 μM	0.917 μM	Substrate: TMB	27
Carbon dots-Pt nanocomposites	Color.	2.5−1000 μM	0.8 μM	Substrate: TMB	28
Carbon nanodots	Color.	1−100 μM	0.2 μM	Substrate: TMB	29
Carbon nanodots	Color.	5.0−100.0 μM	0.6 μM	Substrate: TMB	30
Carbon nanomaterials-1 Carbon nanomaterials-2 Carbon nanomaterials-3	Color.	0.02−0.2 mM 0.02−0.2 mM 0.02−0.4 mM	0.024 mM, 0.0042 mM 0.014 mM	Substrate: TMB The practical use of these carbon nanomaterials for phenolic compounds removal in aqueous solution is also demonstrated successfully.	31
Carbon nitride dots	Color.	1−100 μM	0.4 μM	Substrate: TMB	32
Carboxyl functionalized mesoporous polymer	Color.	1−8 μM	0.4 μM	Substrate: TMB	33
Carbon dots/Fe_3O_4 magnetic nanocomposite	Color.	0.01−1000 μM	1.0 nM	Substrate: TMB	34
CdS nanocomposites	Color.	4−14 μM	0.46 μM	Substrate: TMB	35
CdS-SiO_2 nanocomposite	Color.	5−40 μM	4.2 μM	Substrate: TMB	36

Ce-Fe_3O_4 NPs	Color.	4−40 μM	0.6 μM	Substrate: TMB	37
CeO_2/Co_3O_4/poly(3,4-ethylenedioxythiophene) nanofibers	Color.	0−60 μM	1.67 μM	Substrate: TMB	38
CeO_2-montmorillonite nanocomposites	Color.	9−500 μM	7.8 μM	Substrate: TMB The sensor was successfully applied in H_2O_2 detection in milk samples.	39
CeO_2 NPs	Color.	0.60−1.5 μM	0.50 μM	Substrate: TMB	40
CeO_2/NiO nanocomposites	Color.	0.05−40 mM	0.88 μM	Substrate: TMB	41
CeO_2 on TiO_2 nanotube	Color.	5−100 μM	3.2 μM	Substrate: TMB	42
$CeVO_4$ nanorods	Color.	1.0−25.0 μM	0.07 μM	Substrate: TMB	43
Co/2Fe MOF	Color.	10−100 μM	5 μM	Substrate: TMB	44
CoOOH nanoflakes	Color.	5−500 μM	1.2 μM	Substrate: TMB	45
CoFe layered double hydroxide nanoplates	Color.	1−20 μM	0.4 μM	Substrate: TMB	46
$CoFe_2O_4$ ferrite nanocubes on graphene	Color.	2−100 μM	0.3 μM	Substrate: TMB	47
$Co_xFe_{3-x}O_4$ nanocubes	Color.	1−60 μM	0.36 μM	Substrate: TMB	48
Co_4N nanowires	Color.	0.5−30 μM	0.024 μM	Substrate: TMB	49
Co_3O_4-montmorillonite nanocomposites	Color.	10−100 μM	8.7 μM	Substrate: TMB	50
Cu-MOP nanorods	Color.	4−1000 μM	1 μM	Substrate: ABTS	51
Cu NCs	Color.	0.02−0.1 mM, 0.1−1 mM and 1−10 mM	0.2 μM	Substrate: TMB	52
Cu NCs	Color.	10 μM−1 mM	10 μM	Substrate: TMB	53
Cu NPs	Color.	0.15−12.5 μM	0.132 μM	Substrate: TMB	54
Cu NPs/g-C_3N_4 nanosheets	Color.	0.1−2 μM	0.032 μM	Substrate: TMB	55
CuO-g-C_3N_4 nanocomposites	Color. E-chem.	2−150 mM 0.05−3 mM	1.2 μM 7.7 μM	Substrate: TMB	56
CuS nanorods	Color.	1.0−1000 μM	0.11 μM	Substrate: OPD	57

Core-shell fructus broussonetia-like Au@Ag@Pt NPs	Color.	10 pM−100 µM	N/A	Substrate: TMB	58
Core/shell microcapsules consisting of Fe_3O_4 microparticles coated with nitrogen-doped mesoporous carbon	E-chem.	0.05−33 mM	5.9 µM		59
$CuFe_2O_4/Cu_9S_8$/polypyrrole ternary nanotubes	Color.	3−120 µM	2.2 µM	Substrate: TMB	60
Cubic boron nitride	Color.	10−200 mM	8 mM	Substrate: TMB	61
Fe_3O_4-Au NPs anchored 2D Cu-MOF nanosheets	Color.	2.86−71.43 nM	2.83 nM	Substrate: TMB Cu-MOF was synthesized by Cu_2O particles and 1,3,5-benzenetricarboxylic acid. DNA regulated switchable peroxidase-like activity and H_2O_2 determination in MCF-7 cells was tested.	62
CuO:graphene nanosphere	Color.	10−100 µM	6.88 µM	Substrate: TMB An AND logic gate system based on CuO:graphene nanosphere and cholesterol input was also proposed.	63
CuO NPs	Color.	0.01−1 mM	N/A	Substrate: 4-AAP and phenol	64
CuS clews	Color.	0.2−130 µM	63 nM	Substrate: TMB	65
CuS-montmorillonite nanocomposites	Color.	30−200 µM	24.7 µM	Substrate: TMB	66
$Cu_6(1,2,4\text{-triazole})_{10}(H_2O)_4[H_2SiW_{12}O_{40}\cdot 8H_2O]$	Color.	10.0−50 µM	1.37 µM	Substrate: TMB	67
CuZnFeS nanocrystals	Color.	10−55 µM	3 µM	Substrate: TMB	68
dBSA-Hem-Au NCs	Color. E-chem. Fluor.	5.0−210 µM 2.0−2200 µM 0.05−100 µM	1.2 µM 0.40 µM 0.03 µM	Substrate: TMB Substrate: small Au NCs	69
Dipeptide-polyoxometalate-graphene oxide ternary hybrid materials	Color.	1−75 µM	0.11 µM	Substrate: TMB	70
DNA-layered double hydroxide nanohybrids	Color.	20−2000 µM	10 µM	Substrate: TMB	71
Dumbbell-like PtPd-Fe_3O_4 NPs	Color.	2 µM−4 mM	N/A	Substrate: TMB	72
[Fe(III)(biuret-amide)] on mesoporous silica	Color.	0.1−5 mM	10 µM	Substrate: TMB	73

Fe(III)-based coordination polymer	Color.	1−50 µM	0.4 µM	Substrate: TMB	74
Fe_3C NPs encapsulated in porous nitrogen-rich graphene	Color.	0.5−300.0 µM	0.15 µM	Substrate: TMB	75
Fe^{3+}-doped mesoporous carbon nanospheres	Color.	5−200 µM	2.63 µM	Substrate: TMB	76
$Fe_2(MoO_4)_3$	Color.	1.0−30 µM	0.7 µM	Substrate: TMB	77
Fe_3O_4-graphene oxide composites	Color.	1−50 µM	0.32 µM	Substrate: TMB	78
$(FeOH_2)_2SiW_{10}O_{36}$	Color.	0.134−67 µM	0.1 µM	Substrate: TMB	79
Fe_3O_4@mesoporous silica NP	Color.	1.0−100 µM	1.0 µM	Substrate: TMB	80
Fe_3O_4 MNPs	Color.	5−100 µM	3 µM	Substrate: ABTS	81
Fe_3O_4 MNPs	Color.	0.5−150.0 µM	0.25 µM	Substrate: DPD H_2O_2 in rainwater, honey, and milk was tested.	82
Fe_3O_4 MNPs	Color.	1−100 µM	0.5 µM	Substrate: TMB Fe_3O_4 was encapsulated in mesoporous silica.	83
Fe_3O_4 MNPs	Color.	0−70 µM	0.175 µM	Substrate: TMB Their data show that the Fe_3O_4 MNPs are efficient catalysts to determine H_2O_2 in rainwater.	84
Fe_3O_4@mSiO_2@HP-β-CD NPs	Color.	1.06−100 µM	0.3 µM	Substrate: TMB	85
Fe_3O_4 NPs	Color.	1−10 µM	0.1 µM	Substrate: TMB	86
Fe_3O_4 NP/hydrogel magnetic nanocomposite	Color.	N/A	5 µM	Substrate: TMB	87
Fe_3O_4 nanocomposites	Color.	5−80 µM	1.07 µM	Substrate: TMB Fe_3O_4 was functionalized by 5,10,15,20-Tetrakis(4-carboxyphenyl)-porphyrin.	88
Fe_3O_4 NPs	Color.	1.17−35.2 µM	0.6 µM	Substrate: methyl orange The method has been applied to determine H_2O_2 in foodstuff with satisfactory results.	89
Fe_3O_4 NPs	Color.	0.01−8 mM	0.005 mM	Substrate: TMB	90
Fe_3O_4@SiO_2@Au multifunction NPs	Color.	1−40 µM	0.6 µM	Substrate: TMB	91
α-FeOOH/GO	Color.	0.20−200 µM	0.10 µM	Substrate: DPD	92

FePt-Au ternary metallic NPs	Color.	20−700 μM	12.33 μM	Substrate: TMB The ultrafast sensor based on FePt-Au HNPs as peroxidase mimics was also successfully applied to detect H_2O_2 in milk samples.	93
$Fe_3(PO_4)_2 \cdot 8H_2O$ nanoflowers	Color.	10−2500 μM	5 nM	Substrate: TMB H_2O_2 content in milk samples was tested.	94
FeSe-Pt@SiO_2 nanospheres	Color.	2.27 nM−1.14 mM	0.227 nM	Substrate: TMB	95
Fe_7S_8 nanowires	Color.	1−100 μM	N/A	Substrate: TMB	96
Fe-substituted SBA-15 microparticles	Color.	0.4−15 μM	0.2 μM	Substrate: TMB	97
FeTe nanorods	Color.	0.1−5 μM	55 nM	Substrate: ABTS	98
Folic acid-modified graphene	Color.	0.05−0.8 mM	0.03 mM	Substrate: TMB	99
GO	Color.	0.05−100 μM	50 nM	Substrate: TMB	100
GOx/Fe_3O_4/GO magnetic nanocomposite	Color.	0.1−100 μM	0.04 μM	Substrate: DPD	101
GQDs	Color.	0.02−0.1 mM	N/A	Substrate: TMB	102
GQDs	Color.	100 nM−10 mM	87 nM	Substrate: TMB	103
GQDs/CuO	Color.	0.5−10 μM	0.17 μM	Substrate: TMB	104
Graphene dots	Color.	10 nM−10 μM	10 nM	Substrate: TMB	105
Hydroxyapatite nanowires@MIL-100(Fe) nanofibers	Color.	0.95−28.57 μM 9.52−142.86 μM	N/A N/A	Substrate: TMB Substrate: OPD Flexible recyclable test paper.	106
Hem-Au@apoHb nanocomposites	Color. E-chem.	5−2200 μM 1.8−2500 μM	1.25 μM 0.45 μM	Substrate: TMB	107
Hemeprotein-MOF hybrid composites	Color.	0−800 μM	1.0 μM	Substrate: Phenol	108
Hemin/WS_2 nanosheets	Color.	5−140 μM	1.0 μM	Substrate: TMB	109
Hemin-graphene hybrid nanosheets	Color.	0.05−500 μM	20 nM	Substrate: TMB	110
Hierarchical $NiCo_2O_4$ hollow sphere	Color.	10−400 μM	0.21 μM	Substrate: TMB	111

H_2TCPP-ZnS nanocomposites	Color.	10−60 μM	15.8 μM	Substrate: TMB	112
Hybridized Pt/cube-CeO_2 nanocomposites	Color.	0−100 μM	10.7 μM	Substrate: TMB	113
Hydrogel-supported Fe_3O_4	Color.	1.5−9.8 μM	1.5 μM	Substrate: TMB	114
Ir NPs	Color.	10−150 μM	5.2 μM	Substrate: TMB	115
Iron(III)-doped GO	Color.	0.1−250 μM	0.01 μM	Substrate: TMB	116
Iron(III) hydrogen phosphate hydrate crystals	Color.	57.4−525.8 μM	1 μM	Substrate: TMB	117
Ionic liquid coated Fe NPs	Color.	30−300 μM	0.15 μM	Substrate: TMB	118
Janus hydrogel microparticles embedded with γ-Fe_2O_3 NPs	Color.	50−500 μM	N/A	Substrate: TMB	119
$KFePW_{12}O_{40}$	Color.	1−1600 mM	N/A	Substrate: TMB	120
$LaNiO_3$ cubes	Color.	0−30μM and 40−500 μM	N/A	Substrate: TMB	121
Magnetoferritin	Color.	5.8−88.2 mM	N/A	Substrate: DPD	122
Mesoporous carbon-dispersed Pd NPs	Color.	5−300 μM	N/A	Substrate: TMB Ready-to-use paper-based sensors were further prepared. By combining these test strips with a smartphone and an easy-to-access color-scanning APP together, the integrated platform could be used for the quantitative analysis of H_2O_2. H_2O_2 in commercial milk samples was tested.	123
MIL-53(Fe)	Color.	0.95−19 μM	0.13 μM	Substrate: TMB MIL-53(Fe): A metal–organic framework	124
MIL-68 MIL-100	Color.	N/A N/A	0.256 μM 0.155 μM	Substrate: TMB	125
MIL-88	Color.	2−20.3 μM	0.562 μM	Substrate: TMB	126
MnSe NPs	Color.	0.17−10 μM	0.085 μM	Substrate: TMB	127
MnSe-g-C_3N_4 nanocomposite	Color.	18−1800 μM	1.8 μM	Substrate: TMB	128
MoS_2	Color.	0.125−1.75 μM	0.08 μM	Substrate: TMB	129

$MoSe_2$ nanosheets	Color.	10−160 μM	0.408 μM	Substrate: TMB	130
MoS_2 nanoflakes	Color.	0−300 μM	4.103 μM	Substrate: TMB MoS_2 nanoflakes with different modifications have different peroxidase-like activity.	131
MoS_2 NPs	Color.	3−120 μM	1.25 μM	Substrate: TMB	132
MoS_2/PPy nanocomposite	Color.	50−2000 μM	45 μM	Substrate: TMB	133
MWCNTs-PB NPs	Color.	1 μM−1.5 mM	100 nM	Substrate: TMB Carbon nanotubes were filled with Prussian blue nanoparticles.	134
Nano Au-Hg amalgam	Color.	0.5−100 μM	0.35 μM	Substrate: TMB H_2O_2 in the river sample was tested.	135
NiTe thorny nanowires	Color.	0.1−0.5 μM	25 nM	Substrate: ABTS	136
NiFe-layered double hydroxide nanosheets	Color.	10−500 μM	4.4 ± 0.2 μM	Substrate: TMB	137
NiO nanoparticles modified with 5,10,15,20-tetrakis(4-carboxyl pheyl)-porphyrin	Color.	0.02−0.10 mM	8.0 μM	Substrate: TMB	138
Nitrogen-doped GQDs	Color.	20−1170 μM	5.3 μM	Substrate: TMB	139
Nitrogen-doped porous carbon supporting Pt NPs	Color.	5−100 μM	1.7 μM	Substrate: TMB	140
PB NPs	Color.	0.05−50 μM	0.031 μM	Substrate: ABTS	141
PB on carbon cloth	Color.	5−400 μM	1.7 μM	Substrate: TMB	142
PB modified MIL-101(Fe)	Color.	2.40−100 mM	0.15 mM	Substrate: TMB	143
Pd NPs decorated on magnetic graphene nanosheets	Color.	0.5−150 μM	0.1 μM	Substrate: TMB	144
Pd NPs modified electrospun $CoFe_2O_4$ nanotubes	Color.	10−100 μM	1.68 μM	Substrate: TMB	145
PDI-CuO nanobelts	Color.	3−30 μM	2.38 μM	Substrate: TMB	146
PDI-Fe_3O_4 nanocomposites	Color.	7−100 μM	2 μM	Substrate: TMB	147
PDI functionalized Co_3O_4 nanocomposites	Color.	3−60 μM	2.37 μM	Substrate: TMB	148

Pd NPs supported on nitrogen, sulfur doped 3D hierarchical nanostructures	Color.	0.01−0.6 mM	3.3 μM	Substrate: TMB	149
Pd@Pt	Color.	0.004−2 mM	4 μM	Substrate: TMB	150
PEG-MoS_2 nanosheets	Color.	2.86−286 μM	2.86 μM	Substrate: TMB	151
Polypyrrole NPs	Color.	5−100 μM	N/A	Substrate: TMB PPy has been successfully employed to quantitatively monitor the H_2O_2 generated by macrophages.	152
Polyoxometalate	Color.	1−20 μM	0.4 μM	Substrate: TMB	153
Polyoxometalate	Color.	0.134−67 μM	0.134 μM	Substrate: TMB	154
Polyoxometalate clusters	Color.	1−20 μM	0.4 μM	Substrate: TMB	155
Poly(sodium styrene sulfonate)-functionalized graphene nanosheets	Color.	0.005−1 mM	0.15 mM	Substrate: TMB	156
Porous FeP nanocubes	Color.	2−130 μM	0.62 μM	Substrate: TMB	157
Porous PtPd nanorods	Color.	20 nM−50 mM	8.6 nM	Substrate: TMB The flux of H_2O_2 released from living cell was tested.	158
Porphyrin functionalized ceria	Color.	10−100 μM	1.8 μM	Substrate: TMB	159
Porphyrin functionalized Co_3O_4 nanostructures	Color.	1−75 μM	0.4 μM	Substrate: TMB	160
Porphyrin functionalized γ-Fe_2O_3 nanocomposites	Color.	10−100 μM	1.73 μM	Substrate: TMB	161
Protein-Fe_3O_4 and GOx nanocomposites	Color.	0.5−200 μM	0.2 μM	Substrate: TMB	162
$Pt_{74}Ag_{26}$ nanoparticle-decorated ultrathin MoS_2 nanosheets	Color.	1−50 μM	0.4 μM	Substrate: TMB	163
Pt-DNA complexes	Color.	0.979−17.6 mM	0.392 mM	Substrate: TMB 3.92 μM was detected with PVDF membrane.	164
PtPd nanodendrites on graphene nanosheets	Color.	0.5−150 μM	0.1 μM	Substrate: TMB	165
rGO-Fe NPs	Color.	0.76−47 μM	0.2 μM	Substrate: TMB	166
RGO/Cu_8S_5/PPy composite nanosheets	Color.	0−20 μM	0.688 μM	Substrate: TMB	167

Rh NPs	Color.	1−100 μM	0.75 μM	Substrate: TMB The methods were applied to the determination of H_2O_2 in spiked pharmaceutical formulations, and of glucose in soft drinks and blood plasma.	168
Sandwich polyoxometalates and copper-imidazole complexes	Color.	1−50 μM	0.12 μM	Substrate: TMB	169
Se doped g-C_3N_4 nanosheets	Color.	16−4000 μM	1.6 μM	Substrate: TMB	170
Self-doped rutile titania	Color.	1−60 μM	0.5 μM		171
SiO_2/Imi/Pt	Color.	N/A	75 μM	Substrate: TMB	172
Sodium dodecyl sulfate-MoS_2 nanoparticles	Color.	2−100 μM	0.32 μM	Substrate: TMB	173
Sphere-like CoS	Color.	0.05−0.8 mM	0.02 mM	Substrate: TMB	174
$Tb_2(MoO_4)_3$ nanoplates	Color.	0.8−80 μM	0.08 μM	Substrate: TMB	175
Termed hollow multipod $Cu(OH)_2$ superstructure	Color.	0.1−100 nM	0.1 nM	Substrate: TMB	176
TiO_2/Fe_2O_3/PPy composite nanofibers	Color.	2−50 μM	2.4 μM	Substrate: TMB	177
Tungsten carbide nanorods	Color.	0.2−80 μM	60 nM	Substrate: TMB	178
Ultra-small $CuInS_2$ nanocrystals	Color.	0.1−20 μM	0.03 μM	Substrate: TMB	179
Ultra-small MoS_2 nanoparticles	Color.	2.0−150 μM	1.3 μM	Substrate: TMB	180
Vc/Fe_3O_4 MNPs	Color.	0.5−100 μM	0.29 μM	Substrate: TMB	181
VO_x	Color.	16.3−163 μM 0.326−65.3 μM	6.7 μM 57 nM	Substrate: TMB In the presence of 3.3 mM I^-, trace I^- can dramatically boost the peroxidase-like activity (over 50-fold higher) of VO_x.	182
VO_2 (B) nanobelts	Color.	1−400 μM	0.28 μM	Substrate: TMB	183
VO_2 nanofibers VO_2 nanosheets VO_2 nanorods	Color.	0.025−10 mM 0.488−62.5 mM 0.488−15.625 mM	0.018 mM 0.266 mM 0.41 mM	Substrate: TMB Substrate: TMB Substrate: TMB	184
V_2O_3-ordered mesoporous carbon composite	Color.	0.005−0.25 mM	1.7 μM	Substrate: ABTS	185

WO_x nanoflowers	Color. E-chem.	0−100 mM 0−280 μM	138 μM 56.0 nM	Substrate: TMB	186
ZnO NPs nanoparticles incorporated carbon nanotubes	Color.	0.1−37.5 μM	0.05 μM	Substrate: ABTS	187
ZnS NPs deposited on montmorillonite	Color.	0.07−0.6 mM	10.4838 μM	Substrate: TMB	188
3D graphene-supported Fe_3O_4 quantum dots	E-chem.	0.8−334.4 μM	78 nM	This enzyme-free biosensor was further successfully used to in situ detect H_2O_2 released from living cells.	189
Au NPs in mesoporous silica covered rGO	E-chem.	0.5 μM−50 mM	60 nM	The hybrid was found to be nontoxic, and the electrode sensor could sensitively detect a trace amount of H_2O_2 in a nanomolar level released from living tumor cells (HeLa and HepG2).	190
AuPd alloy NPs decorated GQDs assembly	E-chem.	1.0 μM−18.44 mM	0.500 μM		191
Calcined layered double hydroxide	E-chem.	1−100 μM	0.5 μM		192
Carboxyl functionalized GO	E-chem.	6−800 nM	1.0 nM	This proposed method was further applied to determine H_2O_2 content in fresh milk samples with satisfactory results.	193
CdS	E-chem.	1−1900 μM	0.28 μM		194
Co_3O_4 NPs	E-chem.	10 μM−4 mM	4.4 μM		195
Co_3O_4 NPs	E-chem.	0.05−25 mM	0.01 mM		196
Cubic Fe_3O_4 nanoparticles loaded on graphene oxide-dispersed carbon nanotubes	E-chem.	0.010−0.50 mM	N/A		197
Cu-hemin metal-organic-frameworks/chitosan-rGO nanocomposites	E-chem.	0.065−410 mM	0.019 mM		198
CuO/Polypyrrole composites	E-chem.	N/A	0.41 mM		199
Fe_3O_4 microspheres-Ag NP hybrids	E-chem.	1.2−3500 μM	1.2 μM	H_2O_2 in disinfected FBS samples was tested.	200
Fe_3O_4 MNPs	E-chem.	4.2−800 μM	1.4 μM		201
Fe_3O_4 MNPs	E-chem.	0−16 nM	1.6 nM	Fe_3O_4 was loaded on CNT.	202
Fe_3O_4 MNPs	E-chem.	1−10 mM	N/A	Fe_3O_4 was entrapped in mesoporous carbon foam, and the composite was used to construct a carbon paste electrode.	203

Fe_3O_4 MNPs	E-chem.	20−6250 μM	2.5 μM	Fe_3O_4 MNPs and PDDA-graphene formed multilayer via layer-by-layer assembly. H_2O_2 in toothpaste was tested.	204
Fe_3O_4 MNPs	E-chem.	0.2−2 mM	0.01 mM		205
Fe_3O_4 MNPs	E-chem.	0.1−6 mM	3.2 μM	Fe_3O_4 was on rGO.	206
Fe_3O_4 MNPs	E-chem.	10.0−1000 μM	1.53 μM		207
Fe_3O_4 MNPs	E-chem.	24.9−1670 μM	3.05 μM		208
Fe_3O_4 nanofilms on TiN substrate	E-chem.	1−700 μM	1 μM	H_2O_2 in Walgreens antiseptic/oral debriding agent, Crest whitening mouthwash solution, Diet coke, and Gatorade was tested.	209
α-Fe_2O_3 nanorods	E-chem.	0.0066−2.5 mM	1.3 μM		210
Fe_3O_4 NPs	E-chem.	0.1−1.8 mM	103 μM		211
Fe_3O_4 NPs/CNT	E-chem.	0.099−6.54 mM	53.6 μM		212
Fe_3O_4 NPs with GO	E-chem.	20−1000 μM	2.0 μM		213
Fe_2O_3 NPs	E-chem.	20−140 μM	11 μM		214
Fe_2O_3 NPs	E-chem.	20−300 μM	7 μM	Fe_2O_3 was modified with Prussian blue.	214
Fe_3O_4/PPy/Ag nanocomposites	E-chem.	5 μM−11.5 mM	1.7 μM		215
Fe_3O_4/rGO nanocomposite	E-chem.	0.50−3000 μM	0.18 μM		216
Fe_3O_4/self-reduced graphene nanocomposites	E-chem.	0.001−20 mM	0.17 μM	Extracellular H_2O_2 released from HeLa cells stimulated by CdTe quantum dots was established by this approach.	217
FeSe NPs	E-chem.	5−100 μM	3.0 μM		218
FeSe thin film	E-chem.	10−1000 μM	7.0 μM		219
FeS	E-chem.	10−130 μM	4.03 μM		220
FeS nanosheet	E-chem.	0.5−150 μM	92 nM		221
FeS needle	E-chem.	5−140 μM	4.3 μM		218
Gold NPs/silver-bipyridine hybrid nanobelts	E-chem.	10−480 mM	N/A		222
GQDs	E-chem.	0.002−8 mM	0.7 μM	The detection of H_2O_2 in living cells was performed.	223
Helical CNT	E-chem.	0.5−115 μM	0.12 μM		224

Indium tin oxide nanocubes	E-chem.	49−1560 µM.	49 µM		225
Layered double hydroxide-hemin nanocomposite	E-chem.	1−240 µM	0.3 µM		226
Layered double hydroxide nanoflakes	E-chem.	12−254 µM	2.3 µM		227
PB nanocubes on nitrobenzene-functionalized rGO	E-chem.	1.2 µM−15.25 mM	0.4 µM		228
PB NPs	E-chem.	0.5−2000 µM	0.1 µM		229
PB NPs	E-chem.	0.1−1000 µM	N/A		230
Pd/Fe_3O_4/rGO nanocomposite	E-chem.	0.05−1 mM and 1−2.6 mM	3.918 µM		231
Poly(ethyleneimine)/Au NPs	E-chem.	1 µM−0.25 mM.	0.247 nM		232
Pt flowers-decorated Fe_3O_4/graphene nanocomposite	E-chem.	0.1−2.4 mM	1.58 µM		233
Pt-on-Pd supported on reduced graphene oxide (Pt-on-Pd/rGO) hybrids	E-chem.	0.98−130.7 µM	N/A		234
Pt-ZnO composite nanotube	E-chem.	20−5000 µM	1.5 µM		235
Spherical porous Pd NP assemblies	E-chem.	1.0−820 µM	0.68 µM		236
3D Fe- and N-incorporated carbon structures	Fluor.	0.1−100 µM	68 nM	Substrate: TA	237
$BiFeO_3$ NPs	Fluor.	20 nM−20 µM	4.5 nM	Substrate: BA Oxidation of BA gave fluorescence. H_2O_2 in rainwater was tested.	238
CeO_2 NPs	Fluor.	up to 2.5 µM	0.15 µM	When these enzyme-mimicking nanoparticles are coupled with alcohol oxidase, biosensing can be extended to ethanol.	239
CeO_2 nanowire-DNA nanosensor	Fluor.	1−100 µM	0.64 µM	Substrate: TA	240
CeO_2 nanowires	Fluor.	1−100 µM	0.64 µM	This fluorescent nanosensor is capable of rapidly and selectively tracking H_2O_2 within living cells, as well as directly visualizing H_2O_2 generated by wound-induced oxidative damage in zebrafish larvae.	240
CoO_xH-GO	Fluor.	0.1−100 µM	32 nM	Substrate: Amplifl u Red	241

CuO NPs	Fluor.	5−200 μM	0.34 μM	Substrate: TA TA was oxidized by hydroxyl radical to form a highly fluorescent product.	242
CuO NPs	Fluor.	0.05−0.4 mM	0.81 μM	Substrate: 3-(4-hydroxyphenyl)propionic acid	243
Fe_3O_4 MNPs	Fluor.	10−200 nM	5.8 nM	Substrate: Rhodamine B Fluorescence of Rhodamine B was quenched.	244
Fe_3O_4 MNPs	Fluor.	0.18−900 μM	0.18 μM	Fluorescence of CdTe quantum dot was quenched.	245
Fe_3O_4 MNPs	Fluor.	0.04−8 μM	0.008 μM	Substrate: BA Oxidation of BA gave fluorescence.	246
$Fe_3O_4/P_{\beta\text{-CD}}$ composite	Fluor.	40 nM−20.0 μM	0.015 μM		247
Lanthanide coordination polymer NPs	Fluor.	1 nM−80 μM	0.6 nM		248
MIL-53(Fe)	Fluor.	0.5−24 μM	7.54 nM	Substrate: TA	249
N-acetyl-L-cysteine-protected Au NCs	Fluor.	0.04−6.66 μM	0.027 μM		250
Nanoceria	Fluor.	N/A	130 nM	Substrate: The DNA-nanoceria conjugate	251
WS_2 nanosheets/Ag NCs nanocomposite	Fluor.	0.01−2 μM	0.26 nM	Substrate: TA	252
Au@Pt multibranched nanostructures	SERS	1−30 μM	N/A	The combination of Au NPs' SERS activities and Pt NPs' high catalytic activities shortened the assay time and improved the sensitivity by 1−2 orders of magnitude.	253
RGO/CuS/Au composite nanosheets	SERS	3.05−50 μM	2.1 μM		254
Ag NPs	SERRS	N/A	100 nM		255

Abbreviations

4-AAP	4-aminoatipyrine
ABTS	2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid)
AFB_1	aflatoxin B_1
Ag NP	silver nanoparticle
Au NC	gold nanocluster

Au NP	gold nanoparticle
AR	Ampliflu Red
BA	benzoic acid
BSA	bovine serum albumin
CA	catechol
CDs	carbon dots
CEA	carcinoembryonic antigen
cfu	colony forming units
CL	chemiluminescence
CNT	carbon nanotube
Color.	colorimetric
DAB	diazoaminobenzene
dBSA	disassembled bovine serum albumin
DOPA	dopamine
DPD	N,N-diethyl-p-phenylenediamine sulfate
dsDNA	double-stranded DNA
E-chem.	electrochemical
ELISA	enzyme-linked immunosorbent assay
EPR	electron paramagnetic resonance
Fluor.	fluorometric
GQDs	graphene quantum dots
GO	graphene oxide
HAP	hydroxyapatite
Hb	hemoglobin
Hem	hemin
H_3BTC	1,3,5-benzenetricarboxylic acid
HPNP	2-hydroxypropyl-4-nitrophenylphosphate
HRP	horseradish peroxidase

H_2TCPP	5,10,15,20-Tetrakis (4-carboxyl phenyl) porphyrin
Imi	imidazolium
LOD	limit of detection
MCA	melamine (M) and cyanuric acid (CA)
Meth	methods
MMT	montmorillonite
MNPs	magnetic nanoparticles
MOF	metal organic framework
MWCNTs	multi-walled carbon nanotubes
N/A	not applicable
NMDA	N-methyl-D-aspartate
NCs	nanoclusters
NPs	nanoparticles
OPD	o-phenylenediamine
pfu	plaque forming units
PDA	polydopamine
PDDA	poly(diallyldimethylammonium chloride)
PDI	N,N'-Di-carboxy methyl perylene diimide
PLGA	poly(D,L-lactic-co-glycolic acid)
PMIDA	N-(phosphonomethyl)iminodiacetic acid
PSA	prostate-specific antigen
PSS	poly(styrenesulfonate)
PVDF	polyvinylidene difluoride
Ref	references
SBA-15	Santa Barbara Amorphous type material
SERRS	surface enhanced resonance Raman scattering
SERS	surface enhanced Raman scattering
SOD	superoxide dismutase

ssDNA	single-stranded DNA
SWCNTs	single-walled carbon nanotubes
TA	terephthalic acid
TMB	3,3',5,5'-tetramethylbenzidine
Vc	vitamin C

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Table S9. Targets detection combining oxidases and peroxidase mimics

Nanozymes	Meth.	Linear range	LOD	Comments	Ref.
Cholesterol					
Cu NCs	CL	0.05−10 mM	1.5 μM	The method was successfully applied to determine cholesterol in milk powder and human serum with satisfactory accuracy and precision.	1
CuO NPs	CL	0.625−12.5 μM	0.17 μM	The applicability of proposed method has been validated by determination of cholesterol in milk powder and human serum samples with satisfactory results.	2
MoS_2 and GQDs	CL	0.08−300 μM	35 nM	Rhodamine B-H_2O_2 reaction Cholesterol level in human serum samples was tested.	3
Au NPs supported on MoS_2 nanoribbons	Color.	0.04−1.0 mM	0.015 mM	Substrate: TMB These strips were fabricated using simple cellulose paper dip coated with proposed MoS_2 NRs-Au NPs system and effectively used to detect cholesterol level from real human serum sample.	4
Au@Pt core-shell nanorods	Color.	30−300 μM	30 μM	Substrate: OPD	5
BN nanosheet@CuS nanohybrids	Color.	10−100 μM	2.9 μM	Substrate: TMB The method was further utilized for the visual detection of total cholesterol in human serum and showed high selectivity toward cholesterol.	6
CNT supported PB	Color.	4−100 μM	3 μM	Substrate: TMB The practicability of the method was verified by the successful analysis of free cholesterol in human blood samples.	7
CuO:graphene nanosphere composite	Color.	0.1−0.8 mM	78 μM	Substrate: TMB An AND logic gate system based on CuO:GNS and Cholesterol input was also proposed.	8
Fe_3O_4 MNPs	Color.	15−250 mg dL^{-1}	7.5 mg dL^{-1}	Substrate: ABTS High level of glucose and cholesterol in clinical blood samples was tested.	9
Fe_3O_4@MIL-100(Fe)	Color.	2−50 μM	0.8 μM	Substrate: TMB The proposed method was successfully applied to the detection of cholesterol levels in serum samples.	10
Fe_3O_4 MNPs	Color.	10−250 μM	5 μM	Substrate: TMB Fe_3O_4 was encapsulated in mesoporous silica with cholesterol oxidase. Showing the recycle capability. Comparison between free MNPs *vs.* encapsulated MNPs.	11
GO@SiO_2@CeO_2 nanosheets	Color.	0.5−50 mM	N/A	Substrate: OPD	12

				In order to evaluate the bioactive paper with real samples, determinations of glucose, lactate, cholesterol and uric acid in serum and urine samples were carried out.	
GQDs	Color.	0.02−0.6 mM	0.006 mM	Substrate: ABTS	13
MWCNT@rGO nanoribbon hetero-structure	Color.	20−1000 μM	10 μM	Substrate: TMB	14
Nitrogen-doped porous carbon	Color.	25−500 μM	8.3 μM	Substrate: TMB The colorimetric method was carried out to detect cholesterol in serum sample.	15
Ag NC decorated MoS_2 nanosheets nanocomposite	Fluor.	0.06−15 μM	0.03 μM	Substrate: TA Total cholesterol in real samples was tested.	16
Cyclodextrin@Au NPs	Fluor.	0.32−4.80 μM	0.15 μM		17
Glucose					
A mixture of WS_2 nanosheets and Ag NCs	CL	0.03−20 μM	13 nM	H_2O_2-bicarbonate system.	18
AuNP	CL	10−100 μM	5 μM	Applied to the determination of glucose in human serum.	19
$CoFe_2O_4$ NPs	CL	0.1−10 μM	0.024 μM		20
$CoFe_2O_4$ NPs	CL	0.05−10 μM	10 nM	$CoFe_2O_4$ NPs were coated with chitosan. Glucose in serum was tested.	21
Colloidal CuO NPs	CL	5−60 μM	2.9 μM	Glucose in human serum was tested.	22
3D graphene-magnetic Pd nanohybrids	Color.	0.5−60 μM	0.13 μM	Substrate: TMB Provide a simple, sensitive, and selective way to detect urine glucose of diabetes with a wide linear range and low detection limit.	23
3D-printed Fe_2O_3 multi-well plate 3D-printed Fe_3O_4 multi-well plate	Color.	5−500 μM 5−500 μM	3.2 μM 5.2 μM	Substrate: TMB The measured glucose concentrations in the samples of FBS, rat plasma, and fresh apple juice was tested.	24
β-$AgVO_3$ nanorods	Color.	1.25−60 μM	0.5 μM	Substrate: TMB	25
Apoferritin paired Au NCs	Color.	2.0−10.0 mM	N/A	Substrate: TMB	26
Au@Ag heterogeneous nanorods	Color.	0.05−20 mM	25 μM	Substrate: ABTS The method was used in an analysis of real samples.	27
Au@Ag@Pt NPs	Color.	1 nM−200 μM	1 nM	Substrate: TMB	28
Au@CeO_2 core-shell NPs	Color.	0.1−1 mM	N/A	Substrate: TMB	29

Au NCs	Color.	0.39−27.22 μM	0.18 μM	Substrate: TMB Glucose in human serum samples was tested.	30
Au NPs	Color.	0.4−80 mM	0.4 mM	Substrate: ABTS	31
Au NPs	Color.	N/A	0.3 mM	The color of nanoceria is changed to yellow by the hydrogen peroxide generated during glucose oxidation.	32
Au NPs	Color.	2.0−200 μM	0.5 μM	Substrate: TMB Cysteamine was the ligand for AuNPs.	33
Au NPs@DNA hydrogel	Color.	0.1−20 mM	38 μM	Substrate: ABTS	34
Au NPs/MCA	Color.	1.0−40 μM	0.1 μM	Substrate: ABTS	35
Au NPs-MNPs within an agarose gel matrix	Color.	5−500 mM	1 mM	Substrate: ABTS Glucose in real human blood samples was tested.	36
Au NPs@MoS_2-QDs composite	Color.	1−400 μM	0.068 μM	Substrate: TMB The biosensor is developed as a portable test kit for detection of glucose in biological fluids like serum, tear and saliva utilizing agarose hydrogel as a visual detection platform.	37
Au NPs on 2D metalloporphyrinic MOF nanosheets	Color.	10−300 μM	8.5 μM	Substrate: TMB	38
Au nanostar@Ag–hemin–rGO nanocomposites	Color.	2−5 μM	425 nM	Substrate: TMB The nanocomposites have also been employed to develop a paper-based point-of-care diagnostic device. The device has been utilized for detection of glucose in human blood serum samples.	39
Au@PtAg core-shell nanorods	Color.	50−400 μM	48 μM	Substrate: TMB	40
Au@Pt core-shell nanorods	Color.	45−400 μM	45 μM	Substrate: OPD	5
Au@TiO_2 yolk-shell nanostructure	Color.	0−10 μM	3.5 μM	Substrate: TMB	41
BSA-Bi/Pt NPs	Color.	1−100 μM	0.2 μM	Substrate: TMB Glucose level in human serum samples was tested. By utilizing folic acid as a recognition element, tumor cell could be readily distinguished by BSA-Bi/Pt NPs and the LOD for MCF7 cell detection was 90 cells.	42
Carbon coated MNPs	Color.	6−100 μM	2 μM	Substrate: TMB Glucose in serum and urine samples was tested.	43
Carbon dots-Pt nanocomposites	Color.	5−5000 μM	1.67 μM	Substrate: TMB	44
Carbon nanodots	Color.	1−500 μM	1 μM	Substrate: TMB Glucose in serum was tested.	45
Carbon nanodots	Color.	20.0−600.0 μM	5.2 μM	Substrate: TMB The practical use of this system for glucose determination in serum samples is also demonstrated successfully.	46

Carbon nitride dots	Color.	1−5 μM	0.5 μM	Substrate: TMB	47
Carbon NPs	Color.	N/A	20 μM	Substrate: TMB This assay has been used to analyze real samples, such as diluted blood and fruit juice.	48
Carboxylic-group-functionalized single-walled carbon nanohorns	Color.	100 μM−2 mM	100 μM	Substrate: TMB	49
C_{60}-carboxyfullerenes	Color.	1.0−40 μM	0.5 μM	Substrate: TMB This sensitive and selective sensor can be successfully applied for the quantitative determination of glucose in human serum.	50
CdS nanocomposites	Color.	18.75−100 μM	7.02 μM	Substrate: TMB	51
CeO_2-coated hollow Fe_3O_4 nanocomposites	Color.	21−1000 μM	21 μM	Substrate: TMB	52
CeO_2 NPs	Color.	6.6−130 μM	3.0 μM	Substrate: TMB This simple, cheap, highly sensitive and selective colorimetric method for glucose detection was successfully applied for the determination of glucose in human serum samples.	53
CeO_2 on TiO_2 nanotube	Color.	0.01−0.5 mM	6.1 μM	Substrate: TMB The glucose contents in human serums (provided by the Hospital of Jiangnan University) were detected by this method	54
Ce-Fe_3O_4 NPs	Color.	5.0−150.0 μM	1.2 μM	Substrate: TMB	55
Chitosan-Au NPs	Color.	6−140 μM	3 μM	Substrate: TMB The method was applied to detect glucose in 60% serum with an LOD of 12 μM.	56
Chitosan stabilized Ag NPs	Color.	5.0−200 μM	100 nM	Substrate: TMB	57
Co-aminoclay	Color.	10−1000 μM	5 μM	Substrate: ABTS Glucose in human blood serum was tested.	58
CoFe layered double hydroxide nanoplates	Color.	1−10 mM	0.6 μM	Substrate: TMB	59
$Co_xFe_{3-x}O_4$ nanocubes	Color.	8−90 μM	2.47 μM	Substrate: TMB	60
Co_4N nanowires	Color.	1−250 μM	0.23 μM	Substrate: TMB Glucose in the human sera sample was tested.	61
Co NPs embedded in NH_2-MIL-88(Fe) MOFs-derived magnetic carbon	Color.	0.25−30 μM	156 nM	Substrate: TMB Glucose in human serums was tested.	62
Co_3O_4@CeO_2	Color.	1−75 μM	1.9 μM	Substrate: TMB	63
Co_3O_4-rGO nanocomposite	Color.	1−100 μM	1 μM	Substrate: TMB	64

Copper metal–organic polyhedra nanorods	Color.	5.0−300 μM	1.5 μM	Substrate: ABTS Glucose in drug samples (Glucose Injection) was tested.	65
$CoSe_2$/rGO nanohybrids	Color.	5.0−8000 μM	0.553 μM	Substrate: TMB Glucose in human serum samples was tested.	66
Cu NCs	Color.	0.04−0.2 mM, 0.2−2 mM and 2−20 mM	0. 4 μM	Substrate: TMB	67
Cu NCs	Color.	0.1−2 mM	100 μM	Substrate: TMB	68
Cu NPs	Color.	1−100 μM	0.686 μM	Substrate: TMB Glucose in the human body and pear juice was tested.	69
Cu NPs@g-C_3N_4 nanosheets	Color.	1.0−100 μM	0.37 μM	Substrate: TMB Blood sample was selected to detect glucose.	70
Cu–hemin MOFs	Color.	10.0 μM−3.0 mM	6.9 μM	Substrate: TMB	71
CuO NPs	Color.	0.1−8 mM	N/A	Substrate: 4-AAP and phenol	72
Cu@ PDA	Color.	1.0−30.0 mM	0.3 mM	Substrate: TMB Samples of human blood were analyzed by the proposed method.	73
CuS clews	Color.	N/A	0.13 μM	Substrate: TMB The system is demonstrated to be capable of monitoring glucose in blood samples with excellent performance.	74
CuS NPs	Color.	2−1800 μM	0.12 μM	Substrate: TMB On the basis of the developed reaction process, they can easily monitor human blood glucose level.	75
CuZnFeS nanocrystals	Color.	16−60 μM	4.1 μM	Substrate: TMB CZIS NCs are recyclable catalysts showing high efficiency in multiple uses.	76
Cysteine functionalized MoS_2 nanoflakes	Color.	50−1000 μM	33.51 μM	Substrate: TMB Glucose concentration in a serum sample was tested.	77
Dendrimer-encapsulated Pt NPs	Color.	1−50 μM	1 μM	Substrate: TMB	78
DNA-embedded Au@Ag core-shell NPs	Color.	0.00−0.20 μM and 1.00−100 μM	0.01 μM	The surface plasmon resonance band of Au@Ag nanoparticles.	79
DNA-layered double hydroxide nanohybrids	Color.	40−200 μM	8 μM	Substrate: TMB	80
Eu_2O_2S NPs	Color.	10−150 μM	N/A	Substrate: TMB	81
Fe(III)-based coordination polymer	Color.	2−20 μM	1 μM	Substrate: TMB Glucose in serum was tested.	82
[Fe(III) (biuret-amide)] on mesoporous silica	Color.	20−300 μM	10 μM	Substrate: TMB Glucose in mice blood plasma was tested.	83
Fe@C NPs	Color.	2.06−37 μM	0.21 μM	Substrate: TMB	84

