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Supporting information

2 One-pot synthesis of CuFe_2O_4 magnetic nanocrystal clusters for
3 highly specific separation of histidine-rich proteins

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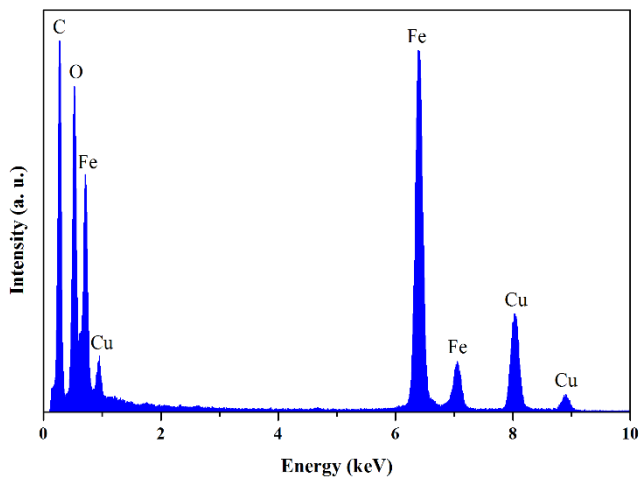
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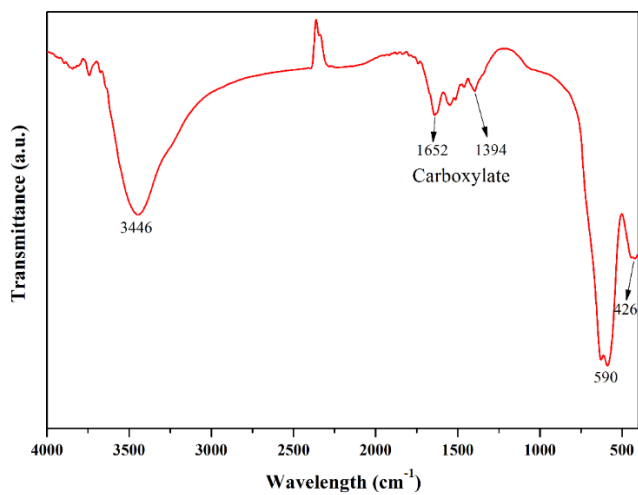
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20 **Fig. S1.** EDS spectrum of CuFe_2O_4 MNCs.

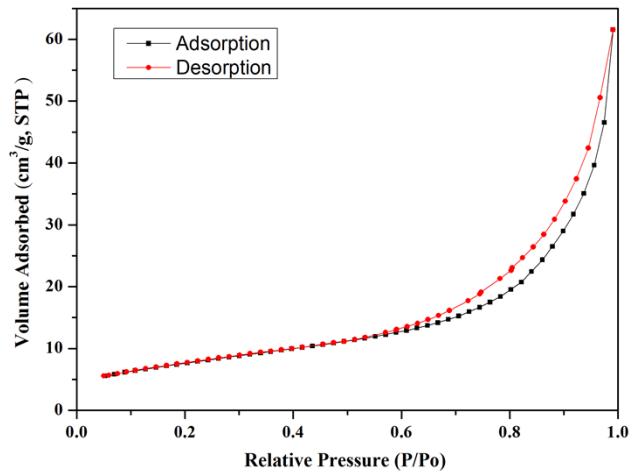
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23 **Fig. S2.** FT-IR spectrum of CuFe_2O_4 MNCs. The bands at 1652 and 1394 cm^{-1} was assigned to
 24 carboxylate group. The main absorption bands at 590 and 426 cm^{-1} corresponds to the vibration
 25 modes of spinel compounds. The broad absorption band at 3446 cm^{-1} represents the stretching
 26 mode of $-\text{OH}$ groups of absorbed H_2O molecules.

