



Supplementary

Microwave-Assisted Synthesis of SPION-Reduced Graphene Oxide Hybrids for Magnetic Resonance Imaging (MRI)

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1. Statistical analysis of NPs size (SPION) and RGO sheets area

Table S1. Descriptive analysis of diameter distribution of SPION and area distribution of RGO sheets.

	Num. of measures	Median	Lower adjacent observation	Q1 25 th percentile	Q3 75 th percentile	Upper adjacent observation	Max. observation	Average
SPION	596	7.14 nm	2.35 nm	5.59 nm	9.23 nm	14.56 nm	29.07 nm	8.03 nm
RGO	145	9.16 μm^2	0.23 μm^2	2.54 μm^2	25.97 μm^2	60.91 μm^2	78.26 μm^2	17.37 μm^2

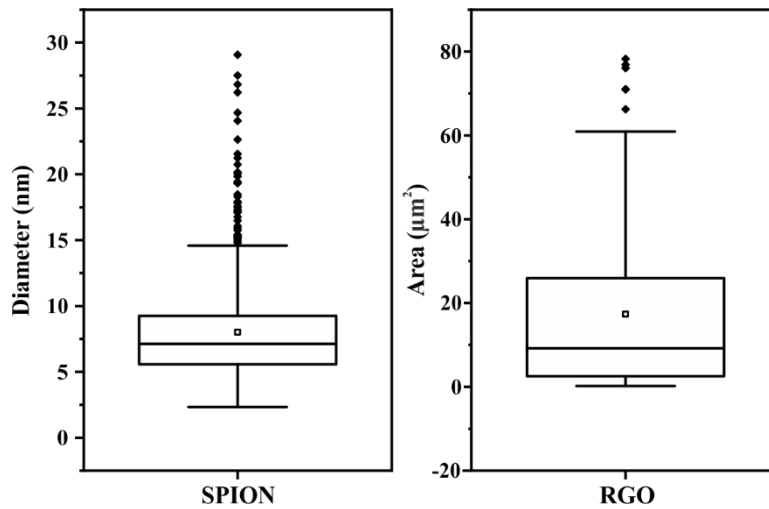


Figure S1. Box plot analysis of the diameter distribution of SPION and area distribution of RGO. Black rhombus indicates the outliers. The average value in each case is presented as the empty box in the graph.

2. Scanning electron microscopy images

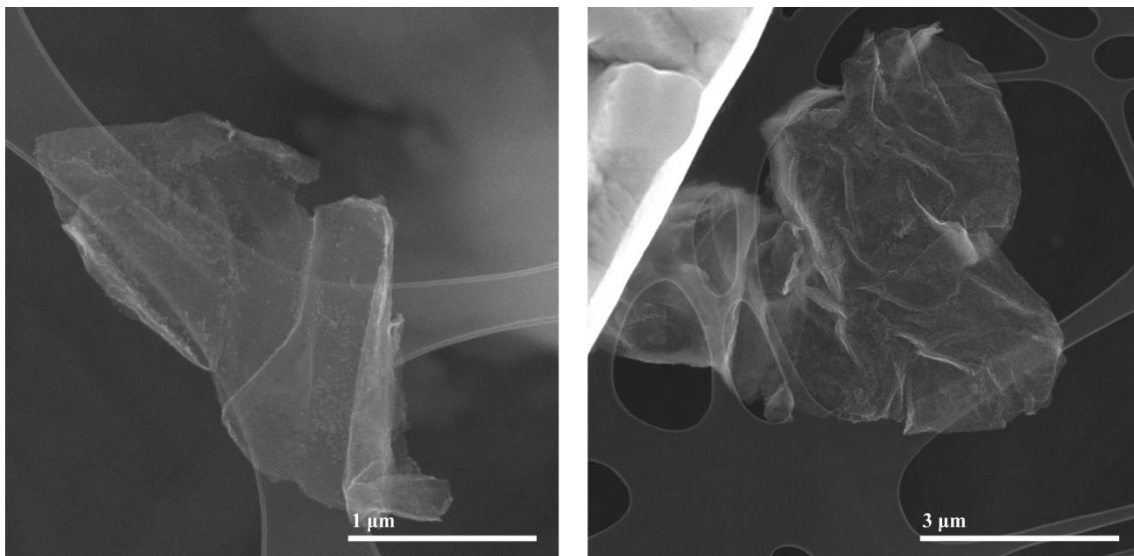


Figure S2. Scanning electron microscopy images of the SPION-RGO composites.