				Glucose in serum, urine and food samples was tested.	
Fe_3C NPs encapsulated in porous nitrogen-rich graphene	Color.	2.0−500.0 μM	0.5 μM	Substrate: TMB	85
Fe-doped CeO_2 nanorods	Color.	1−100 μM	3.41 μM	Substrate: TMB Glucose concentration in buffer, diluted fruit juices and fetal bovine serum samples was tested.	86
Fe-MIL-88NH_2	Color.	2.0−300 μM	0.48 μM	Substrate: TMB The colorimetric method could be successfully applied to the determination of glucose in diluted serum samples.	87
Fe-MIL-101	Color.	10.6−150 μM	2.5 μM	Substrate: TMB This work presents a microfluidic paper-based analytical device (μPAD) for glucose determination. The μPAD remains stable for 21 days under conventional storage conditions.	88
FeNPs@Co_3O_4 hollow nanocages	Color.	0.5−30 μM	0.05 μM	Substrate: TMB The proposed sensor was successfully used to determine glucose in human serum samples.	89
Fe_3O_4-Au@mesoporous SiO_2 microspheres	Color.	10−130 μM	0.5 μM	Substrate: TMB	90
Fe_3O_4-GO composites	Color.	2−200 μM	0.74 μM	Substrate: TMB Glucose in urine was tested.	91
Fe_3O_4 MNPs	Color.	15−250 mg dL^{-1}	7.5 mg dL^{-1}	Substrate: ABTS High Level of glucose and cholesterol in clinical blood samples was tested.	9
Fe_3O_4 MNPs functionalized with a poly(ethylene glycol) derivative	Color.	5−1000 μM	3 μM	Substrate: ABTS Glucose in human blood serum was tested.	92
Fe_3O_4 MNPs	Color.	50−1000 μM	30 μM	Substrate: ABTS Selectivity against sugars: fructose, lactose, and maltose.	93
Fe_3O_4 MNPs	Color.	30−1000 μM	3 μM	Substrate: TMB Fe_3O_4 was encapsulated in mesoporous silica with GOx. Showing the recycle capability. Comparison between free MNPs *vs.* encapsulated MNPs.	11
Fe_3O_4 MNPs with PDDA coating	Color.	39−100 μM	30 μM	Substrate: ABTS GOx was electrostatically assembled onto the Fe_3O_4@PDDA. Glucose in serum samples was tested. Compared with glucometer. Selectivity against sugars: galactose, lactose, mannose, maltose, arabinose, cellobiose, raffinose, and xylose.	94
Fe_3O_4 nanocomposites	Color.	5−25 μM	2.21 μM	Substrate: TMB	95

				Fe_3O_4 was functionalized by 5,10,15,20-Tetrakis(4-carboxyphenyl)-porphyrin.	
Fe_3O_4 NP	Color.	1.0−40 μM	0.37 μM	Substrate: TMB	96
Fe_3O_4 NP loaded 3D porous graphene nanocomposites	Color.	5−500 μM	0.8 μM	Substrate: TMB The analysis of glucose was carried out in 20-fold dilution human serum samples.	97
γ-Fe_2O_3 NPs	Color.	1−80 μM	0.21 μM	Substrate: TMB Glucose in blood and urine was tested.	98
Fe_3O_4 NPs	Color.	0.01−5 mM	0.005 mM	Substrate: TMB	99
Fe_3O_4 NPs	Color.	50−4000 μM	50 μM	Substrate: TMB Extended this single step detection method to monitor glucose level in human blood serum and detected in a time span of <5 min at pH 7.4.	100
Fe_3O_4 NPs	Color.	31.2−250 μM	8.5 μM	Substrate: ABTS Iron oxide NPs was coated with glycine. More robust than HRP towards NaN_3 inhibition.	101
Fe_3O_4 NPs	Color.	0.12−4 μM	0.5 μM	Substrate: ABTS Iron oxide NPs was coated with APTES and MPTES.	102
Fe_3O_4@SiO_2@Au MNPs	Color.	5−350 μM	3.5 μM	Substrate: TMB Glucose in real blood serum was tested.	103
$Fe_3(PO_4)_2 \cdot 8H_2O$ nanoflowers	Color.	0.8−1200 μM	35 nM	Substrate: TMB Glucose content in human serum sample was tested.	104
$Fe_3(PO_4)_2(OH)_2$	Color.	5−100 μM	1.2 μM	Substrate: TMB Glucose detection in human serum was tested.	105
FeSe-Pt@SiO_2 nanospheres	Color.	11.36 nM−227 μM	1.136 nM	Substrate: TMB	106
FeSe thin film	Color.	2−30 μM	0.5 μM	Substrate: TMB	107
Fe_7S_8 nanowires	Color.	5−500 μM	N/A	Substrate: TMB	108
FeTe nanorods	Color.	1−100 μM	0.38 μM	Substrate: ABTS Glucose in spiked blood was tested.	109
Functional amphiphilic Au NPs	Color.	0.5−3 mM	0.5 mM	Substrate: *o*-dianisidine	110
G-C_3N_4 nanosheets	Color.	0.5−10 μM	0.5 μM	Substrate: TMB	111
GO	Color.	1−20 μM	1 μM	Substrate: TMB Glucose in blood and fruit juice was tested.	112
GO	Color.	2.5−5 mM	0.5 μM	Substrate: TMB Graphene oxide was functionalized by chitosan.	113
GO@SiO_2@CeO_2 nanosheets	Color.	1.5−25 mM	0.2 mM	Substrate: OPD	12

				A fully integrated reagentless bioactive paper based on GSCs was fabricated, which were able to simultaneously detect glucose, lactate, uric acid and cholesterol.	
GOx/Fe_3O_4/GO magnetic nanocomposite	Color.	0.5−600 μM	0.2 μM	Substrate: DPD	114
GOx@ZIF-8(NiPd) nanoflower	Color.	10−300 μM	9.2 μM	Substrate: OPD The GOx@ZIF-8(NiPd) modified electrode was used for electrochemical detection of glucose.	115
GQDs	Color.	0.2−50 μM	0.2 μM	Substrate: TMB Glucose in the Balb/c mice blood sample was tested.	116
GQDs/CuO nanocomposites	Color.	2−100 μM	0.59 μM	Substrate: TMB	117
Graphene dots	Color.	0.5−200 μM	0.5 μM	Substrate: TMB	118
Graphene dots functionalized Au NPs	Color.	2.0−40 μM	0.30 μM	Substrate: TMB This proposed method has been successfully applied to detect glucose in serum samples with good accuracy and precision.	119
Graphite-like carbon nitrides	Color.	5−100 μM	0.1 μM	Substrate: TMB Glucose in serum was tested.	120
Gum kondagogu reduced/stabilized Pd NPs	Color.	10−1000 μM	6.0 μM	Substrate: TMB Glucose in serum samples was tested.	121
HAP@MIL-100(Fe) nanofibers	Color.	2−50 μM	N/A	Substrate: TMB Flexible Recyclable Test Paper.	122
Hemin-functionalized WS_2 nanosheets	Color.	5−200 μM	1.5 μM	Substrate: TMB	123
Hemin-graphene hybrid nanosheets	Color.	0.05−500 μM	30 nM	Substrate: TMB	124
Hemin@MOF	Color.	10−300 μM	N/A	Substrate: TMB	125
Hierarchical $NiCo_2O_4$ hollow sphere	Color.	0.1−4.5 mM	5.31 μM	Substrate: TMB	126
Hollow multipod $Cu(OH)_2$ superstructure	Color.	1−50 nM	1 nM	Substrate: TMB They developed a simple and highly sensitive colorimetric assay to detect urine glucose, and the results are in good agreement with hospital examination reports.	127
$H_4SiW_{12}O_{40}$ clusters	Color.	1−10 μM	0.5 μM	Substrate: TMB	128
H_2TCPP-ZnS nanocomposites	Color.	50−500 μM	36 μM	Substrate: TMB Glucose in human serum was tested.	129
Indium tin oxide nanocubes	Color.	50 μM−1 mM	50 μM	Substrate: TMB The biosensing of glucose was validated in serum samples.	130
Iron(III)-doped GO	Color.	1−1000 μM	N/A	Substrate: TMB	131
Janus γ-Fe_2O_3/SiO_2 NPs	Color.	0−20 μM	3.2 μM	Substrate: TMB	132

				Glucose in serum was tested.	
$LaNiO_3$	Color.	10−50 μM	8.16 μM	Substrate: TMB	133
Magnetic Fe_3S_4 NPs	Color.	2−100 μM	0.16 μM	Substrate: TMB The method was applied to quantify glucose in human serum.	134
Magnetic mesoporous silica NPs	Color.	10−500 μM	4 μM	Substrate: TMB	135
Magnetic ZIF-8	Color.	0.005−0.15 mM	1.9 μM	Substrate: OPD The glucose in a urine sample from a male volunteer with diabetes was tested.	136
Mesoporous Fe_2O_3-graphene nanostructures	Color.	0.5−10 μM	0.5 μM	Substrate: TMB Glucose in serum was tested.	137
Mesoporous Fe_2O_3	Color.	1.0−100 μM	1.0 μM	Substrate: TMB	138
MFe_2O_4 (M = Mg, Ni, Cu) MNPs	Color.	0.94−25 μM	0.45 μM	Substrate: TMB The sensor was successfully applied to glucose detection in urine sample.	139
Microgel coating of MNPs	Color.	1−20 μM	0.8 μM	Substrate: OPD	140
MIL-53(Fe)	Color.	0.25−20 μM	0.25 μM	Substrate: TMB Glucose in real human serum samples was tested.	141
Mixed metal hexacyanoferrates NPs	Color.	1−450 μM	0.5 μM	Substrate: *o*-dianisidine	142
MnO_2 nanoflakes	Color.	5−1200 μM	1 μM	Substrate: TMB	143
MnO_2 nanowires	Color.	10−2000 μM	2 μM	Substrate: ABTS	144
MnSe-loaded g-C_3N_4 nanocomposite	Color.	0.16−1.6 mM	8 μM	Substrate: TMB	145
MnSe NPs	Color.	8−50 μM	1.6 μM	Substrate: TMB	146
Mo-doped CeO_2 NPs	Color.	0.5−50 μM	0.4 μM	Substrate: TMB Glucose in human serum samples was tested.	147
MoS_2 nanosheets	Color.	5−150 μM	1.2 μM	Substrate: TMB Glucose in serum was tested.	148
MoS_2 NPs	Color.	15−135 μM	7 μM	Substrate: TMB This method has been applied for the detection of glucose in serum from humans.	149
Multielement-doped carbon dots	Color.	0.20−2.5 mM	0.06 mM	Substrate: TMB Glucose concentration in human serum was tested.	150
MWCNTs-PB NPs	Color.	1 μM−1 mM	200 nM	Substrate: TMB Carbon nanotubes were filled with Prussian blue nanoparticles.	151
Nanostructured Ag fabric	Color.	0.1−2 mM	0.08 mM	Substrate: TMB Glucose in human urine samples was tested. This sensor response is comparable to the clinical gold standard GOx-POD approach.	152

Ni/Co layered double hydroxides microspheres	Color.	0.5−100 μM	0.1 μM	Substrate: ABTS	153
NiFe-layered double hydroxide nanosheets	Color.	0.05−2.0 mM	0.023 ± 0.002 mM	Substrate: TMB Two fruit juice samples were used to estimate the availability of this colorimetric method for practical glucose detection.	154
NiO nanoparticles modified with 5,10,15,20-tetrakis(4-carboxyl pheyl)-porphyrin	Color.	0.05−0.50 mM	20 μM	Substrate: TMB Glucose in human serum was tested.	155
NiPd hollow NPs	Color.	0.005−0.5 mM	4.2 μM	Substrate: TMB GOD-based colorimetric method is applicable to determining glucose in urine samples.	156
NiTe nanowires	Color.	1−50 μM	0.42 μM	Substrate: ABTS	157
Nitrogen-doped GQDs	Color.	25−375 μM	16 μM	Substrate: TMB This assay was also successfully applied to the detection of glucose concentrations in diluted serum and fruit juice samples.	158
Nitrogen-doped graphene functionalized with MNPs	Color.	up to 18.0 mM	57.9 μM	Substrate: ABTS	159
PB-Fe_2O_3 NPs	Color.	1−80 μM	0.16 μM	Substrate: 3,5-di-tert-butylcatechol	160
PB-ferritin NPs	Color.	0.39−6.25 μM	N/A	Substrate: ABTS	161
PB modified MIL-101(Fe)	Color.	0.1−1.0 mM	0.4 μM	Substrate: TMB	162
PB NPs	Color.	0.1−50 μM	0.03 μM	Substrate: ABTS	163
Pd-doped g-C_3N_4 nanosheet	Color.	10−1000 μM	1 μM	Substrate: TMB Glucose in serum samples was tested.	164
PDI-CuO nanobelts	Color.	2−50 μM	0.65 μM	Substrate: TMB	165
PDI-Fe_3O_4 nanocomposites	Color.	3−100 μM	1.12 μM	Substrate: TMB	166
PDI functionalized Co_3O_4 nanocomposites	Color.	5−100 μM	2.77 μM	Substrate: TMB	167
Pd@Pt nanoplates	Color.	0.1−0.5 mM	N/A	Substrate: TMB	168
Polypyrrole/hemin nanocomposite	Color.	0.05−8 mM	50 μM	Substrate: TMB	169
Polystyrene@Au@PB nanocomposites	Color.	15.6−250.0 μM	3.9 μM	Substrate: TMB	170
Porphyrin functionalized ceria nanorods	Color.	50−100 μM	33 μM	Substrate: TMB	171
Porphyrin functionalized CeO_2	Color.	40−150 μM	19 μM	Substrate: TMB	172
Porphyrin functionalized γ-Fe_2O_3 nanocomposites	Color.	5−25 μM	2.54 μM	Substrate: TMB	173

Protein-Fe_3O_4 and glucose oxidase nanocomposites	Color.	3−1000 μM	1.0 μM	Substrate: TMB	174
Protic ionic liquids activated carbon	Color.	12−550 μM	3.5 μM	Substrate: TMB Glucose in human serum samples was tested.	175
PSS-GN nanocomposites	Color.	0.006−0.4 mM	0.28 μM	Substrate: TMB This strategy was further utilized to determine the concentrations of glucose in serum samples with satisfying results.	176
$Pt_{74}Ag_{26}$ NP-decorated ultrathin MoS_2 nanosheets	Color.	1−10 μM	0.8 μM	Substrate: TMB	177
Pt/cube-CeO_2 nanocomposites	Color.	0−100 μM	4.1 μM	Substrate: TMB	178
Pt NCs	Color.	0−200 μM	0.28 μM	Substrate: TMB Further application of the present system for glucose detection in human serum has been successfully demonstrated.	179
PVP-functionalized ultra-small MoS_2 nanoparticles	Color.	1.0−10 mM	0.32 mM	Substrate: TMB	180
RGO-Fe NPs	Color.	2.0−30 μM	0.8 μM	Substrate: TMB	181
Rh NPs	Color.	5−125 μM	0.75 μM	Substrate: TMB Glucose in soft drinks and blood plasma was tested.	182
SDS-MoS_2 NPs	Color.	5.0−500 μM	0.57 μM	Substrate: TMB The glucose in diluted blood serum sample was detected.	183
Self-assembly of hemin on CNT	Color.	5−50 μM	2 μM	Substrate: TMB The proposed method was used to detect glucose in some serum samples.	184
Silicon dots	Color.	0.17−200 μM	0.05 μM	Substrate: TMB Glucose in serum samples of patients with diabetes provided by Hunan Normal University Hospital was tested.	185
SiO_2/Imi/Pt	Color.	0.1−0.8 mM	1.63 μM	Substrate: TMB	186
$Tb_2(MoO_4)_3$ nanoplates	Color.	0.5−80 μM	0.1 μM	Substrate: TMB Glucose in human serum was tested.	187
Vc-functionalized Fe_3O_4 nanocomposites	Color.	0.5−25 μM	0.288 μM	Substrate: TMB	188
VO_2 (B) nanobelts	Color.	2−120 μM	0.65 μM	Substrate: TMB	189
VO_2 nanofibers VO_2 nanosheets VO_2 nanorods	Color.	0.01−10 mM 0.625−15 mM 0.625−10 mM	0.009 mM 0.348 mM 0.437 mM	Substrate: TMB	190
V_2O_5 nanowires and Au NPs nanocomposite	Color.	0−10 μM	0.5 μM	Substrate: ABTS	191

V_2O_3 ordered mesoporous carbon composite	Color.	0.01−4 mM	3.3 µM	Substrate: ABTS Glucose in real samples was tested.	192
VS_2 nanosheets	Color.	5−250 µM	1.5 µM	Substrate: TMB It was applied to the analysis of glucose in fruit juice.	193
WO_x QDs	Color.	10−1000 µM	3.3 µM	Substrate: ABTS The glucose concentration in human serum samples has been investigated.	194
WSe_2 few layers	Color.	10−60 µM	N/A	Substrate: TMB	195
WS_2 nanosheets	Color.	5−300 µM	2.9 µM	Substrate: TMB Glucose in serum of normal persons and diabetes persons was tested.	196
Yolk-shell nanostructured Fe_3O_4@C MNPs	Color.	1−10 µM	1.12 µM	Substrate: TMB	197
$ZnFe_2O_4$	Color.	1.25−18.75 µM	0.3 µM	Substrate: TMB Glucose in urine was tested.	198
$ZnFe_2O_4$ decorated ZnO heterostructures	Color.	1−23 µM	0.4 µM	Substrate: TMB	199
Au NP/Ag-bipyridine hybrid nanobelts	E-chem.	0.1−7.4 mM	N/A		200
Cubic Fe_3O_4 NPs loaded on GO-dispersed CNTs	E-chem.	0.050−5.0 mM	0.022 mM		201
Cu nanoflowers	E-chem.	0−20 mM	N/A	*In vivo* implantable experiments using anesthetized rats showed excellent real-time response to the variation of blood glucose concentration.	202
CuO/polypyrrole composites	E-chem.	0−40 mM	0.16 mM	The stable and durable LT paper electrode has been validated for the quantitation of glucose in blood samples.	203
Fe_3O_4-enzyme-polypyrrole NPs	E-chem.	0.5 µM−34 mM	0.3 µM	Glucose in serum was tested.	204
Fe_3O_4 MNPs	E-chem.	6−2200 µM	6 µM	Glucose in serum was tested. Compared with clinical analyzer. Nafion for high selectivity against AA, UA, sucrose, and lactose.	205
Fe_3O_4 MNPs	E-chem.	0.5−10 mM	0.2 mM	Fe_3O_4 was encapsulated in mesoporous carbon with GOx, and the composite was used to construct a carbon paste electrode. Comparison between free MNPs *vs.* encapsulated MNPs.	206
Fe_2O_3 nanowire arrays	E-chem.	0.015−8 mM	N/A		207
Hemin-graphene hybrid nanosheets	E-chem.	0.5−400 µM	0.3 µM		124
$NiCo_2O_4$ decorated 3D graphene	E-chem.	0.5−590 µM	0.38 µM		208
Pd NP	E-chem.	0.04−22 mM	6.1 µM	Glucose concentration in the blood sample was tested.	209
Au NPs	Fluor.	0−131 µM	1 µM		210
$BiFeO_3$ NPs	Fluor.	1−100 µM	0.5 µM	Oxidation of BA gave fluorescence. Glucose in serum was tested.	211

CeO_2 NP	Fluor.	N/A	8.9 μM	Substrate: the DNA-nanoceria conjugate The serum was then analyzed by their sensor based on the GOx reaction.	212
Fe- and N-incorporated carbon structures	Fluor.	0.5−200 μM	0.19 μM	Substrate: TA Such a novel TA/Fe–Phen–CFs system can be successfully applied to glucose determination in real human serum samples.	213
Fe_3O_4 MNPs	Fluor.	1.6−160 μM	1.0 μM	Fluorescence of CdTe QD was quenched. Glucose in serum was tested.	214
Fe_3O_4 MNPs	Fluor.	0.05−10 μM	0.025 μM	Substrate: benzoic acid Oxidation of BA gave fluorescence. Glucose in serum was tested.	215
Fe_3O_4 MNPs with PDDA coating	Fluor.	3−9 μM	3 μM	GOx was electrostatically assembled onto the Fe_3O_4@PDDA. Oxidation of Amplex Ultrared gave fluorescence. Glucose in serum was tested. Selectivity against sugars: arabinose, cellobiose, galactose, lactose, maltose, raffinose, and xylose.	216
$Fe_3O_4/P_{\beta\text{-CD}}$ composite	Fluor.	0.08−10.0 μM	0.03 μM	Substrate: BA This technique was found to allow the analysis of glucose in human serum with high accuracy.	217
Lanthanide coordination polymer NPs	Fluor.	0.1−100 μM	65 nM	The glucose concentration in diluted human serum was tested.	218
MIL-53(Fe)	Fluor.	0.5−27 μM	8.44 nM	Substrate: TA Glucose in human serum samples was tested.	219
V_6O_{13} nanotextiles	Fluor.	0.2−12 μM	0.02 μM	Substrate: benzoic acid The detection of glutathione and glucose in health supplements and human serum samples was successfully applied through the proposed method.	220
WS_2 nanosheets/Ag NCs composite	Fluor.	0.05−400 μM	21 nM	Substrate: TA Glucose in human blood samples was tested.	221
Ag-Cu_2O/rGO nanocomposites	SERS	0.01 μM−10 mM	0.01 μM		222
Au NPs@MIL-101	SERS	10−200 μM	4.2 μM	Substrate: Leucomalachite green They were also employed to determine glucose and lactate metabolism in tumors.	223
Lactate					
GO@SiO_2@CeO_2 nanosheets	Color.	2.5−35 mM	N/A	Substrate: OPD In order to evaluate the bioactive paper with real samples, determinations of glucose, lactate, cholesterol and uric acid in serum and urine samples were carried out.	12

Pt-doped CeO_2	E-chem.	100 pM−0.2 mM and 0.5−15.5 mM	100 pM	The materials used to fabricate this biosensor can be particularly useful in ultrasensitive devices for monitoring lactate levels in a variety of conditions.	224
Au NPs@MIL-101	SERS	10−200 μM	5.0 μM	Substrate: leucomalachite green They were also employed to determine glucose and lactate metabolism in tumors.	223
Uric acid					
BSA-stabilized Au NCs	Color.	2.0−200 μM	0.36 μM	Substrate: TMB The feasibility of the developed method for uric acid analysis in human serum was confirmed.	225
Cobalt selenide	Color.	2.0−40 μM	0.5 μM	Substrate: 4-AAP+ N-ethyl-N-(3-sulfopropyl)-3methylaniline sodium salt UA in human serum samples was tested.	226
CoP nanosheet	Color.	1−200 mM	1.0 mM	Substrate: TMB The fabricated biosensor can be applied for measuring UA in clinical samples.	227
$GO@SiO_2@CeO_2$ nanosheets	Color.	0.8−35 mM	N/A	Substrate: OPD In order to evaluate the bioactive paper with real samples, determinations of glucose, lactate, cholesterol and uric acid in serum and urine samples were carried out.	12
Immobilizing PB on carbon cloth	Color.	10−700 μM	1.4 μM	Substrate: TMB Reliable analysis of UA in human serum and urine verified the practicability of the fabricated assay.	228
MIL-53(Fe)	Color.	4.5−60 μM	1.3 μM	Substrate: TMB The proposed method can be successfully applied to the determination of UA in human urine and serum samples.	229
$NaYF_4$:Yb,Er NPs	Color.	10−200 μM	5.3 μM	Substrate: TMB The developed method was applied to detect uric acid in serum samples.	230
Xanthine					
AuNC@BSA	Color.	1−200 μM	0.5 μM	Substrate: TMB Xanthine in serum and urine samples was tested.	231
Cu NCs	Color.	0.5−100 μM	0.38 μM	Substrate: TMB Xanthine in the serum sample was tested.	232
Few-layered $MoSe_2$ nanosheets	Color.	0.01−0.32 mM	1.964 μM	Substrate: TMB A serum sample was detected using this method.	233
Ir NPs	Color.	10−150 μM	5.2 μM	Substrate: TMB The Ir NPs retained at least 90% of their initial catalytic activity after stored at ambient temperature for three months.	234

Pd NPs supported on N, S doped 3D hierarchical nanostructures	Color.	0.001−0.05 mM	0.29 μM	Substrate: TMB This work is expected to provide a novel and efficient method for the detection of xanthine in the human body.	235
Selenium doped g-C_3N_4 nanosheets	Color.	0.16−40 μM	0.016 μM	Substrate: TMB The proposed method based on Se-g-C_3N_4 nanosheets-catalyzed colorimetric detection was tested in real samples for the determination of xanthine.	236

Abbreviations

4-AAP 4-aminoatipyrine

AA ascorbic acid

ABTS 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid)

AFB_1 aflatoxin B_1

Ag NP silver nanoparticle

Au NC gold nanocluster

Au NP gold nanoparticle

AR Ampliflu Red

BA benzoic acid

BSA bovine serum albumin

CA catechol

CDs carbon dots

CEA carcinoembryonic antigen

cfu colony forming units

CL chemiluminescence

CNT carbon nanotube

Color. colorimetric

DAB diazoaminobenzene

dBSA disassembled bovine serum albumin

DOPA dopamine

DPD N,N-diethyl-p-phenylenediamine sulfate

dsDNA	double-stranded DNA
E-chem.	electrochemical
ELISA	enzyme-linked immunosorbent assay
EPR	electron paramagnetic resonance
Fluor.	fluorometric
GQDs	graphene quantum dots
GO	graphene oxide
GOx	glucose oxidase
HAP	hydroxyapatite
Hb	hemoglobin
Hem	hemin
H_3BTC	1,3,5-benzenetricarboxylic acid
HPNP	2-hydroxypropyl-4-nitrophenylphosphate
HRP	horseradish peroxidase
H_2TCPP	5,10,15,20-Tetrakis (4-carboxyl phenyl) porphyrin
Imi	imidazolium
LOD	limit of detection
MCA	melamine (M) and cyanuric acid (CA)
Meth	methods
MMT	montmorillonite
MNPs	magnetic nanoparticles
MOF	metal organic framework
MWCNTs	multi-walled carbon nanotubes
N/A	not applicable
NMDA	N-methyl-D-aspartate
NCs	nanoclusters
NPs	nanoparticles
OPD	o-phenylenediamine

pfu	plaque forming units
PDA	polydopamine
PDDA	poly(diallyldimethylammonium chloride)
PDI	N,N'-Di-carboxy methyl perylene diimide
PLGA	poly(D,L-lactic-co-glycolic acid)
PMIDA	N-(phosphonomethyl)iminodiacetic acid
PSA	prostate-specific antigen
PSS	poly(styrenesulfonate)
PVDF	polyvinylidene difluoride
QDs	quantum dots
Ref	references
SBA-15	Santa Barbara Amorphous type material
SERRS	surface enhanced resonance Raman scattering
SERS	surface enhanced Raman scattering
SOD	superoxide dismutase
ssDNA	single-stranded DNA
SWCNTs	single-walled carbon nanotubes
TA	terephthalic acid
TMB	3,3',5,5'-tetramethylbenzidine
UA	uric acid
Vc	vitamin C

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Table S10. Other targets detection

Nanozymes	Meth	Linear range	LOD	Comments	Ref.
2,4-Dinitrotoluene					
Fe_3O_4 MNPs	Color.	0.5−20 μM	0.15 μM	Substrate: ABTS 2,4-dinitrotoluene in spiked water samples was tested.	1
2,4,6-Trinitrotoluene					
Nanocomposites of Fe_3O_4 MNPs and Mn-doped ZnS quantum dots	Phosphorescence	6.25×10^{-3}–0.6 μM	4.6 nM		2
Abrin					
Au NPs	Color.	0.2−17.5 nM	0.05 nM	Substrate: TMB Abrin in raw milk samples was tested.	3
Acetazolamide					
Binuclear oxo-manganese complex	E-chem.	5.00−25.0 μM	4.76 μM	The analysis of acetazolamide in real urine samples using the bio-inspired sensor, simulating the method adopted by the World Anti-Doping Agency.	4
Acetohydroxamic acid					
Au NPs	Color.	N/A	0.05 mM	Substrate: TMB	5
Acetylcholine					
Fe_3O_4 nanospheres/rGO	Color.	100 nM−10 mM	39 nM	Substrate: TMB	6
Ni/Co layered double hydroxides	Color.	10−150 mM	1.62 mM	Substrate: ABTS	7
Pt NPs	Color.	10−200 μM	2.84 μM	Substrate: N-ethyl-N-(3-sulfopropyl)-3-methylaniline sodium salt and 4-amino-antipyrine	8
Au/Ag NPs	Fluor.	1−100 nM	0.21 nM	Substrate: Amplex UltraRed The practicality of the assay has been validated by determining the concentrations of ACh in plasma and blood samples.	9
N,N,N′,N′-tetramethyl-1,4-butanediamine functionalized MIL-100(Fe)	Fluor.	0.1−10 μM	0.036 μM	Substrate: Amplex UltraRed Choline and ACh in spiked samples of milk and serum was tested.	10
Acetylcholinesterase					
PB nanocubes	Color.	0.1−5.0 mU mL^{-1}	0.04 mU mL^{-1}	Substrate: TMB	11

				This assay has great potential in discriminatively determining acetylcholinesterase over other enzymes.	
Aflatoxin B1 (AFB1)					
MnO_2 nanoflakes	Color. Sandwich immunoassay	0.05−150 ng mL^{-1}	6.5 pg mL^{-1}	Substrate: TMB Method accuracy was further validated for monitoring spiked peanut samples.	12
Cobalt-porphyrin-Pt NPs functionalized rGO hybrid nanostructures	E-chem. Antigen-down immunoassay	0.005−5.0 ng mL^{-1}	1.5 pg mL^{-1}	The methodology was further validated for analyzing naturally contaminated or spiked blank peanut samples.	13
Au NP	Fluor.	0.02−1 ng mL^{-1}	17.1 pg mL^{-1}	The established method could be applied for AFB1 determination in real agriculture products.	14
Ag^+					
$CoFe_2O_4$ NPs	CL	0.5−100 ng mL^{-1}	0.15 ng mL^{-1}	H_2O_2-luminol system. The method was successfully applied to monitoring Ag(I) in various water samples.	15
BSA-stabilized Au clusters	Color.	0.5−10 μM	0.204 μM	Substrate: TMB This method could be applied for the rapid analysis of Ag^+ in lake water with satisfactory results.	16
Carbon dots	Color.	5−100 μM	0.5 μM	Substrate: TMB	17
Fe_3O_4 MNPs	Color.	N/A	N/A	Substrate: TMB IC_{50} = 0.662 mM	18
Glutathione-capped Pd NPs	Color.	2−100 nM	1.14 ± 0.003 nM	Substrate: TMB This developed sensing system is potentially applicable for quantitative detection of Ag^+ in drinking water as well as Ag nanoparticles in aqueous solution.	19
Protein/gold NP hybrid	Color.	0.1−10 μM	10 nM	Substrate: TMB	20
Pt NPs	Color.	0.01−3.0 nM	7.8 pM	Substrate: TMB Ag+ in the real water samples was tested.	21
Poly(vinylpyrrolidone)-Pt nanocubes	Color.	0.01−1×10^4 nM	80 pM	Substrate: TMB Ag^+ from Spiked Tap-Water Samples was tested. The method presented in this work shows the highest sensitivity for Ag^+ detection among all reported colorimetric methods.	22
Alcohol					
Fe_3O_4 MNPs	Color.	100−500 μM	25 μM	Substrate: ABTS	23

Arsenic and Antimony in Fish					
Fe_3O_4 NP	ICP-MS (inductively coupled plasma mass spectrometry)	N/A	0.002-0.005 μg g^{-1} 0.005-0.01 μg g^{-1}	Detection: Arsenic Detection: Antimony The proposed method was validated by analysis of two certified reference materials (DORM-3 and DORM-4) with good recoveries (90%-106%).	24
Ascorbic acid					
Carbon dots/Fe_3O_4 hybrid nanofibers	Color.	1−30 μM	0.285 μM	Substrate: TMB	25
CeO_2/rGO nanocomposites	Color.	0.5−40 μM	0.15 μM	Substrate: TMB The colorimetric system was used for the detection of AA in medicine and food analysis, such as tablets, beverage and milk powder.	26
Co_3O_4/crumpled graphene microsphere	Color.	30−140 μM	0.19 μM	Substrate: TMB	27
CuO/Pt nanocomposites	Color.	1−600 μM	0.796 μM	Substrate: TMB	28
Fe_3O_4/nitrogen-doped carbon hybrid nanofibers	Color.	0−50 mM	0.04 mM	Substrate: TMB	29
Hierarchical carbon nanofibers/$MnCo_2O_{4.5}$ nanofibers	Color.	0−40 μM	50 nM	Substrate: TMB	30
Iron(III)-based MOFs	Color.	30−485 μM	6 μM	Substrate: OPD	31
MIL-53(Fe)	Color.	28.6−190.5 μM	15 μM	Substrate: TMB	32
MIL-88	Color.	2.57−10.1 μM	1.03 μM	Substrate: TMB	33
MnO_2 nanosheets	Color.	0.25−30 μM	62.81 nM	Substrate: TMB The proposed colorimetric sensing of AA could be applied for fruit, juice and pharmaceutical samples.	34
rGO nanosheets functionalized with poly(styrene sulfonate)	Color.	0.8−60 μM	0.15 μM	Substrate: TMB The method was successfully applied to the determination of ascorbic acid in vitamin C tablets and orange juice.	35
Fe_2O_3 NPs	Resonance Raman	N/A	6 μM	Substrate: ABTS	36
ATP					
PtPd alloy decorated graphene	Electrochemiluminescence	0.1 pM−50 nM	0.037 pM	ATP in human serum samples was tested.	37

Bisphenol A					
Graphene–CuO nanocomposite	CL	$1{-}1\times10^4$ ng mL^{-1}	0.55 ng mL^{-1}		38
Hemin functionalized rGO composites	Color.	5−100 nM	2 nM	Substrate: TMB The practical applications of this method were studied using tap water samples.	39
Ca^{2+}					
Co_3O_4 nanomaterials	E-chem.	0.1−1 mM	4 μM	The calcium ion in a milk sample was tested.	40
$NiCo_2O_4$ decorated 3D graphene	E-chem.	30−460 μM	4.45 μM		41
Calcium dipicolinate (CaDPA)					
Au-Fe_3O_4 NPs	Fluor.	N/A	0.320 μM		42
Catechol					
CeO_2 NP	Color.	1−400 μM	0.2 μM	The method was further applied to determine presence of dopamine and catechol in real samples.	43
Fe_3O_4 NPs	Color.	1.3−11.7 μM	0.4 μM	Substrate: ABTS	44
Fe_3O_4/polyaniline/laccase/chitosan biocomposite	E-chem.	0.5−80 μM	0.4 μM	The fabricated biosensor could be applied for determination of catechol in tea leaf samples.	45
Cell detection					
AgX (X = Cl, Br, I) NPs	Color.	N/A	100 cells	Substrate: TMB Detection: MDA-MB-231 breast cancer cells	46
Au NCs	Color.	5−1000 cells	5 cells	Substrate: TMB Detection: HER2-positive breast cancer cell The practicality of this platform was further proved by successful detection of HER2-positive breast cancer cells in human serum samples and in breast cancer tissue.	47
Au NP-loaded mesoporous silica-coated graphene	Color.	$50{-}1\times10^5$ cells	50 cells	Substrate: TMB Detection: human cervical cancer cells (HeLa cells) In the case of normal cells (human embryonic kidney HEK 293 cells), the treatment with the hybrid and H_2O_2 or AA showed no obvious damage, proving selective killing effect of the hybrid to cancer cells.	48
Au-Fe_3O_4 NPs	Color. Fluor.	N/A N/A	100 HeLa cells 100 HeLa cells	Detection: HeLa cells	42
BSA-Bi/Pt NPs	Color.	500−2000 cells	90 cells	Substrate: TMB Detection: MCF-7 cancer cell	49

Fe-MIL-101	Color.	50−500 cells	10 cells	Substrate: TMB Detection: HeLa cells The reaction colour produced with 10 cells could also be observed by the naked eye.	50
Fe_3O_4 MNPs	Color.	50−5×10^4 cell mL^{-1}	13 melanoma CTCs mL^{-1}	Substrate: TMB Detection: melanoma circulating tumor cells	51
Folic acid conjugated graphene-hemin composite	Color.	N/A	1000 cancer cells	Substrate: TMB Detection: MCF-7 cells, NIH-3T3 cells, and HeLa cells	52
Folic acid-conjugated porous bi-metallic Pd@Au NPs	Color.	1.0×10^2–5.0×10^7 cells mL^{-1}	38 cells mL^{-1}	Substrate: TMB Detection: K-562 cells	53
GO-magnetic-Pt nanohybrids	Color. Antigen-down immunoassay	100−1000 cells	100 cells	Substrate: TMB Target: Human breast adenocarcinoma cells	54
Incorporating GO and Au NCs	Color.	N/A	1000 MCF-7 cells	Substrate: TMB	55
$MnFe_2O_4$ NPs	Color.	N/A	100 cells	Substrate: TMB Detection: folate receptor-rich cancer cells	56
MoS_2/PtCu nanocomposites	Color.	N/A	300 MCF-7 cells	Substrate: TMB Detection: MCF-7 cancer cell	57
Peptide-conjugated Au nano-probe	Color. Antigen-down immunoassay	0.5×10^4–2.5×10^4 cells	N/A	Substrate: TMB Target: HEL cells	58
Pt NPs on GO	Color.	N/A	125 cells	Target: MCF-7 cells Substrate: TMB	59
Polymer-coated CeO_2 NPs	Color. Sandwich immunoassay	1500−6000 cells	N/A	Substrate: TMB Target: lung cancer cell line (A-549)	60
Pt–Au bimetal NPs	Color. Sandwich immunoassay	10^2–10^5 cells mL^{-1}	10^2 cells mL^{-1}	Substrate: TMB Target: *Escherichia coli* O157:H7	61
PtCo bimetallic NPs	Color.	N/A	500 cells	Substrate: TMB Detection: MCF-7 cancer cell	62
CuO	E-chem.	50−7000 cells mL^{-1}	27 cells mL^{-1}	Detection: circulating tumor cells in breast cancer MCF-7 added in human serum was tested.	63
Graphene–hemin composite decorated with Au nanoflowers	E-chem.	0−5.0×10^4 cells mL^{-1}	10 cells mL^{-1}	Detection: K562 leukemia cancercells	64

rGO/MoS_2 composites and Fe_3O_4 NPs	E-chem.	15−45 cells mL^{-1}	6 cells mL^{-1}	Detection: MCF-7 circulating tumor cells	65
CeO_2 NPs	Fluor.	0−6000 cells	N/A	Substrate: Amplifiu Red Detection: lung cancer cell line A-549	66
CuO nanorods	Fluor.	N/A	100 cells	Substrate: Ampliflu Red Detection: mucin1-overexpressing tumor cells	67
Ferrimagnetic h-ferritin NPs	Magnetic resonance imaging	N/A	104 cells mL^{-1}	Detection: MDA-MB-231 breast cancer cells	68
Cell-Surface Glycan Expression					
A ternary composite based on graphene, hemin, and Au nanorods	E-chem.	50−800 cells	10 cells		69
Chlorogenic acid					
Fe_2O_3 NPs	Resonance Raman	N/A	12 μM	Substrate: ABTS	36
Choline					
MoS_2 nanosheets	Color.	1−180 μM	0.4 μM	Substrate: TMB It was applied in the determination of choline in (spiked) milk and serum.	70
Pt NPs	Color.	6−400 μM	2.5 μM	Substrate: N-ethyl-N-(3-sulfopropyl)-3-methylaniline sodium salt and 4-amino-antipyrine	8
Fe_3O_4 MNPs	E-chem.	1 nM−10 mM	0.1 nM	Fe_3O_4 and choline oxidase were immobilized together on electrode. Selectivity against AA and UA.	71
Fe_3O_4 MNPs with PDDA coating	Fluor.	20−100 μM	20 μM	Choline oxidase was electrostatically assembled onto the Fe_3O_4@PDDA. Oxidation of AU gave fluorescence.	72
N,N,N',N'-tetramethyl-1,4-butanediamine functionalized MIL-100(Fe)	Fluor.	0.5−10 μM	0.027 μM	Substrate: Ampliflu Red Choline and ACh in spiked samples of milk and serum was tested.	10
Clenbuterol					
Aminopropyltriethoxysilane-modified Fe_3O_4 MNPs	Color.	N/A	N/A	Substrate: TMB IC_{50} = 1.21 ng mL^{-1}	73
Cocaine					
Au@Pt NP	A volumetric bar-chart chip readout	N/A	0.06 μM	The method for the detection of cocaine in urine was tested.	74
Cr^{3+}					

Pyridoxal conjugated Au NPs	Color.	12.5−75 μM	11.5 μM	An assay was used to detect the concentrations of Cr^{3+} and I^{-} in real samples, such as liquid milk, milk power, river and tap water, and urine.	75
Cu^{2+}					
Ag/Pt NCs	Color.	10−100 μM	5 μM	Substrate: TMB The above method was also applied to detect real water samples and spiked samples.	76
Au@Pt nanohybrids	Color.	20−500 nM	4.0 nM	Substrate: TMB The proposed method was applied to the analysis of real samples with good accuracy.	77
Fe_3O_4 MNPs	Color.	N/A	N/A	Substrate: TMB IC_{50} = 12.619 mmol L^{-1}	18
Histidine-Au NCs	Color.	1−100 nM	0.1 nM	Substrate: TMB The feasibility of the probe for the rapid analysis of copper ion and His in human serum has been demonstrated with satisfactory results.	78
Magnetic silica NPs clicked on MWCNTs	Color.	N/A	1 μM	Substrate: TMB Since glutathione is abundant in living cells, this approach has potential for sensing of Cu(I) in biological media.	79
Urchin-like Co_9S_8 nanomaterials	Color.	0.5−10 μM	0.09 μM	Substrate: TMB Cu^{2+} in real tap water was tested.	80
CN^{-}					
CoO_xH-GO	Fluor.	0.1−10 μM	100 nM	Substrate: Ampliflu Red CN^{-} in wastewater samples was tested.	81
Cysteine					
Au@Pt core-shell nanohybrids	Color.	0.01−20 μM	5.0 nM	Substrate: TMB It was successfully applied to the determination of cysteine in an injection containing a mixture of amino acids.	82
BSA-Au NCs	Color.	0.2−60 μM	80 nM	Substrate: TMB Cysteine and Hg^{2+} in real samples were tested.	83
Covalent triazine framework-1	Color.	5−40 μM	0.65 μM	Substrate: TMB	84
DNA-Au_2Pt_1	Color.	20−200 nM	3.5 nM	Substrate: TMB To validate the application of Au_2Pt_1 nanozyme in the biological fluids, spiked-recovery experiments	85

				with different cysteine concentration were performed by using human serum.	
Fe-MIL-88NH$_2$	Color.	1−80 μM	0.39 μM	Substrate: TMB	86
Mesoporous NiO nanoflowers	Color.	20−100 μM	1.1 μM	Substrate: TMB	87
Pt NPs/GO hybrid	Color.	25−5000 nM	1.2 nM	Substrate: TMB	88
CuO NP	Fluor.	0.625−100 μM	6.6 nM	This platform was then applied for the detection of cysteine in pharmaceutical products and human plasma.	89
L-Cysteine					
DNA-Ag/Pt NCs	Color.	5.0−500 nM	2.0 nM	Substrate: TMB This detection for l-cysteine was highly selectivity over other amino acids.	90
FeCo NPs embedded in carbon nanofibers	Color.	1−20 μM.	0.15 μM	Substrate: TMB A high selectivity for the detection of L-cysteine over other amino acids, glucose and common ions is achieved.	91
Fe$_3$O$_4$ nanofibers	Color.	2−10 μM	0.028 μM	Substrate: TMB	92
Gd-based nanorods	Color.	0.2−75 μM	2.6 μM	Substrate: ABTS	93
D-alanine					
Au NP decorated SWCNT nanocomposite	Color.	0.1−25 μM	0.05 μM	Substrate: TMB	94
Dibutyl phthalate					
Au NCs@BSA	Color. Sandwich immunoassay	N/A	4.017 μg L^{-1}	Substrate: TMB DBP spiked samples were tested.	95
Dopamine					
BSA-stabilized Au NCs	Color. Fluor.	0.01−1 μM 0.01−1 μM	10 nM 10 nM	They demonstrate the application of the present approach in hydrochloride injection sample, human serum sample and PC12 cells.	96
CeO$_2$ NPs	Color.	1−800 μM	1.5 μM	The method was further applied to determine presence of dopamine and catechol in real samples.	43
Cobalt-doped magnetite/graphene nanocomposites	Color.	0.5−50 mM	0.08 mM	Substrate: TMB The visual method was successfully applied to DA detection in human serum samples.	97
CoFe$_2$O$_4$/CoS hybrid nanotubes	Color.	0−50 μM	0.58 μM	Substrate: TMB	98
Co$_x$Fe$_{3-x}$O$_4$ NPs	Color.	0.6−8 μM	0.13 μM	Substrate: TMB Dopamine in serum was tested.	99

$CuFe_2O_4/Cu_9S_8$/PPy ternary nanotubes	Color.	2−20 μM	1.0 μM	Substrate: TMB	100
Hierarchical Co_3O_4@NiO core-shell nanotubes	Color.	1−20 μM	1.21 μM	Substrate: TMB	101
Hierarchical CuS decorated rGO nanosheets	Color.	2−100 μM	0.48 μM	Substrate: TMB	102
$LaCoO_3$ NPs	Color.	0.5−20 mM	0.188 mM	Substrate: TMB DA in the human serum sample was tested.	103
Nano-porous Pt	Color.	0.08−1.0 mM	0.0085 mM	Substrate: TMB This system provides a new，simple as well rapid method on the detection of DA and can be used for the detection of DA in cell．	104
Proline tailed metalloporphyrin with graphene sheet	E-chem.	0.01−200 μM	1.40 nM	With good sensitivity and selectivity, the present method was applied to the determination of DA in real sample and the results were satisfactory.	105
Escherichia coli					
Dopamine-capped Fe_3O_4 NPs	Color.	N/A	102 cfu mL^{-1}	Substrate: ABTS Target: *Escherichia coli*	106
β-Estradiol					
Fe_3O_4@mSiO_2@hydroxypropyl β-cyclodextrin NPs	Color.	0.8−16 μM	0.2 μM	Substrate: TMB The visual method was successfully used in the analysis of b-E2 in commercial tablets and animal feeds.	107
Exosomes					
DNA-capped SWCNTs	Color.	1.84×10^6–2.21×10^7 particles μL^{-1}	5.2×10^5 particles μL^{-1}	Substrate: TMB	108
G-C_3N_4 nanosheets	Color.	0.19×10^7 particles μL^{-1}–3.38×10^7 particles μL^{-1}	13.52×10^5 particles μL^{-1}	Substrate: TMB A similar trend was detected in the circulating exosomes isolated from the sera samples collected from breast cancer patients and healthy controls.	109
F^-					
CeO_2 NPs	Color.	N/A	0.64 μM	Substrate: ABTS	110
Fe^{3+}					
Carbon dots	Color.	8−100 μM	0.8 μM	Substrate: TMB	17
Galactose					
Fe_3O_4 MNPs	Color.	10−200 mg L^{-1}	5 mg L^{-1}	Substrate: ABTS	111

