

Supplementary Material (ESI) for Journal of Materials Chemistry  
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## Multifunctional Fe<sub>3</sub>O<sub>4</sub> nanoparticles for targeted bi-modal imaging of pancreatic cancer

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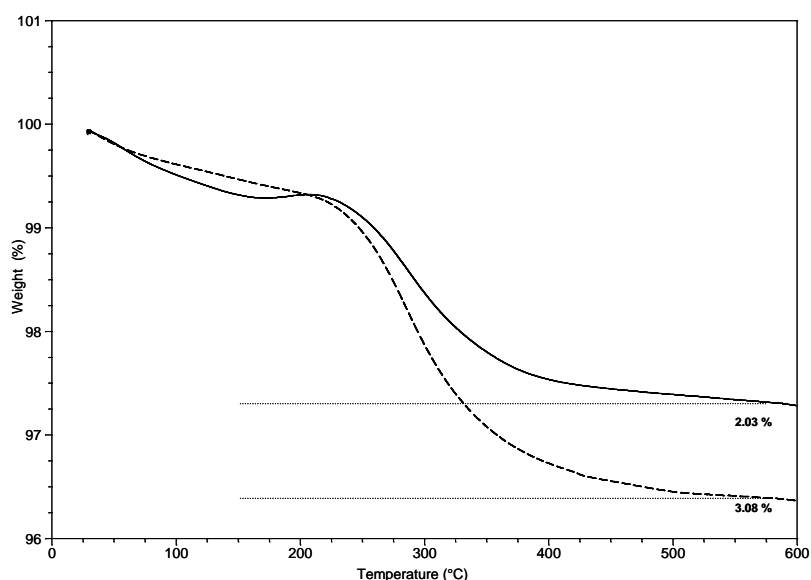
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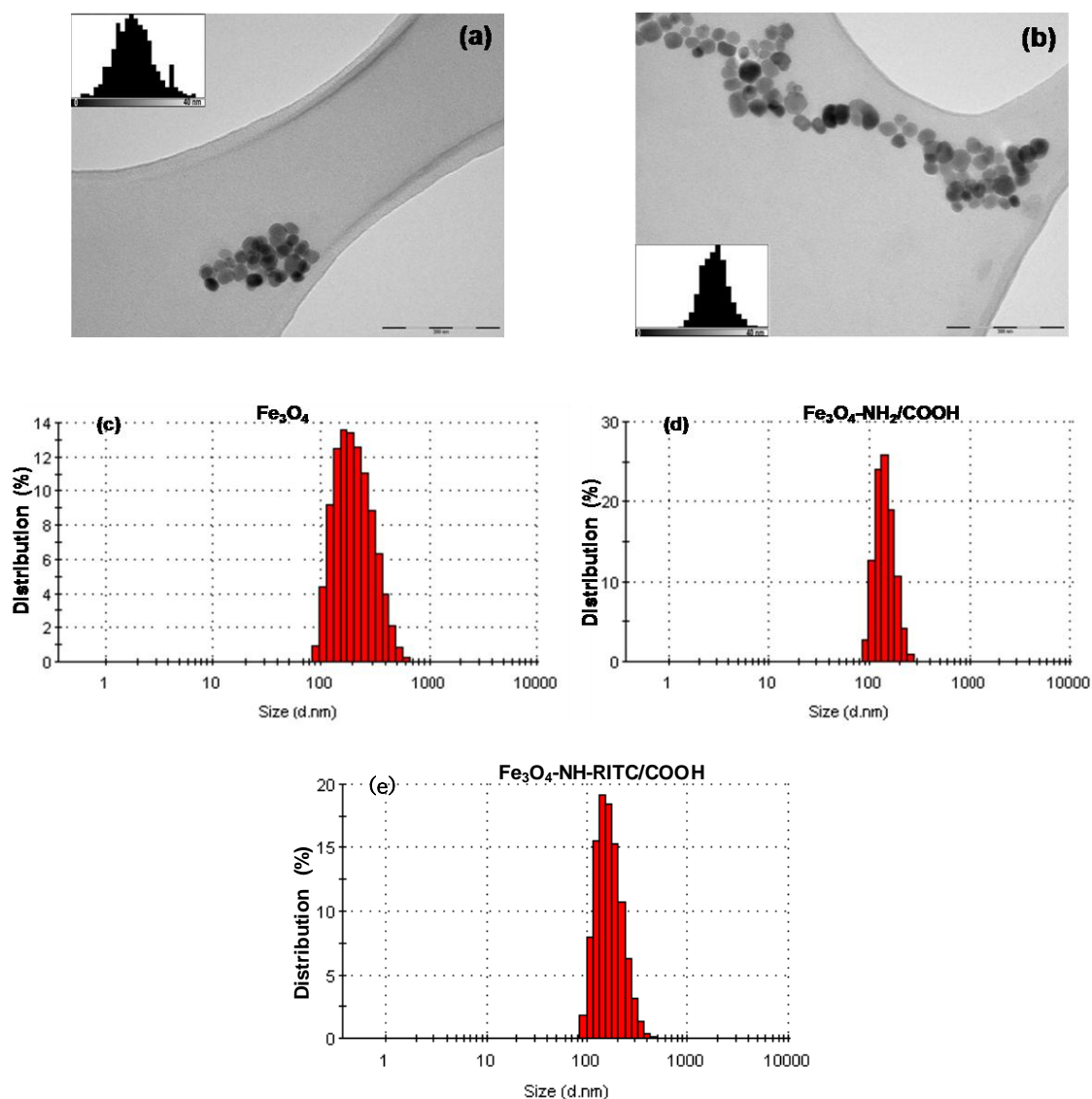
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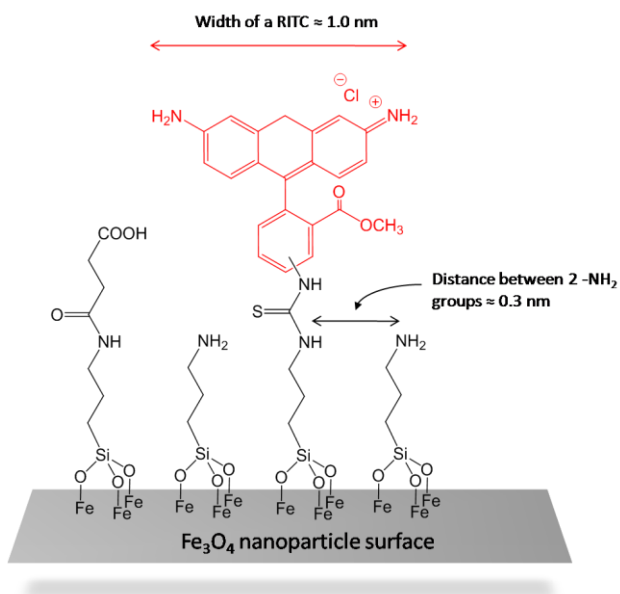
**Figure S1.** TGA thermograms of Fe<sub>3</sub>O<sub>4</sub>-NH<sub>2</sub> (solid line) and Fe<sub>3</sub>O<sub>4</sub>-NH<sub>2</sub>/COOH (dotted line) nanoparticles. The corresponding weight losses are 2.03% in Fe<sub>3</sub>O<sub>4</sub>-NH<sub>2</sub> against 3.08% in Fe<sub>3</sub>O<sub>4</sub>-NH<sub>2</sub>/COOH.

