Supporting Information

Highly dispersed CeO_2 on TiO_2 nanotube: A synergistic nanocomposite with superior peroxidase-like activity

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Table S1 Comparison of the apparent Michaelis-Menten constant (K_m) and maximal velocity (V_m) of the CeO_2/NT-TiO_2@0.1 and other peroxidase mimics.

Catalyst	K_m (mM)		V_m (M s^{-1})		Ref.
	H_2O_2	TMB	H_2O_2	TMB	
CeO_2/NT-TiO_2@0.1	0.04	0.097	2.27×10^{-8}	5.54×10^{-8}	This work
Fe_3O_4 MNPs	154	0.098	9.78×10^{-8}	3.44×10^{-8}	1
Pt-Ft	187.25	0.22	0.32	5.58×10^{-4}	2
CGN	245	0.12	2.85×10^{-7}	3.32×10^{-7}	3
H-GNs	2.256	5.100	5.06×10^{-8}	4.55×10^{-8}	4
FeS	7.2	0.13	/	/	5
DIONrods	1.3	0.5	9.8×10^{-8}	11.6×10^{-8}	6
PBMNPs	323.6	0.307	1.17×10^{-6}	1.06×10^{-6}	7
$ZnFe_2O_4$ MNPs	1.66	0.85	7.74×10^{-8}	1.33×10^{-7}	8
$Fe_{0.5}Co_{0.5}$ NPs	0.06	1.79	1.32×10^{-7}	4.56×10^{-7}	9
GO-AuNCs	142.39	0.16	/	/	10

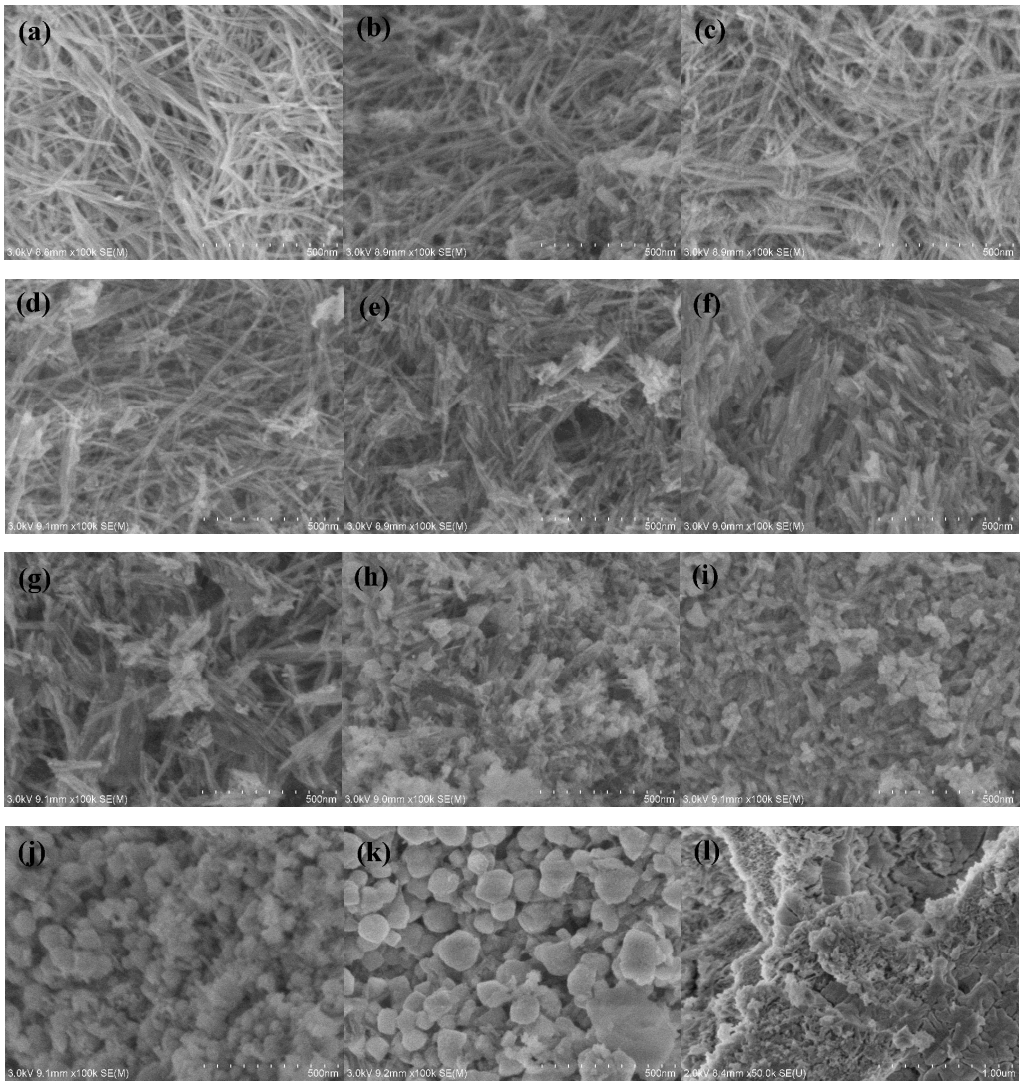

Figure S1 SEM images of TiO_2, CeO_2 and CeO_2/TiO_2: (a) NT-TiO_2; (b) CeO_2/NT-TiO_2@0.01; (c) CeO_2/NT-TiO_2@0.017; (d) CeO_2/NT-TiO_2@0.025; (e) CeO_2/NT-TiO_2@0.05; (f) CeO_2/NT-TiO_2@0.1; (g) CeO_2/NT-TiO_2@0.2; (h) CeO_2/NT-TiO_2@0.5; (i) CeO_2/NT-TiO_2@1; (j) CeO_2/NT-TiO_2@2; (k) CeO_2/NT-TiO_2@5; (l) NP-CeO_2.

