Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

Hybrid Reduced Graphene Oxide Nanosheets with Negative Magnetoresistance Used for Diagnosis of Hypoglycemia

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Supplementary Figures:

Fig. S1. Standard curve of Con A quantification by UV absorbance and quantity of Con A adsorbed on MR transducer.

Fig. S2. MR measurement by using a four-pint probe (Lakeshore, Model 74046 Magnetoresistance Probe). The electrode is made of tungsten.

Fig. S3. Standard curve of glucose concentration measured by DNS assay and the quantity of glucose adsorbed by magnetic labels.

Fig. S4. Standard curve of glucose concentration measured by DNS assay and the quantity of glucose adsorbed on modified MR transducer

Fig. S5. Quantification of the fluorescent magnetic labels, i.e., Fe_3O_4@SiO_2 NPs doped with dye (FITC). (a) UV-Vis absorbance spectra of magnetic labels. (b) The absorbance of the magnetic label doped with FITC as a function of the concentration of Fe_3O_4@SiO_2 NPs doped with FITC.

Fig. S6. TEM micrographs of $Fe_{50}Co_{50}$ NPs and rGO/$Fe_{50}Co_{50}$ hybrid nanosheets samples (insets histogram showing corresponding NPs size distribution): (a) $Fe_{50}Co_{50}$ NPs (scale bar 500 nm), (b) rGO(10%)/FeCo nanosheets. (c) rGO(20%)/FeCo nanosheets (scale bar 500 nm), and (d) rGO(30%)/FeCo nanosheets.

Fig. S7. Energy-dispersive X-ray analysis (EDX) of (a) $Fe_{50}Co_{50}$ NPs (The copper and carbon peaks are from the copper grid); (b) rGO, and (c) $Fe_{50}Co_{50}$ NPs deposited on rGO, i.e., rGO(30%)/FeCo nanosheets

Table S1. Magnetic properties of $Fe_{50}Co_{50}$ NPs and rGO/$Fe_{50}Co_{50}$ hybrid nanosheets at room temperature.

Fig. S1

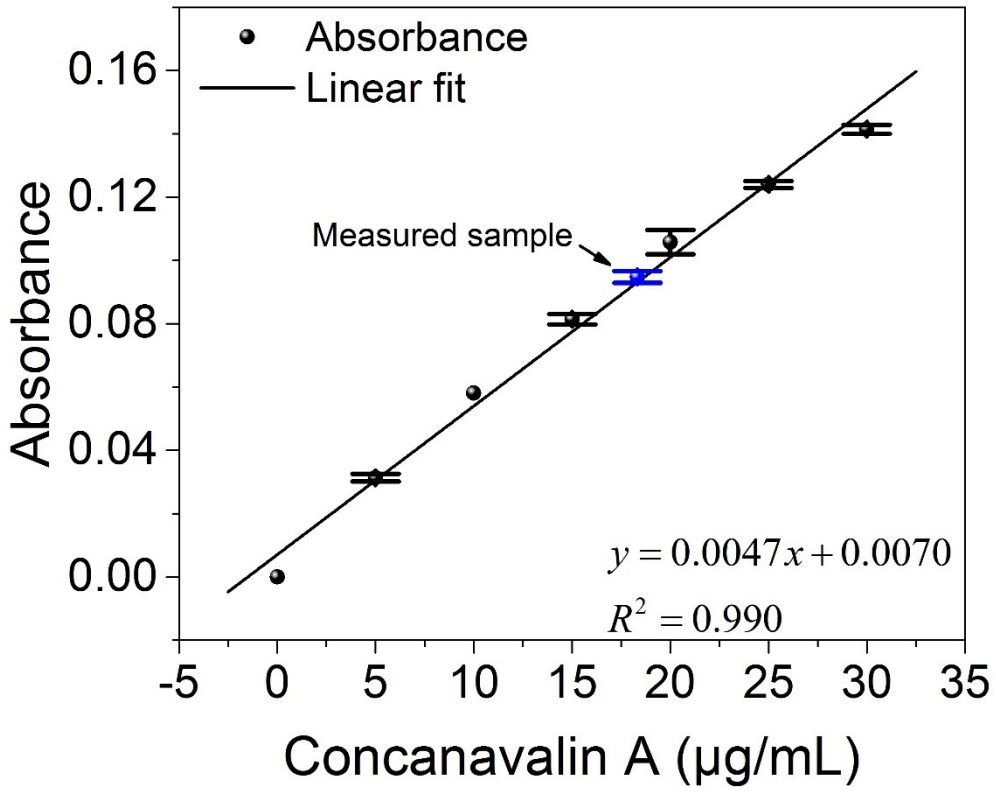


Fig. S1. Standard curve of Con A quantification by UV absorbance and quantity of Con A adsorbed on MR transducer.