				Galactose in dried blood samples from normal persons and patients was tested. Plates were used for sensing.	
Fe_3O_4 MNPs with PDDA coating	Fluor.	2−80 μM	2 μM	Galactose oxidase was electrostatically assembled onto the Fe_3O_4@PDDA. Oxidation of Ampliflu Red gave fluorescence.	72
GSH					
Ag NPs on nitrogen-doped GQDs	Color.	0.1−157.6 μM	31 nM	Substrate: TMB The novel sensor system shows great potential application for GSH detection in blood serum sample.	112
Au NP	Color.	8−75 μM	6.9 μM	The detection procedure implied the assessment of the color change of a paper sensor resulting from aggregation of gold nanoparticles caused by thiols. Thiols level in the skin of volunteers (21–65 years old, men and women) detected with the use of a proposed non-invasive sensor was 11.6−47.5 μM.	113
BSA-MnO_2 NPs	Color.	0.26−26 μM	0.1 μM	Substrate: TMB The reduction of the oxidized TMB system was first applied to detect GSH in human blood serum.	114
Carbon nanodots	Color.	0−7 μM	0.3 μM	Substrate: TMB	115
Co,N co-doped hierarchically porous carbon hybrid	Color.	0.05−30 μM	36 nM	Substrate: TMB The proposed method was successfully applied to glutathione quantification in biological samples.	116
Covalent triazine framework-1	Color.	5−140 μM	0.68 μM	Substrate: TMB	84
$Cu_{1.8}S$ NPs	Color.	0.5−10 mM	0.06 mM	Substrate: TMB Glutathione in commercial pharmaceutical tablets was tested.	117
Fe-MIL-88NH_2	Color.	1−100 μM	0.45 μM	Substrate: TMB	86
$FeMnO_3$ NP-filled polypyrrole nanotubes	Color.	0−10 mM	36 nM	Substrate: TMB	118
Fe_3O_4 MNPs	Color.	3.0−30.0 μM	N/A	Substrate: ABTS It was applied for detecting GSH in A549 cells.	119
Fe_3O_4/MIL-88	Color.	0−0.55 μM and 0.55−3 μM	36.9 nM	Substrate: methylene blue GSH in serum sample was tested.	120
Graphene dots	Color.	0.5−100 μM	0.5 μM	Substrate: TMB	121

				The proposed system also shows high selectivity and is capable of sensing in complicated biological samples such as cell lysate.	
Mesoporous wire-like MnO_2	Color.	0.3−15 μM	0.11 μM	Substrate: TMB GSH in human serum samples was tested.	122
Mixed-valence-state cobalt	Color.	0.5−40 μM	0.03 μM	Substrate: TMB The proposed sensor was used to determine GSH in eye drops and health care products.	123
MnO_2 nanosheets	Color.	1−25 μM	300 nM	Substrate: TMB This system used to determine the GSH concentrations in human serum samples.	124
Pt NP/GO	Color.	0.02−20 μM	4 nM	Substrate: TMB The method was successfully applied to the determination of GSH in hemolyzed human blood.	125
V_6O_{13} nanotextiles	Color.	2.5−30 μM	0.63 μM	Substrate: TMB The detection of GSH and glucose in health supplements and human serum. samples was successfully applied through the proposed method.	126
CuO	Fluor.	N/A	0.2 μM	Substrate: TA	127
MnO_2 nanosheet	Fluor.	20−2000 nM	6.7 nM	Substrate: Ampliflu Red It presents excellent applicability in human serum samples.	128
Fe_2O_3 NPs	Resonance Raman	0−2000 nM	200 nM	Substrate: ABTS	36
Heparin					
Citrate-capped Pt NPs	Color.	1−10 nM	0.3 nM	Substrate: TMB The proposed system enabled the determination of the therapeutic heparin concentration in a single drop of blood.	129
Hg^{2+}					
Ag NCs	Color.	0.08−50 μM	0.025 μM	Substrate: TMB	130
Ag NPs	Color.	0.1−100 μM	0.028 μM	Substrate: TMB	131
Ag NPs	Color.	0.5−800 nM	0.125 nM	Substrate: TMB Mercury(II) in blood and wastewater was tested.	132
Au/Fe_3O_4/GO hybrid material	Color.	1−50 nM	0.15 nM	Substrate: TMB	133
Au NPs	Color.	1.0−600 nM	0.30 nM	Substrate: TMB	134
Au nanozyme-based paper chip	Color.	0.1−200 ng	0.06 ng	Substrate: TMB	135

				Highly sensitive and selective detection of Hg^{2+} ions is achieved in both distilled and tap water samples.	
BSA-Au NCs	Color.	0.2−60 μM	30 nM	Substrate: TMB Cysteine and Hg^{2+} in real samples were tested.	83
BSA-Au clusters	Color.	10 nM−10 μM	3 nM	Substrate: TMB This method was successfully applied for the determination of total mercury content in skin lightening products.	136
BSA-stabilized Pt	Color.	0−120 nM	7.2 nM	Substrate: TMB The developed sensing system is potentially applicable for quantitative determination of Hg^{2+} in drinking water.	137
Carbon nanodots	Color.	0−0.46 μM	23 nM	Substrate: TMB	138
Chitosan-Au NPs	Color.	0.04−10.2 μM	0.02 μM	Substrate: TMB	139
Cu@Au-Hg trimetallic amalgam	Color.	10−500 nM and 500−2500 nM	10 nM	Substrate: TMB This assay was successfully applied to the determination of Hg(II) in tap water.	140
DNA-Ag/Pt NCs	Color.	10 nM−200 nM	5.0 nM	Substrate: TMB The method was highly selective toward Hg^{2+} over other common metal ions, low-cost and simple, which facilitated the application of detecting Hg^{2+} in tap water.	141
Glutathione capped Pt NPs	Color.	5−20 nM	0.25 nM	Substrate: TMB GSH-Pt is a promising candidate for colorimetric assay of Hg^{2+} in both drinking water and biological fluid.	142
GO-Au nanohybrids	Color.	0−50 μM	300 nM	This simple and sensitive sensor could be successfully applied for the detection of Hg^{2+} and Pb^{2+} in river water.	143
Hollow porous Au NPs	Color.	0.5−50 μM	18.5 nM	Substrate: TMB This method is successfully applied for the determination of total mercury content in tap water and Yellow River.	144
MNPs	Color.	5−75 μM	N/A		145
MnO_2 nanorods	Color.	0.1−8.0 μM	0.08 μM	Substrate: TMB	146

				The proposed method was successfully applied for the determination of Hg^{2+} in real water samples. And this method was allowed for the monitoring of Hg^{2+} directly by the naked eye.	
MoS_2 nanosheets	Color.	2.0−200 μM	0.5 μM	Substrate: TMB It was applied to the determination of total mercury in cosmetic samples.	147
Nano Au-Hg amalgam	Color.	0.1−5 nM	0.07 nM	Substrate: TMB Hg^{2+} in the river sample was tested.	148
Pt NP	Color.	0.01−4 nM	8.5 pM	Substrate: TMB	149
Pt NP	Color.	50−500 nM	16.9 nM	Substrate: TMB Tap and ground waters and the respective limit of quantification values for Hg^{2+} using the developed method were 16.9, 26 and 47.3 nM.	150
Pt NP@UiO-66-NH_2 composites	Color.	0−10 nM	0.35 nM	Substrate: TMB The as-obtained Pt NP@UiO-66-NH_2 nanocomposites exhibit high capacity and good selectivity for Hg^{2+} adsorption, which is successfully applied to treat Hg^{2+} in water with removal efficiency over 99%.	151
Pt-Se nanostructures	Color.	0−2.5 μM	70 nM	Substrate: TMB	152
rGO/PEI/Pd nanohybrids	Color.	0.1−25 nM	0.39 nM	Substrate: TMB Hg^{2+} in wastewater and human serum can be detected with the naked-eye.	153
Single Nucleic Acid/Au NPs /Mercury Ion	Color.	10−1000 nM	3.0 nM	Substrate: TMB	154
Sphere-like CoS	Color.	0.25−3 μM	0.1 μM	Substrate: TMB	155
Au NPs	Fluor.	5.0−100 nM	1.2 nM	Substrate: Ampliflu Red The concentrations of spiked Pb^{2+} and Hg^{2+} in tap, river, and lake water samples were tested.	156
Pt/Au NPs	Fluor.	0.01−1 μM	2.5 nM	Substrate: Ampliflu Red The concentrations of Hg^{2+} and $MeHg^{+}$ spiked in tap, pond, and stream water samples was tested.	157
DNA-templated bimetallic Ag/Pt NCs	E-chem.	0.65−3.5 nM	0.17 nM	Substrate: TMB	158

Fe_3O_4 MNPs	High performance liquid chromatography HG/CV atomic fluorescence spectrometry	N/A	0.7 mg L^{-1}, 1.1 mg L^{-1}, 0.8 mg L^{-1}, 0.9 mg L^{-1}	Target: Hg^{2+}, Target: MeHg, Target: EtHg, Target: PhHg National Research Council Canada DORM-2 fish muscle tissue and several real water samples were analyzed to validate the accuracy of the proposed method.	159
Histidine					
Histidine-Au NCs	Color.	20 nM−2 μM	20 nM	Substrate: TMB The feasibility of the probe for the rapid analysis of copper ion and His in human serum has been demonstrated with satisfactory results.	78
Homocysteine					
Covalent triazine framework-1	Color.	5−40 μM	0.62 μM	Substrate: TMB	84
DNA-Au_2Pt_1	Color.	40−180 nM	1.6 nM	Substrate: TMB	85
Fe-MIL-88NH_2	Color.	1−80 μM	0.40 μM	Substrate: TMB	86
Hydroquinone					
$CeVO_4$	Color.	0.05−8 μM	0.04 μM	Substrate: TMB This colorimetric platform can selectively reveal H2Q concentrations in the presence of other dihydroxybenzene isomers.	160
Urchin-like $NiCo_2O_4$ microspheres	Color.	5−110 μM	2.7 μM	Substrate: TMB This method could be well applied in real environmental samples.	161
I^-					
Citrate-capped Au NPs	Color.	0.2−1.6 μM	50 nM	The detection of I^- in tap water was examined.	162
Pt NPs	Color.	20−5000 nM	8 nM	Substrate: TMB This assay was successfully applied to detection of iodine concentration in real salt and water samples.	163
Pyridoxal conjugated Au NPs	Color.	2.5−145 μM	0.589 μM	An assay was used to detect the concentrations of Cr^{3+} and I^- in real samples, such as liquid milk, milk power, river and tap water, and urine.	75
Indole-3-acetic acid					
Hemin/rGO nanocomposite	E-chem.	0.1−43 μM and 43−183 μM	0.074 μM		164
Influenza Virus					
Au NPs	Color.	up to 10 pg mL^{-1}	10.79 pg mL^{-1}	Substrate: TMB	165

	Antigen-down immunoassay				
Au nanozymes	Color. Sandwich immunoassay	5.0×10^{-15}–5.0×10^{-6} g mL^{-1}	44.2×10^{-15} g mL^{-1}	Substrate: TMB Clinically isolated human serum samples were successfully observed at the detection limit of 2.6 PFU mL^{-1}.	166
K^+					
Au NPs	Color.	0. 1−1×10^4 nM	0.06 nM	Substrate: TMB The sensitivity displays to be 2-9 orders of magnitude better than those of other K^+ detection methods.	167
Au NPs	Color.	0.15−2.8 mM	N/A	Substrate: TMB	168
Kanamycin					
Au NPs	Color.	1−100 nM	4.52 nM	Substrate: TMB Gold nanoparticles were modified by kanamycin aptamer.	169
Au NPs	E-chem.	0.1−60 nM	0.06 nM	The established approach was successfully applied in the detection of kanamycin in honey samples.	170
MAP bacteria					
Dextran-coated Fe_3O_4 nanorods	Magnetic resonance imaging (MRI)	N/A	6 cfu		171
Melamine					
Au NCs	Color.	0.2−15 μM	72 nM	Substrate: TMB The method was successfully applied to the quantitation of melamine in (spiked) raw milk and milk powder.	172
Au NPs	Color.	5−800 ng L^{-1}	N/A	Substrate: TMB Melamine with the concentration as low as 0.02 mg L^{-1} can be easily distinguished by naked-eye observation.	173
Bare Au NPs	Color.	1−800 nM	0.2 nM	Substrate: TMB	174
$Cu_{2-x}Se$ NPs	Color.	4.7 nM−29.7 mM	1.2 nM	Substrate: TMB	175
Fe_3O_4 MNPs	Color.	N/A	2.0 μM	Substrate: ABTS The existence of melamine can be visually evaluated easily without the aid of any instrumentation.	176
Plait-like carbon nanocoils	Color.	5.0−70 μM	1.8 μM	Substrate: TMB	177

Au NP	Fluor.	0.4−2 μM	0.88 μM	A label free fluorescent assay was developed for the detection of melamine, which can be used for melamine determination in milk.	14
Au-Ag NPs	SERS	10 nM−50 μM	8.51 nM	The proposed highly selective method is fully capable of rapid, separation-free detection of melamine in milk powder.	178
Methanol					
Pd NPs	Color.	1−50 μM	0.2 μM	Substrate: TMB	179
microRNA					
Copper (II) complex molecule as small molecule enzyme mimic combined with Fe_3O_4	Color.	100 aM−100 nM	33 aM	Substrate: TMB The assay of microRNA-21 in real serum samples, the human serum samples from 5 breast cancer patients and 5 healthy donors were evaluated.	180
Norovirus-like particles					
Graphene-Au NPs	Color. Sandwich immunoassay	100 pg mL^{-1}−10 μg mL^{-1}	92.7 pg mL^{-1}	Substrate: TMB Target: norovirus-like particles The LOD of this proposed method was 112 times lower than that of a conventional ELISA. The sensitivity of this test was also 41 times greater than that of a commercial diagnostic kit.	181
Nucleic Acids					
3D graphene/Fe_3O_4-Au NPs	Color.	0.01−0.25 μM	0.008 μM	Substrate: TMB	182
Ag NCs	Color.	30−225 nM	10 nM	Substrate: TMB	130
Au NPs immobilized on MOFs	Color.	30−150 nM	11.4 nM	Substrate: TMB	183
CeO_2 NPs	Color.	0−120 nM	N/A	Substrate: TMB	184
Fe_3O_4 MNPs	Color.	0−120 nM	N/A	Substrate: OPD	185
Graphene/Au NPs hybrids	Color.	0.1−10 nM	5.74×10^{-11} M	Substrate: TMB Realized the assay of target DNA in human serum samples.	186
Pt NPs on rGO	Color.	0.5−10 nM	0.4 nM	Substrate: TMB The applicability for real sample detection was demonstrated by polymerase chain reaction product analysis.	187
Pt@mesoporous SiO_2	Color.	1−20 nM	3 nM	Substrate: TMB	188
Graphene-supported ferric porphyrin	E-chem.	0.1−10 pM	22 aM		189

Dendritic DNA-porphyrin superstructure	Fluor.	0.25−12.5 nM	103 pM	Substrate: tyramine	190
Pt	Multistage propelled volumetric bar chart chip	N/A	20 pM	The resulting ink bar charts can be directly read out by the naked eye, and the signal shows little interference from serum.	191
PbS quantum dots	Photoelectrochemical	0.2 pmol L^{-1}–1.0 nmol L^{-1}	0.08 pmol L^{-1}		192
Ochratoxin A					
Au@Fe_3O_4 NPs	Color.	0.5−100 ng mL^{-1}	30 pg mL^{-1}	Substrate: TMB Ochratoxin A in real cereal samples was tested.	193
Pathogen rotavirus					
Fe_3O_4 NPs and Pt NPs in ordered mesoporous carbon	Color. Sandwich immunoassay	10^2−10^5 pfu mL^{-1}	10^2 pfu mL^{-1}	Substrate: TMB	194
Patulin					
Ag NP/Zn-based MOF nanocomposite	Fluor.	0.1−10 μM	0.06 μM	Substrate: TA	195
Pb^{2+}					
Au NPs	Color.	0.2−30 nM	602 pM	Substrate: TMB The presented aptasensor was successfully used to detect Pb^{2+} in water and serum.	196
Au NPs	Color.	0.2−30 nM	602 pM	Substrate: TMB The presented aptasensor was successfully used to detect Pb^{2+} in water and serum.	196
GO-Au nanohybrids	Color.	0−50 μM	500 nM	This simple and sensitive sensor could be successfully applied for the detection of Hg^{2+} and Pb^{2+} in river water.	143
A DNA Functionalized Porphyrinic MOF	E-chem.	0.05−200 nM	0.034 nM	Pb^{2+} in soil samples was tested.	197
Au NPs	Fluor.	5.0−70 nM and 70−700 nM	1.6 nM	Substrate: Ampliflu Red The concentrations of spiked Pb^{2+} and Hg^{2+} in tap, river, and lake water samples were tested.	156
Pb-Au alloys	Fluor.	10 nM−1.0 μM	1.5 nM	Substrate: Ampliflu Red Pb^{2+} ion concentration in environmental water and urine samples was tested.	198
Pesticide					
g-C_3N_4/$BiFeO_3$ nanocomposites	CL Sandwich immunoassay	0.1−60 ng mL^{-1} 0.1−40 ng mL^{-1}	0.033 ng mL^{-1} 0.033 ng mL^{-1}	Target: chlorpyrifos Target: carbaryl	199

				Chlorpyrifos and carbaryl spiked in environmental water and traditional Chinese medicine samples were tested.	
Fe_3O_4 NPs	CL	0.1 nM−100 μM	0.1 nM	Target: ethoprophos The superparamagnetic properties of Fe_3O_4 nanoparticles provide a simple magnetic separation approach to attain interference-free measurement for real detection.	200
Au NPs	Color.	N/A	0.1 ppm	Target: acetamiprid Substrate: TMB	201
Co_3O_4/rGO nanocomposites	Color.	8−140 μM	0.8 μM	Target: paraoxon A simple and sensitive colorimetric sensor of paraoxon was developed and successfully used to determine the paraoxon in cabbage and river water.	202
Fe_3O_4 MNPs	Color.	N/A N/A N/A	1 nM 10 nM 5 μM	Target: sarin Target: methyl-paraoxon Target: acephate Substrate: TMB	203
Combining CuO and MWCNTs	Fluor.	0.002−0.01 ppm	0.67 ppb	Target: glyphosate Substrate: Ampliflu Red This sensor was assessed for detecting glyphosate in real water samples	204
Oxidized MWCNTs decorated with Ag NPs	Fluor.	0.01−0.35 μg mL^{-1}	0.003 μg mL^{-1}	Target: dimethoate Substrate: Ampliflu Red The method was applied to measure the concentration of dimethoate residue in lake water and fruit.	205
Pd@Au bimetallic nanostructures	Fluor. Antigen-down immunoassay	0.001−100 ng mL^{-1}	0.01 ng mL^{-1}	Substrate: 3-(4-dihydroxy phenyl) propionic acid Target: herbicide bensulfuron-methyl	206
Phenol					
Hemin–graphene hybrid NPs	Color.	0.4−4.0 mg L^{-1} 0.2−2.0 mg L^{-1} 0.8−8.0 mg L^{-1}	0.178 mg mL^{-1} 0.092 mg mL^{-1} 0.279 mg mL^{-1}	Target: Pyrocatechol Target: Resorcin Target: Hydroquinone Substrate: 4-Aminoantipine	207
MoS_2-Pt_3Au_1 nanocomposites	Color.	4−1000 μM	0.2 μM	Based on oxidative coupling reaction of phenol and 4-aminoantipyine in the presence of H_2O_2 as an oxidant to form pink color products.	208

rGO/Cu_8S_5/PPy composite nanosheets	Color.	0−200 μM	1.78 μM	Substrate: 4-aminoantipyrine	209
Nanohybrids consisting of Fe_3O_4 MNPs and Au NCs	E-chem.	0.1−10 mM	1 μM	The dynamic range and the detection limit were the same for phenol and cresol. The measured sensitivity and dynamic range of the current biosensor are among the best results reported for phenols detection based on nanozymes.	210
Phosphate					
Fe_3O_4 MNPs	Color.	0.2−200 μM	0.11 μM	Substrate: TMB Applied to Pi detection in drinking water, ground water and lake water samples with satisfactory results.	211
MoS_2 nanosheets	Color.	2−40 μM	0.79 μM	Substrate: TMB	212
p-Nitrophenol					
3D graphene/mesoporous Fe_3O_4	Color.	0.1−10 μM and 10−1000 μM	45 nM	Substrate: TMB The method was applied to the determination of PNP in spiked lake water and gave good recoveries.	213
Protein					
CuO nanorods	CL Antigen-down immunoassay	0.1−60 ng mL^{-1}	0.05 ng mL^{-1}	Target: CEA	214
Pt NP	CL Sandwich immunoassay	1 mIU mL^{-1}–100 IU mL^{-1} and 1 IU mL^{-1}–100 IU mL^{-1}	N/A	Target: human chorionic gonadotropin The sensitivity was determined to be improved by as much as 1000-fold compared to the conventional rapid test based on colored gold-colloids.	215
Ag/Pt bimetallic NCs	Color.	1−50 nM	2.6 nM	Target: Thrombin Ag/Pt bimetallic nanoclusters were produced through a DNA-templated method.	216
Au@Ag bimetallic NPs	Color. Sandwich immunoassay	3.7−900 pg mL^{-1}	1.16 pg mL^{-1}	Target: interleukin-6 (IL-6) IL-6 in clinical samples was tested.	217
Au-Hemin@MOF composites	Color. Sandwich immunoassay	0.080−43 ng mL^{-1}	0.020 ng mL^{-1}	Target: alpha-fetoprotein Substrate: TMB	218
Au-loaded nanoporous Fe_2O_3 nanocubes	Color.	N/A	0.08 U mL^{-1}	Target: p53 autoantibody Substrate: TMB The clinical applicability of the sensor has been tested in detecting p53-specific autoantibody in plasma obtained from patients.	219
Au NCs	Color.	N/A	1.0×10^{-20} M	Target: protein avidin,	220

	Sandwich immunoassay	5×10^{-10} U mL^{-1}–5×10^{-12} U mL^{-1} 2×10^{-12}–2×10^{-14} mg mL^{-1} 1.15×10^{-10}–2.3×10^{-9} mg mL^{-1}	7.52×10^{-14} U mL^{-1} 2.0×10^{-15} mg mL^{-1} 2.3×10^{-18} mg mL^{-1}	Target: breast cancer antigen, Target: thyroid hormone, Target: methamphetamine	
Au NCs	Color.	0.1−3 μg mL^{-1}	0.06 μg mL^{-1}	Target: heparinase Substrate: TMB The detection of heparin and heparinase activity in diluted serum samples was also demonstrated.	221
Au NPs	Color. Sandwich immunoassay	0.05−20 ng mL^{-1}	0.03 ng mL^{-1}	Target: PSA Substrate: TMB	222
Au NPs	Color. Antigen-down immunoassay	N/A	N/A	Target: IgG Substrate: TMB	223
Au NPs	Color.	0.1−15 nM	0.1 nM	Target: Thrombin Substrate: 4-nitrophenol The method was further applied for the detection of thrombin in human serum samples.	224
Au NPs	Color. Sandwich immunoassay	0.7−100 ng mL^{-1}	0.3 ng mL^{-1}	Target: IgG (H-IgG) Substrate: TMB	225
Au NPs	Color. RRS SERS	1.0−18 ng mL^{-1} 0.5−18 ng mL^{-1} 0.2−13.3 ng mL^{-1}	0.50 ng mL^{-1} 0.20 ng mL^{-1} 0.07 ng mL^{-1}	Target: human chorionic gonadotropin Five serum samples of women were tested.	226
Au@Pt nanorods with PSS coating	Color. Sandwich immunoassay	N/A	N/A	Substrate: TMB Target: mouse interleukin-2	227
Au vesicles encapsulated with Pd-Ir NPs	Color. Sandwich immunoassay	0.2−200 pg mL^{-1}	31 fg mL^{-1}	Substrate: TMB Target: PSA PSA spiked human plasma samples was tested.	228
BSA-Au NCs	Color.	0.9 μg mL^{-1}–1.0 mg mL^{-1}	0.6 μg mL^{-1}	Target: trypsin Substrate: TMB	229
BSA-templated MnO_2 NPs	Color. Sandwich immunoassay	0.025−10 mg mL^{-1}	0.025 mg mL^{-1}	Target: goat anti-human IgG Substrate: TMB	230
Catechol coordinated TiO_2 NPs	Color. Antigen-down immunoassay	0.01−150 U L^{-1} 0.01−100 ng mL^{-1}	0.002 U L^{-1} 2.0 pg mL^{-1}	Target: alkaline phosphatase Target: mouse IgG Substrate: TMB	231

				Endow the methodology with sufficiently high sensitivity for potentially practical applications in real samples of human serum.	
CeO_2 NPs	Color.	0.1−10 nM	100 pM	Target: Thrombin Substrate: TMB Thrombin in human blood plasma was tested.	232
Chitosan modified Fe_3O_4 MNPs	Color.	1−100 nM	1 nM	Target: Thrombin Substrate: TMB	233
Chitosan-stabilized Pt NPs	Color.	0.25−2.5 U L^{-1}	0.016 U L^{-1}	Target: acid phosphatase Substrate: TMB This new colorimetric method is utilized to detect acid phosphatase (ACP) in real biological samples and to screen ACP inhibitors.	234
CNTs	Color. Sandwich immunoassay	2×10^{-5}–2×10^{-1} mg mL^{-1}	$3x10^{-5}$ mg mL^{-1}	Target: Human serum albumin	235
CoOOH nanoflakes	Color. Fluor.	0.04−160 U L^{-1} 0.04−160 U L^{-1}	0.026 U L^{-1} 0.032 U L^{-1}	Target: alkaline phosphatase Substrate: AA Substrate: OPD Quantitative analysis of alkaline phosphatase in human serum samples and an alkaline phosphatase inhibitor investigation were performed using this sensing system.	236
DNAzymes and Pt nanochains	Color.	100.0 pM−100.0 nM.	15.0 pM	Substrate: TMB Target: thrombin The MB-based aptasensor was applied to detect thrombin in human serum samples.	237
Fe-MIL-88A	Color.	10−80 nM	0.8 nM	Substrate: TMB Target: thrombin Thrombin in human serum was tested.	238
$Fe_{(1-x)}Mn_xFe_2O_4$ NPs with PMIDA coating	Color. Antigen-down immunoassay	0.1−2.2 μg mL^{-1}	0.1 μg mL^{-1}	Target: mouse IgG Substrate: TMB	239
Fe-N-Carbon dots	Color. Sandwich immunoassay	1−1000 pg mL^{-1}	0.1 pg mL^{-1}	Target: CEA Substrate: TMB	240
Fe_3O_4 MNP	Color. Sandwich immunoassay	N/A	1 ng mL^{-1}	Target: the glycoprotein of Ebola virus (EBOV) Substrate: TMB	241
Fe_3O_4 NPs	Color.	N/A	50 nM	Substrate: ABTS	242
Fe_3O_4 NPs with chitosan coating	Color.	N/A	N/A	Target: mouse IgG	243

	Antigen-down immunoassay Sandwich immunoassay			Target: CEA Substrate: TMB	
Fe_3O_4 NPs with dextran coating	Color. Antigen-down immunoassay Sandwich immunoassay	N/A	N/A	Target: hepatitis B virus surface antigen Target: cardiac troponin I Substrate: TMB	244
Fe_2O_3 NPs with PB coating	Color. Antigen-down immunoassay	1−2.5 μg mL^{-1}	N/A	Target: IgG Substrate: TMB	245
Fe_3O_4-Pt/core-shell NPs	Color. Lateral flow immunoassay	N/A	0.025 ng mL^{-1}	Target: human chorionic gonadotropin Substrate: TMB	246
Ferric nanocore residing in ferritin	Color. Antigen-down immunoassay Sandwich immunoassay	N/A 0.033−3.3 nM	1.0 ppm 2.5 pM	Target: avidin Target: nitrated human ceruloplasmin Substrate: DPD	247
GO	Color. Sandwich immunoassay	0.1−10 ng mL^{-1}	N/A	Substrate: hydroquinone Target: PSA Clinical samples were tested.	248
GO-AuPtNP-Apt15/G-quadruplex/hemin composites	Color.	0.30−100 nM	0.15 nM	Target: thrombin Substrate: TMB Bovine serum albumin, human serum albumin and other proteins were found not to interfere.	249
Graphene/Au NPs hybrids	Color.	0.02−0.11 U μL^{-1}	0.0016 U μL^{-1}	Target: glycosylase Substrate: TMB Detection: human 8-hydroxyguanine glycosylase (hOGG1) Realized the quantification of hOGG1 activity in real cell lines.	250
Hemin-graphene hybrid nanosheet	Color.	0−20 nM	5 nM	Target: PDGF-BB Substrate: TMB	251
Hemin-graphene hybrid nanosheet	Color.	0.5−10 nM	0.5 nM	Target: Thrombin Substrate: TMB	251
Hemin–MnO_2 nanocomposite	Color. Sandwich immunoassay	1−1000 pg mL^{-1}	0.5 pg mL^{-1}	Target: IgG Substrate: TMB Human immunoglobulin G in serum was tested.	252
Hierarchically structured Pt NPs	Color. Antigen-down immunoassay	Total IgE: 0.4−1000 kU L^{-1} Specific-IgE: 0.35 kU L^{-1}−17.5 kU L^{-1}	Total IgE :0.25 kU L^{-1} Specific-IgE: 0.17 kU L^{-1}	Target: immunoglobulin E (IgE) Substrate: TMB The levels of both total and specific IgE in real human serum samples was tested.	253
Hierarchically structured Pt NPs	Color.	N/A	0.3 ng mL^{-1}	Target: human chorionic gonadotropin	254

	Lateral flow immunoassay			Substrate: TMB	
High-index faceted Pt concave nanocubes	Color. Sandwich immunoassay	20−2000 pg mL^{-1}	0.8 pg mL^{-1}	Target: PSA Substrate: TMB The method is validated for the analysis of 10 PSA clinical serum specimens	255
Irregular-shaped Pt NPs	Color. Sandwich immunoassay	5.0−250 ng mL^{-1}	2.5 ng mL^{-1}	Target: rabbit IgG Substrate: TMB	256
Mercury-coated Au NPs	Color.	4.3−49 nM	1.3 nM	Target: Metallothioneins Substrate: ABTS The method was successfully applied to the determination of metallothioneins in (spiked) human urine.	257
Mesoporous Pt-Pd NPs	Color. Sandwich immunoassay	0.1−10 ng mL^{-1}	0.05 ng mL^{-1}	Target: p53 Protein Substrate: TMB This Pt−Pd based ITS to measure the p53 in a series of real clinical sample from local hospital patients who are diagnosed with acute pancreatitis.	258
Mesoporous silica encapsulated Pt NP	Color. Sandwich immunoassay	5−200 ng mL^{-1}	10 ng mL^{-1}	Target: human chorionic gonadotropin Substrate: TMB	259
Nanocrystalline coordination polymers	Color. Antigen-down immunoassay	N/A N/A	0.35 μg mL^{-1} 0.27 μg mL^{-1}	Target: Biotin Target: human serum albumin Substrate: TMB	260
Nanodiamonds	Color. Sandwich immunoassay	N/A	N/A	Target: IgG Substrate: TMB	261
Nitrilotriacetic acid-modified MNP	Color.	0.14−230 pM	5.6 fM	Target: lipid kinase Substrate: TMB	262
PB modified ferritin NPs	Color. Sandwich immunoassay	1−10 μg mL^{-1}	N/A	Target: Horse spleen ferritin Substrate: TMB	263
PB NPs	Color. Sandwich immunoassay	20−200 μg mL^{-1} A working range up to 106 cfu mL^{-1}.	1.2 ng mL^{-1} 6×10^{3} cfu mL^{-1}	Target: human serum albumin Target: Salmonella Typhimurium Substrate: TMB	264
Pd nanostructures	Color. Sandwich immunoassay	0.1−20 ng mL^{-1}	0.05 ng mL^{-1}	Target: prostate-specific antigen Substrate: TMB The methodology is validated for analysis of clinical serum specimens with consistent results obtained by PSA ELISA kit.	265
Pd/Fe_3O_4@C	Color.	0.005−30 ng mL^{-1}	1.7 pg mL^{-1}	Target: CEA and α-fetoprotein	266

	Sandwich immunoassay			Substrate: TMB and OPD	
Pd-Ir core-shell nanocubes	Color. Sandwich immunoassay	2−1200 pg mL^{-1}	0.67 pg mL^{-1}	Target: PSA Substrate: TMB	267
Porous nanorods of CeO_2	Color. Sandwich immunoassay	N/A	0.01 ng mL^{-1}	Target: cancer antigen 153 Substrate: TMB	268
Porous Pt core-shell nanocatalysts	Color. Paper-based lateral flow immunoassays	$1-1\times10^4$ pg mL^{-1}	0.8 pg mL^{-1}	Target: HIV p24 Substrate: CN/DAB (4chloro-1-naphthol/3,3′-diaminobenzidine, tetrahydrochloride)	269
Pt-decorated Au NPs	Color. Sandwich immunoassay	10−200 pg mL^{-1}	3.1 pg mL^{-1}	Target: PSA Applied it to quantifying PSA from human plasma samples.	270
PtPd NPs	Color. Sandwich immunoassay	0.05−6.4 nM 0.1−6.4 nM	0.025 nM 0.028 nM	Target: BChE Substrate: catechol Target: active BChE Substrate: 5,5′-dithiobis (2-nitrobenzoic acid) Mock OP-BChE samples in human plasma were tested.	271
Rod-shaped Au@PtCu nanostructures	Color. Antigen-down immunoassay	9×10^{-5}–9 μg mL^{-1}	90 pg mL^{-1}	Target: human IgG Substrate: TMB and ABTS	272
Urchin-like Au@Pt core-shell nanohybrids	Color. Sandwich immunoassay	5−500 pg mL^{-1}	2.9 pg mL^{-1}	Target: PSA Substrate: TMB The developed immunoassay exhibited good precision and reproducibility, high specificity and acceptable accuracy for the detection of clinical serum samples.	273
$ZnFe_2O_4$@MWNTs	Color. Antigen-down immunoassay	0.005−30 ng mL^{-1}	2.6 pg mL^{-1}	Target: CEA Substrate: TMB	274
Pt NPs	Digital volumetric bar-chart chip	0.1−1000 pM N/A	0.1 pM 5 pM	Target: CEA Target: B-type natriuretic peptide CEA samples with concentrations of 1 ng mL^{-1} and 1.5 ng mL^{-1} could be differentiated by the device.	275
Ag@Au-Fe_3O_4	E-chem. Sandwich immunoassay	0.1 pg mL^{-1}–5 μg mL^{-1}	50 fg mL^{-1}	Target: human IgG	276
AgI	E-chem. Sandwich immunoassay	0.1−80 ng mL^{-1}	0.05 ng mL^{-1}	Target: CEA	277
Ag NCs	E-chem.	10^{-10} −10^{-5} M	42 pM	Target: lysozyme	278

Au@multifunctional graphene nanocomposites	E-chem. Sandwich immunoassay	10^{-5} ng mL^{-1}–10^{2} ng mL^{-1}	7.5 fg mL^{-1}	Target: tissue polypeptide antigen	279
Au@Pd/MoS_2@MWCNTs nanocomposite	E-chem. Sandwich immunoassay	0.1pg mL^{-1}–500 pg mL^{-1}	26 fg mL^{-1}	Target: hepatitis B e antigen Human serum samples were tested.	280
Au NPs@Fe_3O_4 nanocomposite	E-chem. Sandwich immunoassay	10 fg mL^{-1}–10 ng mL^{-1}	4.5 fg mL^{-1}	Target: mucin-1	281
Co_3O_4 NPs	E-chem. Sandwich immunoassay	0.05−80 ng mL^{-1}	0.017 ng mL^{-1}	Target: C-reactive protein Real serum samples were tested.	282
DNA-templated Ag/Pt bimetallic NCs	E-chem.	6.0 pmol L^{-1}–20 pmol L^{-1}	4.6 pmol L^{-1}	Target: vascular endothelial growth factor	283
Fe_3O_4-Au nanocomposites	E-chem.	0.1 pM−20 nM	0.013 pM	Target: Thrombin	284
Fe_3O_4 magnetic bead	E-chem.	0.0001−30 nM	0.05 pM	Target: Thrombin	285
Fe_3O_4 NPs	E-chem.	1.0−75 nM	0.1 nM	Target: Thrombin	286
Hemin/G-quadruplex, Pt NPs and flower-like MnO_2 nanosphere functionalized MWCNTs	E-chem.	1 pM−30 nM	0.040 pM	Target: Thrombin	287
Hollow Fe_3O_4 NPs	E-chem. Sandwich immunoassay	0.0001−20 ng mL^{-1}	0.033 pg mL^{-1}	Target: alpha fetoprotein The practical applicability of the proposed immunosensor was studied by recovery experiment.	288
Hollow Pt NPs decorated Fe_3O_4 NPs	E-chem. Sandwich immunoassay	0.01−60 ng mL^{-1}	1.6 pg mL^{-1}	Target: α-1-fetoprotein	289
Magnetic silica-GO composites	E-chem. Sandwich immunoassay	10^{-3}–200 U mL^{-1}	2.8×10^{-4} U mL^{-1}	Target: cancer antigen 153 The assay was evaluated with cancer antigen 153 spiked serum samples and commercially available Electrochemiluminescent Analyzer obtained excellent correlation.	290
Mesoporous poly(o-phenylenediamine)-MnO_2 hollow microspheres	E-chem. Sandwich immunoassay	0.01−80 ng mL^{-1}	6.0 pg mL^{-1}	Target: CEA The methodology was evaluated by assaying 10 clinical serum samples.	291
NiCoBP-doped CNT hybrid	E-chem. Sandwich immunoassay	0.1−50 ng mL^{-1}	0.035 ng mL^{-1}	Target: PSA	292
Porous PdCu NPs	E-chem. Sandwich immunoassay	0.1 pg mL^{-1}–10 ng mL^{-1}	0.08 pg mL^{-1}	Target: CEA	293
Pt@CuMOFs	E-chem.	0.05 pg mL^{-1}–20 ng mL^{-1}	0.023 pg mL^{-1}	Target: CEA CEA in healthy serums and patient serums was tested.	294
Silica coating MNP-based Ag	E-chem.	N/A	50 pM	Target: ricin toxin	295

	Sandwich immunoassay				
Au NPs	Electrochemiluminescence	1.0−120 U mL^{-1}	0.05 U mL^{-1}	Target: methyltransferase They also spiked M.SssI MTase in normal human serum samples and then determined the concentrations of the M.SssI MTase in the spiked samples.	296
Aptamer-modified Au NPs on BiOCl nanosheets	Fluor.	0−200 nM	0.5 nM	Substrate: Ampliflu Red Target: vascular endothelial growth factor-A165 molecules	297
CuO/Cu_2O nanorods	Fluor.	1.0−100 nM	0.5 nM	Target: Thrombin Substrate: Ampliflu Red	67
CuS NPs	Fluor. Sandwich immunoassay	0.5−50000 pg mL^{-1}	0.1 pg mL^{-1}	Target: PSA Substrate: OPD	298
Fe_3O_4 NPs	Fluor.	0.2−10 μM	70 nM	Target: Human serum albumin Substrate: adenosine 5′-monophosphate A selective fluorescent turn-off system for the detection of urinary protein was developed.	299
Fibrinogen-modified bismuth-Au NPs	Fluor.	0.01−10 nM	2.5 pM	Target: Thrombin Substrate: Ampliflu Red	300
Fibrinogen-modified bismuth-Au NPs	Fluor.	0.01−10 nM	5.0 pM	Target: factor Xa Substrate: Ampliflu Red	300
Pd/C nanocatalyst	Fluor. Sandwich immunoassay	1−10 ng mL^{-1}	0.1 ng mL^{-1}	Target: human chorionic gonadotropin antigen Substrate: bisallyloxycarbonyl rhodamine 110 (BI-Rho 110)	301
Ag NPs	SERRS Sandwich immunoassay	1.56−25 ng mL^{-1}	1.09 ng mL^{-1}	Target: human C-reactive protein	302
Pt NPs	Volumetric barchart chip (V-Chip)	0.5−50 ng mL^{-1}	N/A	Target: cytokeratin 19 fragments	303
Proteins discrimination					
Au NPs-DNA conjugates	Color.	N/A	N/A	Substrate: TMB Seven proteins at the concentration of 10 nM could be successfully identified and proteins spiked in human urine at the final concentration of 100 nM could also be well distinguished. The discrimination accuracy of unknown samples was all 100% for these experiments.	304
Pyrophosphate					
Carbon quantum dots	Color.	1.0−5000 μM	0.25 μM	Substrate: TMB	305

				The method was applied in the determination of ppi in human plasma samples.	
Respiratory syncytial virus					
Au NPs-GO hybrids	Color. Sandwich immunoassay	0.1−10 pg mL^{-1}	0.04 pg mL^{-1}	Substrate: TMB The peroxidase-like activity of gold NPs-graphene oxide hybrids could be enhanced by mercury(II).	306
Salmonella typhimurium					
NiO NPs	Color.	1×10^{1}−1×10^{6} cfu mL^{-1}	10 cfu mL^{-1}	Substrate: TMB Bacteria bound to Ab–citric acid–NiO NPs after laser irradiation, induced membrane damage and reduced bacterial viability to 6%.	307
$ZnFe_2O_4$/rGO nanostructures	Color.	11−1.10×10^{5} cfu mL^{-1}	11 cfu mL^{-1}	Substrate: TMB *S. typhimurium* was detected in milk samples.	308
Sarcosine					
$LaNiO_3$ nanocubes	Color.	0.5−20 μM	0.5 μM	Substrate: TMB	309
Pd NPs	Color.	0.01−50 μM	5.0 nM	Substrate: TMB The method was also used for analyzing concentrations of sarcosine in human urine samples from diagnosed prostate cancer patients and healthy donors.	310
Single Nucleotide					
Hemin-graphene hybrid nanosheets	Color.	5−100 nM	2 nM	Substrate: TMB The most important characteristic of the assay is as sensitive probe for direct visualization of single-nucleotide polymorphisms by the naked eye at room temperature.	311
SWNTs	Color.	N/A	1 nM	Substrate: TMB The label-free colorimetric detection method can be used to distinguish disease-associated SNPs in human DNA.	312
Staphylococcus aureus					
Au NPs	Color.	0.1−0.5 μM	86 nM	Substrate: ABTS The applicability of the proposed aptasensor in milk samples wastested.	313
CeO_2 NPs	Color. Antigen-down immunoassay	N/A	500 cfu mL^{-1}	Substrate: TMB	314
Cu-MOF NPs	Color.	50−10000 cfu mL^{-1}	20 cfu mL^{-1}	Substrate: TMB	315

Sulfadimethoxine					
Au NPs	Color.	0.01−1000 μg mL^{-1}	10 ng mL^{-1}	Substrate: TMB	316
Fe_3O_4-Au NPs anchored 2D MOF nanosheets	Color.	3.57−357.14 μg L^{-1}	1.70 μg L^{-1}	Substrate: TMB	317
Sulfate					
Cysteamine-modified Au NPs	Color.	0.2−4 μM	0.16 μM	Substrate: TMB These advantages make this sensor a powerful protocol for the quantitative detection of sulfate in water samples with satisfactory results.	318
Sulfate-reducing bacteria					
MnO_2 nanowire	Color. Sandwich immunoassay	1.8×10^4−1.8×10^7 cfu mL^{-1}	N/A	Substrate: TMB	319
Sulfide					
Brominated graphene	Color.	0.04−0.4 mM	25.3 μM	Substrate: TMB A paper strip sensor has been fabricated for successful detection of S^{2-} ion.	320
β-Casein stabilized Pt NPs	Color.	0.01−2.0 μM 0.001−0.2 μM	5 nM 0.8 nM	Substrate: TMB Substrate: ABTS S^{2-} in natural water samples (from Slender West Lake in Yangzhou, People's Republic of China) was tested.	321
Cu NCs	Color.	0.5−20 μM	0.5 μM	Substrate: TMB Sulfide in environmental water samples were tested.	322
Silver molybdates	Color.	3.33−33.33 μM	1.4 μM	Substrate: TMB S^{2-} (Spiked) present in various environmental water samples was tested.	323
Sulfite					
$CoFe_2O_4$ NPs	CL	N/A	20 nM	The method has been applied to the determination of trace sulfite in white wine samples with satisfactory results.	324
Co_3O_4 NPs	Color.	0.2−16 μM	53 nM	Substrate: TMB The method was used to detect sulfite in foods.	325
Hierarchical carbon nanofibers/$MnCo_2O_{4.5}$ nanofibers	Color.	0−1 μM	15.9 nM	Substrate: TMB	30
MoS_2	Color.	5.0−120.0 μM	0.5 μM	Substrate: TMB	326