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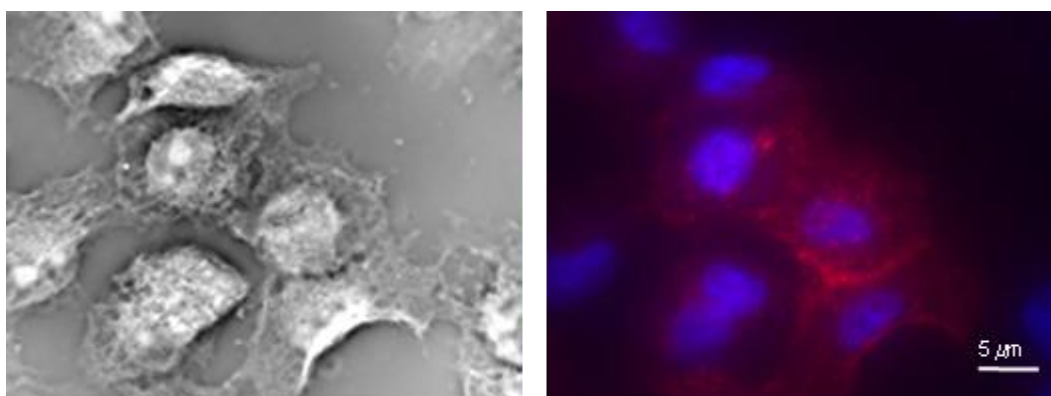