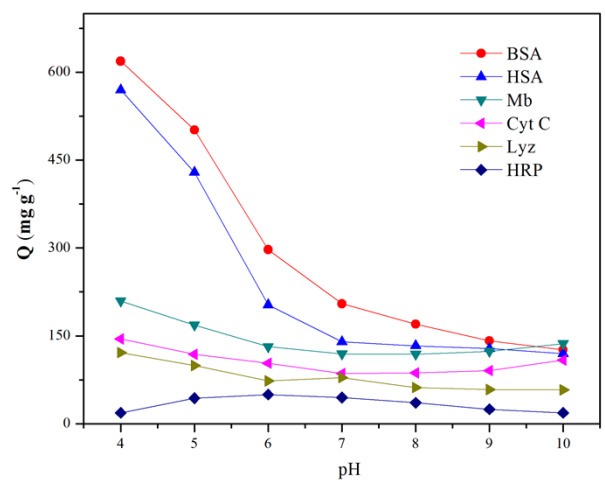
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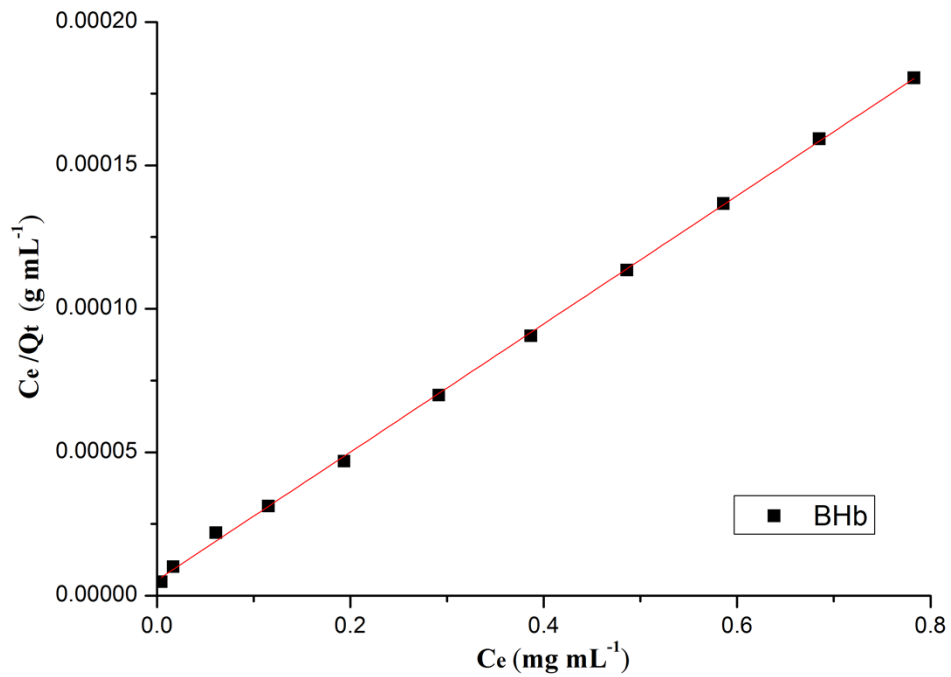
29 **Fig. S3.** N₂ adsorption-desorption isotherm of CuFe₂O₄ MMCs.