				This method was applied to detect sulfite root in white grape wine.	
Porous surface MnO_2 microspheres	Color.	0−250 μM	10 μM	Substrate: TMB	327
Superoxide anions					
$Co_3(PO_4)_2$	E-chem.	5.76−5396 nM	2.25 nM	The nanoscale biomimetic enzyme could be efficiently applied in situ to electrochemically detect $O_2^{\bullet-}$ released from human malignant melanoma cells and normal keratinocyte.	328
$FePO_4$ embedded in nanofibers consisting of amorphous carbon and rGO	E-chem.	0.01 nM−10 μM	9.7 nM	The detection on the level of cell is promising in medical development.	329
$Mn_3(PO_4)_2$ hollow spheres	E-chem.	5 nM−0.4 mM	1.35 nM	The modified GCE was applied in-situ to the electrochemical determination of $O_2^{\bullet-}$ that is released from human malignant melanoma cells and normal keratinocyte.	330
$Mn_2P_2O_7$ multilayer sheet	E-chem.	0.08−3.19 μM and 3.67−11.65 μM	0.029 μM		331
Nitrogen-doped graphene	E-chem.	up to 1456 μM	1.2 μM		332
Tannic acid					
CuO NPs	CL	10−100 nM	2.6 nM	Note that this method has been successfully used for the analysis of tannic acid in real Chinese gall samples.	333
Mn_3O_4 nanooctahedrons	Color.	0.05−1.4 μM	19 nM	Substrate: TMB The proposed method was applied to analyze tannic acid in three tea samples.	334
Tea polyphenol					
Protein conjugated Au NCs	Color.	0.01−10 μM	10 nM	Substrate: TMB Au NCs-protein-heating can be readily used for tea polyphenol quantification from real tea samples.	335
Thiamine					
Copper-based MOFs (HKUST-1)	Fluor.	4−700 μM	1 μM	The detection limit for thiamine is about 50 fold lower than that of HRP-based fluorescent assay. The proposed method was successfully applied to detect thiamine in tablets and urine samples and showed a satisfactory result.	336
Thioglycolic acid					

Fe_2O_3 nanomagnets	Color.	N/A	50 μM	Substrate: TMB	337
Triacetone triperoxide					
Ag NPs	Color.	1.25−31.25 mg L^{-1}	0.31 mg L^{-1}	Substrate: TMB	338
Fe_3O_4 MNPs	Color.	1−10 mg L^{-1}	0.47 mg L^{-1}	Substrate: N,N-dimethyl-p-phenylenediamine The method was statistically validated against the standard GC/MS reference method.	339
Uranyl (UO_2^{2+})					
BSA-Au NCs	Color.	12−160 μM	1.86 μM	Substrate: TMB	340
Urea					
Au NPs	Color.	0.02−0.4 mM	5 μM	Substrate: TMB Urea in human urine and urease in soil were detected with satisfied results.	5
CuO NPs	Fluor.	0.0375−0.3 mM	27 μM	Substrate: 3-(4-hydroxyphenyl)propionic acid This platform was then applied for the detection of urea in human urine and urease in soil.	341
Urease					
Au NPs	Color.	1.8−90 U L^{-1}	1.8 U L^{-1}	Substrate: TMB Urea in human urine and urease in soil were detected with satisfied results.	5
CuO NPs	Fluor.	0.003−0.04 U mL^{-1}	2.6 U L^{-1}	Substrate: 3-(4-hydroxyphenyl)propionic acid	341
Urinary spermine					
Ag-Au/AgCl nanohybrid	Fluor.	2.6 nM−8.0 mM	0.87 nM	Substrate: Ampliflu Red This cost-effective sensing system was used to easily and rapidly detect the concentrations of spermine in complex urine samples.	342
Vancomycin					
Core-shell Fe_3O_4-molecularly imprinted NPs	Color. Capture detection	10 nM−1 mM	N/A	Target: vancomycin Substrate: TMB	343
Vibrio cholerae					
Magnetic polymeric NPs	Color.	N/A	10^3 cfu mL^{-1}	Substrate: ABTS The specificity and efficiency of the technique were investigated by using various bacterial DNAs in drinking and tap water.	344
Vibrio parahaemolyticus					
MnO_2 nanosheets	Color. Sandwich immunoassay	20−10^4 cfu mL^{-1}	15 cfu mL^{-1}	Substrate: TMB Real marine samples were tested.	345

Vitamin E					
Carbon support in porphyrin	Color.	10^{-5}–10^{-4} M	N/A	Substrate: TMB	346
Zn^{2+}					
Fe_3O_4 NPs	Fluor.	up to 5 μM	60 nM	Substrate: fluorescent polydopamine	347

Abbreviations

AA	ascorbic acid
ABTS	2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid)
ACh	Acetylcholine
AFB_1	aflatoxin B_1
ATP	adenosine triphosphate
BA	benzoic acid
BSA	bovine serum albumin
CA	catechol
CEA	carcinoembryonic antigen
cfu	colony forming units
CL	chemiluminescence
CNT	carbon nanotube
Color.	colorimetric
DA	dopamine
DAB	diazoaminobenzene
dBSA	disassembled bovine serum albumin
DOPA	dopamine
DPD	N,N-diethyl-p-phenylenediamine sulfate
dsDNA	double-stranded DNA
E-chem.	electrochemical
ELISA	enzyme-linked immunosorbent assay
EPR	electron paramagnetic resonance

Fluor.	fluorometric
GSH	glutathione
GQDs	graphene quantum dots
GO	graphene oxide
HAP	hydroxyapatite
Hb	hemoglobin
Hem	hemin
H_3BTC	1,3,5-benzenetricarboxylic acid
HPNP	2-hydroxypropyl-4-nitrophenylphosphate
HRP	horseradish peroxidase
H_2TCPP	5,10,15,20-Tetrakis (4-carboxyl phenyl) porphyrin
IgG	immunoglobulin G
Imi	imidazolium
LOD	limit of detection
MCA	melamine (M) and cyanuric acid (CA)
Meth	methods
MMT	montmorillonite
MNPs	magnetic nanoparticles
MOF	metal organic framework
MWCNTs	multi-walled carbon nanotubes
NMDA	N-methyl-D-aspartate
N/A	not applicable
NCs	nanoclusters
NPs	nanoparticles
OPD	o-phenylenediamine
PB	Prussian blue
pfu	plaque forming units
PDA	polydopamine

PDDA	poly(diallyldimethylammonium chloride)
PDI	N,N'-Di-carboxy methyl perylene diimide
PLGA	poly(D,L-lactic-co-glycolic acid)
PMIDA	N-(phosphonomethyl)iminodiacetic acid
PPy	polypyrrole
PSA	prostate-specific antigen
PSS	poly(styrenesulfonate)
PVDF	polyvinylidene difluoride
Ref	references
rGO	reduced graphene oxide
SBA-15	Santa Barbara Amorphous type material
SERRS	surface enhanced resonance Raman scattering
SERS	surface enhanced Raman scattering
SOD	superoxide dismutase
ssDNA	single-stranded DNA
SWCNTs	single-walled carbon nanotubes
TA	terephthalic acid
TMB	3,3',5,5'-tetramethylbenzidine
UA	uric acid
Vc	vitamin C

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Table S11. Kinetics parameters of peroxidase-mimicking nanozymes

Materials		Substrate	K_m / mM	V_{max} / nM s^{-1}	K_{cat} / s^{-1}	Experiential conditions	Comments	Ref.
Carbon	Carbon nanoparticles/clusters/quantum dots	TMB	$(3.9 \pm 0.1) \times 10^{-2}$	36.1 ± 0.12		35 ℃, $C(H_2O_2)$ = 50 mM, pH = 3.5, C(nanozyme) = 1 μg mL^{-1}		1
		H_2O_2	26.77 ± 2.94	$(3.061 \pm 0.038) \times 10^2$		35 °C, C(TMB) = 0.8 mM, pH = 3.5, C(nanozyme) = 1 μg mL^{-1}		
		TMB	2.45	1.559×10^3		35 °C, $C(H_2O_2)$ = 50 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1} 35 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}	Prepared from polypropylene carbon fibers	2
		H_2O_2	0.01	1.031×10^2				
		TMB	0.97	3.285×10^3			Prepared from graphite	
		H_2O_2	0.001	5.513×10^2				
		TMB	0.97	3.285×10^3			Nitrogen doped quantum dots from GO	
		H_2O_2	6.0×10^{-4}	2.769×10^2				
		TMB	0.39	1.34×10^2		$C(H_2O_2)$ = 0.05 mM, pH = 4, C(nanozyme) = 15 μg mL^{-1}		3
		H_2O_2	0.17	30.9		C(TMB) = 0.05 mM, pH = 4, C(nanozyme) = 15 μg mL^{-1}		

		ABTS	0.245 ± 0.021	(10 ± 2) × 10^7	(1.97 ± 0.39) × 10^4	C(H_2O_2) = 14.1 mM, in water, C(nanozyme) = 25.5 μg mL^{-1}		4
		TMB	7.61 × 10^{-2}	1.377 × 10^2		C(H_2O_2) = N/A, pH = 3, C(nanozyme) = N/A		5
		TMB	0.05	42.7		35 °C, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		6
		H_2O_2	26.06	60.5		35 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		
		TMB	0.41	1.20 × 10^2		25 °C, C(H_2O_2) = N/A, pH = 7.4, C(nanozyme) = 265 μg mL^{-1}	Ionic liquid (protic IL 1-H-3-methylimidazolium acetate) activated carbon	7
		H_2O_2	0.7	70				
		TMB	0.25	60		25 °C, C(TMB) = N/A, pH = 7.4, C(nanozyme) = 265 μg mL^{-1}		
		H_2O_2	5	1.10 × 10^2				
		TMB	2.254	44.7		40 °C, C(H_2O_2) = 0.3%, pH = 4.5, C(nanozyme) = 25 μg mL^{-1}		8

		H_2O_2	4.71×10^{2}	55.2		40 °C, C(TMB) = 0.1 mg mL^{-1}, pH = 4.5, C(nanozyme) = 25 μg mL^{-1}		
		TMB	0.135	61.3		40 °C, C(H_2O_2) = 0.3%, pH = 4.5, C(nanozyme) = 25 μg mL^{-1}	High N doped	
		H_2O_2	1.61×10^{2}	1.17×10^{2}		40 °C, C(TMB) = 0.1 mg mL^{-1}, pH = 4.5, C(nanozyme) = 25 μg mL^{-1}		
		TMB	5.49×10^{-2}	1.26×10^{2}		40 °C, C(H_2O_2) = 0.3%, pH = 4.5, C(nanozyme) = 25 μg mL^{-1}	Low N doped	
		H_2O_2	1.30×10^{2}	3.25×10^{2}		40 °C, C(TMB) = 0.1 mg mL^{-1}, pH = 4.5, C(nanozyme) = 25 μg mL^{-1}		
	Carbon nitride	TMB	0.113	86.4		C(H_2O_2) = 100 mM, pH = 4.5, C(nanozyme) = 100 μg mL^{-1}	g-C_3N_4	9
		H_2O_2	3.1858×10^{2}	94.6		C(TMB) = 0.5 mM, pH = 4.5, C(nanozyme) = 100 μg mL^{-1}		

		TMB	0.307 ± 0.002	(20.5 ± 0.20) × 10^{-4} s^{-1}		35 °C, C(H_2O_2) = 17.99 mM, pH = 4, C(nanozyme) = 16 μg mL^{-1}	Se doped g-C_3N_4	10
		H_2O_2	0.298 ± 0. 003	(43.3 ± 0.15) × 10^{-4} s^{-1}		35 °C, C(TMB) = 1.44 mM, pH = 4, C(nanozyme) = 16 μg mL^{-1}		
		TMB	0.030	1.95 × 10^{13}		35 °C, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 30 μg mL^{-1}	Fe doped g-C_3N_4	11
		H_2O_2	8.956	1.46 × 10^{13}				
		TMB	3.1 × 10^{-2}	1.35 × 10^{13}		35 °C, C(TMB) = 0.2 mM, pH = 4, C(nanozyme) = 30 μg mL^{-1}	g-C_3N_4	
		H_2O_2	4.565	1.72 × 10^{13}				
		TMB	0.11	5.853 × 10^2		C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		12
		H_2O_2	4.61	73.9		C(H_2O_2) = 5 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
	CNT	TMB	0.506	2.28		C(H_2O_2) = 0.8 mM, pH = 3.5, C(nanozyme) = 20 μg mL^{-1}	Single walled	13
		H_2O_2	49.8	2.07		C(TMB) = 100 mM, pH = 3.5, C(nanozyme) = 20 μg mL^{-1}		

		H_2O_2	1.47 ± 0.05	9.8 ± 0.3		37 °C, C(H_2O_2) = N/A, pH = 4.3, C(nanozyme) = N/A		14
		TMB	0.60 ± 0.13	89 ± 9.6		40 °C, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = N/A		15
		H_2O_2	66.5 ± 6.9	(1.18 ± 0.039) × 10^2		40 °C, C(TMB) = 1.6 mM, pH = 4, C(nanozyme) = N/A		
		TMB	0.020			40 °C, C(H_2O_2) = 500 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}	Helical	16
		H_2O_2	41.42			40 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		
		TMB	0.547			70 °C, C(H_2O_2) = N/A, pH = 4, C(nanozyme) = 25 μg mL^{-1}		17
		H_2O_2	0.126			70 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = 25 μg mL^{-1}		
	C_{60} (fullerene)	TMB	0.2333 ± 0.0018	3.473 ± 0.216		35 ℃, C(H_2O_2) = 1 mM, pH = 3.5, C(nanozyme) = 20 μM		18

		H_2O_2	24.58 ± 1.23	4.011 ± 0.234		35 °C, C(TMB) = 1 mM, pH = 3.5, C(nanozyme) = 20 μM		
	Diamond	TMB	0.434	100		25 °C,C(H_2O_2) = 100 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		19
		H_2O_2	3.70	87.1		25 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
	Graphene	H_2O_2	0.486	2.2×10^{-5} s^{-1}		RT, C(ortho-tolidine) = 0.8 mM, pH = 4.2, C(nanozyme) = 40.6 μg mL^{-1}	N doped	20
	GO	TMB	$(2.37 \pm 0.1) \times 10^{-2}$	34.5 ± 3.1		35 °C, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		21
		H_2O_2	3.99 ± 0.67	3.85 ± 0.22		35 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		
		TMB	4.96	36.5		37 °C, C(H_2O_2) = N/A, pH = 3.6, C(nanozyme) = N/A		22
		H_2O_2	3.81	58.1		37 °C, C(TMB) = N/A, pH = 3.6, C(nanozyme) = N/A		

		TMB	3.26×10^{-2}			$C(H_2O_2)$ = N/A, pH = 4, C(nanozyme) = 15 μg mL^{-1}	Chitosan-GO examined under visible light irradiation (λ ⩾ 400 nm) for 10 min	23
		TMB	3.2×10^{-2}	3×10^{2}		RT, $C(H_2O_2)$ = 4.4375 mM, pH = 3.6, C(nanozyme) = 25 μg mL^{-1}	PEG-GO	24
		ABTS	3.5×10^{-2}	1.92×10^{3}				
		TMB	1.067	3.47×10^{4}			PEG-GO-hemin	
		ABTS	1.567	5.43×10^{4}				
	rGO	TMB	3.89	23		37 ℃, $C(H_2O_2)$ = N/A, pH = 3.6, C(nanozyme) = N/A	Folic acid modified	22
		H_2O_2	8.45	86.2		37 ℃, C(TMB) = N/A, pH = 3.6, C(nanozyme) = N/A		
		TMB	9.35×10^{-2}	35.2		$C(H_2O_2)$ = 20 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}	N doped	25
		H_2O_2	0.1115	82.3		C(TMB) = 0.5 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
		TMB	1.58×10^{-2}	6.79		$C(H_2O_2)$ = 20 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
		H_2O_2	0.5465	2.37		C(TMB) = 0.5 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		

	Graphene quantum dots	ABTS	2.288	0.1563		37 °C, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 75 μg mL^{-1}		26
		TMB	11.19	3.8		35 °C, C(H_2O_2) = 3.3 mM, pH = 3, C(nanozyme) = 320 μg mL^{-1}	N doped	27
		H_2O_2	0.1	1.4		35 °C, C(TMB) = 0.3 mM, pH = 3, C(nanozyme) = 320 μg mL^{-1}		
		TMB	0.05	87.33		30 °C, C(H_2O_2) = 5 mM, pH = 3.5, C(nanozyme) = 10 μg mL^{-1}		28
		TMB	0.01	7.3×10^3		35 °C, C(H_2O_2) = 50 mM, pH = 3.5, C(nanozyme) = 2 μg mL^{-1}		29
		H_2O_2	8	1.17×10^4		35 °C, C(TMB) = 0.8 mM, pH = 3.5, C(nanozyme) = 2 μg mL^{-1}		
		TMB	1.2×10^{-2}	7.2×10^2		35 °C, C(H_2O_2) = 50 mM, pH = 3.5, C(nanozyme) = 0.1 μg mL^{-1}		30

		H_2O_2	7			35 °C, C(TMB) = 0.8 mM, pH = 3.5, C(nanozyme) = 0.1 μg mL^{-1}		
		TMB	0.1858	83.89		37 °C, C(H_2O_2) = N/A, pH = 4, C(nanozyme) = 20 μg mL^{-1}		31
		H_2O_2	0.1363	77.55		37 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
		ABTS	10.4 ± 0.1	17.8 ± 0.5		37 °C, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 75 μg mL^{-1}		32
			681.3 ± 2.1	12.7 ± 0.2			Phenylhydrazine modified	
			21.4 ± 0.3	21.4 ± 0.2			Benzoic anhydride modified	
			64.7 ± 0.2	23.3 ± 0.3			2-bromo-1-phenylethanone modified	
		H_2O_2	1.17 ± 0.03	12.4 ± 0.4		37 °C, C(ABTS) = 2.5 mM, pH = 4, C(nanozyme) = 75 μg mL^{-1}		
			1.09 ± 0.03	2.11 ± 0.08			Phenylhydrazine modified	
			1.12 ± 0.02	26.7 ± 0.2			Benzoic anhydride	

							modified	
			7.94 ± 0.01	105.5 ± 0.2			2-bromo-1-phenylethanone modified	
	Mesoporous carbon	TMB	3.7×10^{-2}			35 °C, C(H_2O_2) = 75 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		33
		H_2O_2	7.32			35 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
		H_2O_2	1.61×10^{2}	6.76		37 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 25 μg mL^{-1}	Fe^{3+} doped	34
COF	Covalent triazine framework-1	TMB	0.4			37 °C, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		35
Metal	Ag	TMB	0.19	1.51×10^{2}		37 °C, C(H_2O_2) = 10 mM, pH = 5, C(nanozyme) = 0.5 cm × 0.5 cm containing 825 ppm equivalent of Ag^{+} ions	AgNP embedded cotton fabric	36
		H_2O_2	7.61	1.44×10^{2}		37 °C, C(TMB) = 0.2 mM, pH = 5, C(nanozyme) = 0.5		

						cm × 0.5 cm containing 825 ppm equivalent of Ag^{+} ions		
	Au	TMB	0.197	1.47×10^{2}		37 °C, $C(H_2O_2)$ = 1 M, pH = 4, C(nanozyme) = 70 μg mL^{-1}	PEG-Au + ATP	37
		H_2O_2	1.75×10^{2}	8.76×10^{2}		37 °C, C(TMB) = 0.5 mM, pH = 4, C(nanozyme) = 70 μg mL^{-1}		
		TMB	0.168	1.31×10^{2}		37 °C, $C(H_2O_2)$ = 1 M, pH = 4, C(nanozyme) = 70 μg mL^{-1}	Citrate-Au + ATP	
		H_2O_2	1.96×10^{2}	98.3		37 °C, C(TMB) = 0.5 mM, pH = 4, C(nanozyme) = 70 μg mL^{-1}		
		TMB	$(9.4 \pm 0.75) \times 10^{-2}$	$(1.46 \pm 0.24) \times 10^{3}$		$C(H_2O_2)$ = 6 mM, pH = 4.5, C(nanozyme) = N/A	β cyclodextrin modified	38
		H_2O_2	$(2.7278 \pm 0.3206) \times 10^{2}$	$(2.70 \pm 0.15) \times 10^{3}$		C(TMB) = 0.12 mM, pH = 4.5, C(nanozyme) = N/A		
		TMB	5.7×10^{-2}	31.7		45 °C, $C(H_2O_2)$ = 0.4 M, pH = 3.5, C(nanozyme) = N/A		39

		H_2O_2	17.3	52.7		45 °C, C(TMB) = 5 mM, pH = 3.5, C(nanozyme) = N/A		
		TMB	5.45×10^{-2}	31.7		RT, C(H_2O_2) = 16 mM, pH = 4.5, C(nanozyme) = 0.2 nM		40
		H_2O_2	$(7.778 \pm 0.093) \times 10^2$			C(ABTS) = 1 mM, pH = 3, C(nanozyme) = 20 μM	Different regents as hydrogen donor	41
		H_2O_2	$(6.828 \pm 0.143) \times 10^2$			C(TMB) = 1 mM, pH = 4.5, C(nanozyme) = 20 μM		
		H_2O_2	$(2.058 \pm 0.179) \times 10^2$			C(OPD) = 2 mM, pH = 5, C(nanozyme) = 20 μM		
		H_2O_2	62.80 ± 6.34			C(BPR) = 0.1 mM, pH = 6.5, C(nanozyme) = 20 μM		
		H_2O_2	$(1.090 \pm 0.047) \times 10^2$			C(phoh) = 100 mM, pH = 8.5, C(nanozyme) = 20 μM		
		TMB	0.2	1.7×10^2	1.1×10^5	RT, C(H_2O_2) = 2 M, pH = 4, C(nanozyme) = 1.5 pM		42
		TMB	1.97	73.56	2.462×10^{-2}	C(H_2O_2) = 100 mM, pH = 7, C(nanozyme) = 3 μM	Heparin enhanced	43
		H_2O_2	37.81	30.33	1.011×10^{-2}	C(TMB) = 0.5 mM, pH = 7, C(nanozyme) = 3 μM		

		TMB	9.7×10^{-2}	74.6	5.8×10^{4}	45 °C, $C(H_2O_2)$ = 100 mM, pH = 3, C(nanozyme) = 0.58 μg mL^{-1}		44
		H_2O_2	1.994×10^{2}	93.4	72	45 °C, C(TMB) = 0.3 mM, pH = 3, C(nanozyme) = 0.58 μg mL^{-1}		
		TMB	2.53×10^{-3}	62.3	7.24×10^{4}	40 °C, $C(H_2O_2)$ = N/A, pH = 3.5, C(nanozyme) = 0.05 nM		45
		H_2O_2	25.3	72.1	9.17×10^{4}	40 °C, C(TMB) = N/A, pH = 3.5, C(nanozyme) = 0.05 nM		
		AR	9.7×10^{-3}	4.5×10^{4}	0.06	$C(H_2O_2)$ = 0.5 mM, pH = 7, C(nanozyme) = 750 pM	With Pt^{4+}	46
			9.3×10^{-2}	4.6×10^{5}	0.62		With Pb^{2+}	
			1.7×10^{-2}	6.4×10^{6}	8.6		With Pt^{4+}, Pb^{2+}	
		H_2O_2	0.25	1.2×10^{4}	0.17	C(TMB) = 10 μM, pH = 7, C(nanozyme) = 750 pM	With Pt^{4+}	
			0.65	2.2×10^{4}	2.9×10^{-2}		With Pb^{2+}	
			0.43	3.2×10^{6}	4.3		With Pt^{4+}, Pb^{2+}	
		H_2O_2	14.71	4.386×10^{4}	1.68691×10^{4}	C(TMB) = 1.2 mM, pH = 5, C(nanozyme) = 0.40 nM	Light on	47
			25.21	1.557×10^{4}	5.9909×10^{3}		Light off	

		TMB	4.11×10^{-2}	2.75×10^{2}		25 °C, $C(H_2O_2)$ = 100 mM, pH = 4, C(nanozyme) = N/A	AuNCs@BSA	48
		H_2O_2	1.67×10^{2}	5.45×10^{2}		25 °C, C(TMB) = 200 mM, pH = 4, C(nanozyme) = N/A		
		TMB	7.43×10^{-2}	1.57×10^{2}		25 °C, $C(H_2O_2)$ = 100 mM, pH = 4, C(nanozyme) = N/A	AuNCs@BSA-Ag^{+}	
		H_2O_2	1.91×10^{2}	2.17×10^{2}		25 °C, C(TMB) = 200 mM, pH = 4, C(nanozyme) = N/A		
		TMB	3.54×10^{-2}	18.4	5.19	RT, $C(H_2O_2)$ = 375 mM, pH = 4.5, C(nanozyme) = 25 μg mL^{-1}	AuNPs@HBPG-COOH4000 (stabilizing with 4 mg mL^{-1} HBPG-COOH)	49
		ABTS	3.8×10^{-2}	8.555	2.41			
		Phoh/4-AAP	2.901	14.6	4.11			
		TMB	4.44×10^{-2}	30.6	1.17		AuNPs@HBPG-OH4000 (stabilizing with 4 mg mL^{-1} HBPG-OH)	
		ABTS	4.79×10^{-2}	16.5	0.63			
		Phoh/4-AAP	7.051	65.6	2.51			
		TMB	4.07×10^{-2}	66.7	12.6		AuNPs@HBPG-COOH25 (stabilizing with 0.25 mg mL^{-1} HBPG-COOH)	
		ABTS	4.58×10^{-2}	20.3	3.86			
		Phoh/4-AAP	3.299	31.1	5.89			

		TMB	2.35×10^{-2}	21.5	15.1			
		ABTS	3.3×10^{-2}	8.1	5.67			
		Phoh/4-AAP	2.943	9.4	6.59			
		TMB	0.445	12.2		30 °C, C(H_2O_2) = 300 mM, pH = 6, C(nanozyme) = N/A	Hollow porous	50
		H_2O_2	12.53	1.488×10^{2}		30 °C, C(TMB) = 20 mM, pH = 6, C(nanozyme) = N/A		
		Luminol	2.085			C(H_2O_2) = 50 mM, pH = 9, C(nanozyme) = 3,9 µM		51
			1.182				Cationic Au	
		TMB	6.64×10^{-3}		4.49×10^{4}	35 °C, C(H_2O_2) = N/A, pH = 4, C(nanozyme) = 1 pM		52
		H_2O_2	2.46		8.67×10^{4}	35 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = 1 pM		
		TMB	1.12×10^{-2}	83		25 °C, C(H_2O_2) = N/A, pH = 4, C(nanozyme) = 20 µg mL^{-1}		53
		H_2O_2	33	61		25 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = 20 µg mL^{-1}		

		TMB	0.2	55.9	7.3438×10^2	25 °C, C(H_2O_2) = 1.44%, pH = 3.6, C(nanozyme) = 9.56 μg mL^{-1}		54
		H_2O_2	5.7298×10^2	97.7	1.284×10^3	25 °C, C(TMB) = 128 μg mL^{-1}, pH = 3.6, C(nanozyme) = 9.56 μg mL^{-1}		
		ABTS	92.3	31.1	86.63	25 °C, C(H_2O_2) = 3.84%, pH = 3.6, C(nanozyme) = 9.56 μg mL^{-1}		
		H_2O_2	5.466×10^2	50.4	1.4039×10^2	25 °C, C(ABTS) = 0.4 mg mL^{-1}, pH = 3.6, C(nanozyme) = 9.56 μg mL^{-1}		
		H_2O_2	30.4			C(*o*-dianisidine) = 0.1 mM, pH = N/A, C(nanozyme) = N/A		55
			4.6				Complexed with PB	
			2.9				Complexed with PB and Ru bipyridyl	
		TMB	3.5×10^{-2}	20		25 °C, C(H_2O_2) = N/A, pH = 4, C(nanozyme) = N/A	TEM diameter 8.7 nm	56
		H_2O_2	1.91×10^2	26.3		25 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = N/A		

		TMB	2.3×10^{-2}	35.7		25 °C, $C(H_2O_2)$ = N/A, pH = 4, C(nanozyme) = N/A	TEM diameter 4.2 nm	
		H_2O_2	1.30×10^{2}	40.5		25 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = N/A		
		TMB	5.5×10^{-2}	21.3		25 °C, $C(H_2O_2)$ = N/A, pH = 4, C(nanozyme) = N/A	TEM diameter 2.8 nm	
		H_2O_2	1.42×10^{2}	29.5		25 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = N/A		
	Cu	TMB	0.648	59.6		$C(H_2O_2)$ = 50 mM, pH = 6, C(nanozyme) = 150 μg mL^{-1}		57
		H_2O_2	29.16	42.2		C(TMB) = 0.5 mM, pH = 6, C(nanozyme) = 150 μg mL^{-1}		
		TMB	0.543 ± 0.002	$(4.52 \pm 0.02) \times 10^{2}$		30 °C, $C(H_2O_2)$ = 10 mM, pH = 6, C(nanozyme) = N/A	β cyclodextrin modified	58
		H_2O_2	32.87 ± 0.54	$(4.34 \pm 0.03) \times 10^{2}$		30 °C, C(TMB) = 0.5 mM, pH = 6, C(nanozyme) = N/A		
		TMB	1.047	39.7		RT, $C(H_2O_2)$ = 80 mM, pH = 3, C(nanozyme) = 0.25 mg mL^{-1}		59

		H_2O_2	31.265	2.64×10^2		RT, C(TMB) = 8 mM, pH = 3, C(nanozyme) = 0.25 mg mL^{-1}		
	Fe	TMB	0.35	1.05×10^2		C(H_2O_2) = N/A, pH = 7.4, C(nanozyme) = N/A	Ionic liquid coated	60
		H_2O_2	0.65	73		C(TMB) = N/A, pH = 7.4, C(nanozyme) = N/A		
		TMB	0.73			30 °C, C(H_2O_2) = 0.88 mM, pH = 5.2, C(nanozyme) = 0.6 μM	Apo-ferritin capped	61
		H_2O_2	6.7			30 °C, C(TMB) = 0.045 mM, pH = 5.2, C(nanozyme) = 0.6 μM		
	Ir	TMB	0.02	10.8		RT, C(H_2O_2) = 50 mM, pH = 4.5, C(nanozyme) = 47.25 ng mL^{-1}		62
		H_2O_2	2.66×10^2	38.5		RT, C(TMB) = 0.5 mM, pH = 4.5, C(nanozyme) = 47.25 ng mL^{-1}		
		TMB	0.03	17		35 °C, C(H_2O_2) = N/A, pH = 4, C(nanozyme) = 38.44 ng mL^{-1}		63

		H_2O_2	18.2	81		35 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = 38.44 ng mL^{-1}		
	Pd	TMB	4.5×10^{-2}	91		20 °C, C(H_2O_2) = 125 mM, pH = 4, C(nanozyme) = 900 nM	TEM diameter 1.4 nm	64
		H_2O_2	1.9×10^{2}	3.26×10^{2}		20 °C, C(TMB) = 0.125 mM, pH = 4, C(nanozyme) = 900 nM		
		TMB	6.8×10^{-2}	3.15×10^{2}		20 °C, C(H_2O_2) = 125 mM, pH = 4, C(nanozyme) = 900 nM	TEM diameter 2.6 nm	
		H_2O_2	1.56×10^{2}	4.08×10^{2}		20 °C, C(TMB) = 0.125 mM, pH = 4, C(nanozyme) = 900 nM		
		TMB	0.08	2.24×10^{2}		20 °C, C(H_2O_2) = 125 mM, pH = 4, C(nanozyme) = 900 nM	TEM diameter 3.5 nm	
		H_2O_2	1.37×10^{2}	2.46×10^{2}		20 °C, C(TMB) = 0.125 mM, pH = 4, C(nanozyme) = 900 nM		

		TMB	0.1098	58.2	1.2×10^4	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4.5, C(nanozyme) = 15 ng mL^{-1}		65
		H_2O_2	4.398	65.1	1.3×10^4	25 °C, C(TMB) = 0.5 mM, pH = 4.5, C(nanozyme) = 15 ng mL^{-1}		
		TMB	0.195	3×10^3		35 °C, $C(H_2O_2)$ = 50 mM, pH = 4, C(nanozyme) = 0.76 μg mL^{-1}		66
		H_2O_2	23	4.9×10^3		35 °C, C(TMB) = 0.5 mM, pH = 4, C(nanozyme) = 0.76 μg mL^{-1}		
		TMB	0.113	1.953×10^2		$C(H_2O_2)$ = 400 mM, pH = 3, C(nanozyme) = 100 μg mL^{-1}	Pd-4-ATP	67
			0.260	2×10^3			Pd-4-MCBA	
	Pt	TMB	0.1206	65.1		N/A	C(Hg) = 0	68
			0.1337	38.5			C(Hg) = 1 nM	
			0.2570	37.			C(Hg) = 10 nM	
		H_2O_2	2.056×10^2	97.9			C(Hg) = 0	
			2.219×10^2	26.9			C(Hg) = 1 nM	
			2.950×10^2	22.3			C(Hg) = 10 nM	

		TMB	9.6×10^{-2}	1.414×10^{2}		30 °C, C(H_2O_2) = 1.67 mM, pH = 5, C(nanozyme) = 500 μg mL^{-1}		69
		H_2O_2	3.07	1.817×10^{2}		30 °C, C(TMB) = 0.083 mM, pH = 5, C(nanozyme) = 500 μg mL^{-1}		
		TMB	0.81	1.2×10^{2}	1.7×10^{-2}	pH = 4, C(H_2O_2) = N/A, C(nanozyme) = 7 μM		70
		H_2O_2	6.9	99	1.4×10^{-2}	pH = 4, C(TMB) = N/A, C(nanozyme) = 7 μM		
		TMB	0.12		2.27×10^{4}	C(H_2O_2) = 763 mM, pH = 4, C(nanozyme) = 8.78 μM		71
		TMB	0.42	30.2		C(H_2O_2) = 0.5 M, pH = 5, C(nanozyme) = 16.2 μg mL^{-1}		72
		H_2O_2	84.07	2.2×10^{-3} s^{-1}		C(TMB) = 0.416 mM, pH = 5, C(nanozyme) = 16.2 μg mL^{-1}		
		TMB		1.52×10^{2}	5.98×10^{6}	RT, C(H_2O_2) = 7.5 M, pH = 4, C(nanozyme) = 254 pM		73
		H_2O_2		1.29×10^{2}	5.08×10^{6}	RT, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 254 pM		

		TMB	0.03	6.67×10^{2}		20 °C, $C(H_2O_2)$ = 125 mM, pH = 4, C(nanozyme) = 300 nM	TEM diameter 3.3 nm	74
		H_2O_2	88.7	9.24×10^{2}				
		TMB	7.9×10^{-2}	3.28×10^{2}		20 °C, C(TMB) = 0.125 mM, pH = 4, C(nanozyme) = 300 nM	TEM diameter 3.6 nm	
		H_2O_2	73.6	3.02×10^{2}				
		TMB	0.22	5.58×10^{2}		37 °C, $C(H_2O_2)$ = N/A, pH = 4, C(nanozyme) = 1.875 μg mL^{-1}		75
		H_2O_2	1.8725×10^{2}	3.2×10^{5}		37 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = 1.875 μg mL^{-1}		
		TMB	0.119	2.1×10^{2}		25 °C, $C(H_2O_2)$ = 125 mM, pH = 4, C(nanozyme) = 900 nM		76
		H_2O_2	41.8	1.67×10^{2}		25 °C, C(TMB) = 0.125 mM, pH = 4, C(nanozyme) = 900 nM		
		TMB	0.52			30 °C, $C(H_2O_2)$ = 0.88 mM, pH = 5.2, C(nanozyme) = 95 nM	Apo-ferritin capped	61

		H_2O_2	1.09			30 °C, C(TMB) = 0.045 mM, pH = 5.2, C(nanozyme) = 95 nM		
		2,4-DCP	0.12	8.49×10^{3}		25 °C, C(4-AAP) = 320 μM, pH = 7, C(nanozyme) = N/A		77
		TMB	5.4×10^{-2}			45 °C, $C(H_2O_2)$ = 0.5 M, pH = 4.5, C(nanozyme) = 1.8 μM		78
		H_2O_2	14.18			45 °C, C(TMB) = 0.8 mM, pH = 4.5, C(nanozyme) = 1.8 μM		
		TMB	1.86×10^{-2}	1.179×10^{2}		$C(H_2O_2)$ = 150 mM, pH = 4, C(nanozyme) = 1 μg mL^{-1}		79
		H_2O_2	1.55×10^{2}	2.466×10^{2}		C(TMB) = 0.13 mM, pH = 4, C(nanozyme) = 1 μg mL^{-1}		
		TMB	9.1×10^{-2}			RT, C(TMB) = N/A, pH = 4, C(nanozyme) = 30 nM		80
		TMB	0.73	3.30×10^{2}	8.2×10^{5}	RT, $C(H_2O_2)$ = 2 M, pH = 4, C(nanozyme) = 41 pM	PVP55-Pt cubes	81
			0.42	1.10×10^{2}	4.6×10^{5}		CTAB-Pt cubes	
			0.52	2.40×10^{2}	4.4×10^{5}		PVP10-Pt cubes	
			0.81	3.00×10^{2}	1.2×10^{5}		PVP360-Pt cubes	

		TMB	5.60×10^{-2}	5.82×10^{2}		25 °C, $C(H_2O_2)$ = 125 mM, pH = 4, C(nanozyme) = 900 nM	DNA oligonucleotides RET2 (5′-GC5(GC4)3T-3′)-Pt2.9	82
		H_2O_2	48.0	5.68×10^{2}		25 °C, C(TMB) = 0.125 mM, pH = 4, C(nanozyme) = 900 nM		
		TMB	3.29×10^{-2}	1.19×10^{2}		25 °C, $C(H_2O_2)$ = 125 mM, pH = 4, C(nanozyme) = 900 nM	DNA oligonucleotides AG22 (5′-$A(G_3T_2A)_3G_3$-3′)-Pt2.1	
		H_2O_2	74.4	3.05×10^{2}		25 °C, C(TMB) = 0.125 mM, pH = 4, C(nanozyme) = 900 nM		
		TMB	1.62×10^{-2}	19.3		25 °C, $C(H_2O_2)$ = 125 mM, pH = 4, C(nanozyme) = 900 nM	DNA oligonucleotides AG22 (5′-$A(G_3T_2A)_3G_3$-3′)-Pt1.8	
		H_2O_2	1.172×10^{2}	51.9		25 °C, C(TMB) = 0.125 mM, pH = 4, C(nanozyme) = 900 nM		
		TMB	9.95×10^{-2}	12.01		N/A		83
		H_2O_2	2.308×10^{2}	1.656×10^{2}				
		TMB	0.1077	10.45			0.5 nM Ag(I)	

		H_2O_2	2.559×10^{2}	1.372×10^{2}				
		TMB	0.1652	8.72			2 nM Ag(I)	
		H_2O_2	2.836×10^{2}	1.215×10^{2}				
		TMB	5.2×10^{-2}	1.64×10^{2}		20 °C, C(H_2O_2) = N/A, pH = 4, C(nanozyme) = N/A	β casein stabilized	84
		H_2O_2	63.86	2.90×10^{2}		20 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = N/A		
		TMB	1.14×10^{-3}	31		35 °C, C(H_2O_2) = 1 mM, pH = 4, C(nanozyme) = 10 μM		85
		H_2O_2	0.1274	20		35 °C, C(TMB) = 0.25 mM, pH = 4, C(nanozyme) = 10 μM		
	Rh	TMB	0.198	67.8	3.87×10^{2}	35 °C, C(H_2O_2) = 0.1 mM, pH = 4, C(nanozyme) = 1.05 $\times 10^{11}$ NPs mL^{-1}		86
		H_2O_2	0.38	24.1	1.379×10^{3}	35 °C, C(TMB) = 1.5 mM, pH = 4, C(nanozyme) = 1.05 $\times 10^{11}$ NPs mL^{-1}		
	Ru	TMB	0.234	4.95×10^{3}		RT, C(H_2O_2) = 0.1 mM, pH = N/A, C(nanozyme) = 10 μg mL^{-1}		87

		H_2O_2	2.206	3.496×10^{4}		RT, C(TMB) = 0.1 mM, pH = N/A, C(nanozyme) = 10 μg mL^{-1}		
Multi-metal	Ag/Pt	TMB	9.08×10^{-3}	1.05×10^{2}		RT, $C(H_2O_2)$ = 16 mM, pH = 4.5, C(nanozyme) = 0.2 nM	$Au@Pt_{0.25}$	40
			8.97×10^{-3}	1.47×10^{2}			$Au@Pt_{2.5}$	
			2.93×10^{-2}	2.86×10^{2}			$Au@Pt_{25}$	
		TMB	0.136			$C(H_2O_2)$ = 66.67 mM, pH = 4, C(nanozyme) = 0.33 μM	DNA modified	88
		TMB	$(26 \pm 1) \times 10^{-3}$	96 ± 0.4	5.740×10^{3}	37 °C, $C(H_2O_2)$ = 2 mM, pH = 4.5, C(nanozyme) = N/A	$Au@Pt_{0.25}$	89
			$(5.6 \pm 0.6) \times 10^{-3}$	32 ± 1.5	1.920×10^{3}		$Au@Pt_{0.17}$	
			$(2.1 \pm 0.4) \times 10^{-3}$	16 ± 1.0	9.60×10^{2}		$Au@Pt_{0.1}$	
	Au/Ag	TMB	0.396	14.1		45 °C, $C(H_2O_2)$ = N/A, pH = 4, C(nanozyme) = N/A		90
		H_2O_2	94.7	29.2		45 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = N/A		
	Au@Ag@Pt	TMB	0.130	2.9840×10^{4}		45 °C, $C(H_2O_2)$ = 40 mM, pH = 4, C(nanozyme) = N/A		91
		H_2O_2	5.83×10^{-2}	1.196×10^{2}		45 °C, C(TMB) = 0.75 mM, pH = 4, C(nanozyme) = N/A		

	Au/Pt	TMB	9.5×10^{-3}	1.02×10^{2}	8.2×10^{3}	45 °C, C(H_2O_2) = 20 mM, pH = 4, C(nanozyme) = 12.5 pM	Au@$Pt_{0.17}$	92
			2.7×10^{-2}	1.81×10^{2}	1.4×10^{4}		Au@$Pt_{0.25}$	
		TMB	0.3	1.9517×10^{2}		37 °C, C(H_2O_2) = 20 mM, pH = 5, C(nanozyme) = 0.125 nM	Rod-shaped Au–Pt core/shell nanoparticles antigen conjugates	93
		H_2O_2	10.67	1.2565×10^{2}		37 °C, C(TMB) = 1 mM, pH = 5, C(nanozyme) = 0.125 nM		
		TMB	0.136			C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 250 nM	DNA templated	94
		TMB	$(2.6 \pm 0.2) \times 10^{-2}$	23 ± 1	$(1.5 \pm 0.1) \times 10^{3}$	30 °C, C(H_2O_2) = 2 mM, pH = 4.5, C(nanozyme) = 15 pM		95
		H_2O_2	$(2.19 \pm 0.15) \times 10^{2}$	$(6.8 \pm 0.6) \times 10^{2}$	$(45.3 \pm 4) \times 10^{3}$	30 °C, C(TMB) = 0.13 mM, pH = 4.5, C(nanozyme) = 15 pM		
		TMB	4.1×10^{-2}	3.731×10^{2}		C(H_2O_2) = 10 mM, pH = 4.3, C(nanozyme) = N/A		96
		H_2O_2	6.85	4.626×10^{2}		C(TMB) = 0.1 mM, pH = 4.3, C(nanozyme) = N/A		

		TMB	8.8×10^{-2}	3.70×10^{2}		20 °C, C(H_2O_2) = 125 mM, pH = 4, C(nanozyme) = N/A		97
		H_2O_2	1.96×10^{2}	5.12×10^{2}		20 °C, C(TMB) = 0.125 mM, pH = 4, C(nanozyme) = N/A		
	Au@PtAg	TMB	$(6.5\pm1.4)\times10^{-3}$	9.2 ± 0.2	$(2.2\pm0.1)\times10^{2}$	37 °C, C(H_2O_2) = 2 mM, pH = 4.5, C(nanozyme) = 42 pM	$Au@PtAg_{0.33}$	98
			$(6.5\pm0.9)\times10^{-3}$	5.6 ± 0.3	$(1.3\pm0.1)\times10^{2}$	37 °C, C(TMB) = 0.13 mM, pH = 4.5, C(nanozyme) = 42 pM	$Au@PtAg_{0.5}$	
	Au@PtCu	TMB	$(3.6\pm0.4)\times10^{-2}$	81 ± 7	$(5.4\pm0.5)\times10^{-3}$	30 °C, C(H_2O_2) = 2 mM, pH = 4.5, C(nanozyme) = 15 pM		95
		H_2O_2	23 ± 2	$(10.4\pm0.6)\times10^{2}$	69.3 ± 4.0	30 °C, C(TMB) = 0.13 mM, pH = 4.5, C(nanozyme) = 15 pM		
	BiAu	AR	8.93×10^{-2}	15	1.50×10^{2}		BiAu	99
			0.377	1.25	12.5		BiAu-fibrinogen	
			0.39	0.449	4.49		BiAu-fibrinogen + thrombin (10 nM)	
		H_2O_2	0.119	0.725	7.25		BiAu	
			7×10^{-2}	3.44×10^{-2}	0.344		BiAu-fibrinogen	

			0.649	1.07×10^{-2}	0.107		BiAu-fibrinogen + thrombin (10 nM)	
	Fe/Co	TMB	1.71	4.56×10^{2}		35 °C, C(H_2O_2) = N/A, pH = 3.5, C(nanozyme) = 3.5 μg mL^{-1}		100
		H_2O_2	6×10^{-2}	1.32×10^{2}		35 °C, C(TMB) = N/A, pH = 3.5, C(nanozyme) = 3.5 μg mL^{-1}		
	FePt	TMB	0.16			30 °C, C(H_2O_2) = 0.88 mM, pH = 5.2, C(nanozyme) = 95 nM	Apo-ferritin capped	61
		H_2O_2	0.95			30 °C, C(TMB) = 0.045 mM, pH = 5.2, C(nanozyme) = 95 nM		
	FePt/Au	TMB	0.445	2.467×10^{2}		25 °C, C(H_2O_2) = 250 mM, pH = 4, C(nanozyme) = N/A		101
		H_2O_2	1.85×10^{-2}	6.894		25 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = N/A		
	NiPd	TMB	0.11	15.2		C(H_2O_2) = 2 mM, pH = 5, C(nanozyme) = 3.6 μg mL^{-1}		102