Fig. S2

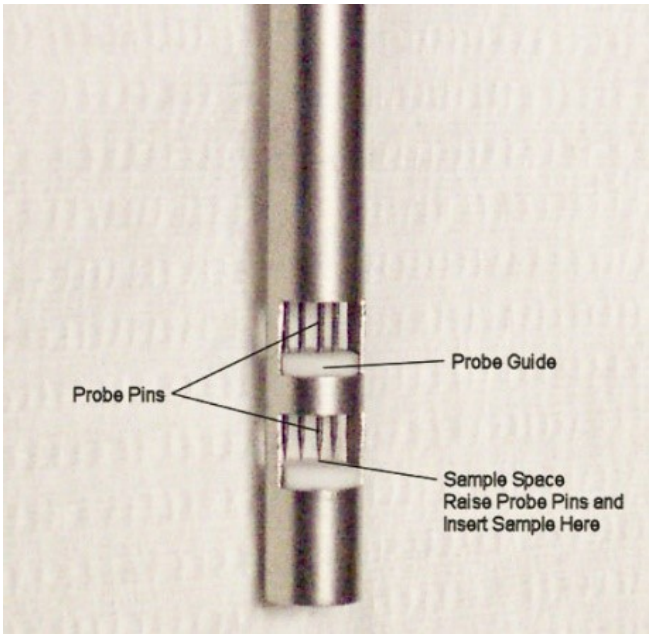


Fig. S2. MR measurement using a four-point probe (Lakeshore, Model 74046 Magnetoresistance Probe). The electrode is made of Tungsten.

Fig. S3

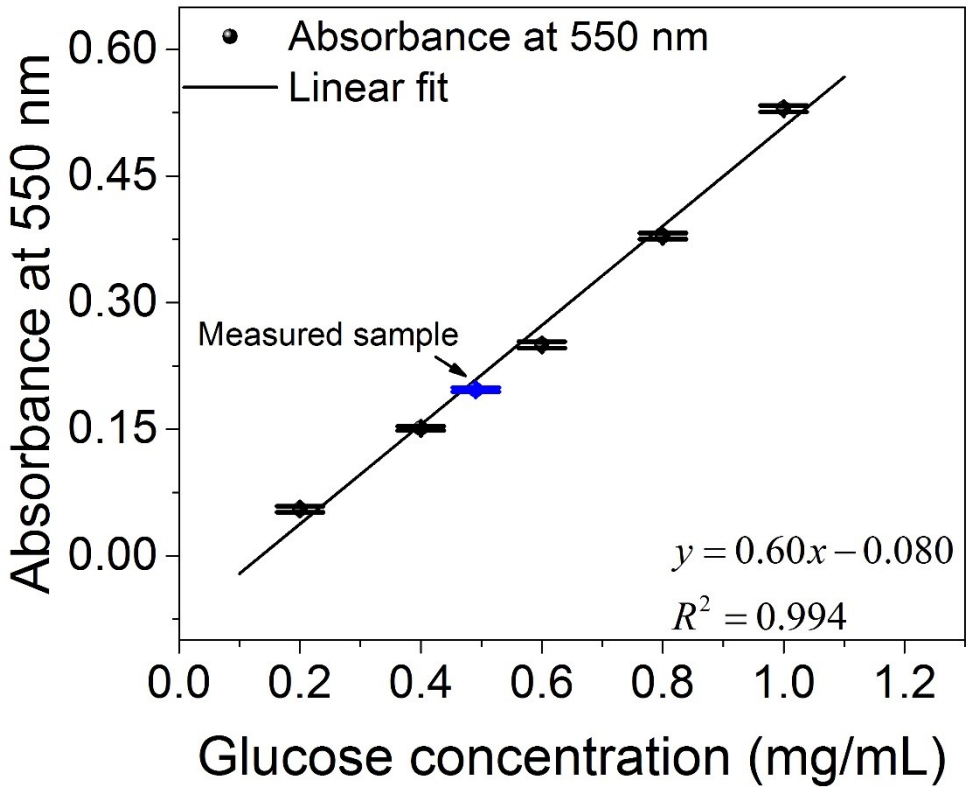


Fig. S3. Standard curve of glucose concentration by DNS assay and the quantity of glucose adsorbed by the magnetic label.