3. EFTEM compositional maps

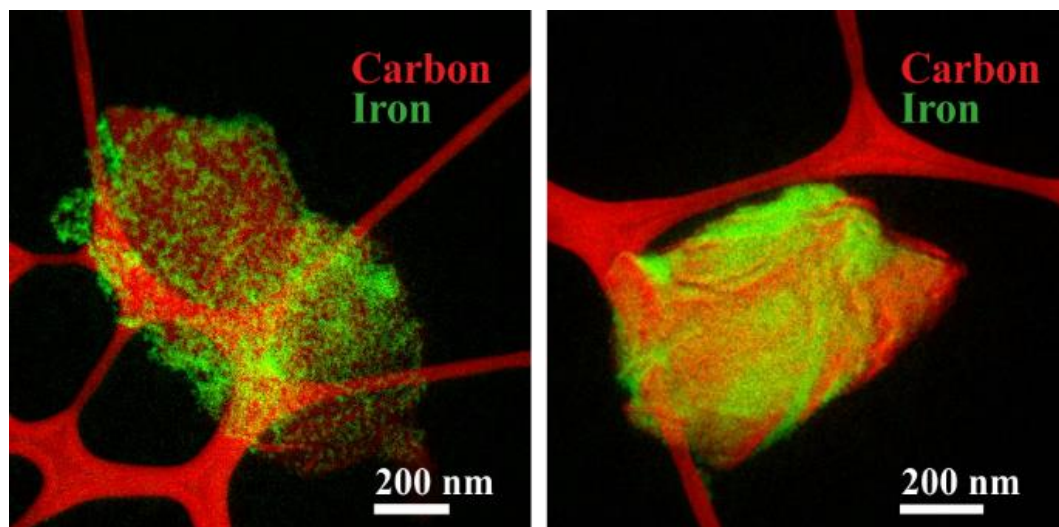


Figure S3. EFTEM compositional maps of the hybrid, where C and Fe appear in red and green respectively.

4. Transmission electron microscopy images

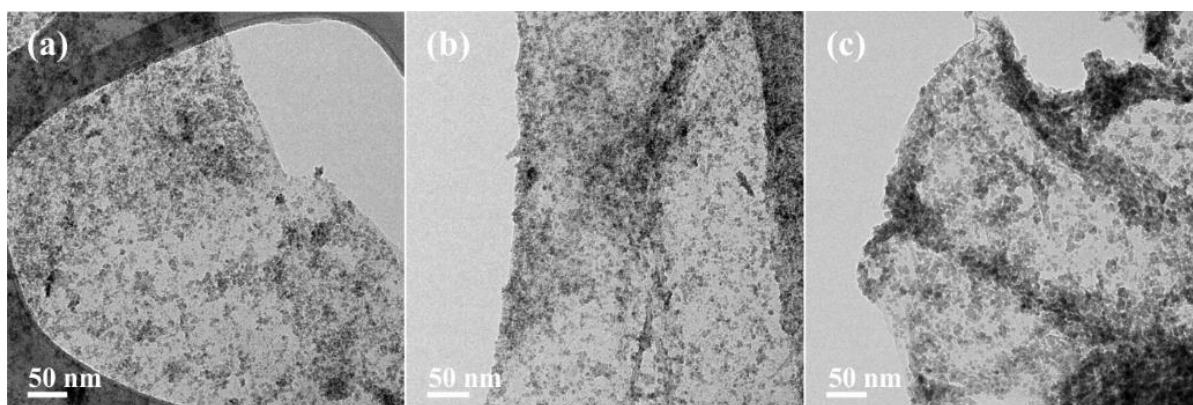


Figure S4. TEM images of SPION-RGO samples prepared by microwave-assisted reaction of 15 mg of graphene oxide and (a) 25 mg, (b) 30 mg and (c) 35 mg of iron(III) acetylacetonate.



5. Thermogravimetric analyses

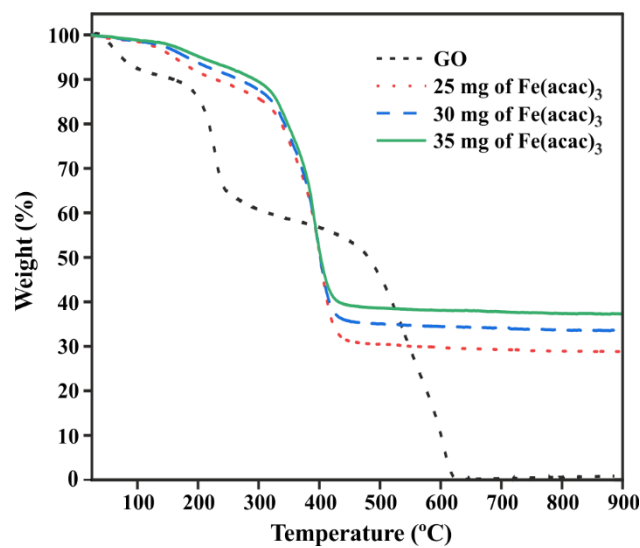


Figure S5. Thermogravimetric analyses of GO and SPION-RGO samples prepared using different amounts of iron precursor. TGA was performed under flowing air at a heating rate of 10 °C·min⁻¹.

