Electronic Supplementary Material (ESI) for Analytical Methods.

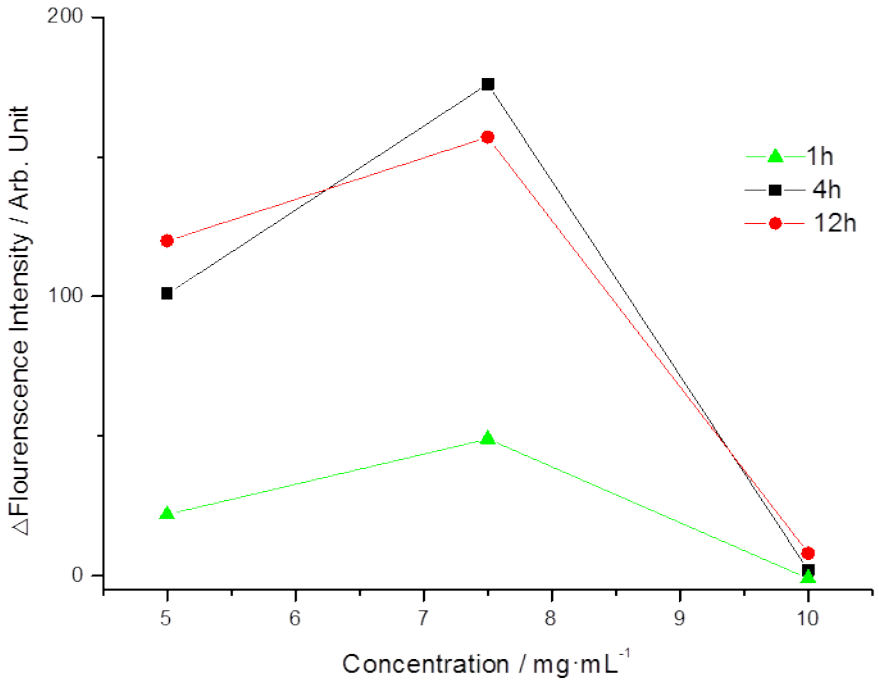

Fig S1. Effect of FITC concentration on H_2O_2 detection

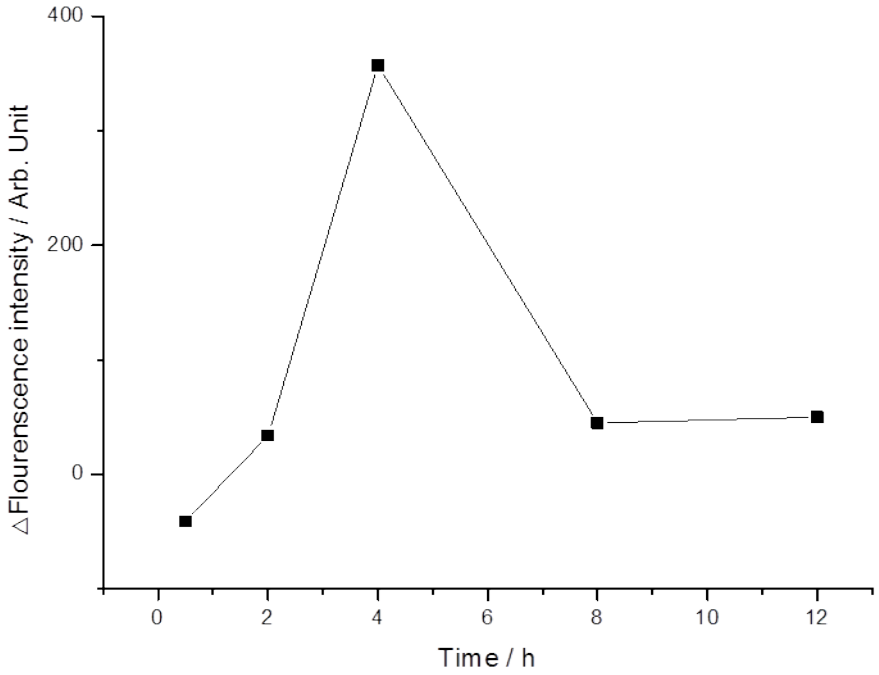

Fig S2. Effect of conjugation time on H_2O_2 detection

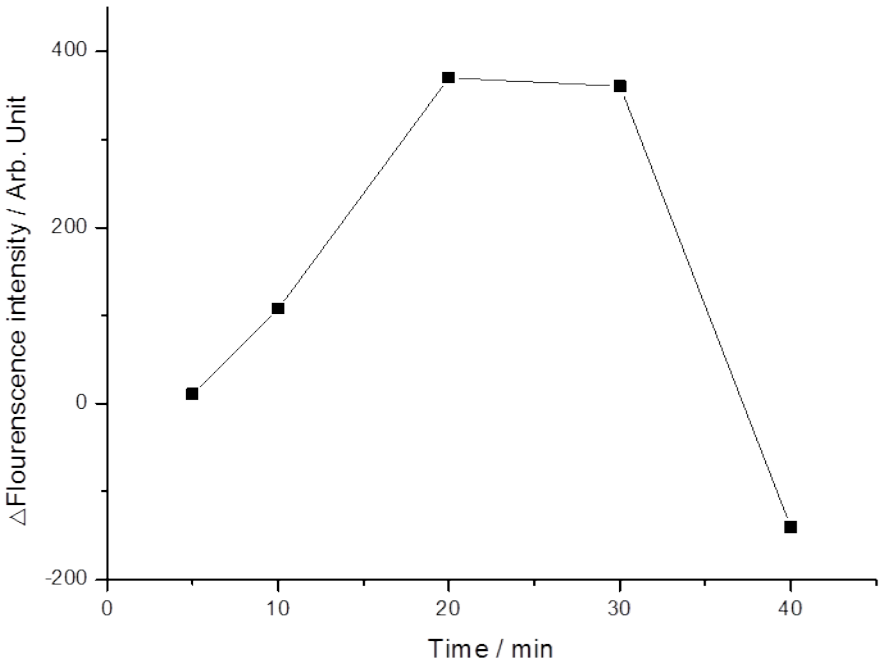

Fig. S3. Effect of etching time on H_2O_2 detection.

Table S1: Comparison of methods for detection of hydrogen peroxide.

Methods	**Technique in detail**	**Test media**	**Selectivity**	**Detection limit**	**Response Range**	**Ref.**
Colorimetry	Catalytic reduction property of silver nanoparticals	Ultrapure water	Good	10 nM	0.05-50 μM	1
Colorimetry	Intrinsic peroxidase-like catalytic activity of nitrogen-doped grapheme quantum dots	H_3PO_4–NaH_2PO_4 buffer (0.1 M pH 3.0)	Good	5.3 μM	20–1170 μM	2
Colorimetry	Homogeneous, unmodified gold nanoparticle	Citrate buffer (10 mM)	Good	Not given	1.3-41 μM	3
Colorimetry	Promising peroxidase mimetics by NiO nanoparticles modified with 5,10,15,20-tetrakis(4-carboxylpheyl)-porphyrin	HAc-NaAc buffer (0.026 M, pH 3.8)	Good	8 μM	Not given	4
Colorimetry	Prussian blue nanoparticles as peroxidase mimetics	Acetate buffer (0.2 M, pH 4.0)	Good	0.03 μM	0.1 μM-50.0 μM	5