Fig. S4

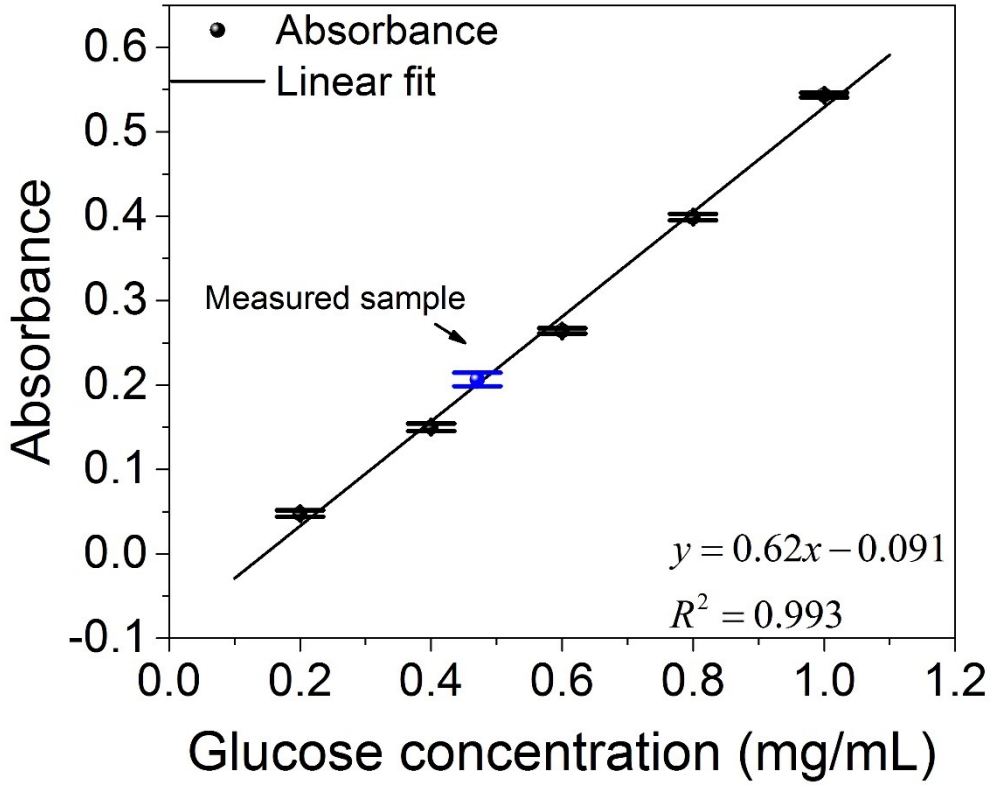
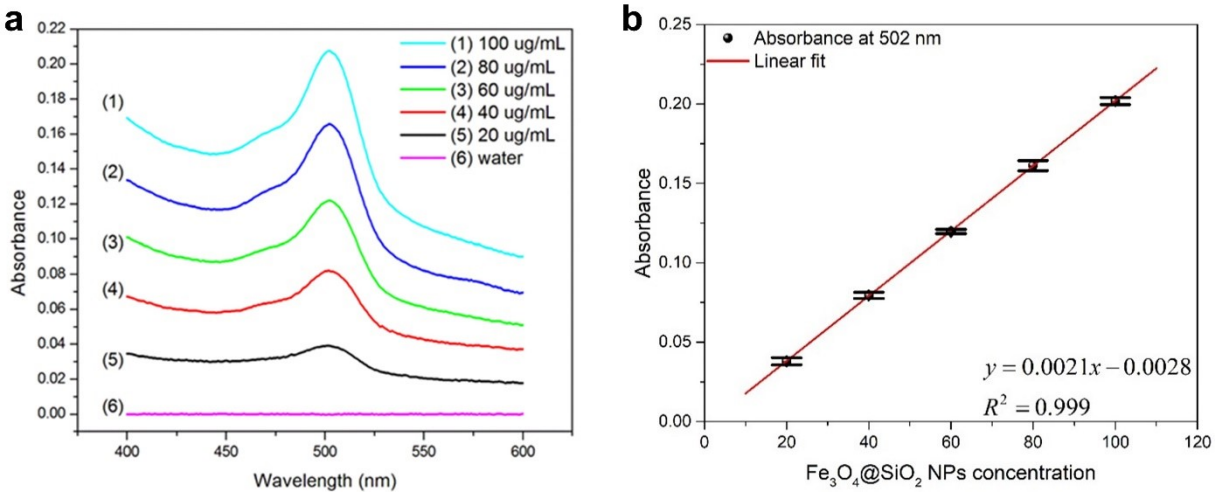


Fig. S4. Standard curve of glucose concentration by the measurement of DNS assay and the quantity of glucose adsorbed on modified MR transducer.