		H_2O_2	0.66	2.618×10^{2}		C(TMB) = 0.25 mM, pH = 5, C(nanozyme) = 3.6 μg mL^{-1}		
	Pd-Ir	TMB	0.13	65	1.9×10^{6}	RT, C(H_2O_2) = 2 M, pH = 4, C(nanozyme) = 22 pM		103
		H_2O_2	0.34	51	1.5×10^{6}	RT, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 22 pM		
	Pd@Pt	TMB	8.65×10^{-2}	62.28	3.1×10^{4}	25 °C, C(H_2O_2) = 10 mM, pH = 4.5, C(nanozyme) = 15 ng mL^{-1} Pd and 75 ng mL^{-1} Pt nanodots		65
		H_2O_2	2.231	50	2.5×10^{4}	25 °C, C(TMB) = 0.5 mM, pH = 4.5, C(nanozyme) = 15 ng mL^{-1} Pd NSs and 75 ng mL^{-1} Pt nanodots		
	Pt/Ag	TMB	0.25	1.057×10^{2}		C(H_2O_2) = 1 mM, pH = 4, C(nanozyme) = 20 mM	$Pt_{50}Ag_{50}$	104
		H_2O_2	0.35	1.596×10^{2}		C(TMB) = 1 mM, pH = 4, C(nanozyme) = 20 mM		
		TMB	0.38	3.304×10^{2}		C(H_2O_2) = 1 mM, pH = 4, C(nanozyme) = 20 mM	Dealloyed $Pt_{50}Ag_{50}$	

		H_2O_2	0.86	3.475×10^{2}		C(TMB) = 1 mM, pH = 4, C(nanozyme) = 20 mM		
	Pt/Au	AR	0.113	18	1.20×10^{2}	C(H_2O_2) = 2.5 mM, pH = 7, C(nanozyme) = 0.01X		105
		H_2O_2	0.436	0.664	4.43	C(AR) = 10 μM, pH = 7, C(nanozyme) = 0.01X		
	Pt/Pd	TMB	1.78	3.64×10^{2}	1.42×10^{-2}	C(H_2O_2) = 5 mM, pH = 4.5, C(nanozyme) = 5 μg mL^{-1}		106
		H_2O_2	5.3×10^{-2}	92.6	3.6×10^{-3}	C(TMB) = 20 mM, pH = 4.5, C(nanozyme) = 5 μg mL^{-1}		
		TMB	1.62			25 °C, C(H_2O_2) = 5 mM, pH = 4.5, C(nanozyme) = 5 μg mL^{-1}		107
		H_2O_2	5×10^{-2}			25 °C, C(TMB) = 20 mM, pH = 4.5, C(nanozyme) = 5 μg mL^{-1}		
Metal hydroxide	Co-Al layered double hydroxides	TMB	0.372	1.01×10^{8}		25 °C, C(H_2O_2) = 10 mM, pH = 6, C(nanozyme) = 350 μL mL^{-1}		108

		H_2O_2	22.13	5.98×10^8		25 °C, C(TMB) = 0.8 mM, pH = 6, C(nanozyme) = 350 μL mL^{-1}		
	Cu-Al layered double hydroxides	TMB	1.775	40.9		RT, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 200 μL mL^{-1}		109
		H_2O_2	10.24	23		RT, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 350 μL mL^{-1}		
	$Cu(OH)_2$	TMB	1.335	4.21×10^2		25 °C, C(H_2O_2) = 0.53 mM, pH = 4.5, C(nanozyme) = 60 μg mL^{-1}		110
		H_2O_2	0.379	3.91×10^2		25 °C, C(TMB) = 0.8 mM, pH = 4.5, C(nanozyme) = 60 μg mL^{-1}		
		TMB	2.448	4.483×10^2		25 °C, C(H_2O_2) = 0.53 mM, pH = 4.5, C(nanozyme) = 60 μg mL^{-1}		111
		H_2O_2	0.199	4.251×10^2		25 °C, C(TMB) = 0.8 mM, pH = 4.5, C(nanozyme) = 60 μg mL^{-1}		

	$Ni(OH)_2$	TMB	2.3×10^{-2}			$C(H_2O_2)$ = 3.8 mM, pH = 4, C(nanozyme) = 0.192 mg mL^{-1}		112
		H_2O_2	1.76			C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 0.192 mg mL^{-1}		
		Homovanillic acid	0.423	65.104 (V_{max}/ $\triangle F$ s^{-1})		35 °C, $C(H_2O_2)$ = 0.2 mM, pH = 10.7, C(nanozyme) = 10 μg mL^{-1}		113
	Ni/Co layered double hydroxides	ABTS	3.43	32.9		37 °C, $C(H_2O_2)$ = 1.67 mM, pH = 4, C(nanozyme) = 36 μg mL^{-1}		114
		H_2O_2	13.2	32.4		37 °C, C(ABTS) = 0.53 mM, pH = 4, C(nanozyme) = 36 μg mL^{-1}		
	Ni/Fe layered double hydroxides	TMB	0.5 ± 0.05			$C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 70 μL mL^{-1}		115
		H_2O_2	2.4 ± 0.1			C(TMB) = 800 mM, pH = 4, C(nanozyme) = 70 μL mL^{-1}		
Metal oxide	CeO_2	TMB	$(4.6 \pm 0.3) \times 10^{-2}$	9.4 ± 0.01		45 °C, $C(H_2O_2)$ = 50 mM, pH = 4, C(nanozyme) = 60 μg mL^{-1}		116

		H_2O_2	64.6 ± 3.2	50.7 ± 0. 3		45 °C, C(TMB) = 5 mM, pH = 4, C(nanozyme) = 60 μg mL^{-1}		
		TMB	0.001	9.64		45 °C, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 0.6 mg mL^{-1}	Mo doped	117
		H_2O_2	8.85	80.1				
		TMB	0.623	19.5		45 °C, C(TMB) = 5 mM, pH = 4, C(nanozyme) = 0.6 mg mL^{-1}		
		H_2O_2	6.7×10^{-2}	6.88				
		TMB	0.147	6.2×10^{4}		C(H_2O_2) = 100 mM, pH = 4, C(nanozyme) = 200 ng mL^{-1}		118
		H_2O_2	2.93×10^{2}	3.8×10^{4}		C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 200 ng mL^{-1}		
		TMB	0.176	86		25 °C, C(H_2O_2) = 100 mM, pH = 4, C(nanozyme) = 100 μg mL^{-1}	Fe doped	119
		H_2O_2	47.6	16		25 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 100 μg mL^{-1}		
		TMB	2.69×10^{2}	1.06×10^{-2}		25 °C, C(H_2O_2) = 25 mM, pH = 3.8, C(nanozyme) = 40 μg mL^{-1}		120

		H_2O_2	4.96	0.366		25 °C, C(TMB) = 0.05 mM, pH = 3.8, C(nanozyme) = 40 μg mL^{-1}		
		TMB	8.54×10^{-2}	4.35×10^{3}		25 °C, C(H_2O_2) = 25 mM, pH = 3.8, C(nanozyme) = 40 μg mL^{-1}		121
		H_2O_2	0.254	13.1		25 °C, C(TMB) = 0.05 mM, pH = 3.8, C(nanozyme) = 40 μg mL^{-1}		
	$CoFe_2O_4$	H_2O_2	5.12×10^{-3}	2.39×10^{2}		25 °C, C(ABTS) = N/A, pH = 4.6, C(nanozyme) = N/A	Modified with dopamine	122
		TMB	6×10^{-2}	1.37×10^{6}		37 °C, C(H_2O_2) = 100 mM, pH = 4, C(nanozyme) = N/A	TEM diameter 4.1 ± 0.3 nm	123
			5.5×10^{-2}	2.64×10^{6}			TEM diameter 13.8 ± 4.6 nm	
			1.7×10^{-2}	1.03×10^{6}			TEM diameter 24.5 ±5.3 nm	
			2.4×10^{-2}	6.75×10^{5}			TEM diameter 32.1 ± 4.2 nm	
			3.4×10^{-2}	6.47×10^{5}			TEM diameter 45.2 ± 15.1 nm	

		H_2O_2	3.5×10^{-2}	8.36×10^{6}		37 °C, C(TMB) = 1.5 mM, pH = 4, C(nanozyme) = N/A	TEM diameter 4.1 ± 0.3 nm	
			0.228	4.38×10^{6}			TEM diameter 13.8 ± 4.6 nm	
			3.9×10^{-2}	1.28×10^{6}			TEMdiameter 24.5 ± 5.3 nm	
			6.6×10^{-2}	9.2×10^{5}			TEM diameter 32.1 ± 4.2 nm	
			0.111	1.04×10^{6}			TEM diameter 45.2 ± 15.1 nm	
	$Co_xFe_{3-x}O_4$	TMB	2.4×10^{-2}	5.64		40 °C, C(H_2O_2) = 0.09 mM, pH = 4, C(nanozyme) = 79 μg mL^{-1}		124
		H_2O_2	7.8×10^{-2}	7.93		40 °C, C(TMB) = 0.2 mM, pH = 4, C(nanozyme) = 79 μg mL^{-1}		
		TMB	0.13 ± 0.05	13.73 ± 0.31		C(H_2O_2) = 100 mM, pH = 4.5, C(nanozyme) = 20 μg mL^{-1}	Co ratio 0	125
			0.11 ± 0.02	14.61 ± 1.03			Co ratio 20 %	
			0.12 ± 0.02	12.92 ± 2.01			Co ratio 40 %	
			0.20 ± 0.03	36.68 ± 2.84			Co ratio 60 %	
		H_2O_2	17.02 ± 3.30	7.01 ± 0.41			Co ratio 0 %	

			17.17 ± 2.26	7.91 ± 0.34		C(TMB) = 0.208 mM, pH = 4.5, C(nanozyme) = 20 μg mL^{-1}	Co ratio 20 %	
			18.38 ± 2.58	7.40 ± 0.17			Co ratio 40 %	
			17.15 ± 2.95	17.57 ± 0.88			Co ratio 60 %	
	Co_3O_4	TMB	0.103 ± 0.015	(2.56 ± 0.08) × 10^2	(1.0119 ± 0.0316) × 10^2	$C(H_2O_2)$ = 663.8 mM, pH = 3.6, C(nanozyme) = 1.32 μg mL^{-1}		126
		H_2O_2	(1.73.51 ± 0.5723) × 10^2	(1.89 ± 0.22) × 10^2	74.70 ± 8.70	C(TMB) = 1.6534 mM, pH = 3.6, C(nanozyme) = 1.32 μg mL^{-1}		
		TMB	1.5 × 10^{-2}			$C(H_2O_2)$ = N/A, pH = 4, C(nanozyme) = 12 μg mL^{-1}	M(cobalt nitrate) = 0.115 g	127
			1.3 × 10^{-2}				M(cobalt nitrate) = 0.23 g	
			1.2 × 10^{-2}				M(cobalt nitrate) = 0.45 g	
		H_2O_2	7.9 × 10^{-2}			C(TMB) = N/A, pH = 4, C(nanozyme) = 12 μg mL^{-1}	M(cobalt nitrate) = 0.115 g	
			9.1 × 10^{-2}				M(cobalt nitrate) = 0.23 g	
			2.62 × 10^{-2}				M(cobalt nitrate) = 0.45 g	

		TMB	3.7×10^{-2}	62.7	1.83×10^{2}	45 °C, C(H_2O_2) = 100 mM, pH = 5, C(nanozyme) = 10 μg mL^{-1}		128
		H_2O_2	1.4007×10^{2}	1.21×10^{2}	3.53×10^{2}	45 °C, C(TMB) = 0.3 mM, pH = 5, C(nanozyme) = 10 μg mL^{-1}		
		TMB	5.62×10^{-2}	1.113×10^{5}		RT, C(H_2O_2) = 250 mM, pH = 3.8, C(nanozyme) = N/A		129
		H_2O_2	34.38	3.294		RT, C(TMB) = 1 mM, pH = 3.8, C(nanozyme) = N/A		
		TMB	6.3×10^{-2}	18.8	3.76×10^{2}	RT, C(H_2O_2) = 0.67 mM, in water, C(nanozyme) = 0.05 nM		130
		OPD	0.61	32.2	6.40×10^{2}			
		TMB	0.12 ± 0.02	$(3.32 \pm 0.36) \times 10^{2}$		40 °C, C(H_2O_2) = 550.5 mM, pH = 4.4 C(nanozyme) = 40 μg mL^{-1}		131
		H_2O_2	$(2.45 \pm 0.0945) \times 10^{2}$	$(2.85 \pm 0.21) \times 10^{2}$		40 °C, C(TMB) = 0.8 mM, pH = 4.4, C(nanozyme) = 40 μg mL^{-1}		
		TMB	1.513×10^{-2}			40 °C, C(H_2O_2) = N/A, pH = 4 C(nanozyme) = 10.3 μg mL^{-1}		132

		H_2O_2	0.8268			40 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = 10.3 μg mL^{-1}		
		TMB	9×10^{-2}	99.1		25 °C, C(H_2O_2) = 50 mM, pH = 6, C(nanozyme) = 10.3 μg mL^{-1}	Nanoplates {112}	133
		H_2O_2	2.84×10^{2}	4.808×10^{2}		25 °C, C(TMB) = 0.5 mM, pH = 6, C(nanozyme) = 10.3 μg mL^{-1}		
		TMB	0.22	71.2		25 °C, C(H_2O_2) = 50 mM, pH = 6, C(nanozyme) = 9.7 μg mL^{-1}	Nanorods {110}	
		H_2O_2	4.55×10^{2}	3.96×10^{2}		25 °C, C(TMB) = 0.5 mM, pH = 6, C(nanozyme) = 9.7 μg mL^{-1}		
		TMB	0.26	60.4		25 °C, C(H_2O_2) = 50 mM, pH = 6, C(nanozyme) = 13.6 μg mL^{-1}	Nanocubes {100}	
		H_2O_2	4.80×10^{2}	3.581×10^{2}		25 °C, C(TMB) = 0.5 mM, pH = 6, C(nanozyme) = 13.6 μg mL^{-1}		
		ABTS	0.103	72				134

		TMB	3.2×10^{-2}	82.9		$C(H_2O_2)$ = 200 mM, pH = 7, C(nanozyme) = N/A		
		TMB	2.83×10^{-2}	6.4		RT, $C(H_2O_2)$ = N/A, pH = 3.8, C(nanozyme) = 20 μg mL^{-1}		135
		H_2O_2	6.10	7.083		RT, C(TMB) = N/A, pH = 3.8, C(nanozyme) = 20 μg mL^{-1}		
	$CuFe_2O_4$	H_2O_2	1.18×10^{-3}	82.3		25 °C, C(ABTS) = N/A, pH = 4.6, C(nanozyme) = N/A	Modified with dopamine	122
	CuO	TMB	1.6×10^{-2}			37 °C, $C(H_2O_2)$ = 1.5 M, pH = 4, C(nanozyme) = 4 μg mL^{-1}		136
		H_2O_2	41			37 °C, C(TMB) = 0.665 mM, pH = 4, C(nanozyme) = 4 μg mL^{-1}		
		3-(4-hydroxyphenyl)propionic acid	0.7			37 °C, $C(H_2O_2)$ = 6 mM, pH = 10.25, C(nanozyme) = 0.4 mg mL^{-1}		137
		TMB	1.3×10^{-2}			40 °C, $C(H_2O_2)$ = 1.5 M, pH = 4, C(nanozyme) = 40 μg mL^{-1}		138

		H_2O_2	85.6			40 °C, C(TMB) = 665.2 μM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		
		TMB	0.14	14.5	2.12×10^{-6}	25 °C, C(H_2O_2) = 15 mM, pH = 4, C(nanozyme) = 0.55 mg mL^{-1}		139
		TMB	1.8×10^{-2}	8.081×10^{2}		55 °C, C(H_2O_2) = 250 mM, pH = 4, C(nanozyme) = 3 mg mL^{-1}		140
		H_2O_2	35.74	5.3		55 °C, C(TMB) = 250 mM, pH = 4, C(nanozyme) = 3 mg mL^{-1}		
	Cu_2O	OPD	0.47	55.4	1.14×10^{-2}	C(H_2O_2) = 132.5 mM, pH = 4, C(nanozyme) = 0.35 mg mL^{-1}		141
		H_2O_2	0.31	45.5	1.70×10^{-3}	C(TMB) = 0.5 mM, pH = 4, C(nanozyme) = 0.35 mg mL^{-1}		
	Fe_2O_3	TMB	0.153	29.4		C(H_2O_2) = 700 mM, pH = 3.5, C(nanozyme) = 62.5 μg mL^{-1}	Calcination temperature. 400 °C	142
		H_2O_2	86.425	30.5				
		TMB	0.214	27.4				

		H_2O_2	1.25904 × 10^2	28.9		C(TMB) = 0.8 mM, pH = 3.5, C(nanozyme) = 62.5 μg mL^{-1}	Calcination temperature. 450 °C	
		TMB	0.236	26.5			Calcination temperature. 500 °C	
		H_2O_2	1.329175 × 10^2	28.9				
		TMB	8.87 × 10^{-2}	9.7		RT, C(H_2O_2) = 80 mM, pH = 4, C(nanozyme) = N/A		143
		H_2O_2	1.5719 × 10^2	12.84		RT, C(TMB) = 0.08 mM, pH = 4, C(nanozyme) = N/A		
		TMB	0.910	29.9		50 °C, C(H_2O_2) = 0.5 mM, pH = 4, C(nanozyme) = N/A	Nanozyme was incorporated in reactionware	144
		H_2O_2	0.140	40.7		50 °C, C(TMB) = 10 mM, pH = 4, C(nanozyme) = N/A		
		TMB	2.647 × 10^{-2}	0.1709		C(H_2O_2) = 250 mM, pH = 5, C(nanozyme) = 18.5 μg mL^{-1}		145
		H_2O_2	1.319 × 10^{-2}	21.14		C(TMB) = 1 mM, pH = 5, C(nanozyme) = 18.5 μg mL^{-1}		
	Fe_3O_4	ABTS	36	4.15 × 10^2		C(H_2O_2) = 2.5 mM ,pH = 7, C(nanozyme) = 1 mg mL^{-1}	With adenosine 5'-monophosphate	146
		TMB	0.11	1.45 × 10^2	2.94 × 10^3	N/A		147

		TMB	4.147	5.2×10^3	9.81×10^5	30 °C, C(nanozyme) = 530 mM, pH = 3.5, C(nanozyme) = 40 μg mL^{-1}		148
		TMB	9.9×10^{-2}	6.60×10^2	7.8×10^3	30 °C, C(H_2O_2) = 200 mM, pH = 3.8, C(nanozyme) = 30 μg mL^{-1}		149
		H_2O_2	50	5×10^2	6.5×10^4	30 °C, C(TMB) = 0.5 mM, pH = 3.8, C(nanozyme) = 30 μg mL^{-1}		
		H_2O_2	$(4.589 \pm 0.291) \times 10^2$	3.06 ± 0.54	2 0.55) $\times 10^5$	RT, C(TMB) = 0.8 mM, pH = 4.5, C(nanozyme) = 200 μg mL^{-1}		150
			$(2.266 \pm 0.183) \times 10^2$	4.45 ± 0.16	$(4.54 \pm 0.16) \times 10^5$		Alanine modified	
			37.99 ± 7.8	5.28 ± 0.71	$(5.39 \pm 0.73) \times 10^5$		Histidine modified	
		TMB	0.45			C(H_2O_2) = 100 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		151
		H_2O_2	18.71			C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		

		TMB	0.836	47.2		40 °C, $C(H_2O_2)$ = 835 mM, pH = 5, C(nanozyme) = N/A	Aminopropyltriethoxysilane modified	152
		H_2O_2	23.466	86.2		40 °C, C(TMB) = 3.1 mM, pH = 5, C(nanozyme) = N/A		
		TMB	0.24	1.70×10^2	8.1×10^3	RT, $C(H_2O_2)$ = N/A, pH = N/A, C(nanozyme) = N/A	Citrate modified	153
			0.30	1.25×10^2	6.0×10^3		Carboxymethyl dextran coated	
			0.22	2.40×10^2	1.14×10^4		Heparin-coated	
			0.55	96	4.6×10^3		Glycine-modified	
			0.69	46	2.2×10^3		Polylysine modified	
			0.71	42	2×10^2		Polyetherimide modified	
		ABTS	0.73	1.45×10^2	6.9×10^3		Citrate modified	
			0.81	1.15×10^2	5.5×10^3		Carboxymethyl dextran coated	
			0.96	52	2.5×10^3		Heparin-coated	
			0.2	2.97×10^2	1.41×10^4		Glycine-modified	
			0.19	4.5×10^2	2.14×10^4		Polylysine modified	
			0.12	6.10×10^2	2.9×10^4		Polyetherimide modified	

		TMB	9.8×10^{-2}	34.4		35 °C, $C(H_2O_2)$ = 50 mM, pH = 4, C(nanozyme) = N/A		154
		H_2O_2	1.54×10^{2}	97.8		35 °C, C(OPD) = 0.08 mM, pH = 4, C(nanozyme) = N/A		
		H_2O_2	3.021	7.27×10^{5}	1.455×10^{2}	25 °C, C(aniline blue) = 0.1 mM, pH = 3, C(nanozyme) = N/A		155
		TMB	9.3×10^{2}	1.017×10^{2}		35 °C, $C(H_2O_2)$ = 40 mM, pH = 3.6, C(nanozyme) = 15 μg mL^{-1}		156
		H_2O_2	0.92	60		35 °C, C(OPD) = 0.1 mM, pH = 3.6, C(nanozyme) = 15 μg mL^{-1}		
		TMB	0.23			$C(H_2O_2)$ = 530 mM, pH = 4, C(nanozyme) = 50 μM	Cluster spheres	157
			0.46				Triangular plates	
			0.58				Octahedra	
		TMB	0.27			$C(H_2O_2)$ = N/A, pH = 7, C(nanozyme) = N/A		158
		TMB	0.374	26		30 °C, $C(H_2O_2)$ = 250 mM, pH = 7.4, C(nanozyme) = 20 μg mL^{-1}		159

		H_2O_2	54.6	18		30 °C, C(TMB) = 1 mM, pH = 7.4, C(nanozyme) = 20 μg mL^{-1}		
		5-hydroxyindole-3-acetic acid	0.16 ± 0.05	$(5.3 \pm 0.5) \times 10^3$		C(H_2O_2) = 1 mM, pH = 7.4, C(nanozyme) = N/A		160
		TMB	4.9×10^{-2}	26.06		C(H_2O_2) = N/A, pH = 3.8, C(nanozyme) = 300 μg mL^{-1}	N,N'-di-carboxymethyl perylene diimides modified	161
		H_2O_2	0.7414	15.459		C(TMB) = N/A, pH = 3.8, C(nanozyme) = 300 μg mL^{-1}		
		TMB	6.03×10^{-2}	20.77		C(H_2O_2) = N/A, pH = 3.8, C(nanozyme) = 300 μg mL^{-1}		
		H_2O_2	3.927	17.43		C(TMB) = N/A, pH = 3.8, C(nanozyme) = 300 μg mL^{-1}		
		TMB	9.8×10^{-2}	34.4	3.02×10^4	40 °C, C(H_2O_2) = 530 mM, pH = 3.5, C(nanozyme) = 40 μg mL^{-1}		162
		H_2O_2	1.54×10^2	97.8	8.58×10^4	40 °C, C(TMB) = 0.816 mM, pH = 3.5, C(nanozyme) = 40 μg mL^{-1}		

		TMB	0.439	1.908 × 10^2		$C(H_2O_2)$ = 250 mM, pH = 3.8, C(nanozyme) = 268.75 μg mL^{-1}		163
		H_2O_2	0.919	10.75		C(TMB) = 0.5 mM, pH = 3.8, C(nanozyme) = 268.75 μg mL^{-1}		
		TMB	0.295 ± 0.003	7.2 ± 0.67	7.1 ± 0.4	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}	Fe_3O_4	164
			0.266 ± 0.026	6 ± 0.50	6.0 ± 0.3	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}	Non imprinted particle	
			0.218 ± 0.024	15 ± 0.67	15.0 ± 0.4	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 5 mg mL^{-1}	TMB imprinted nanogels	
			0.150 ± 0.018	56.7 ± 3.33	56.1 ± 1.7	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}	TMB imprinted Fe_3O_4	
			0.316 ± 0.028	5 ± 0.17	5.0 ± 0.08	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 5 mg mL^{-1}	ABTS imprinted nanogels	

			0.493 ± 0.026	3.3 ± 0.67	3.3 ± 0.2	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}	ABTS imprinted Fe_3O_4	
		ABTS	0.270 ± 0.034	35 ± 1.67	35.0 ± 0.8	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}	TMB imprinted Fe_3O_4	
			0.267 ± 0.028	31.7 ± 3.33	31.6 ± 1.8	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 5 mg mL^{-1}	ABTS imprinted nanogels	
			0.302 ± 0.026	11.67 ± 0.83	11.6 ± 0.2	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}	ABTS imprinted Fe_3O_4	
			0.360 ± 0.030	6.67 ± 1	6.6 ± 0.2	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 5 mg mL^{-1}	TMB imprinted Fe_3O_4	
			0.135 ± 0.022	70 ± 3.33	70.1 ± 1.8	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}	ABTS imprinted nanogels	
			$(9.3 \pm 1.0) \times 10^{-2}$	$(1.083 \pm 0.0333) \times 10^{2}$	$(1.083 \pm 0.017) \times 10^{2}$	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}	ABTS imprinted Fe_3O_4	

		TMB	0.67	18.83		30 ℃, C(H_2O_2) = 5 mM, pH = 3.5, C(nanozyme) = 10 μg mL^{-1}		28
		H_2O_2	4.089×10^{-2}			RT, C(TMB) = 01 mg mL^{-1}, pH = 4.5, C(nanozyme) = 20 μg mL^{-1}		165
		TMB	0.255	2.794×10^{2}	1	RT, C(H_2O_2) = 1.5%, pH = 3.6, C(nanozyme) = 31.25 μg mL^{-1}	Dimercaptosuccinic acid modified	166
		H_2O_2	2.37×10^{2}	4.336×10^{2}	1.554	RT, C(TMB) = 0.25 mg mL^{-1}, pH = 3.6, C(nanozyme) = 31.25 μg mL^{-1}		
		TMB	1.038	28.7		50 °C, C(H_2O_2) = 0.5 mM, pH = 4, C(nanozyme) = N/A	Nanozyme was incorporated in reactionware	144
		H_2O_2	0.146	33.6		50 °C, C(TMB) = 10 mM, pH = 4, C(nanozyme) = N/A		
		TMB	9.1×10^{-2}	51.8		40 °C, C(H_2O_2) = 10 mM, pH = 4, C(nanozyme) = 6.25 μg mL^{-1}		167
		H_2O_2	1.957×10^{-2}	12.6		40 °C, C(TMB) = 0.816 mM, pH = 4, C(nanozyme) = 6.25 μg mL^{-1}		

		H_2O_2	0.49	16.8	77.8	C(TMB) = N/A, pH = 7.4, C(nanozyme) = 0.21 nM		168
			0.48	19.8	92.1		Molecular imprinted nanoparticles	
		ABTS	0.45	1.70×10^2		RT, C(H_2O_2) = N/A, pH = N/A, C(nanozyme) = N/A	Citrate-magnetic iron oxide	169
		H_2O_2	31.2	1.80×10^2		RT, C(ABTS) = N/A, pH = N/A, C(nanozyme) = N/A		
		ABTS	0.22	6.20×10^2		RT, C(H_2O_2) = N/A, pH = N/A, C(nanozyme) = N/A	NH_2-magnetic iron oxide	
		H_2O_2	1.23×10^2	1.290×10^3		RT, C(ABTS) = N/A, pH = N/A, C(nanozyme) = N/A		
		ABTS	0.36	5.50×10^2		RT, C(H_2O_2) = N/A, pH = N/A, C(nanozyme) = N/A	SH-magnetic iron oxide	
		H_2O_2	4.5	6.60×10^2		RT, C(ABTS) = N/A, pH = N/A, C(nanozyme) = N/A		
		ABTS	0.25	6×10^2		RT, C(H_2O_2) = N/A, pH = N/A, C(nanozyme) = N/A	SH-NH_2-magnetic iron oxide	
		H_2O_2	5.7	5.10×10^2		RT, C(ABTS) = N/A, pH = N/A, C(nanozyme) = N/A		

		H_2O_2	1.99 × 10^{2}			C(OPD) = 400 mM, pH = 5.5, C(nanozyme) = 75 μg mL^{-1}		170
		H_2O_2	2.75 × 10^{-2}	14.2		25 °C, C(ABTS) = N/A, pH = 4.6, C(nanozyme) = N/A	Fe_3O_4-dopamine	122
		TMB	0.187	5.91 × 10^{2}	1.237 × 10^{-3}	RT, C(H_2O_2) = 1 M, pH = 4, C(nanozyme) = 20 μg mL^{-1}	PEG-derivatized phosphine oxide modified	171
		H_2O_2	30	5.8 × 10^{5}	1.213	RT, CTMB) = 0.8 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
		TMB	0.185	591	1.492 × 10^{-3}	RT, C(H_2O_2) = 1 M, pH = 4, C(nanozyme) = 20 μg mL^{-1}	Lipid PEG modified	
		H_2O_2	39	5.29 × 10^{5}	1.547	RT, CTMB) = 0.8 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
		TMB	0.599	1.621 × 10^{3}	1.35 × 10^{2}	RT, C(H_2O_2) = 400 mM, pH = 3, C(nanozyme) = 125 μg mL^{-1}	Fe_3O_4-dopamine	67
			0.951	1.631 × 10^{3}	1.36 × 10^{2}		Fe_3O_4-3,4-dihydroxyhydrocinnamic acid	
	$FeMnO_3$	TMB	1.69 × 10^{-3}			C(H_2O_2) = 5 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		172

		H_2O_2	0.31			C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
	$LaCoO_3$	TMB	0.24	3.49×10^2		C(H_2O_2) = 100 mM, pH = 6, C(nanozyme) = 10 μg mL^{-1}		173
		H_2O_2	15	3.50×10^2		C(TMB) = 0.5 mM, pH = 6, C(nanozyme) = 10 μg mL^{-1}		
	$LaNiO_3$	TMB	0.105	362		37 °C, C(H_2O_2) = 10 mM, pH = 4.5, C(nanozyme) = 10 μg mL^{-1}		174
		H_2O_2	90.05	2.6×10^3		37 °C, C(TMB) = 0.8 mM, pH = 4.5, C(nanozyme) = 10 μg mL^{-1}		
	$MgFe_2O_4$	TMB	0.67	20.9		45 °C, C(H_2O_2) = 12 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		175
		ABTS	0.14	1.254×10^2				
		H_2O_2	4.61	1.346×10^2		45 °C, C(ABTS) = 0.4 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		
	$MnFe_2O_4$	TMB	0.605	53.8		C(H_2O_2) = 300 mM, pH = 3.5, C(nanozyme) = 40 μg mL^{-1}		176

		H_2O_2	0.528	21.5		C(TMB) = 0.8 mM, pH = 3.5, C(nanozyme) = 40 μg mL^{-1}		
		TMB	1.46×10^{-3}	6.98×10^{6}		RT, C(H_2O_2) = 100 mM, pH = 3.5, C(nanozyme) = N/A	TEM diameter 4 nm	177
		H_2O_2	1.12×10^{-1}	7.15×10^{6}		RT, C(TMB) = 1.5 mM, pH = 3.5, C(nanozyme) = N/A		
		TMB	9.64×10^{-2}	3.53×10^{5}		RT, C(H_2O_2) = 100 mM, pH = 3.5, C(nanozyme) = N/A	TEM diameter 16 nm	
		H_2O_2	0.543	5.15×10^{5}		RT, C(TMB) = 1.5 mM, pH = 3.5, C(nanozyme) = N/A		
		TMB	2.58×10^{-2}	1.55×10^{6}		RT, C(H_2O_2) = 100 mM, pH = 3.5, C(nanozyme) = N/A	TEM diameter 18 nm	
		H_2O_2	0.242	4.94×10^{6}		RT, C(TMB) = 1.5 mM, pH = 3.5, C(nanozyme) = N/A		
		TMB	3.30×10^{-2}	7.30×10^{5}		RT, C(H_2O_2) = 100 mM, pH = 3.5, C(nanozyme) = N/A	TEM diameter 27 nm	
		H_2O_2	0.304	1.76×10^{6}		RT, C(TMB) = 1.5 mM, pH = 3.5, C(nanozyme) = N/A		
		H_2O_2	3.4×10^{-2}	1.192×10^{2}		25 °C, C(ABTS) = N/A, pH = 4.6, C(nanozyme) = N/A	Modified with dopamine	122

	$Mn_{0.5}Fe_{0.5}Fe_2O_4$	TMB	0.139 ± 0.02	4.500×10^3	1.40×10^4	$C(H_2O_2)$ = 0.8 M, pH = 4, C(nanozyme) = 32.2 nM		178
		H_2O_2	310 ± 0.01	3.63×10^3	1.13×10^4	C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 32.2 nM		
	MnO_2	OPD	0.31	82.1	2.728	35 °C, $C(H_2O_2)$ = 3.3 mM, pH = 4, C(nanozyme) = 3.7 μg mL^{-1}		179
		TMB	0.04	5.780×10^3	1.920×10^2	35 °C, $C(H_2O_2)$ = 0.3 mM, pH = 4, C(nanozyme) = 3.7 μg mL^{-1}		
		H_2O_2	0.12	57.1	1.897	35 °C, C(OPD) = 0.17 mM, pH = 4, C(nanozyme) = 3.7 μg mL^{-1}		
		TMB	6.23×10^{-5}	4.25×10^3	1.70×10^7	25 °C, $C(H_2O_2)$ = N/A, pH = 5.1, C(nanozyme) = 10 μg mL^{-1}	Nano-sheet	180
			3.14×10^{-5}	7.19×10^3	1.50×10^7		Nano-sphere	
			4.91×10^{-5}	7.35×10^3	2.76×10^7		Nano-wire	
			3.78×10^{-4}	4.04×10^3	N/A		Nano-complex	
			1.47×10^{-4}	1.34×10^3	2.61×10^4		Nano-stick	
		ABTS	0.08			$C(H_2O_2)$ = 3 mM, pH = 4, C(nanozyme) = N/A		181

		H_2O_2	0.06			C(ABTS) = 1 mM, pH = 4, C(nanozyme) = N/A		
	Mn_3O_4	GSH	1.16	1.3		25 °C, C(GR) = 1.7 U, pH = 7.4, C(nanozyme) = 200 μM		182
		H_2O_2	0.196	0.93				
	MoO_3	TMB	9.3×10^{-2}	30.41		40 °C, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 53.3 μg mL^{-1}	2D MoO_3	183
		H_2O_2	1.095×10^{2}	52.84		40 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 53.3 μg mL^{-1}		
	$NiFe_2O_4$	TMB	0.55	45.7		45 °C, C(H_2O_2) = 12 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		175
		ABTS	0.46	1.748×10^{2}				
		H_2O_2	2.6	1.411×10^{2}		45 °C, C(ABTS) = 0.4 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		
		H_2O_2	3.4×10^{-2}	39.6		25 °C, C(ABTS) = N/A, pH = 4.6, C(nanozyme) = N/A	Modified with dopamine	122
	Nickel oxide	TMB	0.25	26.4		C(H_2O_2) = 2.76 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		184

		H_2O_2	6.25	22.4		C(TMB) = 0.069 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
	NiO	TMB	6.66×10^{-3}	2.67		C(H_2O_2) = 25 mM, pH = 3.8, C(nanozyme) = 0.04 mg mL^{-1}		185
		H_2O_2	0.208×10^{-3}	13.2		C(OPD) = 0.05 mM, pH = 3.8, C(nanozyme) = 0.04 mg mL^{-1}		
		TMB	0.18×10^{-2}			C(H_2O_2) = 3.8 mM, pH = 4, C(nanozyme) = 0.192 mg mL^{-1}		112
		H_2O_2	1.77			C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 0.192 mg mL^{-1}		
	RuO_2	TMB	0.236		5.428×10^3	C(H_2O_2) = 200 mM, pH = 4, C(nanozyme) = 35 pM		186
		H_2O_2	4×10^2		4.4×10^5	C(TMB) = 0.4 mM, pH = 4, C(nanozyme) = 35 pM		
	TiO_2	TMB	0.127	70.2		40 °C, C(H_2O_2) = 1 mM, pH = 3.5, C(nanozyme) = 0.3 cm × 0.3 cm		187

		H_2O_2	5.26	7.6 × 10^3		40 °C, C(TMB) = 0.5 mM, pH = 3.5, C(nanozyme) = 0.3 cm × 0.3 cm		
	V_2O_3	ABTS	6.7 × 10^{-2}			40 °C, C(H_2O_2) = 10 mM, pH = 4, C(nanozyme) = N/A		188
		H_2O_2	0.16			40 °C, C(ABTS) = 0.6 mM, pH = 4, C(nanozyme) = N/A		
	V_2O_5	GSH	1.280 ± 0.0612	(4.655 ± 0.30333) × 10^3		25 °C, C(NADPH) = 0.2 mM, c(GR) = 1.7 U, pH = 7.4, C(nanozyme) = 20 ng mL^{-1}	Nano-wire	189
			3.425 ± 0.1217	(7.78833 ± 0.93) × 10^3			Nano-sheet	
			1.671 ± 0.041	(7.215 ± 0.30137) × 10^3			Nano-flower	
			1.958 ± 0.0633	(10.040 ± 0.67167) × 10^3			Nano-sphere	
		H_2O_2	(4.44 ± 0.17) × 10^{-2}	(3.205 ± 0.110) × 10^3			Nano-wire	
			(5.73 ± 0.38) × 10^{-2}	(3.885 ± 0.27167) × 10^3			Nano-sheet	
			(9.25 ± 0.34) × 10^{-2}	(5.668.33 ± 0.355) × 10^3			Nano-flower	

			0.1437 ± 0.0023	(7.645 ± 0.32667) × 10^3			Nano-sphere	
	VO_2	TMB	0.146	1.310 × 10^3		$C(H_2O_2)$ = 5 mM, pH = 5, C(nanozyme) = 10 μg mL^{-1}	Nanobelts	190
		H_2O_2	1.69	1.770 × 10^3		C(TMB) = 0.1 mM, pH = 5, C(nanozyme) = 10 μg mL^{-1}		
	V_2O_5	Br^{-1}	0.2			RT, $C(H_2O_2)$ = 5 μM, pH = 8.3, C(2-monochlorodimedone) = 50Mm, C(nanozyme) = 20 μg mL^{-1}	V_2O_5 nanowires mimic haloperoxidases	191
		H_2O_2	~0.01			RT, $C(Br^{-1})$ = 1 mM, pH = 8.3, C(2-monochlorodimedone) = 50Mm, C(nanozyme) = 20 μg mL^{-1}		
		H_2O_2	(58.9 ± 82.9) × 10^{-3}			C(luminol) = 8 μM, pH = 11.3,C(nanozyme) = 18.2 μg mL^{-1}		192
		GSH	2.22	1.38 × 10^4		25 °C, C(NADPH) = 0.4 mM, pH = 7.4, C(GR) = 1.7	Glutathione peroxidase	193
		H_2O_2	0.11	7.16 × 10^3				

						unit,C(nanozyme) = 0.02 mg mL^{-1}		
	V_6O_{13}	TMB	0.153	29.9		C(H_2O_2) = 0.6 mM, pH = 4.5, C(nanozyme) = N/A		194
		H_2O_2	1.51	31.2		C(TMB) = 0.3 mM, pH = 4.5, C(nanozyme) = N/A		
	WO_3	H_2O_2	23			C(*o*-dianisidine) = 0.24 mM, pH = 7, C(nanozyme) = 5 mg mL^{-1}		195
	WO_x	ABTS	0.79			37 °C, C(H_2O_2) = 4 mM, pH = 6, C(nanozyme) = 350 μg mL^{-1}		196
		H_2O_2	1.26			37 °C, C(ABTS) = 0.8 mM, pH = 6, C(nanozyme) = 350 μg mL^{-1}		
		H_2O_2	1.44	3.26×10^2		60 °C, C(TMB) = 0.5 mM, pH = 3, C(nanozyme) = 100 μg mL^{-1}		197
	$ZnFe_2O_4$	TMB	0.85	1.331×10^2	4.36×10^{10}	40 °C, C(H_2O_2) = 0.2 M, pH = 4.5, C(nanozyme) = 40 μg mL^{-1}		198

		H_2O_2	1.66	77.4	2.54×10^{10}	40 °C, C(TMB) = 0.32 mM, pH = 4.5, C(nanozyme) = 40 μg mL^{-1}		
	ZrO_2	OPD	62.2			N/A		199
MOF	Co/2Fe-MOF	TMB	0.25	37.8		37 °C, C(H_2O_2) = N/A, pH = 3.5, C(nanozyme) = N/A	Ligand H_3BTC	200
		H_2O_2	4.22	49.1		37 °C, C(TMB) = N/A, pH = 3.5, C(nanozyme) = N/A		
	Cu-MOF	ABTS	1.78	2.80×10^2		37 °C, C(H_2O_2) = 1.5 mM, pH = 7.4, C(nanozyme) = 6 μg mL^{-1}	Ligand 4,4'-bipyridine	201
		H_2O_2	0.37	2.523×10^3		37 °C, C(ABTS) = 1 mM, pH = 7.4, C(nanozyme) = 6 μg mL^{-1}		
	Fe-TCPP	TMB	0.63			RT, C(H_2O_2) = 10 mM, pH = 5.5, C(nanozyme) = 10 μg mL^{-1}		202
		H_2O_2	1.27			RT, C(TMB) = 0.8 mM, pH = 5.5, C(nanozyme) = 10 μg mL^{-1}		

	HKUST-1	Thiamine	4.98	60.2		35 °C, $C(H_2O_2)$ = 10 mM, pH = 11, C(nanozyme) = 50 μg mL^{-1}		203
	MIL-53(Fe)	TMB	0.28	44.8		40 °C, $C(H_2O_2)$ = 0.02 mM, pH = 4, C(nanozyme) = 15 μg mL^{-1}		204
		H_2O_2	0.03	9.6		40 °C, C(TMB) = 0.05 mM, pH = 4, C(nanozyme) = 15 μg mL^{-1}		
	MIL-88(Fe)	TMB	0.83	63.2		$C(H_2O_2)$ = 1.14 mM, pH = 4, C(nanozyme) = 1.9 mg mL^{-1}		205
		H_2O_2	0.12	27.8		C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 1.9 mg mL^{-1}		
	MIL-88NH$_2$(Fe)	TMB	0.284	1.047×10^2		45 °C, $C(H_2O_2)$ = 1 mM, pH = 4, C(nanozyme) = 0.04 mg mL^{-1}		206
		H_2O_2	0.206	70.4		45 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 0.04 mg mL^{-1}		
	MIL-100(Fe)	TMB	0.424	21		$C(H_2O_2)$ = 0.2 mM, pH = 4, C(nanozyme) = 0.2 mg mL^{-1}		207
		H_2O_2	6.4×10^{-2}	14				

		TMB	6.2×10^{-2}	4.50×10^{2}		C(TMB) = 0.2 mM, pH = 4, C(nanozyme) = 0.2 mg mL^{-1}	N,N,N’,N’-tetramethyl-1,4-butanediamine	
		H_2O_2	2.8×10^{-2}	2.33×10^{2}				
	Phthalic acid-Tb-Cu MOF	H_2O_2	2.92	7.78×10^{2}		C(AA) = 2 mM, pH = 5.05, C(nanozyme) = 234.6 μg mL^{-1}		208
	PCN-222	Pyrogallol	0.33		0.268	C(H_2O_2) = 50 mM, pH = 3, C(nanozyme) = 2.5 μM		209
		TMB	1.63		0.233			
		OPD	8.92		0.122			
	Zn-TCPP(Fe)	TMB	0.05	3.472×10^{2}	0.35	C(H_2O_2) = 10 mM, pH = 5, C(nanozyme) = 1 μM		210
		H_2O_2	40.3	1.7622×10^{3}	1.76	C(TMB) = 1 mM, pH = 5, C(nanozyme) = 1 μM		
Sulfide	CdS	TMB	5.4×10^{-3}			C(H_2O_2) = 13 mM, pH = 4, C(nanozyme) = 8 μg mL^{-1}		211
		H_2O_2	6.54			C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 8 μg mL^{-1}		
		TMB	9.5×10^{-3}	35.7		40 °C, C(H_2O_2) = 13 mM, pH = 4, C(nanozyme) = 8 μg mL^{-1}		212

		H_2O_2	3.62	56		40 °C, C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 8 μg mL^{-1}		
		TMB	7.18×10^{-2}	4.369		C(H_2O_2) = 250 mM, pH = 3.8, C(nanozyme) = 34 μg mL^{-1}		213
		H_2O_2	2	1.73		C(TMB) = 0.1 mM, pH = 3.8, C(nanozyme) = 34 μg mL^{-1}		
	CoS	TMB	0.41	58.2		25 °C, C(H_2O_2) = N/A, pH = 3.5, C(nanozyme) = 50 μg mL^{-1}		214
		H_2O_2	7.15	26.5		25 °C, C(TMB) = N/A, pH = 3.5, C(nanozyme) = 50 μg mL^{-1}		
	Co_9S_8	TMB	1.64	9.90×10^{2}		35 °C, C(H_2O_2) = 100 mM, pH = 3, C(nanozyme) = 50 μg mL^{-1}		215
		H_2O_2	7.39	3.50×10^{2}		35 °C, C(TMB) = 0.5 mM, pH = 3, C(nanozyme) = 50 μg mL^{-1}		

	CuS	TMB	6.4×10^{-2}	7.64×10^{2}		C(H_2O_2) = 350 mM ,pH = 4, C(nanozyme) = 40 μg mL^{-1}		216
		H_2O_2	1.753	2.37×10^{2}		C(TMB) = 0.2 mM, pH = 4, C(nanozyme) = 40 μg mL^{-1}		
	$Cu_{1.8}S$	TMB	1.72			RT, C(H_2O_2) = 100 mM, pH = 4.35, C(nanozyme) = N/A		217
		H_2O_2	37.1			RT, C(TMB) = 15 mM, pH = 4.35, C(nanozyme) = N/A		
	CuZnFeS	TMB	2.2	3.90×10^{2}		C(H_2O_2) = 15 mM, pH = 4.2, C(nanozyme) = 32.8 μg mL^{-1}		218
		H_2O_2	7×10^{-2}	5.6		C(TMB) = 15 mM, pH = 4.2, C(nanozyme) = 32.8 μg mL^{-1}		
	FeS	TMB	8.2×10^{-3}	87		C(H_2O_2) = 13 mM, pH = 4, C(nanozyme) = 6.67 μg mL^{-1}		219
		H_2O_2	9.36	19.2		C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 6.67 μg mL^{-1}		
		TMB	8×10^{-3}	1.07×10^{2}		40 °C, C(H_2O_2) = 13 mM, pH = 4.6, C(nanozyme) = 20 μg mL^{-1}		220