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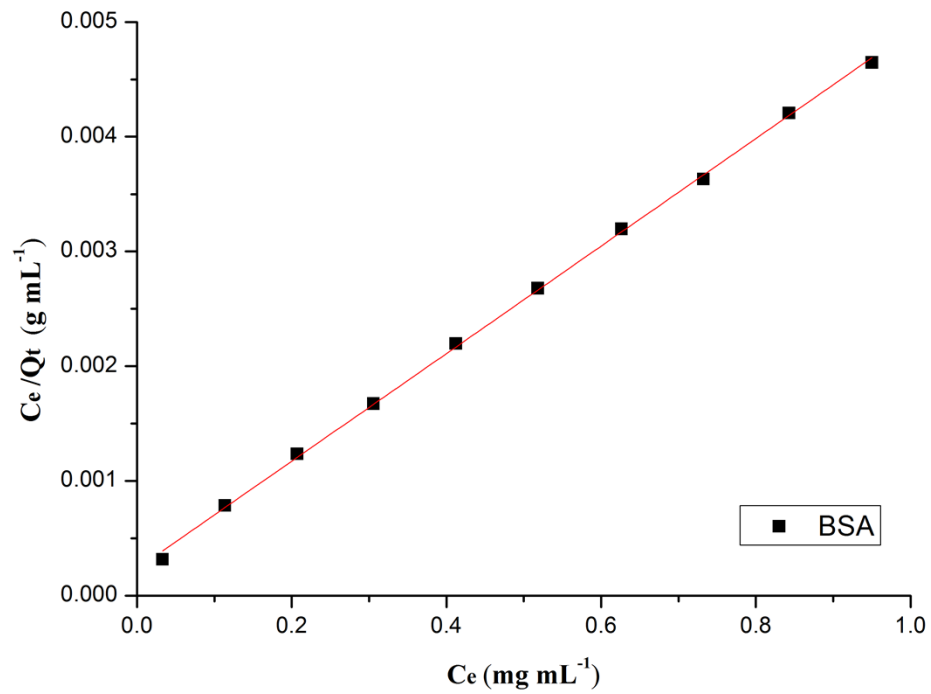
32 **Fig. S4** pH dependence of the adsorption capacities of proteins (BSA, HSA, Mb, Cyt C, Lyz and
 33 HRP) in phosphate buffer (pH 4.0-10.0) by CuFe₂O₄ MMCs.



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35 **Fig. S5-1** Fitting of the adsorption isotherm of BHB on the CuFe₂O₄ MNCs by using the
36 Langmuir model. The fitted parameters are summarized in Table 3.

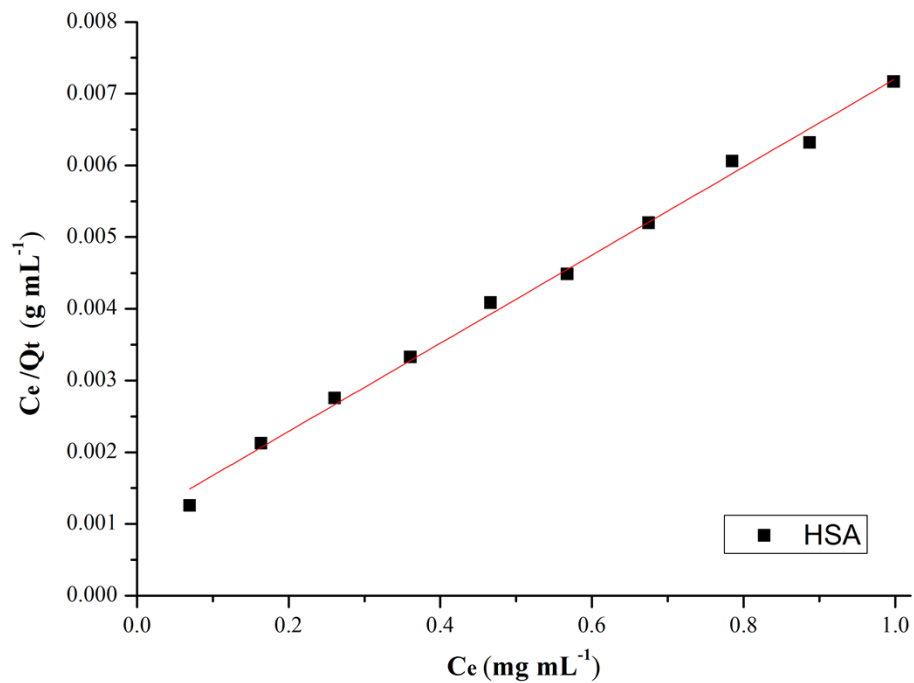
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39 **Fig. S5-2** Fitting of the adsorption isotherm of BSA on the CuFe₂O₄ MNCs by using the
40 Langmuir model. The fitted parameters are summarized in Table 3.