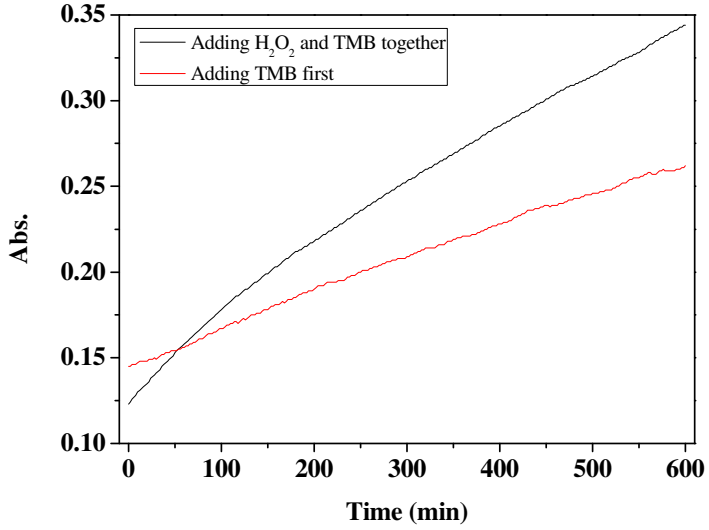

Figure S2 Time-dependent absorbance changes at 652 nm of TMB over CeO_2/NT-TiO_2@0.1 under different conditions.

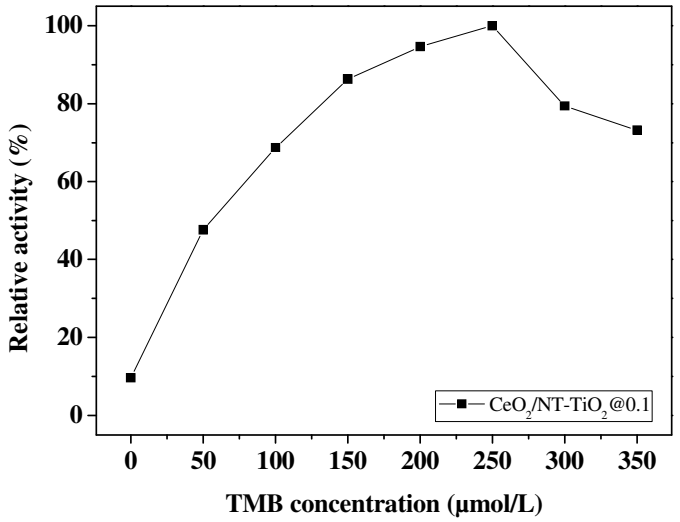

Figure S3 Dependence of the peroxidase-like activity on TMB concentration. The maximum point of each curve was set as 100%.

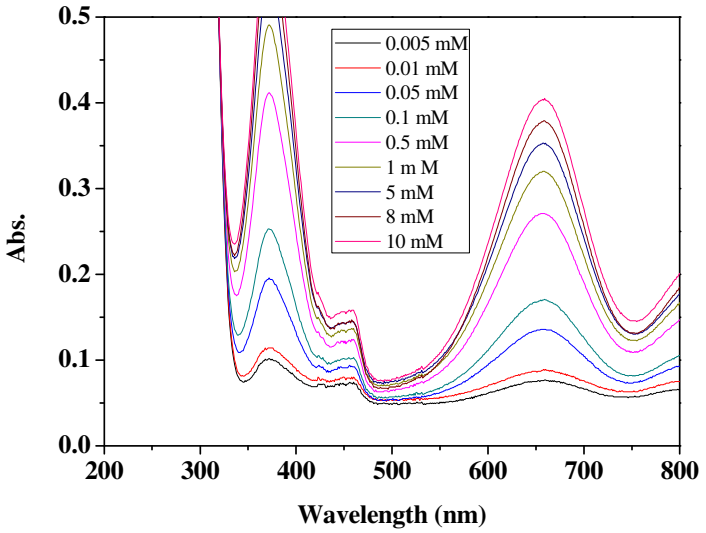

Figure S4 UV-vis spectra of TMB solution with different H_2O_2 concentration after 10 min over CeO_2/NT-TiO_2@0.1.

