ASSOCIATED CONTENT

Supporting Information. Electronic Supplementary Information (ESI) available: [Additional Details on synthesis and characterization of the $ZnFe_2O_4$ NPs-decorated ZnO NFs.]. See DOI: 10.1039/b000000x/

S1. The detailed procedures for the synthesis of the composite nanofibers.

$ZnFe_2O_4$-decorated ZnO NFs were synthesized by a sol-gel process and coelectrospinning followed by calcinations. In a typical procedure, PVA sol solution (6-12 wt%) was prepared through water bath at 85 °C first, and then zinc acetate (2.19 g) was added into 30 ml as-prepared PVA solution with stirring and heating, during the time 2 ml alcohol was dropwise added into the solution. After aging the viscous precursor was used for inner sol solutions. In a similar way, the Zn $(CH_3COO)_2$ and Fe $(NO_3)_3$ aqueous solution with the mole ratio of 1:2 were added into the PVA solution and mixed by stirring at room temperature for 30 min. Then the mixture was heated at 60 °C for 10 min, and during the process alcohol was dropwise added into the solution. After aging the viscous precursor was used for outer sol solutions. In the coelectrospinning process, the collection distance between spinneret tip and collector is about 15 cm and the applied voltage is about 10 kV. The obtained coelectrospinning nanowires were collected and dried at room temperature and then calcinated in a tube furnace at the temperature ranges of 500-800 °C in air. $ZnFe_2O_4$-decorated ZnO NFs with various sizes were prepared at different annealing temperatures. The prepared composite nanofibers were washed with water for purification.

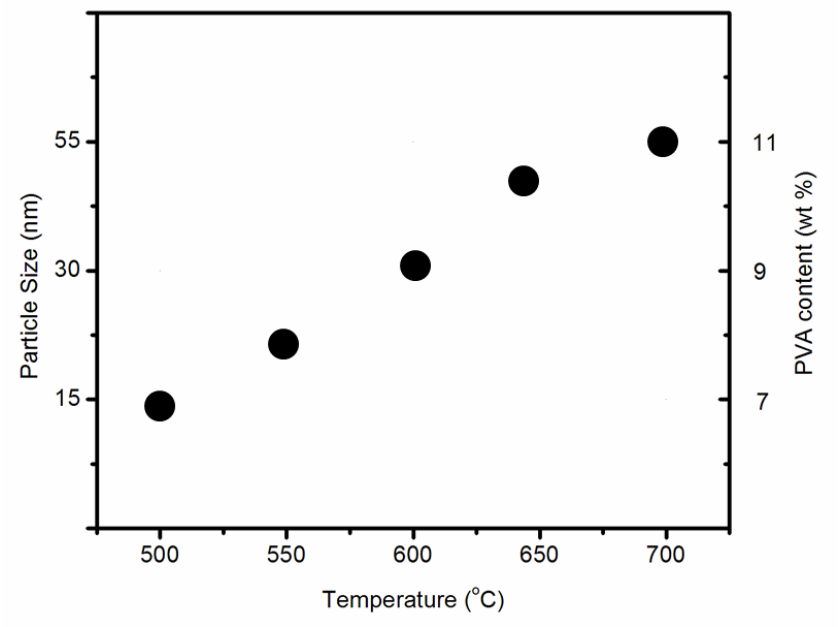

Fig. S1. $ZnFe_2O_4$ NPs with different sizes prepared at different annealing temperatures and PVA contents. The sizes increased as the annealing temperatures and PVA contents increased.