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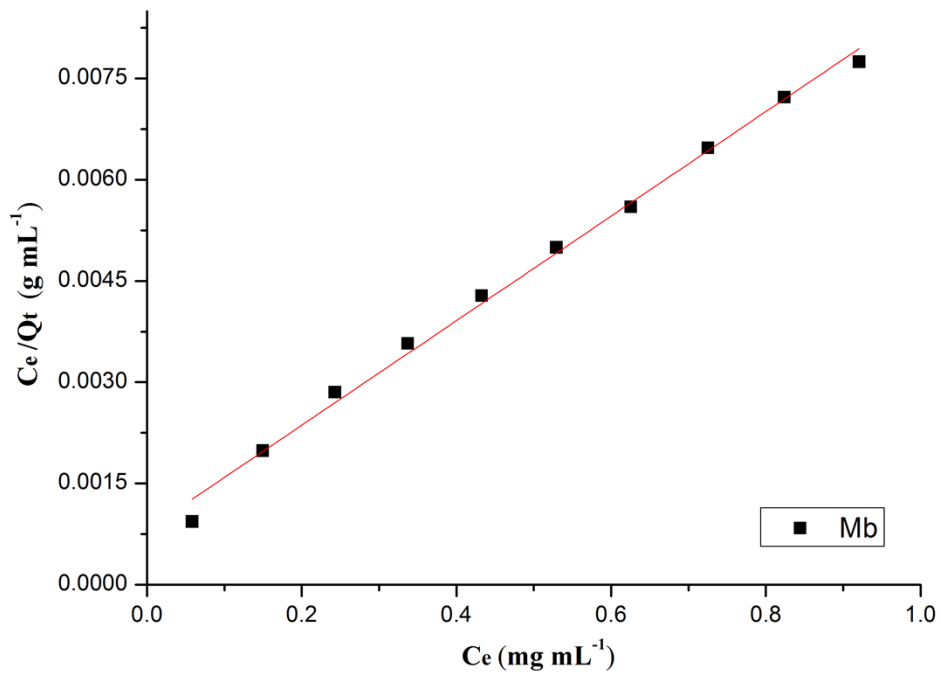


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43 **Fig. S5-3** Fitting of the adsorption isotherm of HSA on the CuFe₂O₄ MNCs by using the
44 Langmuir model. The fitted parameters are summarized in Table 3.

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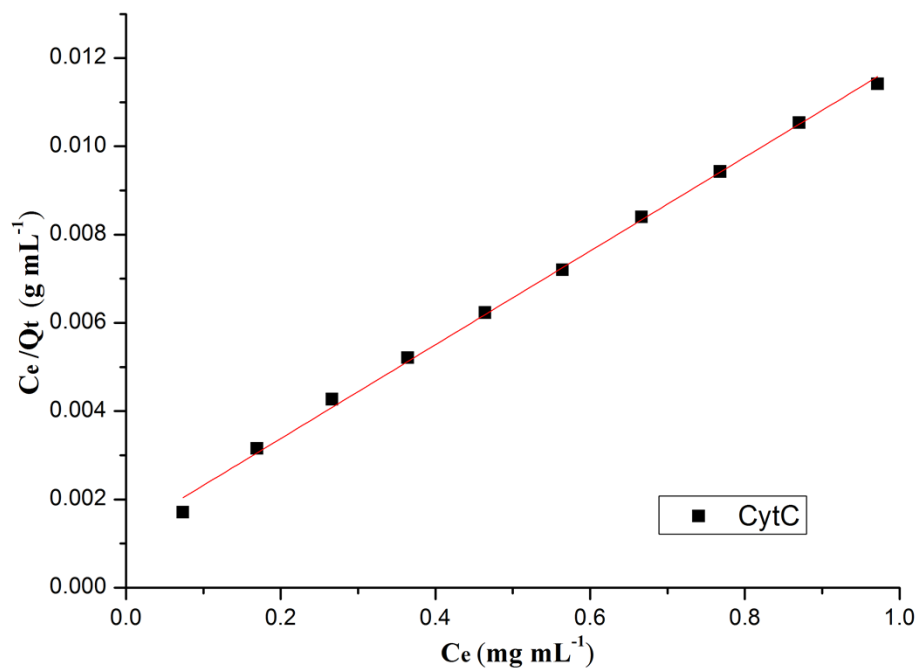
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48 **Fig. S5-4** Fitting of the adsorption isotherm of Mb on the CuFe₂O₄ MNCs by using the Langmuir
49 model. The fitted parameters are summarized in Table 3.