		H_2O_2	7.67	2.07×10^{2}		40 °C, C(TMB) = 0.1 M, pH = 4.6, C(nanozyme) = 20 μg mL^{-1}		
		TMB	0.13			C(H_2O_2) = N/A, pH = 7, C(nanozyme) = 20 μg mL^{-1}		221
		H_2O_2	7.2			C(TMB) = N/A, pH = 7, C(nanozyme) = 20 μg mL^{-1}		
	Fe_3S_4	TMB	0.160	11.46		C(H_2O_2) = 1.2 mM, pH = 6.78, C(nanozyme) = N/A		222
		H_2O_2	1.158	21.68		C(TMB) = 0.6 mM, pH = 6.78, C(nanozyme) = N/A		
	Fe_7S_8	TMB	0.548			30 °C, C(H_2O_2) = 10 mM, pH = 4, C(nanozyme) = 32.3 μg mL^{-1}		223
		H_2O_2	0.895			30 °C, C(TMB) = 800 mM, pH = 4, C(nanozyme) = 32.3 μg mL^{-1}		
	MoS_2	TMB	1.16×10^{-2}	42.9		30 °C, C(H_2O_2) = 0.08 mM, pH = 6.9, C(nanozyme) = 1.8 μg mL^{-1}		224

		H_2O_2	0.525	51.6		30 °C, C(TMB) = 1.2 mM, pH = 6.9, C(nanozyme) = 1.8 μg mL^{-1}		
		TMB	4.55	36.2		C(H_2O_2) = 10 mM, pH = 6.78, C(nanozyme) = N/A		225
		H_2O_2	1.9×10^{-2}	2.24		C(TMB) = 0.95 mM, pH = 6.78, C(nanozyme) = N/A		
		TMB	2.04	16			SDS modified	
		H_2O_2	1.3×10^{-2}	1.93				
		TMB	6.92	45.4			CTAB modified	
		H_2O_2	2.2×10^{-2}	2.23				
		TMB	4.7×10^{-2}	1.78×10^{2}		C(H_2O_2) = N/A, pH = 4, C(nanozyme) = 0.1 mg mL^{-1}	PEG modified	226
		H_2O_2	0.108	1.06×10^{2}				
		TMB	8.6×10^{-2}	1.32×10^{2}		C(TMB) = N/A, pH = 4, C(nanozyme) = 0.1 mg mL^{-1}		
		H_2O_2	0.122	1.36×10^{2}				
		TMB	0.232	45.6		25 °C, C(H_2O_2) = 0.1 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}	PVP modified	227
		H_2O_2	3.66	47.6		25 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		

		TMB	0.22	1.37×10^2	5.5×10^3	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 33 μg mL^{-1}	Raw MoS_2	228
		H_2O_2	1.22	1.32×10^2	5.2×10^3	25 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 33 μg mL^{-1}		
		ABTS	0.97	63	2.5×10^3	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 33 μg mL^{-1}		
		H_2O_2	6.74	1.92×10^2	7.7×10^3	25 °C, C(ABTS) = 1 mM, pH = 4, C(nanozyme) = 33 μg mL^{-1}		
		TMB	0.17	1.41×10^2	5.6×10^3	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 33 μg mL^{-1}	Cysteine-MoS_2	
		H_2O_2	1.98	1.52×10^2	6.1×10^3	25 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 33 μg mL^{-1}		
		ABTS	0.15	1.61×10^2	6.4×10^3	25 °C, $C(H_2O_2)$ = 10 mM, pH = 4, C(nanozyme) = 33 μg mL^{-1}		

		H_2O_2	8.06	9.92×10^2	3.97×10^4	25 °C, C(ABTS) = 1 mM, pH = 4, C(nanozyme) = 33 μg mL^{-1}		
		TMB	0.005	1.180×10^3		40 °C, C(H_2O_2) = 1 mM, pH = 4, C(nanozyme) = 0.1 μg mL^{-1}		229
		H_2O_2	0.01	7.30×10^2		40 °C, C(TMB) = 2 mM, pH = 4, C(nanozyme) = 0.1 μg mL^{-1}		
		TMB	0.168	41.6		25 °C, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}	MoS_2 without Hg^{2+}	230
		H_2O_2	0.706	19.2		25 °C, C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
		TMB	9.3×10^{-2}	36.3		25 °C, C(H_2O_2) = 50 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}	MoS_2 with 50 μM Hg^{2+}	
		H_2O_2	0.285	20.3		25 °C, C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		

	VS_2	TMB	0.28	41.6×10^2		RT, C(H_2O_2) = 10 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}		231
		H_2O_2	3.49	5.57×10^2		RT, C(TMB) = 0.5 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}		
	WS_2	TMB	0.467	64.5		40 °C, C(H_2O_2) = 0.12 mM, pH = 4, C(nanozyme) = 3.2 μg mL^{-1}		232
		H_2O_2	0.926	27.5		40 °C, C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 3.2 μg mL^{-1}		
		TMB	1.83	43.1		60 °C, C(H_2O_2) = 0.14 mM, pH = 6.9, C(nanozyme) = 2.6 μg mL^{-1}		233
		H_2O_2	0.24	45.2		60 °C, C(TMB) = 1.2 mM, pH = 6.9, C(nanozyme) = 2.6 μg mL^{-1}		
	ZnS	TMB	5.486×10^{-2}	0.48		25 °C, C(H_2O_2) = 250 mM, pH = 3.8, C(nanozyme) = 40 μg mL^{-1}		234

		H_2O_2	0.1724	1.005×10^{2}		25 °C, C(TMB) = 1 mM, pH = 3.8, C(nanozyme) = 40 μg mL^{-1}		
Others	AgI	TMB	2.38×10^{-2}			C(H_2O_2) = 10 mM ,pH = 4, C(nanozyme) = 51 μg mL^{-1}		235
		H_2O_2	2.86			C(TMB) = 0.6 mM, pH = 4, C(nanozyme) = 51 μg mL^{-1}		
	$Ag_2Mo_3O_{10}$	TMB	4.67×10^{-2}			RT, C(H_2O_2) = N/A, pH = 4.8, C(nanozyme) = N/A		236
		H_2O_2	5.2			RT, C(TMB) = N/A, pH = 4.8, C(nanozyme) = N/A		
	Ag_3PO_4	TMB	0.327	20.1		25 °C, C(H_2O_2) = 5 mM, pH = 4, C(nanozyme) = 2 mg mL^{-1}		237
	$AgVO_3$	TMB	8.03			RT, C(H_2O_2) = 8 mM, pH = 5, C(nanozyme) = 300 μg mL^{-1}	Nanobelts	238
		H_2O_2	14			RT, C(TMB) = 5 mM, pH = 5, C(nanozyme) = 300 μg mL^{-1}		

		TMB	0.333			RT, C(H_2O_2) = N/A, pH = 4, C(nanozyme) = 20 μg mL^{-1}	α-$AgVO_3$	239
		H_2O_2	1.3			RT, C(TMB) = N/A, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
		TMB	4.118×10^{-2}	3.797×10^{6}		45 °C, C(H_2O_2) = 8 mM, pH = 4, C(nanozyme) = 4.5 μg mL^{-1}	β-$AgVO_3$ nanorod	240
		H_2O_2	5.291	5.309×10^{6}		45 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 4.5 μg mL^{-1}		
	BN	TMB	0.157 ± 0.043	$(1.854 \pm 0.141) \times 10^{-2}$	$(5.98 \pm 0.45) \times 10^{4}$	45 °C, C(H_2O_2) = 100 mM, pH = 4, C(nanozyme) = 250 μg mL^{-1}		241
		H_2O_2	10.88 ± 1.96	$(1.069 \pm 0.118) \times 10^{2}$	$(3.45 \pm 0.38) \times 10^{4}$	45 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 250 μg mL^{-1}		
	BiOBr	TMB	1.610	26.3		C(H_2O_2) = 0.2 mM, pH = 4, C(nanozyme) = 38 μg mL^{-1}		242
		H_2O_2	4.6×10^{-2}	3.7		C(TMB) = 0.79 mM, pH = 4, C(nanozyme) = 38 μg mL^{-1}		

		AR	6.23×10^{-3}	8.45×10^{-3}		$C(H_2O_2)$ = 100 μM, pH = 7, C(nanozyme) = 2 μg mL^{-1}		243
		H_2O_2	4.08×10^{-4}	2.49×10^{-3}		C(AR) = 5 μM, pH = 7, C(nanozyme) = 2 μg mL^{-1}		
	BiOCl	AR	5.88×10^{-3}	6.66×10^{-3}		$C(H_2O_2)$ = 100 μM, pH = 7, C(nanozyme) = 2 μg mL^{-1}		
		H_2O_2	5.83×10^{-4}	2.46×10^{-3}		C(AR) = 5 μM, pH = 7, C(nanozyme) = 2 μg mL^{-1}		
	BiOI	AR	3.13×10^{-2}	61		$C(H_2O_2)$ = 100 μM, pH = 7, C(nanozyme) = 2 μg mL^{-1}		
		H_2O_2	3.29×10^{-2}	27.6		C(AR) = 5 μM, pH = 7, C(nanozyme) = 2 μg mL^{-1}		
		TMB	1.024	28.6		RT, $C(H_2O_2)$ = 10 mM, pH = 6, C(nanozyme) = 100 μg mL^{-1}		244
		H_2O_2	9.98×10^{-2}	73.5		RT, C(TMB) = 0.8 mM, pH = 6, C(nanozyme) = 100 μg mL^{-1}		
	$CeVO_4$	TMB	0.136	61.7		$C(H_2O_2)$ = 20 mM, pH = 3.5, C(nanozyme) = 20ng mL^{-1}		245

		H_2O_2	3.52	67.6		C(TMB) = 0.15 mM, pH = 3.5, C(nanozyme) = 20ng mL^{-1}		
	Co_4N	TMB	0.243			25 °C, C(H_2O_2) = 30 mM, pH = 4, C(nanozyme) = 14.1 μg mL^{-1}		246
		H_2O_2	2.95			25 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 14.1 μg mL^{-1}		
	CoOOH	TMB	2.02	4.74×10^9		40 °C, C(H_2O_2) = 0.15 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		247
		H_2O_2	3.7	8.71×10^9		40 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
	CoP	TMB	0.54			pH = 4, C(H_2O_2) = N/A, C(nanozyme) = a piece of 5 mm × 5 mm		248
		H_2O_2	4.9			pH = 4, C(TMB) = N/A, C(nanozyme) = a piece of 5 mm × 5 mm		

	Copper metal-organic polyhedra nanorods	ABTS	2.6×10^{-3}	9.782×10^{3}		45 °C, C(H_2O_2) = 10 mM, pH = 7, C(nanozyme) = 179 μg mL^{-1}		249
		H_2O_2	9.6×10^{-4}	5.477×10^{2}		45 °C, C(ABTS) = 0.5 mM, pH = 7, C(nanozyme) = 179 μg mL^{-1}		
	CoSe	H_2O_2	7.22×10^{-2}			40 °C, C(TOPS) = 0.2 mM, C(4-AAP) = 1 mM, pH = 8.5, C(nanozyme) = 0.05 mg mL^{-1}		250
	CulnS2	H_2O_2	2.01	97.8	58.7	45 °C, C(TMB) = 0.64 mM, pH = 3.5, C(nanozyme) = N/A		251
	$Cu_3(PO_4)_2$	H_2O_2	35.18	33.9		37 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		252
	$Cu_{2-x}Se$	TMB	12.6			C(H_2O_2) = 0.1 M, pH = 4.56, C(nanozyme) = 467 μg mL^{-1}		253
		H_2O_2	0.58			C(TMB) = 0.5 mM, pH = 4.56, C(nanozyme) = 467 μg mL^{-1}		

	Folate–Fe_2SiW_{10}	H_2O_2	1.4×10^{-2}	1.424×10^{2}		25 °C, C(TMB) = 0.08 mM, pH = 4, C(nanozyme) = 0.2 mg mL^{-1}	Folate and iron-substituted polyoxometalate	254
	$Fe_2(MoO_4)_3$	TMB	1.126	37.3		25 °C, C(H_2O_2) = 10 mM, pH = 4, C(nanozyme) = 300 μg mL^{-1}		255
		H_2O_2	0.105	75.1		25 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 300 μg mL^{-1}		
	$Fe_3H_9(PO_4)_6$ $6H_2O$	TMB	8.63			80 °C, C(H_2O_2) = 0.478 mM, pH = 3, C(nanozyme) = 25 μg mL^{-1}		256
		H_2O_2	0.41			80 °C, C(TMB) = 1 mM, pH = 3, C(nanozyme) = 25 μg mL^{-1}		
	FeP	TMB	$(6.53 \pm 0.2) \times 10^{-2}$	9.54 ± 0.862		RT, C(H_2O_2) = 5 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		257
		H_2O_2	2.907 ± 0.168	6.97 ± 0.0395		RT, C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		

	$Fe_3(PO_4)_2$ 8H_2O	TMB	0.36	1.58 × 10^2		55 °C, C(H_2O_2) = 0.6 mM, pH = 3.6, C(nanozyme) = 20 μg mL^{-1}		258
		H_2O_2	0.11	5.58 × 10^2		55 °C, C(TMB) = 0.8 mM, pH = 3.6, C(nanozyme) = 20 μg mL^{-1}		
	$Fe_3(PO_4)_2(OH)_2$	TMB	5.5 × 10^{-2}	59.6		60 °C, C(H_2O_2) = N/A, pH = 4, C(nanozyme) = 200 μg mL^{-1}		259
		H_2O_2	0.47	1.688 × 10^2		60 °C, C(TMB) = 2 mM, pH = 4, C(nanozyme) = 200 μg mL^{-1}		
	FeSe	TMB	8.9 × 10^{-3}	42.2		C(H_2O_2) = 13 mM, pH = 4, C(nanozyme) = 6.67 μg mL^{-1}		219
		H_2O_2	8.09	65.1		C(TMB) = 0.1 mM, pH = 3.6, C(nanozyme) = 6.67 μg mL^{-1}		
		TMB	4 × 10^{-2}	89		30 °C, C(H_2O_2) = 13 mM, pH = 4, C(nanozyme) = 0.5 cm × 1 cm	Film	260

		H_2O_2	13.2	1.54×10^2		30 °C, C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 0.5 cm × 1 cm		
	$FeWO_4$	TMB	1.18	11.48		40 °C, C(H_2O_2) = 4,76 mM, pH = 3, C(nanozyme) = 38 μg mL^{-1}		261
		H_2O_2	0.59	2.18		40 °C, C(TMB) = 0.198 mM, pH = 3, C(nanozyme) = 38 μg mL^{-1}		
	Ferrihydrite	Methylene blue	46.67 mg L^{-1}	1.17 mg min^{-1}	3.9×10^{-3}	C(H_2O_2) = 0.45 M, pH = 8 ± 0.2, C(nanozyme) = 5 mg mL^{-1}		262
	Hematite		36.82 mg L^{-1}	1.36 mg min^{-1}	4.55×10^{-3}			
	Indium tin oxide	TMB	0.26			28 °C, C(H_2O_2) = 9.09 mM, pH = 3, C(nanozyme) = 0.5 mg mL^{-1}		263
		H_2O_2	5.47			28 °C, C(TMB) = 0.99 mM, pH = 3, C(nanozyme) = 0.5 mg mL^{-1}		
	$KFePW_{12}O_{40}$	TMB	0.346	3.7		RT, C(H_2O_2) = 580 mM, pH = 4.5, C(nanozyme) = 75 μg mL^{-1}		264

		H_2O_2	1.65×10^{-2}	6.9		RT, C(TMB) = N/A, pH = 4.5, C(nanozyme) = 75 μg mL^{-1}		
	Metal-hexacyanoferrates	*o*-Dianisidine	9×10^{-2}	5.27×10^{2}		pH = 7, C(H_2O_2) = N/A, C(nanozyme) = 15 μL mL^{-1}	Fe	265
		H_2O_2	9.038	8.40×10^{2}		pH = 7, C(*o*-dianisidine) = N/A, C(nanozyme) = 15 μL mL^{-1}		
		o-Dianisidine	8.3×10^{-2}	5.78×10^{2}		pH = 7, C(H_2O_2) = N/A, C(nanozyme) = 15 μL mL^{-1}	Mn	
		H_2O_2	5.640	8.69×10^{2}		pH = 7, C(*o*-dianisidine) = N/A, C(nanozyme) = 15 μL mL^{-1}		
		o-Ddianisidine	7.2×10^{-2}	6×10^{2}		pH = 7, C(H_2O_2) = N/A, C(nanozyme) = 15 μL mL^{-1}	Ni	
		H_2O_2	3.069	8.84×10^{2}		pH = 7, C(*o*-dianisidine) = N/A, C(nanozyme) = 15 μL mL^{-1}		
		o-Ddianisidine	6.1×10^{-2}	6.44×10^{2}		pH = 7, C(H_2O_2) = N/A, C(nanozyme) = 15 μL mL^{-1}	Cu	

		H_2O_2	1.733	9.20×10^{2}		pH = 7, C(*o*-dianisidine) = N/A, C(nanozyme) = 15 μL mL^{-1}		
	β-MnOOH	TMB	2.182			RT, C(H_2O_2) = N/A, pH = 5, C(nanozyme) = 0.2 mg mL^{-1}		266
	MnSe	TMB	3.48×10^{-2}			C(H_2O_2) = 200 mM, pH = 5, C(nanozyme) = 0.4 mg mL^{-1}	α-MnSe	267
		H_2O_2	87			C(TMB) = 0.5 mM, pH = 5, C(nanozyme) = 0.4 mg mL^{-1}		
		TMB	0.786 ± 0.002	17.0 ± 0.20 (unit 10^{-1} s^{-1})		RT, C(H_2O_2) = 4.26 mM, pH = 3, C(nanozyme) = 4.68 mg mL^{-1}		268
		H_2O_2	$(6.97 \pm 0.03) \times 10^{-2}$	9.1 ± 0.15 (unit 10^{-1} s^{-1})		RT, C(TMB) = 0.68 mM, pH = 3, C(nanozyme) = 4.68 mg mL^{-1}		
	$MoSe_2$	TMB	0.2168	13		C(H_2O_2) = 10 mM, pH = 4, C(nanozyme) = 25 μg mL^{-1}		269
		H_2O_2	2.53	3.52×10^{2}		C(TMB) = 1 mM, pH = 4, C(nanozyme) = 25 μg mL^{-1}		

		TMB	1.4×10^{-2}	5.6		RT, C(H_2O_2) = 100 mM, pH = 3.5, C(nanozyme) = 7.5 mg mL^{-1}		270
		H_2O_2	0.155	9.9		RT, C(TMB) = 10 mM, pH = 3.5, C(nanozyme) = 7.5 mg mL^{-1}		
	$NaYF_4$:Yb, Er	TMB	$(2.8 \pm 0.084) \times 10^{-2}$	31.3 ± 0.626		40 °C, C(H_2O_2) = 50 mM, pH = 3.5, C(nanozyme) = 20 mg mL^{-1}		271
		H_2O_2	26.7 ± 0.543	76.9 ± 1.19		40 °C, C(TMB) = 5 mM, pH = 3.5, C(nanozyme) = 20 mg mL^{-1}		
	PB	TMB	0.76 ± 0.21			C(H_2O_2) = 1 M, pH = 3.5, C(nanozyme) = 6.7 pM		272
		H_2O_2	$(8.40 \pm 1.60) \times 10^{2}$			C(TMB) = 500 μM, pH = 3.5, C(nanozyme) = 6.7 pM		
		ABTS	1.5745×10^{-2}			50 °C, C(H_2O_2) = 5 μM, pH = 3.6, C(nanozyme) = 0.2 μg mL^{-1}		273
		H_2O_2	2.8×10^{-2}			50 °C, C(TMB) = 4 mM, pH = 3.6, C(nanozyme) = 0.2 μg mL^{-1}		

		TMB	1.594			25 °C, C(H_2O_2) = 41.43 mM, pH = 3.6, C(nanozyme) = 5 mg mL^{-1}		274
		H_2O_2	11.984			25 °C, C(TMB) = 1.65138 mM, pH = 3.6, C(nanozyme) = 5 mg mL^{-1}		
		ABTS	2.07			25 °C, C(H_2O_2) = 2.07 mM, pH = 3.6, C(nanozyme) = 5 mg mL^{-1}		
		H_2O_2	0.536			25 °C, C(ABTS) = 0.72324 mM, pH = 3.6, C(nanozyme) = 5 mg mL^{-1}		
		TMB	0.337	2.16×10^2	1.16×10^5	RT, C(H_2O_2) = 1.2%, pH = 3.6, C(nanozyme) = 6 μg mL^{-1}		275
		H_2O_2	14.7	1.15×10^2	5.87×10^4	RT, C(TMB) = 1.2 mg mL^{-1}, pH = 3.6, C(nanozyme) = 6 μg mL^{-1}		
		ABTS	1.08	3.14×10^2	1.69×10^5	RT, C(H_2O_2) = 1.2%, pH = 3.6, C(nanozyme) = 6 μg mL^{-1}		

		H_2O_2	17.1	2.97×10^2	1.49×10^5	RT, C(ABTS) = 1.2 mg mL^{-1}, pH = 3.6, C(nanozyme) = 6 μg mL^{-1}		
		TMB	0.91	27	2.30×10^2	C(H_2O_2) = 0.98 mM, pH = 4, C(nanozyme) = 0.01 mg mL^{-1}		276
		H_2O_2	7.82	24	2.10×10^2	C(TMB) = 140 μM, pH = 4, C(nanozyme) = 0.01 mg mL^{-1}		
		H_2O_2	9.04	8.40×10^2		25 °C, C(*o*-dianisidine) = 5 mM, pH = 7, C(nanozyme) = N/A		277
		H_2O_2	0.49	6.03×10^2		25 °C, C(*o*-dianisidine) = 5 mM, pH = 7, C(nanozyme) = 15 μL mL^{-1}		278
	Si	TMB	0.434	100		C(H_2O_2) = 20 mM, pH = 4, C(nanozyme) = N/A		279
		H_2O_2	3.702	87.1		C(TMB) = 0.32 mM, pH = 4, C(nanozyme) = N/A		
	$Tb_2(MoO_4)_3$	TMB	0.911	10.1		25 °C, C(H_2O_2) = 6.6 mM, pH = 4, C(nanozyme) = 5 mg mL^{-1}		280

		H_2O_2	3.5×10^{-2}	26.8		25 °C, C(TMB) = 1.3 mM, pH = 4, C(nanozyme) = 5 mg mL^{-1}		
	WC	TMB	0.274	68.1		C(H_2O_2) = 0.4 M, pH = 4, C(nanozyme) = 20 μg mL^{-1}		281
		H_2O_2	1.196×10^{2}	71.6		C(TMB) = 0.6 M, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
	WSe_2	TMB	4.33×10^{-2}	14.3		25 °C, C(H_2O_2) = 0.1 M, pH = 3.5, C(nanozyme) = 100 μg mL^{-1}		282
		H_2O_2	19.53	22.2		25 °C, C(TMB) = 1 mM, pH = 3.5, C(nanozyme) = 100 μg mL^{-1}		
Composite	AgAu/AgCl	AR	1.7×10^{-2}	4.6	46	C(H_2O_2) = 0.05 mM, pH = 7.4, C(nanozyme) = 1 nM		283
		H_2O_2	8.1×10^{-3}	0.67	63.7	C(AR) = 2.5 μM, pH = 7.4, C(nanozyme) = 1 nM		
	Ag@Fe_3O_4	TMB	3.46			C(H_2O_2) = 0.1 mM, pH = 5, C(nanozyme) = 4.48 nM		284
		H_2O_2	75.2	22.8	4.72	C(TMB) = 0.3 mM, pH = 5, C(nanozyme) = 4.48 nM		

	Ag@gelation matrix	TMB	0.44	31.2		$C(H_2O_2)$ = 0.6 M, pH = 4, C(nanozyme) = N/A		285
			0.254	42.1			With Hg^{2+}	
		H_2O_2	49.4	33.1		C(TMB) = 25 μM, pH = 4, C(nanozyme) = N/A		
			18.3	45.2			With Hg^{2+}	
	Ag_2S-montmorillonites	TMB	$(4.12 \pm 0.3) \times 10^{-3}$	52.7 ± 0.08		$C(H_2O_2)$ = 10 mM, pH = 3.8, C(nanozyme) = 10 μg mL^{-1}		286
		H_2O_2	1.874 ± 0.035	22.86 ± 0.48		C(TMB) = 0.1 mM, pH = 3.8, C(nanozyme) = 10 μg mL^{-1}		
	$Ag-WS_2$	TMB	0.112 ± 0.009	17.7 ± 0.5		$C(H_2O_2)$ = 2 mM, pH = N/A, C(nanozyme) = 88 μg mL^{-1}		287
		H_2O_2	$(2.6 \pm 0.8) \times 10^{-2}$	13.2 ± 0.9		C(TMB) = 5 mM, pH = N/A, C(nanozyme) = 88 μg mL^{-1}		
		TMB	0.294	16.93		$C(H_2O_2)$ = 0.2 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}	WS_2/AgNC (3%)	288
		H_2O_2	0.118	15.88		C(TMB) = 0.8 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}		

		TMB	0.211	17.82		$C(H_2O_2)$ = 0.2 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}	WS_2/AgNC (8%)	
		H_2O_2	8.8×10^{-2}	16.24		C(TMB) = 0.8 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}		
		TMB	0.143	18.61		$C(H_2O_2)$ = 0.2 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}	WS_2/AgNC (12%)	
		H_2O_2	5.4×10^{-2}	16.39		C(TMB) = 0.8 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}		
		TMB	0.104	19.49		$C(H_2O_2)$ = 0.2 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}	WS_2/AgNC (15%)	
		H_2O_2	1.6×10^{-2}	16.44		C(TMB) = 0.8 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}		
		TMB	0.193	15.54		$C(H_2O_2)$ = 0.2 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}	WS_2/AgNC (20%)	

		H_2O_2	7.3×10^{-2}	16.08		C(TMB) = 0.8 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}		
		TMB	0.328	14.37		C(H_2O_2) = 0.2 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}	WS_2/AgNC (25%)	
		H_2O_2	0.169	14.38		C(TMB) = 0.8 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}		
		TMB	0.112	17.73		C(H_2O_2) = 0.2 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}	WS_2 & AgNC	
		H_2O_2	2.6×10^{-2}	13.15		C(TMB) = 0.8 mM, pH = N/A, C(nanozyme) = 40 μg mL^{-1}		
	Au@Ag-hemin-rGO	TMB	4.8×10^{-2}	2.807×10^{2}		C(H_2O_2) = 60 μM, pH = 4.1, C(nanozyme) = 0.25 μg mL^{-1}		289
		H_2O_2	2.75	1.53×10^{2}		C(TMB) = 60 μM, pH = 4.1, C(nanozyme) = 0.25 μg mL^{-1}		
	Au/$AgNO_3$	ABTS	4.40×10^{2}	7.34×10^{2}		25 °C, C(H_2O_2) = 3 mM, pH = 7, C(nanozyme) = N/A		290

		H_2O_2	1.9	8.20×10^{2}		25 °C, C(ABTS) = 9 mM, pH = 7, C(nanozyme) = N/A		
	Au-BiOCl	AR	6.48×10^{-3}	1.15×10^{-3}	0.461	C(H_2O_2) = 0.5 mM, pH = 7, C(nanozyme) = N/A		291
		H_2O_2	3.9×10^{6}	7.8×10^{-4}	0.156	C(AR) = 10 µM, pH = 7, C(nanozyme) = N/A		
	Au@carbon	TMB	3.23×10^{-2}	86.3		25 °C, C(H_2O_2) = 214.6 mM, pH = 4.5, C(nanozyme) = 50 µg mL^{-1}		292
		H_2O_2	2.10×10^{2}	3.30×10^{2}		25 °C, C(TMB) = 0.146 mM, pH = 4.5, C(nanozyme) = 50 µg mL^{-1}		
	Au@carbon dots	TMB	5.87×10^{2}	18.6		40 °C, C(H_2O_2) = 250 mM, pH = 3.8, C(nanozyme) = 1.5 mg mL^{-1}		293
	$Au@CeO_2$	TMB	0.29	39		37 °C, C(H_2O_2) = 2 M, pH = 4, C(nanozyme) = 40 µg mL^{-1}		294
		H_2O_2	44.69	22.3		37 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 40 µg mL^{-1}		

	$Au@Cu_xO_s$	TMB	0.265	2.387×10^{2}		37 °C, $C(H_2O_2)$ = 25 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		295
		H_2O_2	0.159	96.6		37 °C, C(TMB) = 25 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
	Au@DNA hydrogel	H_2O_2	5.6×10^{-3}	9.20×10^{2}	1.15	C(ABTS) = 2 mM, pH = N/A C(nanozyme) = N/A		296
	$Au\text{-}Fe_2O_3$	TMB	4.29×10^{-2}	58.82		RT, $C(H_2O_2)$ = 700 mM, pH = 3.5, C(nanozyme) = 5.68 μg mL^{-1}		297
		H_2O_2	1.385×10^{2}	47.70		RT, C(TMB) = 0.8 mM, pH = 3.5, C(nanozyme) = 5.68 μg mL^{-1}		
	$Au\text{-}Fe_3O_4$	H_2O_2	4.27	28.9		30 °C, C(TMB) = 0.5 mg mL^{-1}, pH = 4, C(nanozyme) = 50 μg mL^{-1}		298
	$Au\text{-}g\text{-}C_3N_4$	TMB	0.295 ± 0.0009	$(8.6 \pm 0.16) \times 10^{2}$		37 °C, $C(H_2O_2)$ = 50 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		299

		H_2O_2	0.222 ± 0.0067	(1.508 ± 0.0495) × 10^4		37 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
	Au@graphene	TMB	0.29	56 ± 7		25 °C, C(H_2O_2) = 50.4 mM, pH = 4, C(nanozyme) = 8 μg mL^{-1}		300
		H_2O_2	2.7422 × 10^2	(2.56 ± 0.58) × 10^2		25 °C, C(TMB) = 0.28 mM, pH = 4, C(nanozyme) = 8 μg mL^{-1}		
		TMB	0.14	71 ± 1		25 °C, C(H_2O_2) = 63 mM, pH = 4, C(nanozyme) = 5 μg mL^{-1}		301
		H_2O_2	1.4052 × 10^2	(1.73 ± 0.1) × 10^2		25 °C, C(TMB) = 0.75 mM, pH = 4, C(nanozyme) = 5 μg mL^{-1}		
		TMB	5.9 × 10^{-2}	1.493 × 10^2		40 °C, C(H_2O_2) = 100 mM, pH = 3.8, C(nanozyme) = 0.5 μg mL^{-1}		302
		H_2O_2	25.08	2.146 × 10^2		40 °C, C(TMB) = 0.2 mM, pH = 3.8, C(nanozyme) = 0.5 μg mL^{-1}		
	Au-GO	TMB	4.92	46.43		N/A		303

		TMB	0.16		1.968 × 10^2	$C(H_2O_2)$ = 50 mM, pH = 7, C(GO) = 50 μg mL^{-1}, C(Au) = 1 nM		304
		H_2O_2	1.4239 × 10^2		6.0761 × 10^2	C(TMB) = 0.8 mM, pH = 7, C(GO) = 50 μg mL^{-1}, C(Au) = 1 nM		
	Au-melamine cyanurate	ABTS	0.499	9.75 × 10^3		37 °C, $C(H_2O_2)$ = 1 mM, pH = 6.5, C(nanozyme) = N/A		305
		H_2O_2	20.3	8.31 × 10^4		37 °C, C(ABTS) = 1 mM, pH = 6.5, C(nanozyme) = N/A		
	AuNPs@MoS_2-QDs	TMB	6 × 10^{-2}	10.6 × 10^3		40 °C, $C(H_2O_2)$ = 1 mM, pH = 4, C(nanozyme) = 0.2 μg mL^{-1}		306
		H_2O_2	5	14.2 × 10^3		40 °C, C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 0.2 μg mL^{-1}		
	Au-hemin coupled protein scaffolds	TMB	0.518	24.6		$C(H_2O_2)$ = 4.5 mM, pH = 4.5, C(nanozyme) = 2 μg mL^{-1}		307

		H_2O_2	0.842	14.02		C(TMB) = 0.69 mM, pH = 4.5, C(nanozyme) = 2 μg mL^{-1}		
	Au-Pt/SiO2	H_2O_2	1.5×10^{-2}			C(TMB) = 0.6 mM, pH = 5.5, C(nanozyme) = N/A		308
	$Au@SiO_2$	TMB	$(4.11 \pm 0.1) \times 10^{-2}$	$(1.266 \pm 0.036) \times 10^{2}$		35 °C, $C(H_2O_2)$ = 50 mM, pH = 4, C(nanozyme) = 100 μg mL^{-1}		309
		H_2O_2	15.81 ± 0.76	$(1.73 \pm 0.088) \times 10^{2}$		35 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 100 μg mL^{-1}		
		H_2O_2	$(1.192 \pm 224) \times 10^{2}$	52.58 ± 0.207		35 °C, C(TMB/ABTS) = 1 mM, pH = 4, C(nanozyme) = 41.2 nM		310
		TMB	7.6×10^{-2}	14		30 °C, $C(H_2O_2)$ = 200 mM, pH = 3, C(nanozyme) = 100 μg mL^{-1}	Au TEM diameter 1.5 nm	311
			0.124	58			Au TEM diameter 3 nm	
	Au-SWNTs	TMB	0.48	1.42×10^{2}		RT, $C(H_2O_2)$ = 30 mM, pH = 7, C(nanozyme) = N/A		312
		H_2O_2	0.65	58		RT, C(TMB) = 0.3 mM, pH = 7, C(nanozyme) = N/A		

	Au@TiO_2	TMB	1.09	7.7		45 °C, C(H_2O_2) = 4 mM, pH = 7.4, C(nanozyme) = 5 μg mL^{-1}		313
		H_2O_2	0.29	4.6		45 °C, C(TMB) = 2 mM, pH = 7.4, C(nanozyme) = 5 μg mL^{-1}		
	BN-CuS	TMB	0.175	37.6		35 °C, C(H_2O_2) = 100 mM, pH = 3, C(nanozyme) = 30 μg mL^{-1}		314
		H_2O_2	25	1.25×10^{2}		35 °C, C(TMB) = 0.6 mM, pH = 3, C(nanozyme) = 30 μg mL^{-1}		
	BSA-Bi/Pt NPs	TMB	5.4×10^{-2}			37 °C, C(H_2O_2) = 500 mM, pH = 5, C(nanozyme) = 238 μg mL^{-1}		315
		H_2O_2	13.24			37 °C, C(TMB) = 0.8 mM, pH = 5, C(nanozyme) = 238 μg mL^{-1}		
	Carbon dots/Fe_3O_4	TMB	6×10^{-2}	42.34		C(H_2O_2) = 10 mM, pH = 5, C(nanozyme) = 20 μg mL^{-1}		316
		H_2O_2	56.97	57.44		C(TMB) = 0.1 mM, pH = 5, C(nanozyme) = 20 μg mL^{-1}		

		H_2O_2	3.5	1.4×10^{2}		C(TMB) = 0.83 mM, pH = 4, C(nanozyme) = 15 μg mL^{-1}		317
	Carbon dot/NiAl-layered double hydroxide	TMB	0.34	55.2		30 °C, $C(H_2O_2)$ = 20 mM, pH = 3, C(nanozyme) = 25 μL mL^{-1}		318
		H_2O_2	4.72	78.9		30 °C, C(TMB) = 0.8 mM, pH = 3, C(nanozyme) = 25 μL mL^{-1}		
	Carbon dots/Pt	TMB	6.3×10^{-2}	2.02×10^{2}		$C(H_2O_2)$ = 50 mM, pH = 4, C(nanozyme) = 45 μg mL^{-1}		319
	CdS/SiO_2	TMB	8.5×10^{-2}			RT, $C(H_2O_2)$ = N/A, pH = 4, C(nanozyme) = 2 mg mL^{-1}		320
		H_2O_2	1.6×10^{-2}			RT, C(TMB) = N/A, pH = 4, C(nanozyme) = 2 mg mL^{-1}		
	CeO_2/Co_3O_4/poly(3,4-ethylenedioxythiophene)	TMB	1.26×10^{-3}			$C(H_2O_2)$ = 5 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		321
		H_2O_2	0.12			C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
	CeO_2-montmorillonite	TMB	1.05×10^{-2}	10.09		RT, $C(H_2O_2)$ = 250 mM, pH = 3.8, C(nanozyme) = 0.3 mg mL^{-1}		322

		H_2O_2	3.399	10.31		RT, C(TMB) = 1 mM, pH = 3.8, C(nanozyme) = 0.3 mg mL^{-1}		
	CeO_2-NiO	TMB	8.32×10^{-2}	1.84×10^{2}		C(H_2O_2) = 100 mM, pH = 4.5, C(nanozyme) = 100 μg mL^{-1}		323
		H_2O_2	56.2	1.72×10^{2}		C(TMB) = 0.5 mM, pH = 4.5, C(nanozyme) = 100 μg mL^{-1}		
	Co doped magnetite/graphene nanocomposite	TMB	7.3×10^{-2}	16.6		C(H_2O_2) = N/A pH = 5, C(nanozyme) = 20 μg mL^{-1}		324
		H_2O_2	7×10^{-3}	8.2		C(TMB) = N/A pH = 5, C(nanozyme) = 20 μg mL^{-1}		
	$CoFe_2O_4$-rGO	TMB	$(4.6 \pm 0.1) \times 10^{-2}$	11.21 ± 0.07		30 °C, C(H_2O_2) = 20 mM, pH = 4, C(nanozyme) = 4 μg mL^{-1}		325
		H_2O_2	14.72 ± 2.332	$(2.171 \pm 0.3445) \times 10^{2}$		30 °C, C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 4 μg mL^{-1}		
	CoO_xH-GO	AR	4.87×10^{-3}	0.839		45 °C, C(H_2O_2) = 100 mM, pH = 3, C(nanozyme) = 122 μg mL^{-1}		326

		H_2O_2	3.070	2.26		45 °C, C(TMB) = 8 mM, pH = 3, C(nanozyme) = 122 μg mL^{-1}		
	Co_3O_4-carbon nitride nanotube	TMB	5.6×10^{-2}	2.32×10^{2}		RT, C(H_2O_2) = 100 mM, pH = 4.5, C(nanozyme) = 2 μg mL^{-1}		327
		H_2O_2	30.04	2.55×10^{2}		RT, C(TMB) = 0.3 mM, pH = 4.5, C(nanozyme) = 2 μg mL^{-1}		
	Co_3O_4@CeO_2	TMB	0.140	4.14×10^{2}		C(H_2O_2) = 100 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}		328
		H_2O_2	7.09	4.33×10^{2}		C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 50 μg mL^{-1}		
	Co_3O_4-rGO	TMB	0.19 ± 0.014	$(1.071 \pm 0.036) \times 10^{2}$		30 °C, C(H_2O_2) = 100 mM, pH = 4, C(nanozyme) = 5 mg mL^{-1}		329
		H_2O_2	24.04 ± 2.33	$(1.019 \pm 0.144) \times 10^{2}$		30 °C, C(TMB) = 0.8 mM, pH = 3.5, C(nanozyme) = 5 mg mL^{-1}		
	Co_3O_4-montmorillonite	TMB	2.163×10^{-3}	17.4948		40 °C, C(H_2O_2) = 250 mM, pH = 4, C(nanozyme) = 0.3 mg mL^{-1}		330

		H_2O_2	20.494	34.2349		40 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 0.3 mg mL^{-1}		
	Co_3O_4-NiO	TMB	8.17			C(H_2O_2) = N/A, pH = 4, C(nanozyme) = 20 μg mL^{-1}		331
		H_2O_2	3.6×10^{-2}			C(TMB) = N/A, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
	Coppix@C_3N_4	Pyrogallol	0.61		2.34	C(H_2O_2) = 40 mM, C(nanozyme) = 5 μM		332
	$CoSe_2$/ rGO	TMB	0.705	34		35 °C, C(H_2O_2) = 20 mM, pH = 4.5, C(nanozyme) = 250 μg mL^{-1}		333
		H_2O_2	3.54×10^{-2}	12.5		35 °C, C(TMB) = 0.2 mM, pH = 4.5, C(nanozyme) = 250 μg mL^{-1}		
	Cu/Ag-rGO	TMB	0.6340	42.553		C(H_2O_2) = 50 mM, pH = 3.8, C(nanozyme) = N/A		334
		H_2O_2	8.6245	70.175		C(TMB) = 0.5 mM, pH = 3.8, C(nanozyme) = N/A		
	Cu(HBTC) -1/Fe_3O_4-AuNPs	TMB	0.22	1.505×10^3		RT, C(H_2O_2) = N/A, pH = 4, C(nanozyme) = 600 μg mL^{-1}		335

		H_2O_2	3×10^{-2}	1.213×10^{3}		RT, C(TMB) = N/A, pH = 4, C(nanozyme) = 600 μg mL^{-1}		
	Cu-hemin MOFs	TMB	1.42	2.622×10^{2}		50 °C, C(H_2O_2) = 0.4 mM, pH = 6, C(nanozyme) = 200 μg mL^{-1}		336
		H_2O_2	2.18	1.16×10^{3}		50 °C, C(TMB) = 0.5 mM, pH = 6, C(nanozyme) = 200 μg mL^{-1}		
	CuNPs@C	TMB	1.65	1.205×10^{2}		C(H_2O_2) = 8 mM, pH = 4, C(nanozyme) = 100 μg mL^{-1}		337
		H_2O_2	1.89	53		C(TMB) = 840 mM, pH = 4, C(nanozyme) = 100 μg mL^{-1}		
	$Cu@Cu_2O$	TMB	0.94	95.167	1.67	C(H_2O_2) = 5 mM, pH = 5, C(nanozyme) = 10 μg mL^{-1}		338
		OPD	8.88	23.67	0.4167	C(H_2O_2) = 10 mM, pH = 7.4, C(nanozyme) = 10 μg mL^{-1}		
		Dopamine	0.47	1.455×10^{2}	0.6408	C(H_2O_2) = 10 mM, pH = 5.5, C(nanozyme) = 40 μg mL^{-1}		
		NADH	0.37	61.33	0.5428	C(H_2O_2) = 5 mM, pH = 7.2, C(nanozyme) = 10 μg mL^{-1}		

	$CuFe_2O_4/Cu_9S_8$/ polypyrrole	TMB	0.128	69.7		RT, C(H_2O_2) = 15 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		339
		H_2O_2	23.83	98.2		C(TMB) = 0.15 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
	Cu-g-C_3N_4	TMB	0.389	5.84×10^2		C(H_2O_2) = 4 mM, pH = 3, C(nanozyme) = 150 μg mL^{-1}		340
		H_2O_2	9.27	3.84×10^2		RT, C(TMB) = 8 mM, pH = 3, C(nanozyme) = 150 μg mL^{-1}		
	CuO-g-C_3N_4	TMB	1.05			C(H_2O_2) = 50 mM, pH = 4.2, C(nanozyme) = 10 μg mL^{-1}		341
		H_2O_2	3.7			C(TMB) = 1 mM, pH = 4.2, C(nanozyme) = 10 μg mL^{-1}		
	CuO/Pt	TMB	0.413	1.46×10^2		40 °C, C(H_2O_2) = 5 mM, pH = 4.6, C(nanozyme) = 4 μg mL^{-1}		342
		H_2O_2	2.887	88.5		40 °C, C(TMB) = 1 mM, pH = 4.6, C(nanozyme) = 4 μg mL^{-1}		

	CuS-rGO	TMB	2×10^{-2}	20.8		$C(H_2O_2)$ = 40 mM, pH = 4.4, C(nanozyme) = N/A		343
		H_2O_2	3.1	16		C(TMB) = 0.1 mM, pH = 4.4, C(nanozyme) = N/A		
	CuS-montmorillonite	TMB	2.12×10^{-2}	28.14		$C(H_2O_2)$ = 250 mM, pH = 3.8, C(nanozyme) = 0.3 mg mL^{-1}		344
		H_2O_2	2.27	9.71		C(TMB) = 1 mM, pH = 3.8, C(nanozyme) = 0.3 mg mL^{-1}		
	Dipeptide-polyoxometalates -GO	TMB	3.3×10^{-2}	1.08×10^{2}		60 °C, $C(H_2O_2)$ = 0.08 mM, pH = 3, C(nanozyme) = 10 μg mL^{-1}		345
		H_2O_2	0.214	1.05×10^{2}		60 °C, C(TMB) = 0.05 mM, pH = 3, C(nanozyme) = 10 μg mL^{-1}		
	Expanded mesoporous silica nanoparticle-Au	H_2O_2	$(1.192 \pm 0.0224) \times 10^{2}$	52.58 ± 2.07		34 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 112 μg mL^{-1}		346
	Expanded mesoporous silica nanoparticle-Au-	H_2O_2	1.96 ± 0.019	$(1.194 \pm 0.041) \times 10^{2}$		34 °C, C(TMB) = 0.8 mM, pH = 7.4, C(nanozyme) = 25 μg mL^{-1}		347

	polyelectrolyte multilayers-hemin							
	Fe NPs@Co_3O_4	TMB	0.488	20.6×10^{2}		35 °C, C(H_2O_2) = 0.05 mM, pH = 3.5, C(nanozyme) = 10 μg mL^{-1}		348
		H_2O_2	1.9×10^{-2}	17		35 °C, C(TMB) = 0.05 mM, pH = 3.5, C(nanozyme) = 10 μg mL^{-1}		
	Fe_3C-N co-doped graphene	TMB	0.25	82.6		40 °C, C(H_2O_2) = 5 mM, pH = 4, C(nanozyme) = N/A		349
		H_2O_2	38.42	1.306×10^{2}		40 °C, C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = N/A		
	Fe@C	TMB	0.38	7.4×10^{-7}		C(H_2O_2) = 0.32%, pH = 3.6, C(nanozyme) = 3.33 μg mL^{-1}		350
		H_2O_2	7.2×10^{-2}	1.8×10^{-7}		C(TMB) = 33.3 μg mL^{-1}, pH = 3.6, C(nanozyme) = 3.33 μg mL^{-1}		
	FeCo/carbon nanofiber	TMB	0.228	2.128×10^{2}		C(H_2O_2) = 5 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		351