**Figure S2.** TEM images of (a)  $\text{Fe}_3\text{O}_4$  nanoparticles and (b)  $\text{Fe}_3\text{O}_4\text{-NH}_2/\text{COOH}$  nanoparticles. Scale bar represents 200 nm. Inset shows the corresponding size distribution of  $25 \pm 5$  nm ( $\text{Fe}_3\text{O}_4$ ) and  $24 \pm 4$  nm ( $\text{Fe}_3\text{O}_4\text{-NH}_2/\text{COOH}$ ) calculated from 400 nanoparticles. Hydrodynamic size obtained from DLS for (c)  $\text{Fe}_3\text{O}_4$  nanoparticles; (d)  $\text{Fe}_3\text{O}_4\text{-NH}_2/\text{COOH}$  and (e)  $\text{Fe}_3\text{O}_4\text{-NH-RITC/COOH}$ . The average hydrodynamic size is  $164 \pm 6$  nm for  $\text{Fe}_3\text{O}_4$ ,  $142 \pm 8$  nm for  $\text{Fe}_3\text{O}_4\text{-NH}_2/\text{COOH}$  and  $154 \pm 6$  nm for  $\text{Fe}_3\text{O}_4\text{-NH-RITC/COOH}$ .

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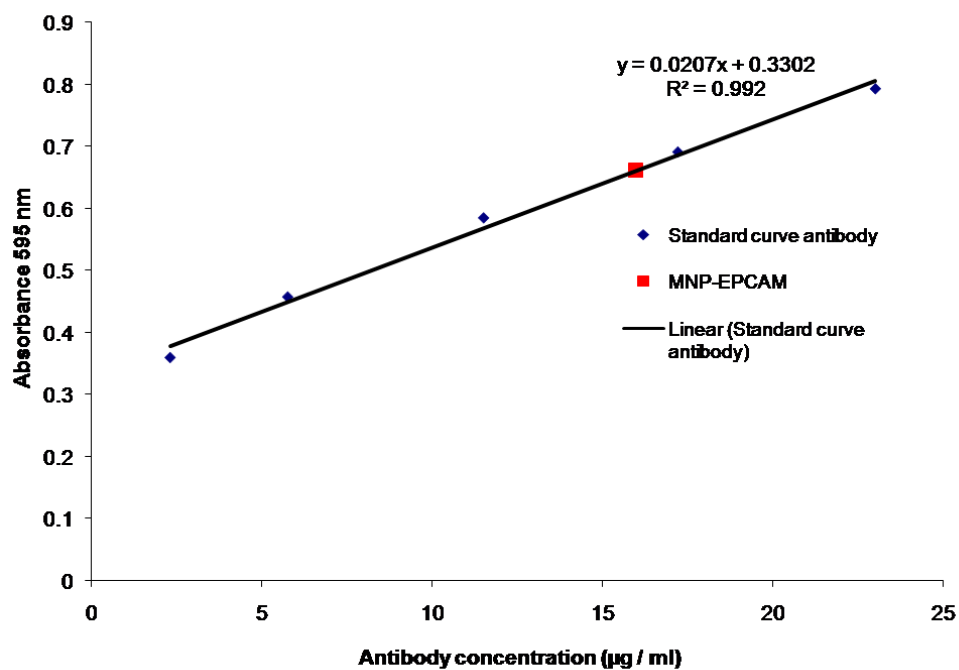


**Figure S3.** Schematic comparison on the size of RITC molecules and the distance between amine groups on the surface of bifunctionalized  $\text{Fe}_3\text{O}_4\text{-NH}_2/\text{COOH}$  nanoparticles.



**Figure S4.** Bright field and fluorescence images showing the examination of EPCAM expression on Panc-1 cells by immunofluorescence labeling. The cell nuclei were stained with DAPI (blue) and the expression of the EPCAM receptors was labeled by rabbit anti-mouse IgG Cy3 conjugate.

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**Figure S5.** Antibody concentration measured by Bradford assay and matched to the calibration curve. The curve does not pass through zero because the assay solution is colored and absorbs at 595 nm.