6. Magnetic properties (300 K)

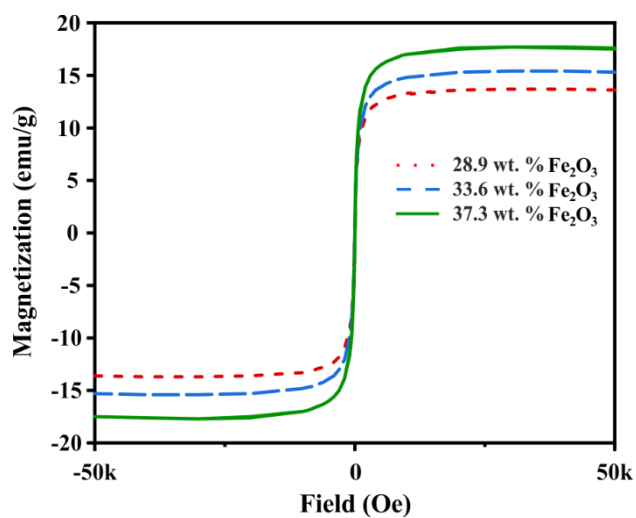


Figure S6. SPION-RGO hysteresis loops (magnetization versus field) at 300 K.



7. Phantom MRI Studies

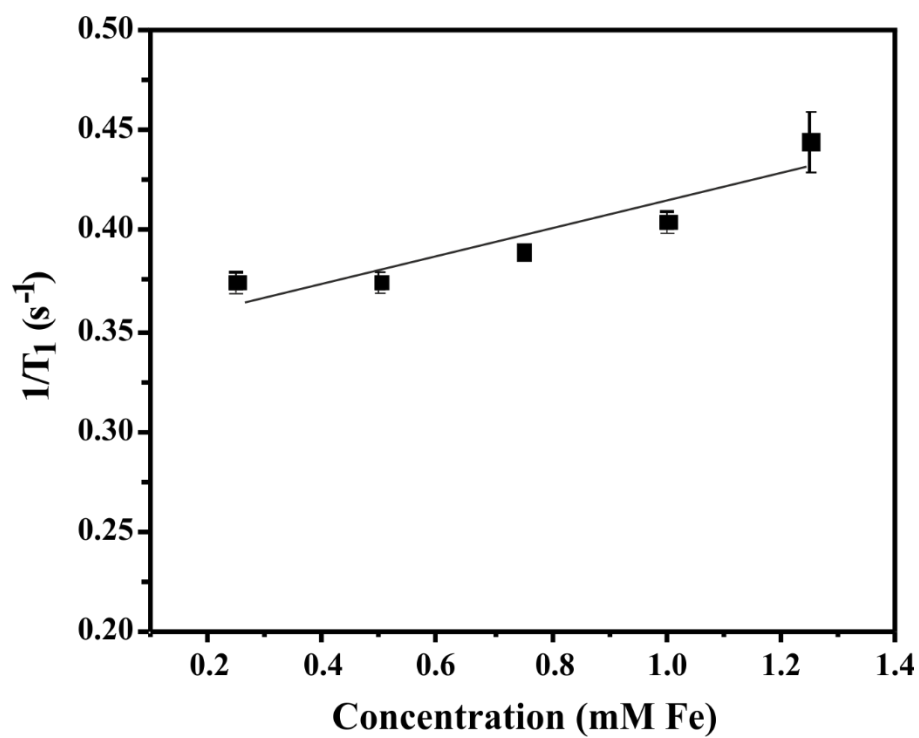


Figure S7. Phantom MRI studies of SPION-RGO composites, R_1 relaxation rates ($1/T_1$) versus Fe concentration. The relaxivity value was obtained from the slope, $r_1 = 0.068 \text{ mM}^{-1}\cdot\text{s}^{-1}$. Results are the mean value $\pm$ S.D. ($n = 2$).