		H_2O_2	0.124	53.7		C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
	γ-Fe_2O_3/SiO_2	TMB	3.05	4.16667×10^3		pH neutral, C(H_2O_2) = N/A, C(nanozyme) = 510 μM		352
		H_2O_2	9.6598×10^2	1.28×10^7		pH neutral, C(TMB) = N/A, C(nanozyme) = 510 μM		
	Fe_3O_4-Au	TMB	3.57×10^{-2}	1.02×10^2		RT, C(H_2O_2) = N/A, C(nanozyme) = 50 pM		353
		H_2O_2	0.46	1.01×10^3		RT, C(TMB) = N/A, C(nanozyme) = 50 pM		
		TMB	1.06×10^{-2}			30 °C, C(H_2O_2) = N/A, pH = 4, C(nanozyme) = 10.3 μg mL^{-1}		354
		H_2O_2	3.44×10^{-2}			30 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = 10.3 μg mL^{-1}		
	Fe_3O_4@C	TMB	7.2×10^{-2}	1.799×10^2		C(H_2O_2) = 50 mM, pH = 3 C(nanozyme) = 30 μg mL^{-1}		355
		H_2O_2	0.38	7.399×10^2		C(TMB) = 0.8 mM, pH = 3, C(nanozyme) = 30 μg mL^{-1}		

		TMB	0.313	1.98×10^{2}		50 °C, $C(H_2O_2)$ = 500 μM pH = 4.5 C(nanozyme) = 30 μg mL^{-1}		356
		H_2O_2	1.4×10^{-2}	52.5		50 °C, C(TMB) = 100 μM, pH = 4.5, C(nanozyme) = 30 μg mL^{-1}		
		TMB	0.27	1.20×10^{2}		60 °C, $C(H_2O_2)$ = 100 μM pH = 4 C(nanozyme) = 20 μg mL^{-1}		357
		H_2O_2	3.5×10^{-2}	33.4		60 °C, C(TMB) = 500 μM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
	Fe_3O_4-carbon	TMB	6×10^{-2}	1.29×10^{2}		$C(H_2O_2)$ = 65 mM, pH = 4 C(nanozyme) = 19.6 μg mL^{-1}	N doped	358
		H_2O_2	3.2	30		C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 19.6 μg mL^{-1}		
	Fe_3O_4-CeO_2	TMB	0.15	6.4		$C(H_2O_2)$ = 40 mM, pH = 3.5, C(nanozyme) = 166.2 μg mL^{-1}		359
		H_2O_2	1.13	1.25×10^{2}		C(TMB) = 0.05 mM, pH = 3.5, C(nanozyme) = 166.2 μg mL^{-1}		

	Fe_3O_4-MIL-100(Fe)	TMB	0.112	1.142×10^{2}		50 °C, C(H_2O_2) = 1 mM, pH = 3.5, C(nanozyme) = N/A		360
		H_2O_2	7.7×10^{-2}	1.795×10^{2}		50 °C, C(TMB) = 1 mM, pH = 3.5, C(nanozyme) = N/A		
	Fe_3O_4-MWNTs	H_2O_2	8.3	2.3×10^{4}		C(4-AAP/phenol) = 5 mM, pH = 7, C(nanozyme) = 10 μg mL^{-1}		361
		H_2O_2	0.55 ± 0.17	$(2.3 \pm 0.05) \times 10^{2}$		40 °C, C(TMB) = 1.67 mM, pH = N/A, C(nanozyme) = N/A		362
	Fe_3O_4 loaded 3D Graphene	TMB	0.103	1.16×10^{2}		C(H_2O_2) = 5 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		363
		H_2O_2	1.39	1.01×10^{2}		C(TMB) = 0.5 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
	Fe_3O_4 loaded on GO dispersed CNTs	TMB	0.118	2.51		C(H_2O_2) = N/A, pH = 4.5, C(nanozyme) = 10 μg mL^{-1}		364
		H_2O_2	2.52	3.87		C(TMB) = N/A, pH = 4.5, C(nanozyme) = 10 μg mL^{-1}		
	Fe_3O_4 & Pt-GO	TMB	0.442	2.1809×10^{3}		C(H_2O_2) = 0.25 M, pH = 4, C(nanozyme) = 50 μg mL^{-1}	GO_MNP-10 wt%–Pt-10 wt%	365

			0.519	2.1263×10^{3}			GO_MNP-30 wt%–Pt-10 wt%	
	Fe_3O_4-Pt	TMB	5.5×10^{-2}	6.346×10^{2}	2.196×10^{3}	$C(H_2O_2)$ = 100 mM, pH 3.5, C(nanozyme) = 3 μg mL^{-1}	Pt 30%wt	366
			2.9×10^{-2}	2.559×10^{2}	6.77×10^{2}		Pt 15%wt	
			2.8×10^{-2}	2.571×10^{2}	5.59×10^{2}		Pt 7%wt	
	Fe_3O_4-GO	ABTS	0.47	8.11×10^{2}		40 °C, $C(H_2O_2)$ = 1 mM, pH 4, C(nanozyme) = 1 μg mL^{-1}	N doped	367
	Fe_3O_4-rGO	H_2O_2	0.25			RT, C(TMB) = N/A, pH = 4, C(nanozyme) = 50 μg mL^{-1}		368
	Fe_3O_4@SiO_2	TMB	0.193 ± 0.027	$(3.33 \pm 0.17) \times 10^{2}$	$(6.834 \pm 0.349) \times 10^{-3}$	RT, $C(H_2O_2)$ = 1 M, pH = 4, C(nanozyme) = 10 μg mL^{-1}		369
		H_2O_2	$(2.73 \pm 0.28) \times 10^{2}$	$(4.86 \pm 0.49) \times 10^{5}$	$(9.973 \pm 1.005) \times 10^{3}$	RT, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
		OPD	$(6.3 \pm 0.3) \times 10^{-2}$	$(8.42 \pm 0.22) \times 10^{2}$		RT, $C(H_2O_2)$ = 2 mM, pH = 7.1 ± 0.1, C(nanozyme) = 0.5 mg mL^{-1}	Modified with Cu(II) Schiff base complex	370

		H_2O_2	10.93	42.2		C(TMB) = 3.2 mM, pH = 5.2, C(nanozyme) = 100 μg mL^{-1}		371
	Fe_3O_4@SiO_2@Au	TMB	5.71	1.43×10^{2}		70 °C, C(H_2O_2) = 17 mM, pH = 3, C(nanozyme) = 50 μg mL^{-1}		372
		H_2O_2	2.05	6.088×10^{3}		70 °C, C(TMB) = 50 mM, pH = 3, C(nanozyme) = 50 μg mL^{-1}		
	Fe_3O_4@SiO_2@2-hydroxypropyl-β-CD	TMB	0.414	54		40 °C, C(H_2O_2) = 10 mM, pH = 4, C(nanozyme) = 0.5 mg mL^{-1}		373
		H_2O_2	8.6×10^{-2}	52.6		40 °C, C(TMB) = 8.32 mM, pH = 4, C(nanozyme) = 0.5 mg mL^{-1}		
	Fe_3O_4-ZIF-8	OPD	0.62	87.2		40 °C, C(H_2O_2) = 4 mM, pH = 4, C(nanozyme) = 2 mg mL^{-1}		374
		H_2O_2	2.42	58.7		40 °C, C(OPD) = 0.4 mM, pH = 4, C(nanozyme) = 2 mg mL^{-1}		

	GO-Fe	TMB	0.76		0.2167	$C(H_2O_2)$ = 5 mM, pH = 3.5, C(nanozyme) = 2 μg mL^{-1}		375
		H_2O_2	0.36		0.1167	C(TMB) = 0.8 mM, pH = 3.5, C(nanozyme) = 2 μg mL^{-1}		
	$GO\text{-}Fe_2O_3$	TMB	0.118	53.8		25 °C, $C(H_2O_2)$ = 1.5 M, pH = 3.6, C(nanozyme) = N/A		376
		H_2O_2	3.05×10^2	10.1		25 °C, C(TMB) = 0.614 mM, pH = 3.6, C(nanozyme) = N/A		
		ABTS	0.153	2.50×10^2		25 °C, $C(H_2O_2)$ = 1.5 M, pH = 3.6, C(nanozyme) = N/A		
		H_2O_2	13.8	2.43×10^2		25 °C, C(ABTS) = 0.35 mM, pH = 3.6, C(nanozyme) = N/A		
	$GO\text{-}Fe_3O_4$	TMB	0.43	1.308×10^2		$C(H_2O_2)$ = 1 mM, pH = 4, C(nanozyme) = 80 μg mL^{-1}		377
		H_2O_2	0.71	53.1		C(TMB) = 0.64 mM, pH = 4, C(nanozyme) = 80 μg mL^{-1}		

		TMB	8×10^{-2}	23.67		30 °C, C(H_2O_2) = 5 mM, pH = 3.5, C(nanozyme) = 10 µg mL^{-1}		28
	GO-Fe tetrapyridylporphyrin	H_2O_2	0.292			RT, C(orthotolidine) = 0.8 mM, pH = 4.2, C(nanozyme) = 35.6 µg mL^{-1}		378
	GO-Se	GSH	0.72	8.2×10^2		N/A		379
		H_2O_2	0.04	5×10^2				
	GO@SiO_2@CeO_2	H_2O_2	2.58	52.2		C(OPD) = 0.5 mM, pH = N/A, C(nanozyme) = 0.2 mg mL^{-1}		380
	GOx@ZIF-8(NiPd)	OPD	0.46	71.9		50 °C, C(H_2O_2) = 5 mM, pH = 4, C(nanozyme) = 1 mg mL^{-1}		381
		H_2O_2	0.89	70.9		50 °C, C(TMB) = 2.5 mM, pH = 4, C(nanozyme) = 1 mg mL^{-1}		
	Graphene dots & Au NPs	TMB	$(3.3 \pm 0.29) \times 10^{-2}$	41 ± 0.34		C(H_2O_2) = 20 mM, pH = 3.5, C(nanozyme) = N/A		382
		H_2O_2	3.39 ± 0.047	74.8 ± 0.41		C(TMB) = 0.125 mM, pH = 3.5, C(nanozyme) = N/A		

	Graphene dots/CuO	TMB	0.32	80.1		40 °C, C(H_2O_2) = 50 mM, pH = 3.5, C(nanozyme) = 70 μg mL^{-1}		383
		H_2O_2	9.8×10^{-2}	32		40 °C, C(TMB) = 0.8 mM, pH = 3.5, C(nanozyme) = 70 μg mL^{-1}		
	Graphene-hemin	pyrocatechol	4.7×10^{-3}			35 °C, C(H_2O_2) = 2.4 %, pH = 8.5, C(nanozyme) = 40 μL mL^{-1}		384
		resorcin	8.6×10^{-3}					
		hydroquinone	1.07×10^{-2}					
	Graphene/mesoporous Fe_3O_4	TMB	5.9×10^{-2}	4.87×10^{2}		45 °C, C(H_2O_2) = 10 mM, pH = 4, C(nanozyme) = 1 cm × 1 cm (1.5 mm thick)	Three dimensional graphene	385
		H_2O_2	0.65	9.43×10^{2}		45 °C, C(TMB) = 0.4 mM, pH = 4, C(nanozyme) = 1 cm × 1 cm (1.5 mm thick)		
	Graphene quantum dots/ Fe_3O_4	TMB	5×10^{-2}	96		30 °C, C(H_2O_2) = 5 mM, pH = 3.5, C(nanozyme) = 10 μg mL^{-1}		28
	rGO-Au-hemin	TMB	7.4×10^{-2}	1.81×10^{2}		25 °C, C(H_2O_2) = 10 mM, pH = 4, C(nanozyme) = 0.5 μg mL^{-1}		386

		H_2O_2	3.1	1.21×10^2		25 °C, C(TMB) = 0.6 mM, pH = 4, C(nanozyme) = 0.5 μg mL^{-1}		
	rGO-Fe_2O_3-Pt	TMB	2.37	9.71×10^2		50 °C, C(H_2O_2) = 10 mM, pH = 3, C(nanozyme) = N/A		387
		H_2O_2	3.56	3.66×10^2		50 °C, C(TMB) = 0.8 mM, pH = 3, C(nanozyme) = N/A		
	rGO-iron oxide	TMB	1.71	93.9		C(H_2O_2) = 0.47 mM, pH = 3, C(nanozyme) = 38 μg mL^{-1}		388
		H_2O_2	3.09	4.383×10^2		C(TMB) = 0.09 mM, pH = 3, C(nanozyme) = 38 μg mL^{-1}		
	Hemin-Au-Tb-MOF	TMB	2.67			37 °C, C(H_2O_2) = 4.4 mM, pH = 6, C(nanozyme) = N/A		389
		H_2O_2	2.58			37 °C, C(TMB) = 0.42 mM, pH = 6, C(nanozyme) = N/A		
	Hemin-graphene	TMB	5.1	45.5		RT, C(H_2O_2) = 10 mM, pH = 5, C(nanozyme) = 1 μg mL^{-1}		390
		H_2O_2	2.256	50.6		RT, C(TMB) = 0.8 mM, pH = 5, C(nanozyme) = 1 μg mL^{-1}		

	Hemin@MIL-101(Al)–NH_2	TMB	6.8×10^{-2}	60.7		25 °C, C(H_2O_2) = 10 mM, pH = 5, C(nanozyme) = 20 μg mL^{-1}		391
		H_2O_2	10.9	89.9		25 °C, C(TMB) = 0.8 mM, pH = 5, C(nanozyme) = 20 μg mL^{-1}		
	Hemin-rGO-Au	TMB	6.87×10^{-2}	2.231×10^{2}		25 °C, C(H_2O_2) = 10 mM, pH = 4, C(nanozyme) = 0.7 μg mL^{-1} 25 °C, C(TMB) = 600 mM, pH = 4, C(nanozyme) = 0.7 μg mL^{-1}	H-rGO-Au NPs	392
		H_2O_2	2.17	84.9				
		TMB	5.64×10^{-2}	2.452×10^{2}			H-rGO-Au nanorods	
		H_2O_2	1.749	100				
		TMB	4.92×10^{-2}	2.849×10^{2}			H-rGO-Au nanoflowers	
		H_2O_2	1.24	1.11×10^{2}				
	Hemeprotein@ZIF-8	TMB	0.28			C(H_2O_2) = 3 mM, pH = 4, C(nanozyme) = 74 μg mL^{-1}		393
	Hydrogel supported Fe_3O_4 poly(2-acrylamido-2-methyl-1-propansulfonic acid) based hydrogel	TMB	1.13	0.18		RT, C(H_2O_2) = 0.098 mM, pH = 4, C(nanozyme) = 4.17 μg mL^{-1} RT, C(TMB) = 0.55 mM, pH = 4, C(nanozyme) = 4.17 μg mL^{-1}	Crosslinking agent 0.5 wt%	394
		H_2O_2	0.12	0.17				
		TMB	0.52	9.3 10^{-2}			Crosslinking agent 1 wt%	
		H_2O_2	0.21	0.19				
		TMB	0.97	0.14			Crosslinking agent 1.5 wt%	
		H_2O_2	8.4×10^{-2}	0.12				

	MWCNTs-PB	TMB	0.09	1.42×10^2	6.04×10^2	25 °C, C(H_2O_2) = 10 mM, pH = 6, C(nanozyme) = 1.5 μg mL^{-1}		395
		H_2O_2	1.33	1.11×10^2	4.72×10^2	25 °C, C(TMB) = 1 mM, pH = 6, C(nanozyme) = 1.5 μg mL^{-1}		
	MWCNTs@rGO nanoribbon	TMB	0.12	92.8		30 °C, C(H_2O_2) = 100 mM, pH = 5, C(nanozyme) = 10 μg mL^{-1}		396
		H_2O_2	1.68	31.5		30 °C, C(TMB) = 0.8 mM, pH = 5, C(nanozyme) = 10 μg mL^{-1}		
	MnSe-g-C_3N_4	TMB	0.137 ± 0.002	2.4 ± 0.02		RT, C(H_2O_2) = 9 mM, pH = 4, C(nanozyme) = 100 μg mL^{-1}		397
		H_2O_2	0.623 ± 0.003	2.85 ± 0.15		RT, C(TMB) = 0.72 mM, pH = 4, C(nanozyme) = 100 μg mL^{-1}		
	MoS_2/GO	TMB	0.1	3.34×10^2		25 °C, C(H_2O_2) = 10 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		398

		H_2O_2	0.2	1.97×10^{2}		25 ℃, C(TMB) = 0.6 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
		TMB	9.3×10^{-2}	15.2		C(H_2O_2) = 0.2 mM, pH = N/A, C(nanozyme) = 3 mg mL^{-1}		399
		H_2O_2	0.2	11.4		C(TMB) = 0.5 mM, pH = N/A, C(nanozyme) = 3 mg mL^{-1}		
	MoS_2-polypyrrole	TMB	12.8	1.51×10^{2}		C(H_2O_2) = 65 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		400
		H_2O_2	0.41	4.74×10^{2}		C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 20 μg mL^{-1}		
	MoS_2–$Pt_{74}Ag_{26}$	TMB	25.71	72.9		50 ℃, C(H_2O_2) = 1 mM, pH = 4, C(nanozyme) = N/A		401
		H_2O_2	0.386	32.2		50 ℃, C(TMB) = 1 mM, pH = 4, C(nanozyme) = N/A		
	MoS_2–PtCu	TMB	0.220	92.5		30 ℃, C(H_2O_2) = N/A, pH = 3.5, C(nanozyme) = N/A		402
		H_2O_2	0. 801	1.47×10^{2}		30 ℃, C(TMB) = N/A, pH = 3.5, C(nanozyme) = N/A		

	N doped graphene assembled with iron tetrapyridylporphyrin	H_2O_2	0.265	7.18×10^{5}		RT, C(ortho-tolidine) = 0.8 mM, pH = 4.2, C(nanozyme) = 22.0 μg mL^{-1}	Assembly at RT	403
			0.515	9.08×10^{5}			Treated at 500 °C in the oven, in argon flow after assembly at RT	
	Nanodiamond & Au	OPD	89.7 ±9.6		(5.656 ± 0.188) × 10^{2}	C(H_2O_2) = 80 mM, pH 7.2 ± 0.2, C(nanozyme) = 40 μg mL^{-1}		404
		H_2O_2	6.4 ±1.0		(3.193 ± 0.23) × 10^{2}	C(OPD) = 10.0 mM, pH 7.2 ±0.2, C(nanozyme) = 40 μg mL^{-1}		
	PB-Au-Ag	H_2O_2	1.7	7.82×10^{2}		25 °C, C(*o*-dianisidine) = 5 mM, pH = 7, C(nanozyme) = N/A		277
	PB-Ag		3.32	3.15×10^{2}			TEM diameter 5 nm	
			2.05	4.15×10^{2}			TEM diameter 7 nm	
			6.6	6.3×10^{2}			3-glycidoxypropyltrimethoxysilane stabilized Ag	
	PB@MIL-101(Cr)	TMB	0.88	1.15×10^{2}	9.90×10^{2}	C(H_2O_2) = 0.98 mM, pH = 4, C(nanozyme) = 0.1 mg mL^{-1}		276
		H_2O_2	1.06	97	8.40×10^{2}	C(TMB) = 140 μM, pH = 4, C(nanozyme) = 0.1 mg mL^{-1}		

	PB on carbon cloth	TMB	4.1			25 °C, $C(H_2O_2)$ = N/A, pH = 4, C(nanozyme) = a piece of 5 mm × 5 mm		405
		H_2O_2	49.6			25 °C, C(TMB) = N/A, pH = 4, C(nanozyme) = a piece of 5 mm × 5 mm		
	PB modified Fe_2O_3	3,5-di-tert-butylcatechol	1.22	44.31		27 °C, $C(H_2O_2)$ = 208 mM, pH = 7, C(nanozyme) = N/A		406
		H_2O_2	91.45	83.08		27 °C, C(TMB) = 4.5 mM, pH = 7, C(nanozyme) = N/A		
		TMB	9.95×10^{-3}	1.23×10^{2}		$C(H_2O_2)$ = 13 mM, pH = 4, C(nanozyme) = 6.67 μg mL^{-1}		319
		H_2O_2	1.5×10^{-2}	2.28×10^{2}		C(TMB) = 0.1 mM, pH = 4, C(nanozyme) = 6.67 μg mL^{-1}		
	PB modified Fe_3O_4	TMB	0.307	1.06×10^{3}	3.43×10^{3}	$C(H_2O_2)$ = 1.9%, pH = 4.6, C(nanozyme) = 1.5 pM		407
		H_2O_2	3.236×10^{2}	1.17×10^{3}	3.97×10^{3}	C(TMB) = 0.2 mg mL^{-1}, pH = 4.6, C(nanozyme) = 1.5 pM		

	PB-MIL-101(Fe)	TMB	0.127	11.1		27 °C, $C(H_2O_2)$ = 0.7 mM, pH = 5, C(nanozyme) = 200 μg mL^{-1}		408
		H_2O_2	5.80×10^{-2}	22.2		27 °C, C(TMB) = 0.7 mM, pH = 5, C(nanozyme) = 200 μg mL^{-1}		
	PB/MWCNTs	TMB	5.23	5.83×10^{4}		20 °C, $C(H_2O_2)$ = 150 mM, pH = 3, C(nanozyme) = 55.5 μg mL^{-1}		409
		H_2O_2	19.22	3.29×10^{6}		20 °C, C(TMB) = 0.25 mM, pH = 3, C(nanozyme) = 55.5 μg mL^{-1}		
	$Pd@Fe_2O_3$	ABTS	4.9×10^{-2}	1.02×10^{2}	7.5×10^{-2}	37 °C, $C(H_2O_2)$ = 0.2 mM, pH = 3.62, C(nanozyme) = 1.8 μg mL^{-1}		410
		H_2O_2	0.254	1.28×10^{2}	9.4×10^{-2}	57 °C, C(TMB) = 0.5 mM, pH = 3.62, C(nanozyme) = 1.8 μg mL^{-1}		
	Pd/Fe_3O_4/rGO	H_2O_2	3.66	40.1		C(TMB) = 0.25 mM, pH = 4.5, C(nanozyme) = 1.5 μM		411

	Pd/$NiCl_2$	TMB	0.28	76.5		35 °C, C(H_2O_2) = 1 mM, pH = 4, C(nanozyme) = 29.48 μg mL^{-1}		412
	Pd/$NiCl_2$	H_2O_2	10.82	4.384×10^2		35 °C, C(TMB) = 1 mM, pH = 4, C(nanozyme) = 29.48 μg mL^{-1}		412
	Pd/nitrogen, sulphur co-doped three-dimensional hierarchical nanostructures	TMB	1.44	2.41×10^2		30 °C, C(H_2O_2) = 90 mM, pH = 3.5, C(nanozyme) = 100 μg mL^{-1}		413
	Pd/nitrogen, sulphur co-doped three-dimensional hierarchical nanostructures	H_2O_2	42.7	3.89×10^2		30 °C, C(TMB) = 1.5 mM, pH = 3.5, C(nanozyme) = 100 μg mL^{-1}		413
	Pd-WO_3-SiO_2	H_2O_2	19.5			C(*o*-dianisidine) = 0.24 mM, pH = 7, C(nanozyme) = 5 mg mL^{-1}		195
	Pd-WO_3-SiO_2-PB	H_2O_2	8.1			C(*o*-dianisidine) = 0.24 mM, pH = 7, C(nanozyme) = 5 mg mL^{-1}		195
	Poly(sodium styrene sulfonate)-functionalized graphene nanosheets	TMB	1.5×10^{-2}	3.02×10^2		C(H_2O_2) = 3 mM, pH = 4, C(nanozyme) = 15 μg mL^{-1}		414
	Poly(sodium styrene sulfonate)-functionalized graphene nanosheets	H_2O_2	2.06	3.55×10^2		C(TMB) = 0.2 mM, pH = 4, C(nanozyme) = 15 μg mL^{-1}		414
	Polystyrene@Au@PB	TMB	1.22	5.90×10^2	1.2×10^7	C(H_2O_2) = N/A, pH = 3.6, C(nanozyme) = 300 μg mL^{-1}		415

		H_2O_2	0.17	3.89×10^2	8.6×10^5	C(TMB) = N/A, pH = 3.6, C(nanozyme) = 300 μg mL^{-1}		
	Pt/cube-CeO_2	TMB	0.26	1.47×10^2		C(H_2O_2) = 1 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		416
		H_2O_2	0.21	85		C(TMB) = 1 mM, pH = 4, C(nanozyme) = 10 μg mL^{-1}		
	Pt loaded on GO dispersed CNTs	TMB	7.5×10^{-2}	3.02		C(H_2O_2) = N/A, pH = 7.4, C(nanozyme) = 50 μg mL^{-1}		417
		H_2O_2	1.82	12.7		C(TMB) = N/A, pH = 7.4, C(nanozyme) = 50 μg mL^{-1}		
	Pt-GO	H_2O_2	0.1864	1.02×10^2		30 °C, C(H_2O_2) = 0.4 M, pH = 5, C(nanozyme) = N/A		418
		TMB	2.214×10^2	1.245×10^2		30 °C, C(TMB) = 0.8 mM, pH = 5, C(nanozyme) = N/A		
	Pt-rGO	TMB	8.06×10^{-2}	4.65×10^2		C(H_2O_2) = 20 mM, pH = 5, C(nanozyme) = 50 ng mL^{-1}		419
		H_2O_2	9.35×10^2	3.780×10^3		C(TMB) = 0.83 mM, pH = 5, C(nanozyme) = 50 ng mL^{-1}		
	Pt-mesoporous carbon	TMB	0.13		0.55	35 °C, C(H_2O_2) = N/A, pH = 3, C(nanozyme) = N/A		420

		H_2O_2	58.01		3.2667 × 10^2	35 °C, C(TMB) = N/A, pH = 3, C(nanozyme) = N/A		
	Pt-2D MoO_3	TMB	0.106	42.86		40 °C, C(H_2O_2) = 5 mM, pH = 4, C(nanozyme) = 100 μL mL^{-1}	100 μL mL^{-1} nanozyme contains 1.38 μg MoO_3 and 1.32 μg Pt	183
		H_2O_2	3.2	37.94				
		TMB	0.296	42.63		40 °C, C(TMB) = 0.8 mM, pH = 4, C(nanozyme) = 30 μL mL^{-1}	Simple mixture	
		H_2O_2	5.9	36.25				
	Pt-porous carbon	TMB	1.056	2.312 × 10^2		RT, C(H_2O_2) = 40 mM, pH = 3.5, C(nanozyme) = 0.1 mg mL^{-1}	N doped	421
		H_2O_2	7.362	2.52 × 10^2		RT, C(TMB) = 2 mM, pH = 3.5, C(nanozyme) = 0.1 mg mL^{-1}		
	PtPd-Fe_3O_4	TMB	7.9 × 10^{-2}	93.6		RT, C(H_2O_2) = 0.1 mM, pH = 5.2, C(nanozyme) = 2.14 μg for Pt, 1.17 μg for Pd, 17.65 μg For Fe		422

	PtPd nanodendrites /graphene	TMB	4×10^{-2}	4.267×10^{2}		$C(H_2O_2)$ = 50 mM, pH = 5, C(nanozyme) = 0.1 μg mL^{-1} (for Pd)		423
		H_2O_2	3.45	1.224×10^{2}		C(TMB) = 0.2 mM, pH = 5, C(nanozyme) = 0.1 μg mL^{-1} (for Pd)		
	$Pt@SiO_2$	TMB	2.55×10^{-6}	2.6×10^{3}	2×10^{4}	$C(H_2O_2)$ = 0.2 M, pH = 4.7, C(nanozyme) = 0.13 nM		424
		H_2O_2	2.35×10^{-8}	2.9×10^{5}	2.33×10^{6}	C(TMB) = 0.5 mM, pH = 4.7, C(nanozyme) = 0.13 nM		
	$SiO_2@Co_3O_4$	TMB	$(8.7 \pm 0.28) \times 10^{-2}$	0.12 ± 0.0056	1.49×10^{4}	30 °C, $C(H_2O_2)$ = 100 mM, pH = 5, C(nanozyme) = 10 μg mL^{-1}		425
		H_2O_2	25.2 ± 1.28	0.15 ± 0.0035	1.96×10^{4}	30 °C, C(TMB) = 0.3 mM, pH = 5, C(nanozyme) = 10 μg mL^{-1}		
	SiO_2/imidazolium/Pt	H_2O_2	5.85			$C(H_2O_2)$ = N/A, pH = 5, C(nanozyme) = N/A		426
		AR	1.1×10^{-2}	0.38	7.8×10^{-3}	RT, $C(H_2O_2)$ = 0.5 mM, pH = 7, C(nanozyme) = 50 nM	Without thrombin	427

	Thrombin binding aptamer-templated CuO/Cu_2O NPs	H_2O_2	2.2	0.15	2.9×10^{-4}	RT, C(AR) = 10 µM, pH = 7, C(nanozyme) = 50 nM		
		AR	1.2×10^{-2}	1.50×10^{2}	2.9	RT, $C(H_2O_2)$ = 0.5 mM, pH = 7, C(nanozyme) = 50 nM	With 50 nM thrombin	
		H_2O_2	3.2	1.20×10^{2}	0.25	RT, C(AR) = 10 µM, pH = 7, C(nanozyme) = 50 nM		
	$TiO_2@CeO_2$	TMB	0.28 ± 0.03	6.5 ± 0.3		$C(H_2O_2)$ = 58 mM, pH = 4, C(nanozyme) = 200 µg mL^{-1}	Thinner layer CeO_x	404
		H_2O_2	6.29 ± 0.94	34 ± 3.0		C(TMB) = 0.2 mM, pH = 4, C(nanozyme) = 200 µg mL^{-1}		
		TMB	0.30 ± 0.04	12 ± 0.6		$C(H_2O_2)$ = 58 mM, pH = 4, C(nanozyme) = 200 µg mL^{-1}	Thicker layer CeO_x	
		H_2O_2	1.39 ± 0.15	55 ± 5		C(TMB) = 0.2 mM, pH = 4, C(nanozyme) = 200 µg mL^{-1}		
	V_2O_5@polydopamine@MnO_2	GSH	7.2	3.16667×10^{3}		25 °C, C(GR) = 25 mM, pH = 7.4, C(NADPH) = 25 mM, C(nanozyme) = N/A		428
		H_2O_2	0.16	1.46667×10^{3}				
	ZnO-CNT	ABTS	0.5	1.50×10^{2}		$C(H_2O_2)$ = N/A, pH = 7.4, C(nanozyme) = N/A		429
		H_2O_2	0.6	50		C(ABTS) = N/A, pH = 7.4, C(nanozyme) = N/A		

	ZnS-montmorillonite	TMB	5.5×10^{-2}	7.993		$C(H_2O_2)$ = 250 mM, pH = 4, C(nanozyme) = N/A		430
		H_2O_2	2.54×10^{-2}	7.5		C(TMB) = 0.1mm, pH = 4, C(nanozyme) = N/A		

Abbreviations

2,4-DCP	2,4-dichlorophenol
4-AAP	4-aminoantipyrine
ABTS	2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid)
AR	Amplex red
ATP	adenosine triphosphate
BDC	benzene-1,4-dicarboxylate
BSA	bovine serum albumin
CB	cucurbit
CNT	carbon nanotube
CTAB	hexadecyl trimethyl ammonium bromide
Cu_2O NP	cuprous oxide nanoparticle
CWA	chemical warfare agent
DMNP	dimethyl-4-nitrophenyl phosphate
DMSN	dendritic mesoporous silica NP
DTBZ	dihydrotetrabenazine
GO	graphene oxide
GOx	glucose oxidase
GSH	glutathione

GR	glutathione reductase
HBPG-COOH	hyperbranched polyglycidol with carboxyl
HBPG-OH	hyperbranched polyglycidol with hydroxyl
H_2BDC	terephthalic acid
H_3BTC	1,3,5-benzenetricarboxylic acid
HKUST	Hong Kong University of Science and Technology
HPNPP	2-hydroxypropyl *p*-nitrophenyl phosphate
H-rGO	hemin functionalized reduced graphene oxide
MIL	Material Institute of Lavoisier
MNP	magnetic nanoparticle
MOF	metal–organic framework
MoO_3 NP	molybdenum trioxide nanoparticle
MSN-AuNPs	AuNPs loading on mesoporous silica
N/A	not applicable
NADPH	nicotinamide adenine dinucleotide phosphate
NC	nanocluster
NP	nanoparticle
OPD	*o*-phenylenediamine
PB	Prussian blue
PCN	porous coordination network
PEG	poly(ethylene glycol)
PtNPs/GO	platinum NPs/graphene oxide
PVP	polyvinylpyrrolidone
RT	room temperature
rGO	reduced graphene oxide
ssDNA	single-stranded DNA
SDS	sodium dodecyl sulfate

TEM	transmission electron microscope
TCPP	tetrakis(4-carboxyphenyl)porphyrin
TMB	3,3',5,5'-tetramethylbenzidine
TOPS	N-ethyl-N-(3-sulfopropyl)-3-methylaniline sodium salt
UiO	University of Oslo
ZIF	zeolitic imidazolate framework

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Note: (a) The data were collected from literatures and for reference only. (b) To unify the units in the table, some data have been converted.

Table S12. Kinetics parameters of oxidase-mimicking nanozymes

Materials		Substrate	K_m / mM	V_{max} / nM s^{-1}	K_{cat} / s^{-1}	Experiential conditions	Comments	Ref.
Metal	Ag	TMB	0.23	3.8×10^2		pH = 4, C(nanozyme) = N/A		1
		TMB	0.119	2.14×10^2		10 ℃, pH = 4, C(nanozyme) = N/A	Hg^{2+} stimulated BSA-Ag nanoclusters	2
	Au	Glucose	4.73 ± 0.37	$(6.8 \pm 0.3) \times 10^2$	47.33 ± 2.00	pH = N/A, C(nanozyme) = 15 nM	Bare AuNPs	3
			17.67 ± 2.07	$(1.8 \pm 0.4) \times 10^2$	12.00 ± 2.00		ss-DNA–AuNPs	
			6.98 ± 0.69	$(5.3 \pm 0.4) \times 10^2$	35.33 ± 2.67		ds-DNA–AuNPs	
		Glucose	7.54	2.6×10^2	26.46	pH = 3, C(nanozyme) = 7.54 mM		4
		Glucose	6.97	6.3×10^2	18.52	pH = 7.2, C(nanozyme) = 0.35 nM		5
	Pt	TMB	0.63	2.7×10^3		pH = 3, C(nanozyme) = N/A		6
		Quercetin	5.437×10^{-2}	5.79×10^3	2.4482×10^3	pH = 7, C(nanozyme) = 23.65 nM		7

		2,4-dichlorophenol	0.12			25 ℃, pH = 7, C(nanozyme) = N/A		8
		TMB	1.8×10^{-2}			37 ℃, pH = 5, C(nanozyme) = N/A	Chitosan-stabilized	9
		TMB	0.09	7.0×10^{3}		pH = 4, C(nanozyme) = 0.7 mg mL^{-1}		10
Multi-metal	Au@PdPt	TMB	1.12×10^{-2}	0.7	2.9×10^{4}	30 ℃, pH = 4.5, C(nanozyme) = 3.6 nM,		11
	Au@Pt	TMB	6.5×10^{-3}	5.6	1.3×10^{2}	37 ℃, pH = 4.5, C(nanozyme) = 42 pM,		12
		Catechol	1.29×10^{2}	2.33×10^{8}		40 ℃, pH = 5, C(nanozyme) = 50 ng mL^{-1}		13
		Fe^{2+}	6.91×10^{-2}	2.53×10^{2}	2.1×10^{3}	37 ℃, pH = 7, C(nanozyme) = 0.12 nM	Nanorods	14
	Pt-Se	TMB	2.9×10^{-2}	1.169×10^{4}	1.3×10^{-2}	pH = 4.4, C(nanozyme) = 15 μM		15

Metal hydroxide	Co-Fe layered double hydroxide	TMB	0.05	3.87×10^{2}		30 ℃, pH = 4, C(nanozyme) = 40 μg mL^{-1}	Nanosheets	16
Metal oxide	CeO_2	TMB	3.8	7.0×10^{2}		RT, pH = 4, C(nanozyme) = 5 μM	Hydrodynamic diameter: 5 nm	17
			1.9	6.0×10^{2}			Hydrodynamic diameter: 12 nm	
			1.8	5.0×10^{2}			Hydrodynamic diameter: 14 nm	
			0.8	3.0×10^{2}			Hydrodynamic diameter: 100 nm	
		TMB	0.42			pH = 4.5, C(nanozyme) = 105 μg mL^{-1}		18
		Dopamine	2.5×10^{-4}			pH = 6.5, C(nanozyme) = 1 mg mL^{-1}		19
		Catechol	0.18					
		ABTS	6.2×10^{-2}	5.5×10^{2}	12.84	pH = 4, C(nanozyme) = 50 μg mL^{-1}	F^{-} modified	20
		TMB	0.14	63	1.47			
		TMB	0.22	4.8×10^{2}		pH = 4, C(nanozyme) = 200 μg mL^{-1}	{110}, SO_4^{2-}	21

		TMB	2.01			pH = 4, C(nanozyme) = N/A	pure	22
			0.79				5% Pr doped	
			0.27				10% Pr doped	
			0.23				15% Pr doped	
			0.15				20% Pr doped	
	Co_3O_4	ABTS	3.7×10^{-2}	32		40 ℃, pH = 3.5, C(nanozyme) = 40 μg mL^{-1}		23
	Mn_3O_4	TMB	2.5×10^{-2}	50.7		35 ℃, pH = 3.5, C(nanozyme) = 5 μg mL^{-1}		24
	Tb_2O_3	TMB	0.123	2.6×10^{3}		RT, pH = 4, C(nanozyme) = N/A		25
	TiO_2	TMB	0.107	1.565×10^{2}		30 ℃, pH = 4, C(nanozyme) = N/A		26
MOF	Co/2Fe- H_3BTC	TMB	0.199	3.9		37 ℃, pH = 3.5, C(nanozyme) = N/A		27
	Ce-H_3BTC	TMB	3.7×10^{-4}	5.5×10^{3}		RT, pH = 4, C(nanozyme) = 3.0×10^{2} μg mL^{-1}		28
Others	Se	TMB	8.3	5.07		30 ℃, pH = 4.0,		29

						C(nanozyme) = N/A		
	$CeVO_4$	TMB	9.859×10^{-2}	39.4		pH = N/A, C(nanozyme) = 80 ng mL^{-1}		30
	Mixed-valence-state cobalt	TMB	8.8×10^{-4}	18		35 ℃, pH = 4.5, C(nanozyme) = 0.03 mg mL^{-1}		31
Composite	$Ag@Ag_3PO_4$	TMB	0.11			20 ℃, pH = 6, C(nanozyme) = 70 μg mL^{-1}		32
		o-phenylenediamine	1.23					
	Au@Ag@ICPs(infinite coordination polymers)	Methylene blue	4.31×10^{-3}	1.27×10^{2}		80 ℃, pH = 4, C(nanozyme) = N/A		33
			6.75×10^{-3}	97		80 ℃, pH = 5, C(nanozyme) = N/A		
			1.3×10^{-2}	88		80 ℃, pH = 6, C(nanozyme) = N/A		
			3.55×10^{-2}	81		80 ℃, pH = 7, C(nanozyme) = N/A		
	Au@C	TMB	0.17	49.2		pH = 4.5, C(nanozyme) = 50 μg mL^{-1}		34

	CNF/$MnCo_2O_{4.5}$	TMB	0.04	64.5		pH = 4, C(nanozyme) = 20 μg mL^{-1}		35
	FeSe-Pt@SiO_2	Glucose	2.45	5.1×10^{-3}		pH = 4, C(nanozyme) = 30 μg mL^{-1}		36
	Folic acid-polyoxometalates	TMB	2.6×10^{-3}	1.33×10^{3}		pH = N/A, C(nanozyme) = 0.2mg mL^{-1}	$H_{3+n}PV_nMo_{12-n}O_{40}$ (n = 1)	37
			3.2×10^{-4}	1.46×10^{4}			$H_{3+n}PV_nMo_{12-n}O_{40}$ (n = 3)	
	HRP-Au nanoclusters	TMB	0.125	35.7		30 ℃, pH = 4, C(nanozyme) = N/A		38

Abbreviations

ABTS 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid)
ds DNA double stranded DNA
HRP horseradish peroxidase
MOF metal–organic framework
N/A not applicable
NP nanoparticle
ss DNA single stranded DNA
TMB 3,3',5,5'-tetramethylbenzidine
RT room temperature

References and Notes

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Note: (a) The data were collected from literatures and for reference only. (b) To unify the units in the table, some data have been converted.