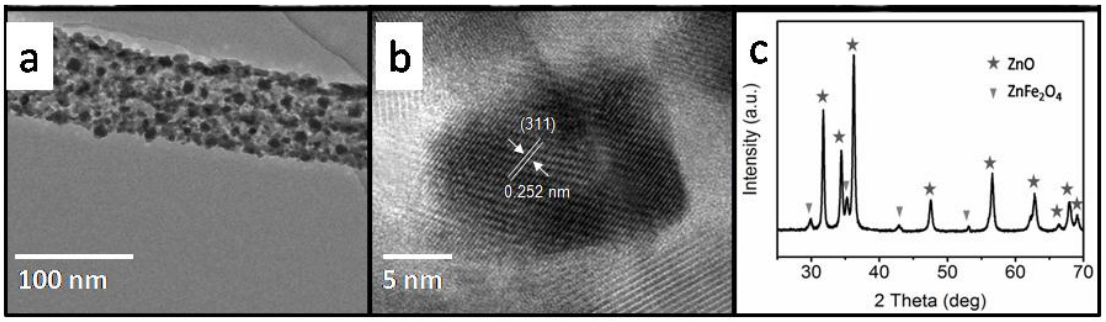

Fig. S2. (a, b) TEM characterization of $ZnFe_2O_4$ NPs-decorated ZnO NFs. The lattice fringes of $ZnFe_2O_4$ NP island can be clearly seen from the HRTEM image with a spacing of about 0.252 nm, corresponding to the interplanar distance of (311) crystal planes of the spinel $ZnFe_2O_4$ (c) XRD characterization of $ZnFe_2O_4$ NPs-decorated ZnO NFs. The main intense peaks are attributed to the characteristic peaks of the wurtzite structure ZnO in the standard data (JCPDS, 36-1451). The other peaks marked by triangles are corresponding to the reported values of spinel $ZnFe_2O_4$ (JCPDS 22-1012).

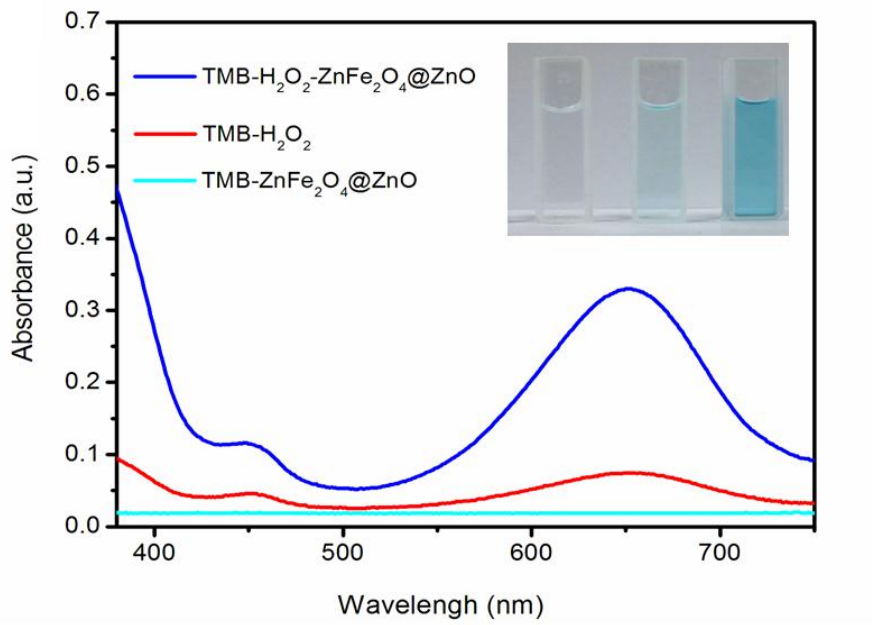

Fig. S3. Peroxidase-like activity of $ZnFe_2O_4$-decorated ZnO NFs, UV−vis absorbance changes at 652 nm of TMB in different reaction systems. Inset shows the color change of different samples.

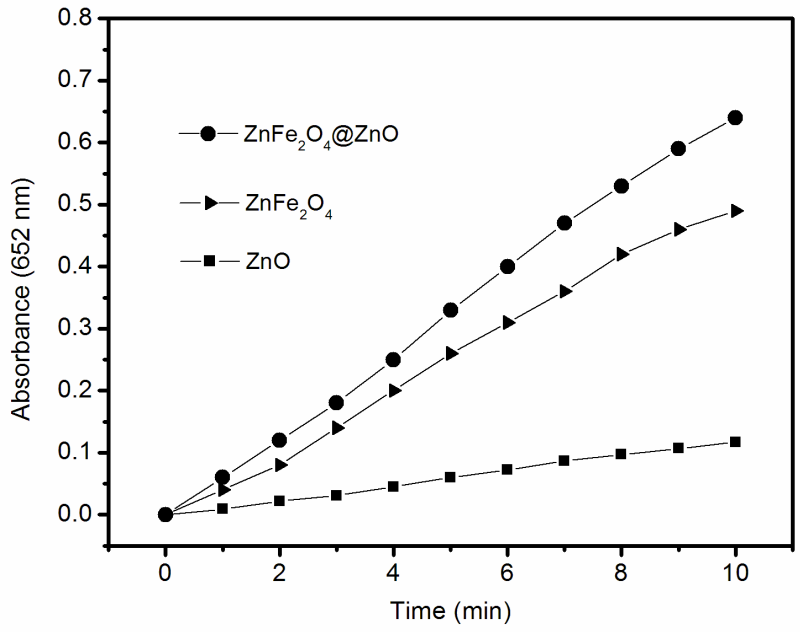

Fig. S4. Time-dependent absorbance changes at 652 nm of TMB in different reaction systems. The $ZnFe_2O_4$-decorated ZnO NFs showed the enhanced absorbance than single $ZnFe_2O_4$ or ZnO.