Fig. S5



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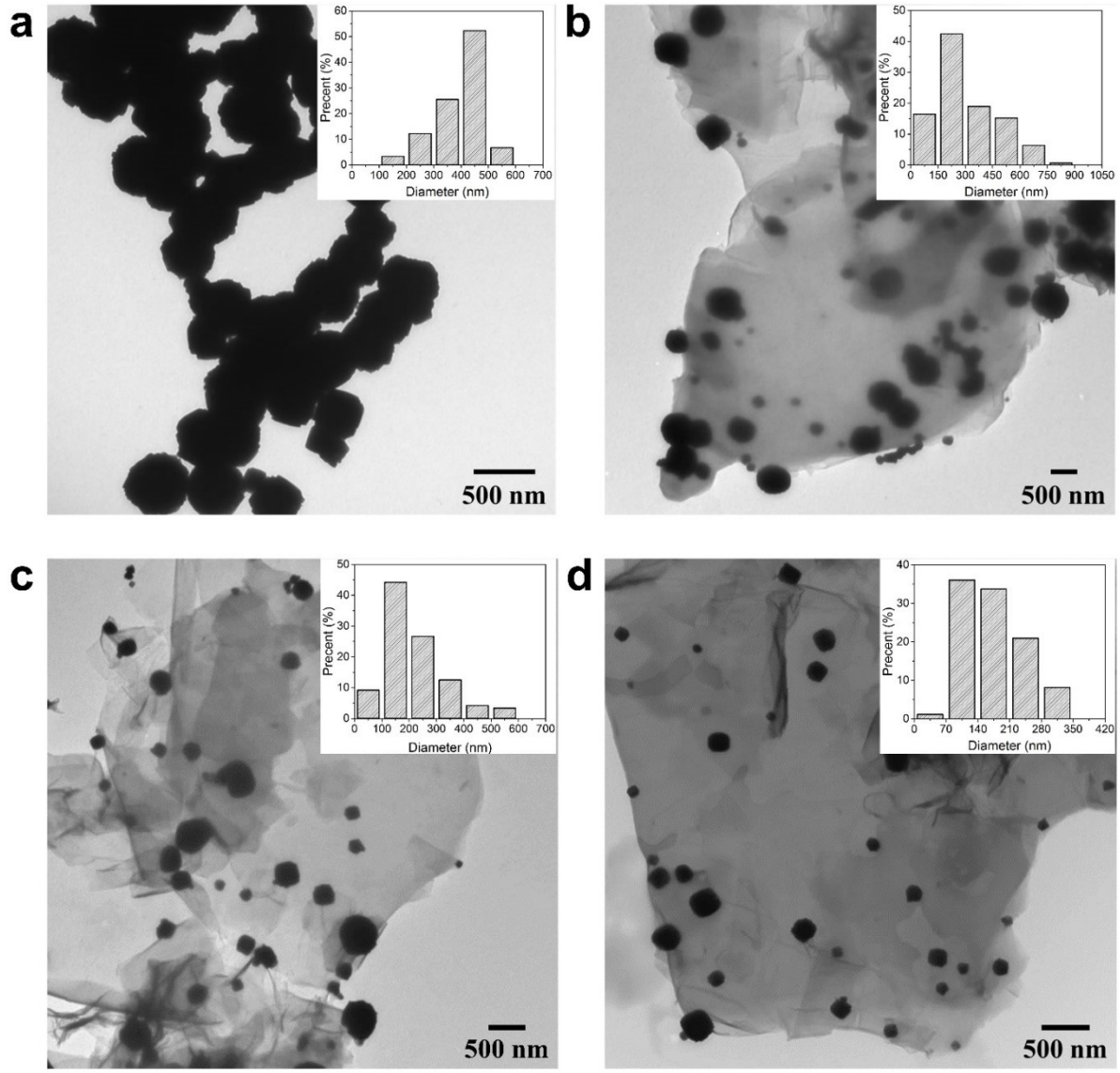