Table S13. Kinetics parameters of hydrolase-mimicking nanozymes

Materials		Substrate	K_m / mM	V_{max} / nM s^{-1}	K_{cat} / s^{-1}	$t_{1/2}$ / *min*	TOF / s^{-1}	Experiential conditions	Comments	Ref.
Metal	Au	Bis-*p*-nitrophenyl phosphate	0.175					25 °C, pH = 8, C(nanozyme) = 50 μM	Modified with Ce(IV) complex	1
		HPNP	0.58		3.6×10^{-2}			40 °C, pH = 7.5, C(nanozyme) = 20 μM	Modified with Zn(II) complex 1-4	2
			0.40		0.212					
			0.38		1.9×10^{-2}					
			0.30		0.196					
		HPNP	0.93		4.2×10^{-3}			40 °C, pH = 7.4, C(nanozyme) = 100 μM	Modified with Zn(II) complex	3
		HPNPP	0.31		6.7×10^{-3}			40 °C, pH = 7.5, C(nanozyme) = 20 μM	Modified with Zn(II) complex	4
		HPNP			4.2×10^{-3}			37 °C, pH = 7.4, C(nanozyme) = 36 μM (Zn(II) complex)	Modified with Zn(II) complex	5
		HPNP			2.1×10^{-3}			25 °C, pH = 7,	Modified with Cu(II) complex	6

								C(nanozyme) = 36 μM (Cu(II) complex)		
		4,4’-dinitrodiphenyl carbonate	3.06		2.3×10^{-2}			25 ℃, pH = 7, C(nanozyme) = N/A	Cu(II) complex-Au-β-cyclodextrin	7
			4.89		8.7×10^{-2}			25 ℃, pH = 9, C(nanozyme) = N/A	Cu(II) complex-Au-β-cyclodextrin	
			3.34		2.3×10^{-4}			25 ℃, pH = 7, C(nanozyme) = N/A	Cu(II) Complex-adamantane-β-cyclodextrin	
			8.7		9.7×10^{-6}			25 ℃, pH = 7, C(nanozyme) = N/A	Cu(II) complex-adamantane	
		2-hydroxypropyl-4-nitrophenylphosphate	0.25		1.4×10^{-3}			pH = 7, C(nanozyme) = 10 μM	Modified with Zn(II) complex	8
Metal oxide	CeO_2	Paraoxon	15.78	26	5.42			45 ℃, pH = N/A, C(nanozyme) = 4.8 μM	Vacancy engineered	9
		4-nitrophenol				0.1		22 ℃, pH = N/A,	Annealing temperature 500 ℃	10

								C(nanozyme)/C(substrate) = 1 : 19		
						0.35		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	1% Pr-doped	
						0.34		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	3% Pr-doped	
						0.30		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	5% Pr-doped	
						0.33		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	1% Nd-doped	
						0.37		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	3% Nd-doped	
						0.34		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	5% Nd-doped	
						0.21		22 ℃, pH = N/A, C(nanozyme)/C(s	1% La-doped	

								ubstrate) = 1 : 19		
						0.30		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	3% La-doped	
						0.32		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	5% La-doped	
		Parathion methyl				0.23		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	1% Pr-doped	
						0.29		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	3% Pr-doped	
						0.30		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	5% Pr-doped	
						0.16		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	1% Nd-doped	
						0.24		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	3% Nd-doped	

						0.63		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	5% Nd-doped	
						0.19		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	1% La-doped	
						0.26		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	3% La-doped	
						0.25		22 ℃, pH = N/A, C(nanozyme)/C(substrate) = 1 : 19	5% La-doped	
	Fe_2O_3	Glycerol 2-phosphate	2.0	7.0×10^{-3}				80 ℃, pH = N/A, C(nanozyme) = N/A		11
		Glucose-6-phosphate	3.2	8.3×10^{-3}						
		Adenosine triphosphate	0.9	9.2×10^{-3}						
		Polyphosphate	1.1	5.5×10^{-3}						
		Pyrophosphate	2.2	1.3×10^{-3}						
	$Ti_xCe_{1-x}O_2$	Parathion				11.36		Reacted in	TiCe (0:1)	12

		methyl				5.590		heptane, C(nanozyme) = 100 mg mL^{-1}	TiCe (1:1)	
						8.115			TiCe (2:8)	
						10.04			TiCe (8:2)	
						1.155×10^2			TiCe (1:0)	
	$Ti_xZr_{1-x}O_2$					20.39			TiZr (0:1)	
						7.453			TiZr (1:1)	
						69.31			TiZr (2:8)	
						28.88			TiZr (8:2)	
	TiO_2	VX				$(7.2 - 21.6) \times 10^2$		imbed nanozyme into the wax	25% H_2O 50% wax	13
						8			25% H_2O no wax	
		Soman				1.08×10^3			25% H_2O 50% wax	
						78			25% H_2O no wax	
		HD				8.4×10^2			Dry 50% wax	
						5.58×10^2			25% H_2O 50% wax	
						5.46×10^2			50% H_2O 50% wax	
						246×10^2			50% H_2O 32% wax	
						8.4×10^2			25% H_2O no wax	

						4.68×10^2			50% H_2O no wax	
MOF	Ce-BDC	Dimethyl 4-nitrophenyl phosphate			3			pH = 10, C(nanozyme) = 3 mg mL^{-1}	H_2BDC for 1,4-benzenedicarboxylic acid	14
	Cu-MOF	Bovine serum albumin	$(0.28 \pm 0.04) \times 10^{-4}$		$(6.28 \pm 0.39) \times 10^{-4}$			50 °C, pH = 9, C(nanozyme) = 0.99 mM	Linker: benzene-1, 3, 5-tricarboxylic acid	15
			$(0.27 \pm 0.02) \times 10^{-4}$		$(20.98 \pm 0.65) \times 10^{-4}$			70 °C, pH = 9, C(nanozyme) = 0.99 mM		
		Casein	$(1.16 \pm 0.24) \times 10^{-4}$		$(5.17 \pm 0.56) \times 10^{-4}$			50 °C, pH = 9, C(nanozyme) = 0.99 mM		
			$(0.42 \pm 0.02) \times 10^{-4}$		$(9.76 \pm 0.17) \times 10^{-4}$			70 °C, pH = 9, C(nanozyme) = 0.99 mM		
	HKUST-1	HD				7.8×10^2		pH = N/A, C(nanozyme) = 1250 mg mL^{-1}		16
	MIL-101(Cr)	Paraoxon				18.9		pH = 7, C(nanozyme) = 5 mg mL^{-1}	Functioned with dialkylaminopyridines	17

						8.6		pH = 8, C(nanozyme) = 5 mg mL^{-1}		
						8.5		pH = 9, C(nanozyme) = 5 mg mL^{-1}		
						5.0		pH = 10, C(nanozyme) = 5 mg mL^{-1}		
	MOF-808	Paraoxon				3.6		25−27 °C, pH = 10, C(nanozyme) = 830 μM		18
		Soman				<1		25−27 °C, pH = 10, C(nanozyme) = 830 μM		
		o-ethyl S-2-(diisopropyl amino)ethyl methylphosphonothioate				<0.5		25−27 °C, pH = 10, C(nanozyme) = 830 μM		
						6.3		25−27 °C, water, C(nanozyme) = 830 μM		
		Tabun				<1		25−27 °C, pH =		

								10, C(nanozyme) = 830 µM		
						97		25−27 °C, water, C(nanozyme) = 830 µM		
	NU-1000	Paraoxon				2.6		25−27 °C, pH = 10, C(nanozyme) = 830 µM		18
		Soman				<1		25−27 °C, pH = 10, C(nanozyme) = 830 µM		
		o-ethyl S-2-(diisopropyl amino)ethyl methylphosphon othioate				5.3		25−27 °C, pH = 10, C(nanozyme) = 830 µM		
						8.7		25−27 °C, water, C(nanozyme) = 830 µM		
		Tabun				<1		25−27 °C, pH = 10, C(nanozyme) = 830 µM		
						97		25−27 °C, water, C(nanozyme) =		

								830 µM		
		Methyl paraoxon				2		90% water 10% D_2O, C(nanozyme) = 370 µM	Length size 75 nm	19
						5			Length size 150 nm	
						12			Length size 500 nm	
						38			Length size 1200 nm	
						80			Length size 15000 nm	
		Dimethyl 4-nitrophenyl phosphate				1.5		RT, pH = 10, C(nanozyme) = 3 mg mL^{-1}	Dehydration	20
						15	0.06			
		Bis(4-nitrophenyl) phosphate				3		RT, pH = 10, C(nanozyme) = 4.4 mg mL^{-1}	Dehydration	
						36				
		DMNP				8.3 ± 0.2		90 % water 10 % D_2O, C(nanozyme) = 1.5 mM, C(ethylmorpholine) = 0.39 M	NU-1000/ethylmorpholine	21
						8.4 ± 0.2		90 % water 10 % D_2O, C(nanozyme) =	NU-1000/PEI (PEI *Mw* = 2.5k)	

								1.5 mM, C(PEI) = 3 mM		
						1.8 ±0.1		90 % water 10 % D_2O, C(nanozyme) = 1.5 mM, C(PEI) = 6 mM	NU-1000-dehydration/PEI (PEI *Mw* = 2.5k)	
		Soman				4.8 ±0.1		90 % water 10 % D_2O, C(nanozyme) = 1.5 mM, C(PEI) = 6 mM	NU-1000-dehydration/PEI (PEI *Mw* = 2.5k)	
		VX				12.7 ±0.4		90 % water 10 % D_2O, C(nanozyme) = 1.5 mM, C(PEI) = 0.6 mM	NU-1000-dehydration/PEI (PEI *Mw* = 2.5k)	
	PCN-222	Dimethyl 4-nitrophenyl phosphate				8		methanol, C(nanozyme) = 4 mol %		22
		2-chloroethyl ethyl sulfide				10				

	PCN-777	Paraoxon				3.6		25−27 ℃, pH = 10, C(nanozyme) = 830 μM		18
		Soman				<1		25−27 ℃, pH = 10, C(nanozyme) = 830 μM		
		o-ethyl S-2-(diisopropyl amino)ethyl methylphosphon othioate				<0.5		25−27 ℃, pH = 10, C(nanozyme) = 830 μM		
						17.3		25−27 ℃, water, C(nanozyme) = 830 μM		
		Tabun				<1		25−27 ℃, pH= 10, C(nanozyme) = 830 μM		
						37		25−27 ℃, water, C(nanozyme) = 830 μM		
	Spirof-MOF $[Zr_6(\mu_3\text{-}O)_8(C_{53}$	DMNP				48	1.2×10^{-2}	RT, pH= N/A, C(nanozyme) = 0.37 mM	SEM maximum dimension length 16 μm	23

	$H_{28}O_8)_2(H_2O)_8]$					7.5	1.8×10^{-2}	RT, pH= N/A, C(nanozyme) = 1.5 mM	SEM maximum dimension length 16 μm	
						3.5	4.0×10^{-2}		SEM maximum dimension length 1 μm, reaction time 90 min	
						1.8	7.7×10^{-2}		SEM maximum dimension length 1 μm, reaction time 180 min	
	SNNU-101	Diethyl 4-nitrophenyl phosphate	2.5	12.5			5.8×10^{-2}	25 ℃, pH= 9, C(nanozyme) = 1 mg mL^{-1}		24
	UiO-66	DMNP				22		25 ℃, pH= N/A, C(nanozyme) = 2.5 mg mL^{-1}		25
		Methyl-paraoxon				35	7.7×10^{-3}	RT, pH= 10.2, C(nanozyme) = N/A		26
		Diisopropylfluorophosphate				17		RT, pH= N/A, C(nanozyme) = 40 mg mL^{-1}		27
						9.7			Modified with lithium tert-butoxide	
	UiO-66-0.25NH$_2$	Diisopropylfluorophosphate				1.73×10^2		RT, pH= N/A, C(nanozyme) = 40 mg mL^{-1}		
						0.4			Modified with lithium tert-butoxide	

	UiO-66-0.5NH2	Diisopropylfluorophosphate				41		RT, pH= N/A, C(nanozyme) = 40 mg mL^{-1}		
						7.4			Modified with lithium tert-butoxide	
	UiO-66-0.75NH2	Diisopropylfluorophosphate				1.39×10^2		RT, pH= N/A, C(nanozyme) = 40 mg mL^{-1}		
						51			Modified with lithium tert-butoxide	
	UiO-66-NH2	Diisopropylfluorophosphate				1.73×10^2		RT, pH= N/A, C(nanozyme) = 40 mg mL^{-1}		27
						57			Modified with lithium tert-butoxide	
		Methyl-paraoxon				1	0.15	RT, pH= 10.2, C(nanozyme) = N/A		26
		Paraoxon				35		25-27 ℃, pH= 10, C(nanozyme) = 830 μM		18
						99		25-27 ℃, water, C(nanozyme) = 830 μM		
		Soman				<1		25−27 ℃, pH= 10, C(nanozyme)		

								= 830 µM		
		o-ethyl S-2-(diisopropyl amino)ethyl methylphosphon othioate				2.2		25−27 ℃, pH= 10, C(nanozyme) = 830 µM		
						5.0		25−27 ℃, water, C(nanozyme) = 830 µM		
		Tabun				<1		25−27 ℃, pH= 10, C(nanozyme) = 830 µM		
						39		25−27 ℃, water, C(nanozyme) = 830 µM		
		Soman				3.15×10^2		pH= N/A, C(nanozyme) = N/A		28
						98			10 % PS-25 % UiO-66-NH_2-DMF	
						1.44×10^2			20 % PS-25 % UiO-66-NH_2-DMF	
						154×10^2			10 % PS-25 % UiO-66-NH_2-DMF/THF	
						95			20 % PS-25 % UiO-66-NH_2-DMF/THF	
		DMNP				2.8		25 ℃, pH= N/A,		25

								C(nanozyme) = 2.5 mg mL^{-1}		
		Dimethyl 4-nitrophenyl phosphate				2.5	2.5 × 10^{-2}	RT, pH= N/A, C(nanozyme) = 5.6 mg mL^{-1}		29
	UiO-66-NO_2	Methyl-paraoxon				45	5.2 × 10^{-3}	RT, pH= 10.2, C(nanozyme) = N/A		26
	UiO-66-$(OH)_2$	Methyl-paraoxon				60	4.7 × 10^{-3}	RT, pH= 10.2, C(nanozyme) = N/A		26
	UiO-66@LiOEt	2-chloroethylethylsulfide				30	2.83 × 10^{-4}	RT, pH= N/A, C(nanozyme) = 20 mg mL^{-1}		30
	UiO-66@LiOtBu					5	2.17 × 10^{-3}			
	UiO-67	Sodium para-nitrophenyl phosphate				30		55 ℃, pH= N/A, C(nanozyme) = 17 mol%		31
		Methyl-paraoxon				4.5	3.8 × 10^{-2}	RT, pH= 10.2, C(nanozyme) = full catalyst loading		26

						15	2.4×10^{-2}	RT, pH= 10.2, C(nanozyme) = half catalyst loading		
		DMNP				7.7		25 °C, pH= N/A, C(nanozyme) = 2.5 mg mL^{-1}		25
		VX				7.9		pH= 10, C(nanozyme) = 3.35 mg mL^{-1}		32
		Diisopropylfluorophosphate				87		RT, pH= N/A, C(nanozyme) = 40 mg mL^{-1}		27
						35			Modified with lithium tert-butoxide	
	UiO-67-0.25NH_2	Diisopropylfluorophosphate				46		RT, pH= N/A, C(nanozyme) = 40 mg mL^{-1}		
						4.7			Modified with lithium tert-butoxide	
	UiO-67-0.5NH_2	Diisopropylfluorophosphate				10		RT, pH= N/A, C(nanozyme) = 40 mg mL^{-1}		
						77			Modified with lithium tert-butoxide	
	UiO-67-0.75NH_2	Diisopropylfluorophosphate				2.3×10^{2}		RT, pH= N/A, C(nanozyme) =		
						1.4×10^{2}			Modified with lithium	

								40 mg mL^{-1}	tert-butoxide	
	$UiO\text{-}67\text{-}NH_2$	Diisopropylfluorophosphate				9.9×10^2		RT, pH= N/A, C(nanozyme) = 40 mg mL^{-1}		
						77			Modified with lithium tert-butoxide	
		Methyl-paraoxon				2	4.4×10^{-2}	RT, pH= 10.2, C(nanozyme) = full catalyst loading		26
						3.5	2.4×10^{-2}	RT, pH= 10.2, C(nanozyme) = half catalyst loading		
		VX				6		pH= 10, C(nanozyme) = 3.35 mg mL^{-1}		32
	$UiO\text{-}67\text{-}N(Me)_2$					1.8				
		Methyl-paraoxon				2	5.2×10^{-2}	RT, pH= 10.2, C(nanozyme) = full catalyst loading		26
						7	3.2×10^{-2}	RT, pH= 10.2, C(nanozyme) = half catalyst		

								loading		
Others	$K_{12}[Ti_2O_2][GeNb_{12}O_{40}]\cdot 19H_2O$	DMMP				3.24×10^3		water, C(nanozyme) = 41.6 mg mL^{-1}		33
		Diethyl cyanophosphonate				12		water, C(nanozyme) = 46.2 mg mL^{-1}		
	$Zr(OH)_4$	VX				< 1		pH= N/A, C(nanozyme) = N/A		34
						3			Calcined at 150 ℃	
						9			Calcined at 300 ℃	
						1.14×10^3			Calcined at 500 ℃	
						2.52×10^3			Calcined at 900 ℃	
Composite	Carbon nanotubes-peptides		1.66		1.03×10^{-3}			pH= 8, C(nanozyme) = 3.5 μg mL^{-1}	CNT-(SHE/W)$_{2:1}$-LKLKLKL	35
			2.89		1.67×10^{-3}				CNT-SHE-LKLKLKL	
			8.11		4.18×10^{-3}				CNT-LKLKLKL-EHS	
	CeO_2-Fe_2O_3	Parathion methyl			0.51			22 ± 1 ℃, pH= N/A, C(nanozyme)/C(s	Annealed at 700 ℃	36

								ubstrate) = 1 : 19		
	CuO-ZnO	HD				2.76×10^2		RT, dichloromethane, C(nanozyme) = 5 g mL^{-1}	CuO/ZnO = 9:1	37
						2.94×10^2			CuO/ZnO = 7:3	
						2.04×10^2			CuO/ZnO = 1:1	
						2.64×10^2			CuO/ZnO = 3:7	
						2.34×10^2			CuO/ZnO = 1:9	
						6.18×10^2			CuO/ZnO = 10:0	
						3.9×10^2			CuO/ZnO = 0:10	
	Co_3O_4/ rGO	Paraoxon	8.32×10^{-2}	3.3333×10^2	1.54×10^{-4}			60 ℃, pH= 10.5, C(nanozyme) = 6 mg mL^{-1}		38
	$H_5PV_2Mo_{10}O_{40}$ @MIL-101(Cr)	Sulfur mustard				26.38		25 ℃, dichloromethane, C(nanozyme) = 500 mg mL^{-1}		39
	KF/Al_2O_3	*o*-ethyl S-2-(diisopropyl amino)ethyl methylphosphon othioate				12		Water, C(nanozyme) = 5% wt		40
	PA-6@TiO_2@ UiO-66	DMNP				1.35×10^2		25 ℃, pH= N/A, C(nanozyme) =	PA-6 for polyamide-6	25

								2.5 mg mL^{-1}		
	PA-6@TiO_2@ UiO-66-NH_2					7.3		25 °C, pH= N/A, C(nanozyme) = 2.5 mg mL^{-1}		
	PA-6@TiO_2@ UiO-67					7.4		25 °C, pH= N/A, C(nanozyme) = 2.5 mg mL^{-1}		
	PA-6@TiO_2					1.17×10^3		25 °C, pH= N/A, C(nanozyme) = 2.5 mg mL^{-1}		
	PA-6					3.95×10^3		25 °C, pH= N/A, C(nanozyme) = 2.5 mg mL^{-1}		
	Polymethylmethacrylate /Ti(OH)$_4$/UiO-66	Methyl paraoxon				29		RT, water, C(nanozyme) = 3 mg mL^{-1}		41
	Polymer bead-GO	Paraoxon	13.5	0.233			0.65	RT, pH= 9, C(nanozyme) = 2 mg mL^{-1}	Polymer was copolymerized in the presence of vinyl group functionalized GO, 1-vinylimidazole (1-VI) containing the same imidazole	42

									group as histidine, and zinc ions		
	Si-Fe_3O_4	*p*-nitrophenyl alkyl esters				1.01		RT, pH= 7.6, C(nanozyme) = 75 μg mL^{-1}	Si-Fe_3O_4 functionalized with amine groups	Alkanoates were butyrate	43
						0.71				Alkanoates were octanoate	
						0.64				Alkanoates were decanoate	
						0.85			Si-Fe_3O_4 functionalized with imidazole groups	Alkanoates were butyrate	
						0.49				Alkanoates were octanoate	
						0.49				Alkanoates were decanoate	
						8.33			Si-Fe_3O_4 functionalized with carboxyl groups	Alkanoates were butyrate	
						7.26				Alkanoates were octanoate	
						6.31				Alkanoates were decanoate	
						15.68			Si-Fe_3O_4	Alkanoates were	

									functionalized with multi-groups including amine, imidazole, and carboxyl groups	butyrate	
						13.35				Alkanoates were octanoate	
						12.24				Alkanoates were decanoate	

Abbreviations

DMNP	dimethyl 4-nitrophenyl phosphate
MOF	metal–organic framework
HD	distilled mustard
HPNP	2-hydroxypropyl *p*-nitrophenyl phosphate
HPNPP	2-hydroxy propyl 4-nitrophenyl phosphate
N/A	not applicable
PS	polystyrene
RT	room temperature
Paraoxon	4-nitrophenyl phosphate
PEI	polyethyleneimine
Soman	*o*-pinacolyl methylphosphonofluoridate
TOF	turn over frequency
VX	*o*-ethyl S-(2-(diisopropylamino)-ethyl)methylphosphonothioate

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Note: (a) The data were collected from literatures and for reference only. (b) To unify the units in the table, some data have been converted.

Table S14. Theses on nanozymes

Author	Supervisor	Title	Degree	Degree granting institution	Year
Lizeng Gao	Xiyun Yan	New biological effects of nanomaterials and their applications in biosensors	PhD	Institute of Biophysics, Chinese Academy of Sciences, China	2006
Swanand Patil	Sudipta Seal	Fundamental aspects of regenerative cerium oxide nanoparticles and their applications in nanobiotechnology	PhD	University of Central Florida, the United States	2006
Eric Glenn Heckert	William T. Self	The generation and scavenging of radicals via cerium and nanoceria	Master	University of Central Florida, the United States	2007
Yi-Yang Tsai	Wolfgang Sigmund	Cerium-zirconium oxide nanocatalysts as free radical scavengers for biomedical applications	PhD	University of Florida, the United States	2008
Hui Wei	Erkang Wang	Some nanomaterials: synthesis, self-assembly and analytical applications	PhD	Graduate School of the Chinese Academy of Sciences, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, China	2009
Ashley Dawn Leonard	James M. Tour	Applications of functional carbon nanomaterials from hydrogen storage to drug delivery	PhD	Rice University, the United States	2010
Yujun Song	Xiaogang Qu	The application of carbon and silica nanomaterials for biomolecular recognition	PhD	Changchun Institute of Applied Chemistry Chinese Academy of Sciences, China	2010
Jie Zhuang	Xiyun Yan	The role of CD146 in VEGF-induced angiogenesis	PhD	Institute of Biophysics, Chinese Academy of Sciences, China	2010
Kerstin Koll	Wolfgang Tremel	Functionalization and characterization of magnetic nanoparticles for biomedical applications	PhD	Johannes Gutenberg University Mainz, Germany	2011
Wenbing Shi	Chengzhi Huang	Development of nanoparticle mimic enzyme-based analytical methods and applications	PhD	Southwest University, China	2011
Xiaohong Chen	Shufeng Liu	Nanomaterials gold of solution phase controlled preparation and analysis applied research	Master	Qingdao University of Science & Technology, China	2012
Lin Cui	Shiyun Ai	The construction of electrochemical sensors based on nanomaterials and detection of peroxide and nitrite	Master	Shandong Agriculture University, China	2012

Hui Wang	Yuming Huang	Application of magnetic nanoparticles to remove organic dye pollutants	Master	Southwest University, China	2012
Honglin Zhu	Guoqing Shen	Safety detection technology of agricultural products based on enzyme-like activity of magnetic nanoparticle	Master	Shanghai Jiaotong University, China	2012
Rute da Conceicao Tavares Andre	Wolfgang Tremel	Bioinspired composite materials and biomimetic catalysis	PhD	Johannes Gutenberg University Mainz, Germany	2012
Janet Marie Dowding	William T. Self	Cerium oxide nanoparticles act as a unique catalyst and scavenge nitric oxide and peroxynitrite and decrease RNS in vitro and in vivo	PhD	University of Central Florida, the United States	2012
Madhukar Babu Kolli	Eric R. Blough	The use of cerium oxide and curcumin nanoparticles as therapeutic agents for the treatment of ventricular hypertrophy following pulmonary arterial hypertension	PhD	Marshall University, the United States	2012
Yijuan Long	Chengzhi Huang	Bio-analytical chemistry investigations based on the enzyme mimic activity of gold nanoparticles	PhD	Southwest University, China	2012
Fang Wen	Xinrong Zhang	Development of sensitive optical chemical sensors with dual functional catalytical nanomaterials	PhD	Tsinghua University, China	2012
Jianxin Xie	Yuming Huang	Characteristics of nanomaterials as peroxidase mimetics and their analytical applications	PhD	Southwest University, China	2012
Yujin Chen	Yuming Huang	Development of metal nanomaterials as peroxidase mimetics and their analytical applications	Master	Southwest University, China	2013
Yun He	Yan Wang	Peroxidase-like activity and analytical application of cupric oxide nanoparticles and Cu-SBA-15	Master	Harbin Institute of Technology, China	2013
Yongji Li	Yuming Huang	Application of magnetic nanoparticles to remove toxic pollutants in water	Master	Southwest University, China	2013
Yongsong Wang	Yongsheng Wang	Detection methods of mercury and metallothioneins based on gold nanoparticle-mercury complex	Master	University of South China, China	2013
Weimin Zhang	Jianxiu Du	The peroxidase-like activity of Prussian blue nanoparticle and its application in the detection of hydrogen peroxide and glucose	Master	Shaanxi Normal University, China	2013

Bozhou Zou	Chengzhi Huang	Gold nanoparticles based visual analysis for quinidine and potassium ions detection	Master	Southwest University, China	2013
Kathryn Klump	James F. McGinnis	Redox-active nanoparticle regression of retinoblastoma: a novel therapeutic approach	PhD	University of Oklahoma, the United States	2013
Seung Soo Lee	Vicki L. Colvin	Synthesis and design of nanocrystalline metal oxides for applications in carbon nanotube growth and antioxidants	PhD	Rice University, the United States	2013
Youhui Lin	Jingsong Ren	Application of functional bionanomaterials in artificial enzyme and molecular recognition	PhD	University of Chinese Academy of Sciences, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, China	2013
Daniela C. Marcano	James M. Tour	Synthesis, characterization, and biological uses of carbon nanoparticles	PhD	Rice University, the United States	2013
Li Su	Xingguo Chen	Novel nanomaterials as peroxidase mimetics for the visual determination of glucose	PhD	Lanzhou University, China	2013
Jessica D. Weaver	Cherie L. Stabler	Development of anti-inflammatory biomaterials for islet transplantation	PhD	University of Miami, the United States	2013
Can Xu	Xiaogang Qu	Design and construction of biosensors and drug delivery systems based on artificial enzymes and nucleic acids	PhD	Changchun Institute of Applied Chemistry Chinese Academy of Sciences, China	2013
Junzhi Chen	Aihua Yuan	Preparation and characterization and peroxidase-like activity of iron series nanostructure	Master	Jiangsu University of Science And Technology, China	2014
Lijian Chen	Shiyun Ai	The fabrication of colorimetric biosensors based on ultrathin layered double hydroxides nanosheets and noble metal nanoparticles	Master	Shandong Agriculture University, China	2014
Huan Jiang	Yuming Huang	Construction of optical sensing system of nanozymes and their analytical applications	Master	Southwest University, China	2014
Bingyu Li	Yuezhong Xian	Preparation and application of graphene based biosensing system	Master	East China Normal University, China	2014
Zhenzhen Lin	Zenghong Xie, Chunlin Zhu	Application of near infrared (NIR)-absorbing nanomaterials in photothermal therapy and catalysis	Master	Fuzhou University, China	2014

Yali Liu	Yuanfang Li	Controlled synthesis of iron contained metal-organic frameworks Fe-MIL-88 and their applications as peroxidase mimic	Master	Southwest University, China	2014
Ruifang Ma	Zhengyi Fu, Peiyan Ma	Preparation of copper sulfide nanocomplex and the enzyme-like catalytic property	Master	Wuhan University of Technology, China	2014
Xiaoying Niu	Hongli Chen	The study on peroxidase mimetics of novel doped magnetic nanomaterials and its application	Master	Soochow University, China	2014
Xianwei Wang	Chunlin Zhu	Development of hollow mesoporous carbon nanocomposites as nanozymes and their analytical application	Master	Fuzhou University, China	2014
Xiufang Xu	Zaijun Li	Nanomaterials as enzyme mimetics and its application in analysis	Master	Jiangnan University, China	2014
Jianan Zhang	Yan Wang	The enzyme mimetic activity of copper sulfide compounds and their application in the degradation of organic pollutants	Master	Harbin Institute of Technology, China	2014
Xuyin Zhao	Wei Li	Construction and application of DNA-based metallozymes	Master	Tianjin University, China	2014
Kelong Fan	Xiyun Yan	Ferritin nanoparticles: novel property and application for tumor detection and therapy	PhD	University of Chinese Academy of Sciences, China	2014
Jianshuai Mu	Yan Wang	Research on mimetic enzyme properties and analytical applications of Co_3O_4 nanomaterials	PhD	Harbin Institute of Technology, China	2014
Yu Tao	Jingsong Ren	The construction and application of metal nanoclusters and artificial enzyme	PhD	University of Chinese Academy of Sciences, China	2014
Amit Ashok Vernekar	Govindasamy Mugesh	Bio-inspired materials: antioxidant and phosphotriesterase nanozymes	PhD	Indian Institute of Science, India	2014
Teng Xue	Yu Huang	Biomimetic catalysts of graphene conjugates and palladium nanoparticles	PhD	University of California, Los Angeles, the United States	2014
Fengqing Chen	Wei Chen	Peroxidase-like activity of carboxymethyl chitosan modified palladium nanoparticles	Master	Fujian Medical University, China	2015
Shaobin He	Wei Chen	Synthesis and applications of noble metal-protein core-shell nanomaterials	Master	Fujian Medical University, China	2015
Wu Jiang	Hong Zhou	Study on the superoxide dismutase and catalase-like activities of simulant	Master	Wuhan Institute of Technology, China	2015

Luyi Jin	Guangli Wang	Preparation of nanomaterials with enzyme mimicking activity and their analytical applications	Master	Jiangnan University, China	2015
Hao Li	Kezheng Chen	Preparation and characterization of bare earth doped Gd_2O_3/$NaGd(SO_4)_2$ nanoparticles	Master	Qingdao University of Science & Technology, China	2015
Leilei Li	Wei Wang	Synthesis of peroxidase nanozymes and their application in green synthesis of water-soluble conducting polymers	Master	Qingdao University of Science & Technology, China	2015
Lili Li	Lunhong Ai	Research on the biosensors based on nano/micro-materials with peroxidase mimetic activity	Master	China West Normal University, China	2015
Na Li	Min Zhao	Mimetic enzyme activity and application of magnetic nanoparticles extracted from *Stenotrophomonas sp*.	Master	Northeast Forestry University, China	2015
Suping Li	Yuejin Tong, Guobao Xu	Analytical application study of catalytic active nano/micromaterials	Master	Fujian Normal University, China	2015
Zibin Li	Zenghong Xie	Controlled synthesis and application of hollow copper sulfide nanoparticles and nanocomposites	Master	Fuzhou University, China	2015
Xiaoqing Lin	Wei Chen	Study on platinum nanoparticles-graphene oxide hybrid with excellent peroxidase-like activity	Master	Fujian Medical University, China	2015
Weiyan Liu	Jiadong Huang	Development of nanoparticle mimic enzyme-based biomimetic sensor and applications	Master	Jinan University, China	2015
Yanhua Ma	Xingguo Chen	Study on the preparation of novel nanozymes and their applications	Master	Lanzhou University, China	2015
Fengmin Qiao	Lifang Li, Shiyun Ai	Construction of optical sensing system biosensor based on Se and g-C_3N_4 nanozymes for detection application	Master	Shandong Agriculture University, China	2015
Wenjie Qin	Xingguo Chen	Catalytic activity of nanomaterials as oxidase mimics and its application in food analysis	Master	Lanzhou University, China	2015
Yun Shi	Yi Yang	Application of magnetic microspheres in biological samples and environment contaminants detection	Master	Beijing University of Chemical Technology, China	2015
Jinxia Shu	Zhonghua Wang	Studies on the preparation, characterization and property of Ag/Cu-containing nanomaterials	Master	China West Normal University, China	2015

Xiaoping Wu	Ruo Yuan	Study on electrochemiluminescence enzyme biosensor based on novel carbon nanocomposites	Master	Northwest University, China	2015
Jian Xu	Xiaohong Wang	The study of the colorimetric immunoassay based on transition-metal-substituted polyoxometalates	Master	Northeast Normal University, China	2015
Xia Yang	Zhifei Wang	The catalytic property of Pt@SiO_2 nanozyme and its signal amplification in biological detection	Master	Southeast University, China	2015
Xiao Yang	Jun Wan	Research in electrochemical sensing for hydrogen peroxide based on nanocomposites	Master	Qingdao University of Science and Technology, China	2015
Yanbo Zeng	Jiaqiang Wang, Wei Wang	Intrinsic peroxidase-like activity of Fe-MIL-101	Master	Yunnan University, China	2015
Hongmei Zhan	Chunlin Zhu	Application of mesoporous carbon nanoparticles in photothermal therapy and tungsten oxide hybrids as nanozymes	Master	Fuzhou University, China	2015
Haixiang Zhang	Wei Li	Synthesis of glutathione-capped metal nanoparticles and the application for heavy metal ions detection	Master	Tianjin University, China	2015
Xin Zhang	Guangfei Liu	Biopreparation of rGO and effects of rGO-based materials on nitrobenzene bioreduction	Master	Dalian University of Technology, China	2015
Kai Zhao	Yuezhong Xian	Preparation and application of molybdenum disulfide and its composites	Master	East China Normal University, China	2015
Xuejing Zheng	Hongli Chen	The study on synthesis and catalytic performance of the three-dimensional graphene nanohybrids and its application	Master	Lanzhou University, China	2015
Liangshuang Zhong	Liangqia Guo	The catalytic activity of transition metal dichalcogenides and their application	Master	Fuzhou University, China	2015
Zheng Zhou	Stacey L. Harper	Studies on effect of stabilizers, chelators and inherent periodicity on nanoparticle antioxidant activity	Master	Oregon State University, the United States	2015
Xin Jiang	Li Xu	Research on Construction Novel Mimetic Enzyme Based on Bio-inspired Nanostructures	PhD	Jilin University, China	2015
Errol Loïc Graeme Samuel	James M. Tour	Carbon-based nanomaterials and their medical applications	PhD	Rice University, the United States	2015

Weijie Shi	Lusheng Zhu	Synthesis of carbon materials based on lignin and humic acid and their applications in biochemical analysis	PhD	Shandong Agricultural University, China	2015
Qunwei Shu	Chengzhi Huang	Studies on the controllable synthesis and biochemical analysis of Cu-based chalcogenides nanomaterials	PhD	Southwest University, China	2015
Hui Zhao	Pingping Jiang	Reparation, catalytic performance and mechanism of several metal oxide nanocatalysts	PhD	Jiangnan University, China	2015
Genxia Cao	Guangli Wang	Development of enzyme-catalyzed biosensors and their analytical applications	Master	Jiangnan University, China	2016
Yue Cao	Zhanjun Yang	Studies on novel label-free chemiluminescence immunoassay	Master	Yangzhou University, China	2016
Gaosong Chen	Baodui Wang	Based on the preparation and characterization of artificial nanozymes and their application in biological detection and degradation of environmental pollutants	Master	Lanzhou University, China	2016
Jing Chen	Lingbo Qu, Zhaohui Li	Functionalized graphene nanomaterials as highly-efficient peroxidase mimics and their applications	Master	Zhengzhou University, China	2016
Meiying Cui	Bin Qiu	Study and application of metal-organic frameworks as peroxidase mimic	Master	Fuzhou University, China	2016
Shaowei Gao	Fangtian You, Hongshang Peng	The study of optical enzymatic glucose and hydrogen peroxide nanosensors	Master	Beijing Jiaotong University, China	2016
Yan Gao	Junwei Di	Non-enzyme glucose photochemical sensor research based on the Au/Ag nanoparticles	Master	Soochow University, China	2016
Lingshan Gong	Hong Dai	The construction and application of new dual-mode immunosensors based on various nanomaterials	Master	Fujian Normal University, China	2016
Xinrong Guo	Fangying Wu, Yongnian Ni	Preparation of two-dimensional layered materials of molybdenum, tungsten and graphitic carbon nitrogen, and their application in practical detections	Master	Nanchang University, China	2016
Hong Jiang	Guangfeng Wang	The design and application of signal amplification by exploiting the conformational change of DNA	Master	Anhui Normal University, China	2016

Zhongwei Jiang	Yuanfang Li	The synthesis of iron-based metal－organic framework composites and their application in pharmaceutical analysis	Master	Northwest University, China	2016
Rongchao Li	Feng Luan, Zhaopeng Chen	Study on the application of gold nanomaterials in enzyme linked immunosorbent assay	Master	Yantai University, China	2016
Sha Lin	Xiaomei Zhang	Functionalized porous organic frameworks: synthesis, characterization and properties	Master	Shandong University, China	2016
Min Liu	Yanfeng Huang	Study on preparation and biomimetic catalytic performance of MOFs derived composites	Master	Tianjin Polytechnic University, China	2016
Shujun Liu	Jianwei Fu, Qun Xu	Fabrication of polydopamine based nanocomposites and their applications in catalysis	Master	Zhengzhou University, China	2016
Xiaomin Liu	Heyou Han	Preparation and research for peroxidase-like activity of nitrogen doped porous carbon composite platinum nanomaterials	Master	Huazhong Agricultural University, China	2016
Zhijing Liu	Chunyan Li	DNA electrochemical biosensors based on DNA concatamers and bimetallic nanoclusters for the detection of microRNA and VEGF	Master	Fujian Medical University, China	2016
Yuting Mao	Chengzhi Huang	Synthesis of copper chalcogenides micromaterials and their applications in biochemical analysis	Master	Northwest University, China	2016
Craig J. Neal	Sudipta Seal	Fabrication and investigation of an enzyme-free, nanoparticle-based biosensor for hydrogen peroxide determination	Master	University of Central Florida, the United States	2016
Jilong Sang	Shimei Xu	Preparation and catalytic oxidation of hydrogel-supported Fe_3O_4 nanozyme	Master	Xinjiang University, China	2016
Tian Tian	Lunhong Ai	Solution synthesis of transition metal tungstate (molybdate) and their catalytic properties	Master	China West Normal University, China	2016
Lu Wan	Ping Feng	Application of iron-based metal-organic frameworks as mimetic peroxidase	Master	Northwest University, China	2016
Nan Wang	Shiyun Ai	Construction of color sensing based on the preparation of copper functional nanomaterials	Master	Shandong Agricultural University, China	2016

Xiaofeng Wang	Yongsheng Wang	A new principle and method on lead(II) test based on DNA nuclear enzymes and gold-lead mimetic enzyme	Master	University of South China, China	2016
Yuhao Xiong	Fanggui Ye	The fabrication and application of novel enzyme mimetics	Master	Guangxi Normal University, China	2016
Yanzhen Yu	Chengjun Sun	Preparation of ferric vanadate nanomaterials with peroxidase activity in visualization of hydrogen peroxide	Master	The First Institute of Oceanography, State Oceanic Administration, China	2016
Juan Zhang	He Li	Detection of tumor markers with the naked eye	Master	Jinan University, China	2016
Xiao Zhang	Jianlong Wang	Development of novel colorimetric methods based on nanoceria	Master	Northwest A & F University, China	2016
Chao Zhao	Yuanfang Li	Applications of metal-organic frameworks MIL-88(Fe) in the assay of dopamine	Master	Northwest University, China	2016
Longyun Zhao	Yuezhong Xian	Research of graphene nanomaterials and nanoceria-based optical sensors	Master	East China Normal University, China	2016
Fangqing Zhen	Jianlong Wang	Preparation of BSA-coated cerium oxide artificial enzyme and its catalytic activity study	Master	Northwest A & F University, China	2016
Xing Zhi	Wei Li	Synthesis of palladium-based nanozyme and its application on the sensing of sulphur-containing substances	Master	Tianjin University, China	2016
Daomei Chen	Jiaqiang Wang	Enzyme mimics of Cu-MOF and Fe-MIL-101 and their effects on cancer cells	PhD	Yunnan University, China	2016
Bradley P. Duncan	Vincent M. Rotello	Supramolecular strategies for the generation of nanoparticle assemblies and biomolecular thin films.	PhD	University of Massachusetts Amherst, the United States	2016
Wenqiang Lai	Dianping Tang	Study on signal amplification strategy for the construction of electrochemical and colorimetric immunoassay	PhD	Fuzhou University, China	2016
Jo-Won Lee	Bo K. Moon	Application of gold@platinum nanoparticles as an oxidative enzyme mimetic in foods and their anticancer effects	PhD	Chung-Ang University, Korea	2016
Biwu Liu	Juewen Liu	DNA/Metal oxide nanoconjugates: fundamental understandings and analytical applications	PhD	University of Waterloo, Canada	2016
Yuan Liu	Weihong Tan	Surface functionalization of inorganic colloidal nanoparticles for biochemical applications	PhD	University of Florida, the United States	2016
Ruben Ragg	Wolfgang Tremel	Inorganic nanoparticles as enzyme mimics	PhD	Johannes Gutenberg University Mainz, Germany	2016

Shashank Saraf	Sudipta Seal	Development of enzyme-free hydrogen peroxide biosensor using cerium oxide and mechanistic study using in-situ spectro-electrochemistry	PhD	University of Central Florida, the United States	2016
Hanjun Sun	Xiaogang Qu	Synthesis of functional graphene quantum dots, their catalytic mechanism as artificial peroxidase and antibacterial application	PhD	University of Chinese Academy of Sciences, China	2016
Yong Zhang	Jiatao Zhang, Bin Tong	Controllable preparation and applications in sensing analysis of noble metal core@shell nanocrystals	PhD	Beijing Institute of Technology, China	2016
Miao Dong	Ping Feng	The application of metal organic framework and its derivatives as peroxidase mimetics	Master	Southwest University, China	2017
Wenjing Guo	Hui Wei	The study of regulating the peroxidase-like activity of nanoceria	Master	Nanjing University, China	2017
Cuiting Hao	Li Xu	Protein-controlled synthesis of copper nanoclusters act as enzymatic mimics	Master	Jilin University, China	2017
Jie Hu	Yong Wang, Yongnian Ni	Preparation of fluorescent molybdenum disulfide nanomaterials and their application for detection of some ions in environmental samples	Master	Nanchang University, China	2017
Zhentao Hua	Wei Wang	Preparation of micro-nanomaterials of copper phosphoric acid and their photothermal conversion properties	Master	Qingdao University of Science & Technology, China	2017
Yanqin Huang	Yongsheng Wang	Biosensing of heavy metal ions based on functional nucleic acids and protamine gold nanoparticles	Master	University of South China, China	2017
Linlin Liang	Jinghua Yu	The construction of visual biosensors based on carbon-based nanomaterial	Master	University of Jinan, China	2017
Danlin Li	Songhai Wu, Hailong Yuan	Research on preparation of mimetic enzyme based on ZIF-8 and their biomimetic catalytic performance	Master	Tianjin University, China	2017
Xuejiao Li	Shengyuan Yang, Yongsheng Wang	Study on catalytic performance and application of mimetic enzymes based on gold nanocomposites	Master	University of South China, China	2017
Xianwen Liu	Yinghua Zhou	Construction of the composite nanoparticles supported by copper complexes and the study of the catalytic performance for disproportionation of superoxide anion radical	Master	Anhui Normal University, China	2017

Ling Long	Yantao Chen	Nano-silver antibacterial agent and the preparation and properties of new nanozyme	Master	Shenzhen University, China	2017
Shuaimin Lu	Jinmao You, Guoliang Li	Construction of several new nano-sensors and their applications in biological analysis	Master	Qufu Normal University, China	2017
Jia Lv	Honghong Chang, Bing Zhang, Shu Yan	Construction and properties of colorimetric sensor based on Co_3S_4 and AgI nanomaterials	Master	Taiyuan University of Technology, China	2017
Li Ma	Yanfeng Huang	Study on the peroxidase mimetic activity of nanoparticle@MOFs composite	Master	Tianjin Polytechnic University, China	2017
Lingyun Ning	Guoliang Zhang	Preparation of multicomponent metal/graphene mimic enzyme and its application in sensors	Master	Tianjin University, China	2017
Yutao Peng	Aihui Liang	A novel SPR-RRS and SERS analytical platform for detection of trace potassium and amonian based on aptamer and ligand-regulation of nanosilver catalysis	Master	Guangxi Normal University, China	2017
Bing Wang	Chengjun Sun	The preparation, characterization and peroxidase activity study of iron molybdate and cerium vanadate with different morphology	Master	The First Institute of Oceanography, State Oceanic Administration, China	2017
Chunshuai Wang	Nandi Zhou	Research on the activity of nano-mimic enzyme and its application in detection of antibiotics	Master	Jiangnan University, China	2017
Jiangning Wang	Yi Yang	CeO_2-based nanocomposites as mimetic enzymes and their applications in analysis of ascorbic acid	Master	Beijing University of Chemical Technology, China	2017
Kuiyuan Wang	Yan Wang	The enzyme-like activity of $LaCoO_3$ and $LaCoO_3$-SBA-15 and their application in biodetection	Master	Harbin Institute of Technology, China	2017
Xiaoliang Wang	Zhiliang Jiang	SERS detection of HCG and Hg(II) by peptides and aptamer regulating the activity of GO nano-enzyme	Master	Guangxi Normal University, China	2017
Xiu Wang	Mei Yan	Preparation of MoS_2, research and applications of its peroxidase-like property	Master	University of Jinan, China	2017
Liangliang Wu	Chifang Peng	Colorimetric assay based on DNA-Ag/Pt nanoclusters mimic enzyme	Master	Jiangnan University, China	2017

Siyuan Wu	Wenbo Song	Application of molybdenum disulfide nanosheets and functionalized graphene in biosensors	Master	Jilin University, China	2017
Yaokun Xia	Jinghua Chen	Optical methods based on carbon nanomaterials for the detection of DNA and exosomes	Master	Fujian Medical University, China	2017
Kaige Xu	Yage Peng, Xiaoyong Jin	Study on biofuel cell and biosensor applying MWCNTs nanocomposites mimic enzymes as catalysts	Master	Ningxia University, China	2017
Xueling Yi	Yuming Huang	Peroxidase-like activity of Fe(III)-contained nanomaterials and their analytical applications	Master	Southwest University, China	2017
Zeying Zhang	Yingshuai Liu	Studies on nanomaterial-based novel colorimetric immunoassays and their applications in tumor marker detection	Master	Southwest University, China	2017
Kunkun Zhen	Peijun Ji	Study on peroxidase-like activity of cerium organic framework supported Pt nanoparticles and its application	Master	Beijing University of Chemical Technology, China	2017
Dandi Zhou	Shiyun Ai	The application of nano carbon materials in electrochemical immunoassay of avian leucosis virus	Master	Shandong Agricultural University, China	2017
Zhiqiang Zuo	Hanping Mao	Pesticides determination based on colorimetric method with nanomaterials and microfluidic chip	Master	Jiangsu University, China	2017
Swetha Barkam	Sudipta Seal	The study of physiochemical properties of cerium oxide nanoparticles and its application in biosensors	PhD	University of Central Florida, the United States	2017
Malin Cui	Qijun Song	Preparations, properties and analytical applications of noble metal iridium nanomaterials	PhD	Jiangnan University, China	2017
Ankur Gupta	Sudipta Seal	Redox-active solid state materials and its biomedical and biosensing application	PhD	University of Central Florida, the United States	2017
Karoline Herget	Wolfgang Tremel	Haloperoxidase mimics - heterogeneous and functional catalysis of oxidative halogenation reactions	PhD	Johannes Gutenberg University Mainz, Germany	2017
Yihui Hu	Hui Wei	Nanozymes and lanthanide-based luminescent probes for bioassays	PhD	Nanjing University, China	2017
Chia-Wen Lien	Huan-Tsung Chang	Synthesis of nanozymes for sensing of proteins, heavy metal ions, and anions	PhD	National Taiwan University, Taiwan, China	2017

Yuan Lu	Haixia Zhang	Construction of novel transition metal-based nanozymes and their applications in colorimetric analysis	PhD	Lanzhou University, China	2017
Sloan-Dennison Sian	Karen Faulds	The synthesis of stable nanotags for the detection of biomolecules using surface enhanced Raman scattering	PhD	University of Strathclyde, the United Kingdom	2017
Gulen Yesilbag Tonga	Vincent M. Rotello	Nanoparticle as supramolecular platform for delivery and bioorthogonal catalysis	PhD	University of Massachusetts Amherst, the United States	2017
Qiang Wang	Xuebin Ma, Yuming Huang	Preparation of novel pore structure material and its application in analytical chemistry	PhD	Southwest University, China	2017
Yumin Wang	Jianhui Jiang	Molecular theranostics based on functional nucleic acid amplification and nanomaterials	PhD	Hunan University, China	2017
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Zijian Zhao	Xuri Huang	Study on the effect of organic media and self-assembly nanostructure on the enzyme-like activity of DhHP-6	PhD	Jilin University, China	2017
Cong Wu	Jujie Ren, Bin Zhao	Construction and performance study of a novel superoxide anion electrochemical sensor based on Mn-SOD mimic enzyme	Master	Hebei University of Science and Technology, China	2018
Jia Yao	Hui Wei	ROS scavenging Mn_3O_4 nanozymes for in vivo anti-inflammation	Master	Nanjing University, China	2018
Benjamin Edward Reiners Snyder	Edward I Solomon	Iron and copper active sites in zeolites and their correlation to metalloenzymes	PhD	Stanford University, the United States	2018
Mustafa Salih Hizir	Mehmet V. Yigit	DNA functionalized nanoparticles in nanobiosensor and sensor array development for molecular diagnostics and in vitro identification of biomolecules	PhD	State University of New York, the United States	2018
Hankun Yang	Xueji Zhang, Lei Su	Study on the preparation and catalysis property of Fe-N-C material as oxidase-like nanozymes	PhD	University of Science and Technology Beijing, China	2018

Note: If your thesis is not included here, please contact us at weihui@nju.edu.cn. We can add your thesis in the updated table.

The website linkage for the detailed timeline of nanozymes

http://weilab.nju.edu.cn/research/nanozymetimeline.html