Colorimetry	Peroxidase-like activity of water-soluble cupric oxide nanoparticles	Phosphate buffer (20 mM pH 6.0)	Good	Not given	0.01–1.0 mM	6
Fluorometry	Fluorescent detection of H_2O_2 based on Fe_3O_4 magnetic microspheres Enzyme mimetics	Phosphate buffer (50 mM, pH 3.0)	Good	0.008 μM	0.04-20 μM	7

Methods	Technique in detail	Test media	Selectivity	Detection limit	Response Range	Ref.
Fluorometry	Fluorescence enhancement of CdTe MPA-capped quantum dots by glutathione	Water	Good	0.0012%	0.0025%-0.04%	8
Fluorometry	Carbon quantum dots fabricated by dielectric barrier discharge-assisted one-pot strategy	Acetate buffer solution(10 mM, pH 5.0)	Good	3.8 μM	10-150 μM	9
Fluorometry	Polyethyleneimine-capped silver nanoclusters	Glycine buffer(20 mM, pH 9.0)	Good	0.4μM	1-10 μM	10
Fluorometry	Polyethyleneimine-templated Cu nanolusters	Phosphate buffer (20 mM, pH 8.0)	Good	0.4 μM	0.5-10 μM	11
Fluorometry	H_2O_2 can oxidize the highly reactive sharp edges/tips of silver nanoprism-dye complex	Sodium citrate solution (15 mM, pH 8.0)	Good	4 nM	0.01-100 μM	Our work

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