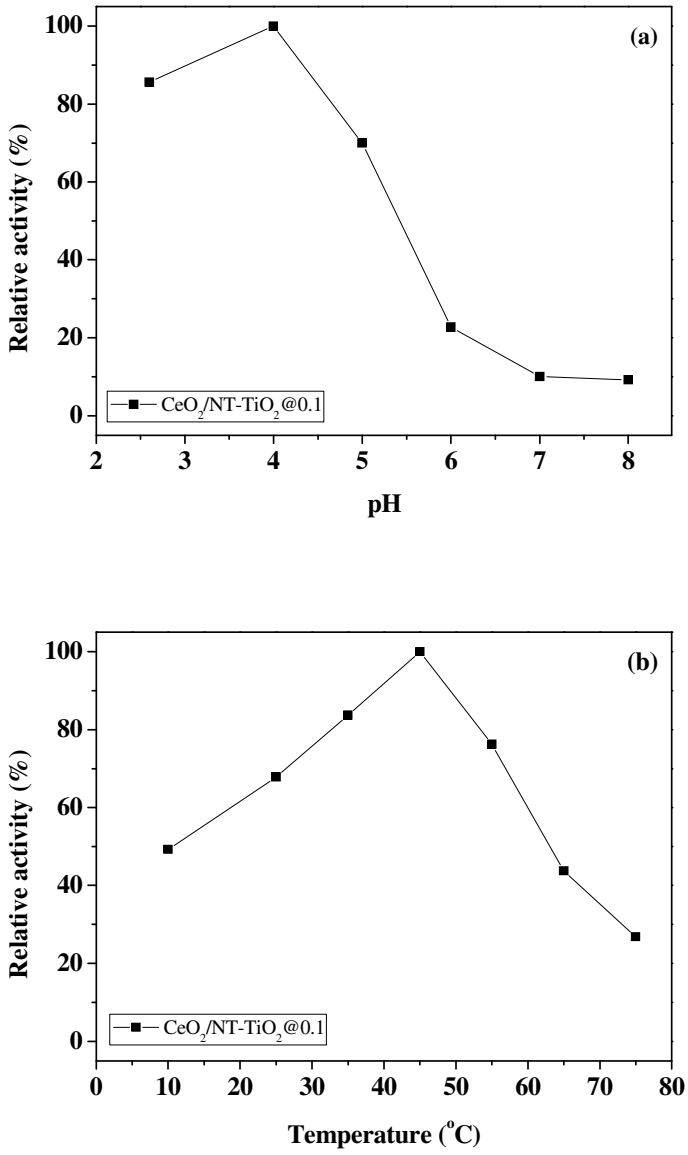

Figure S5 Dependence of the peroxidase-like activity on (a) pH and (b) temperature. The maximum point of each curve was set as 100%.

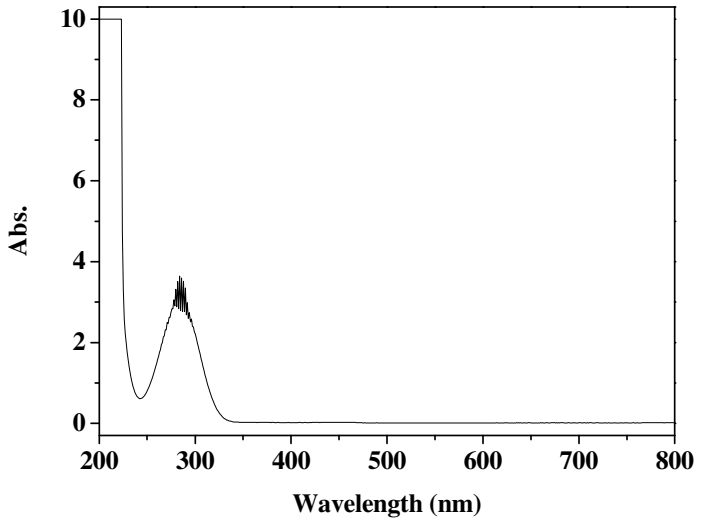

Figure S6 UV-vis spectra of TMB incubating with the supernatant solution.

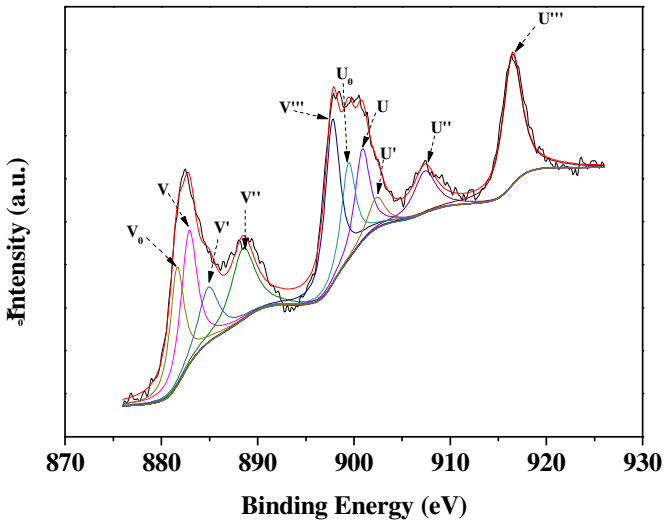

Figure S7 High-resolution Ce 3d XPS spectra of pure CeO_2.

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