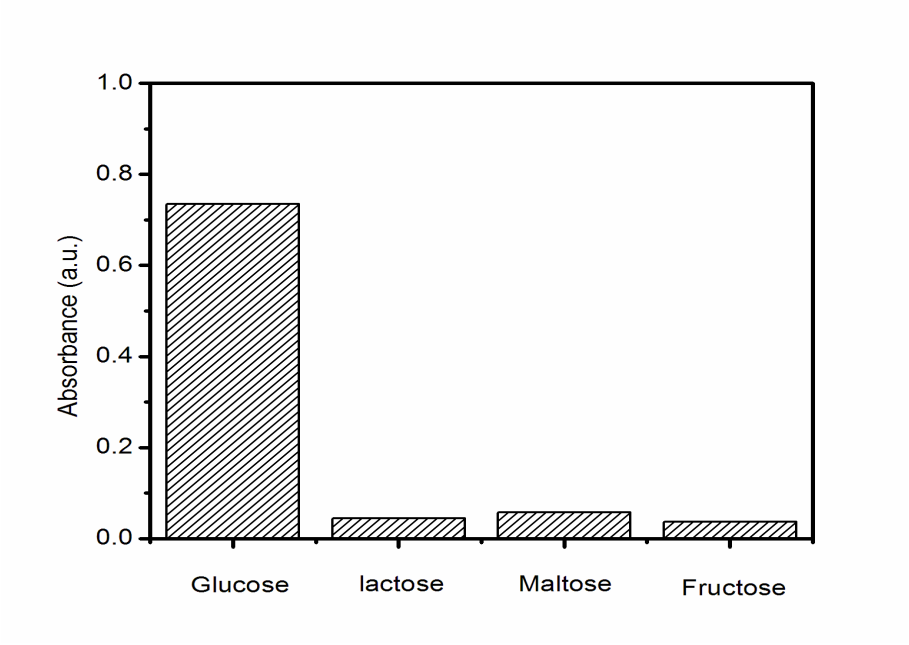

Fig. S5. Selectivity of glucose detection: from left to right, 0.1 mM glucose, 0.5 mM maltose, 0.5 mM fructose, and 0.5 mM lactose. It showed that these compounds did not interfere with the determination of urine glucose.

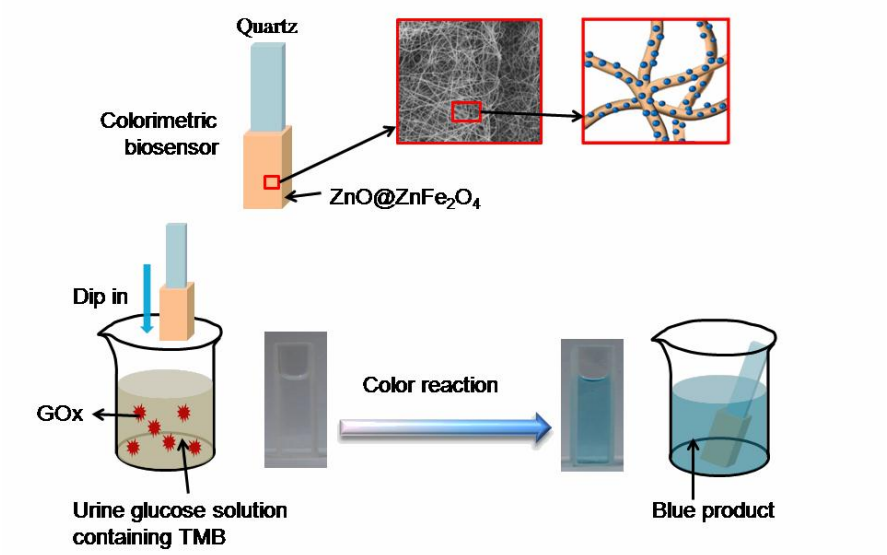

Fig. S6. Schematic illustration of using a handy colorimetric biosensor for glucose detection. The detection can be repeatedly realized by a simple dipping and drawing. The inserted real photographs show the real color changes for 15-fold serial dilution of urine sample.