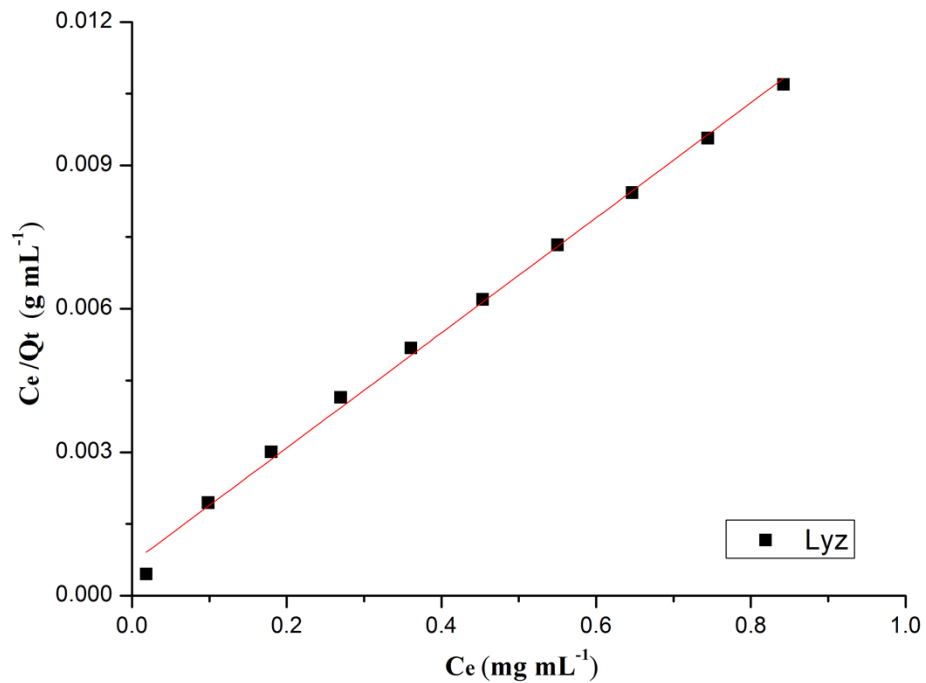
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52 **Fig. S5-5** Fitting of the adsorption isotherm of CytC on the CuFe₂O₄ MNCs by using the
53 Langmuir model. The fitted parameters are summarized in Table 3.