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Fig. S7

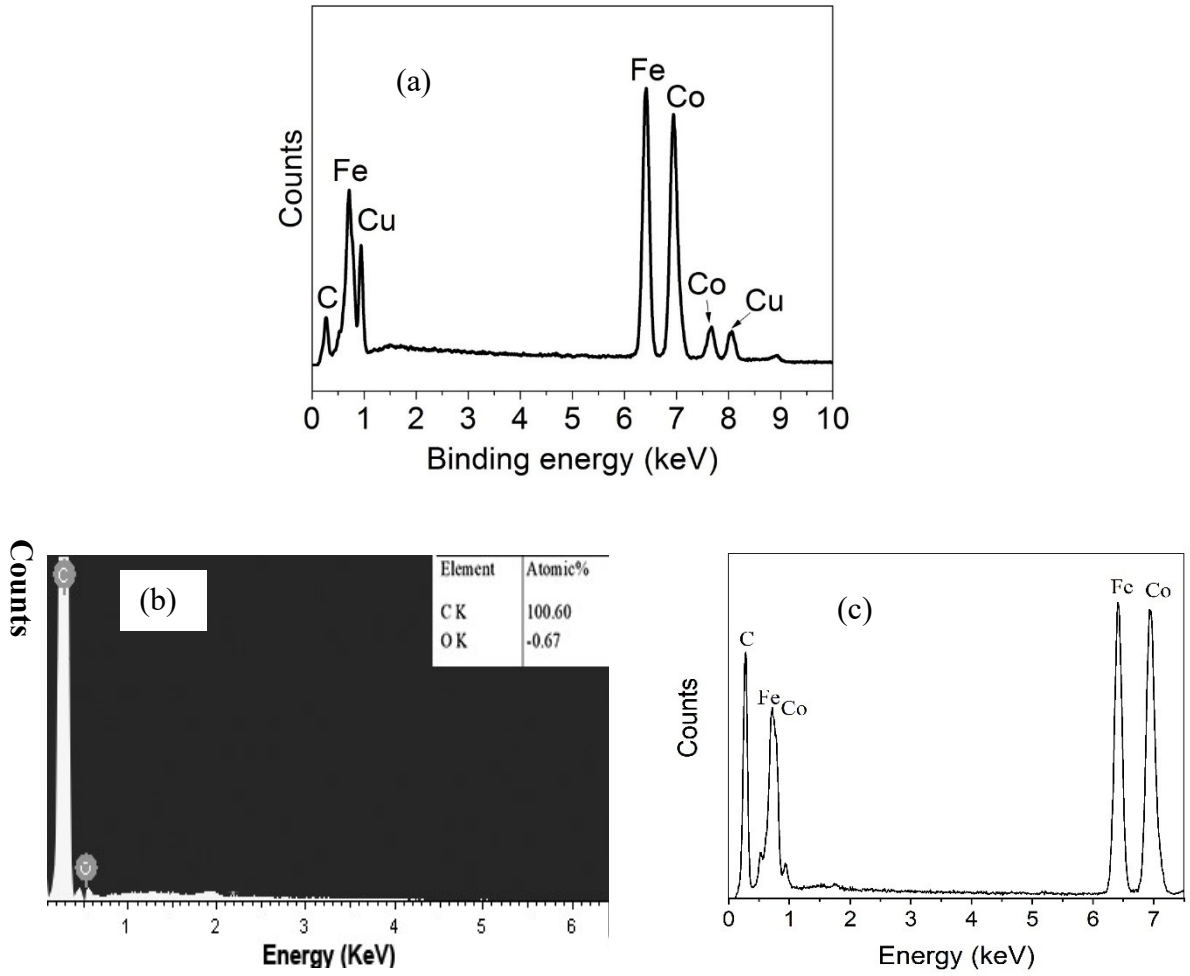

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Table S1. Magnetic properties of $Fe_{50}Co_{50}$ NPs and rGO/$Fe_{50}Co_{50}$ hybrid nanosheets at room temperature.

Samples	M_s (emu/g)	M_r (emu/g)	M_r/M_s	H_c (Oe)
$Fe_{50}Co_{50}$ NPs	203.3	12.81	0.063	110.9
rGO(10%)/FeCo	97.5	5.37	0.055	175.1
rGO(20%)/FeCo	78.0	3.83	0.049	212.1
rGO(30%)/FeCo	39.9	1.59	0.040	174.5