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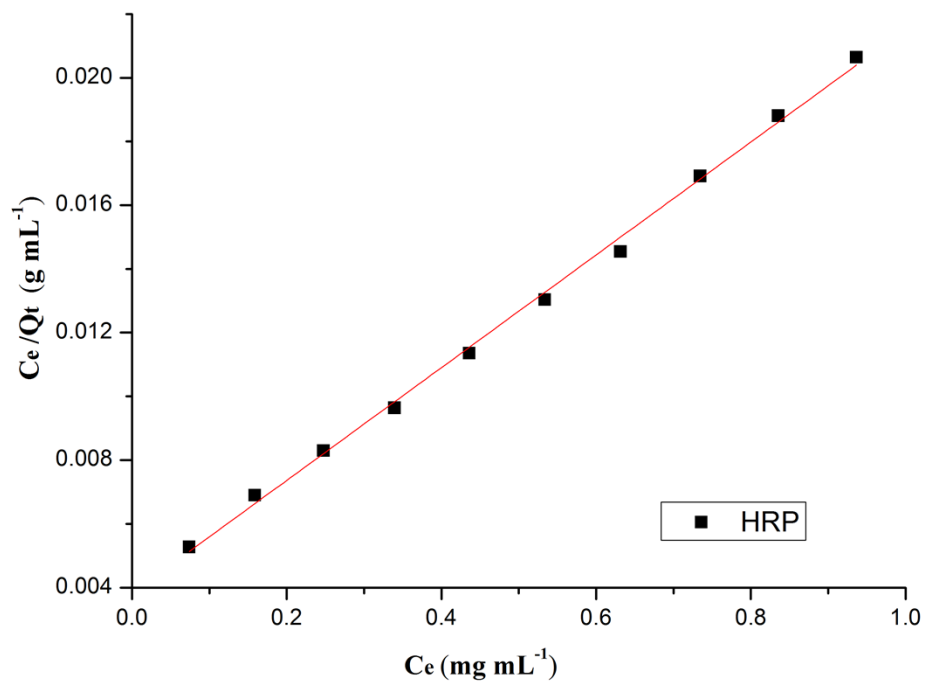


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56 **Fig. S5-6** Fitting of the adsorption isotherm of Lyz on the CuFe₂O₄ MNCs by using the Langmuir
57 model. The fitted parameters are summarized in Table 3.

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61 **Fig. S5-7** Fitting of the adsorption isotherm of HRP on the CuFe₂O₄ MNCs by using the
62 Langmuir model. The fitted parameters are summarized in Table 3.

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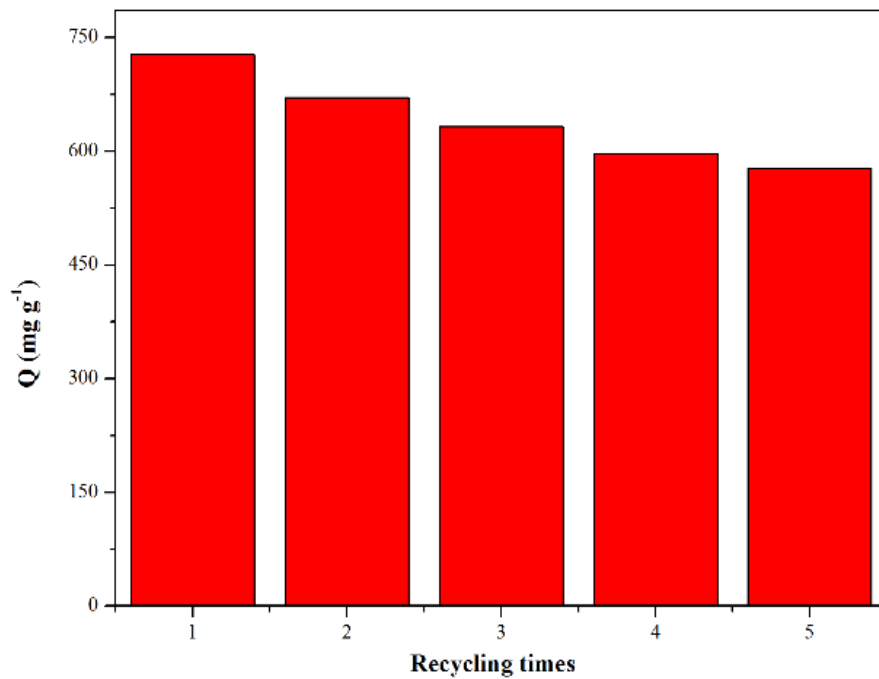
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73 **Fig. S6** Recycled use of the CuFe₂O₄ MNCs for BHb adsorption. Amount of CuFe₂O₄ MNCs: 0.2
74 mg; volume: 0.5 mL; binding media: 20 mM PBS (pH 7.0); incubation time: 10 min; C_{BHb}: 0.80
75 mg mL⁻¹.

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