

## Supplementary Materials

# Functional Nanoparticles with Magnetic 3D Covalent Organic Framework for the Specific Recognition and Separation of Bovine Serum Albumin

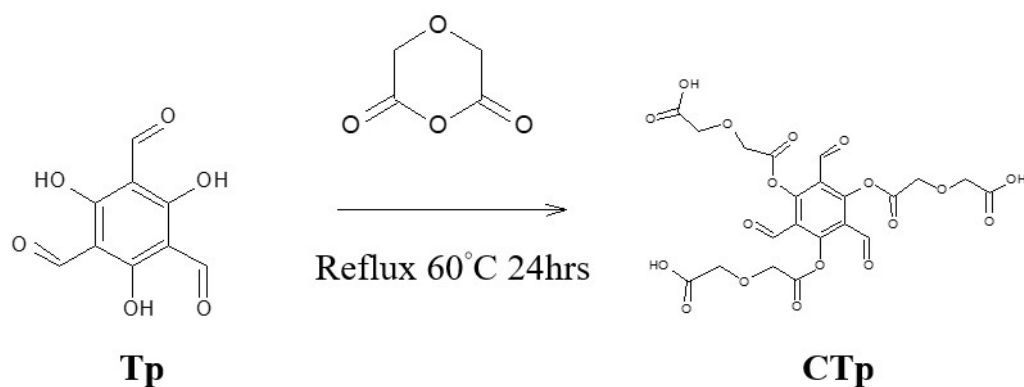
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Scheme S1. Synthesis of cTp.

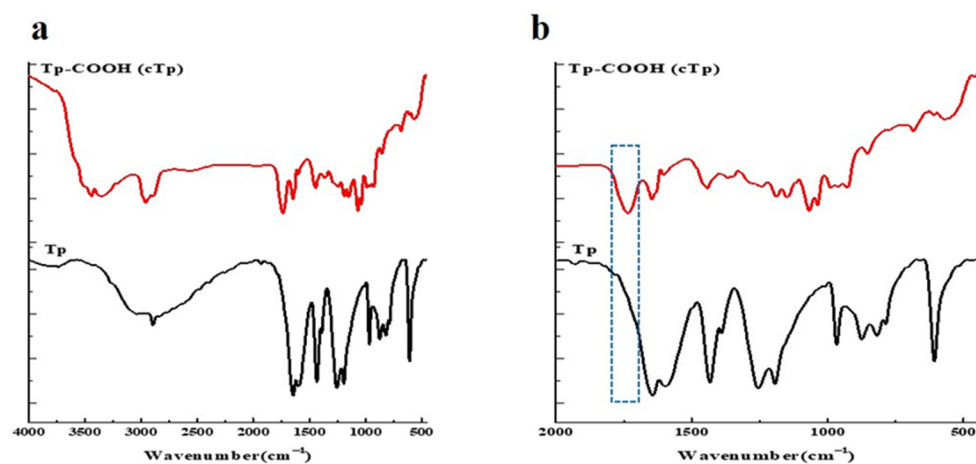
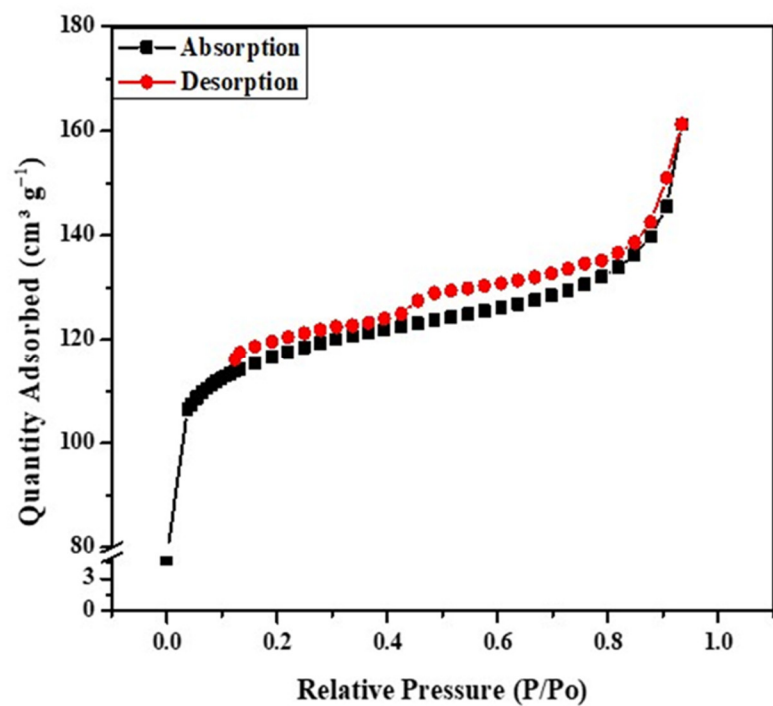
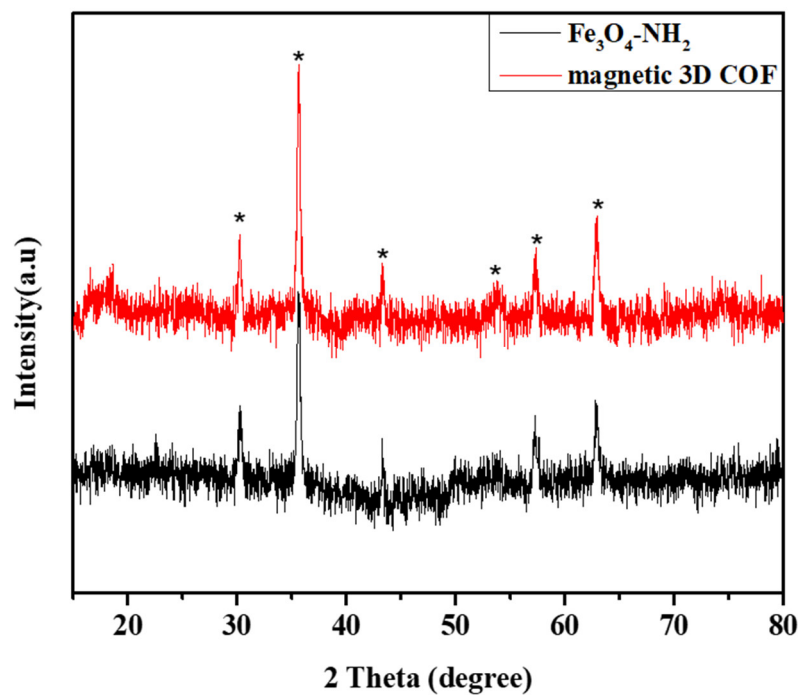


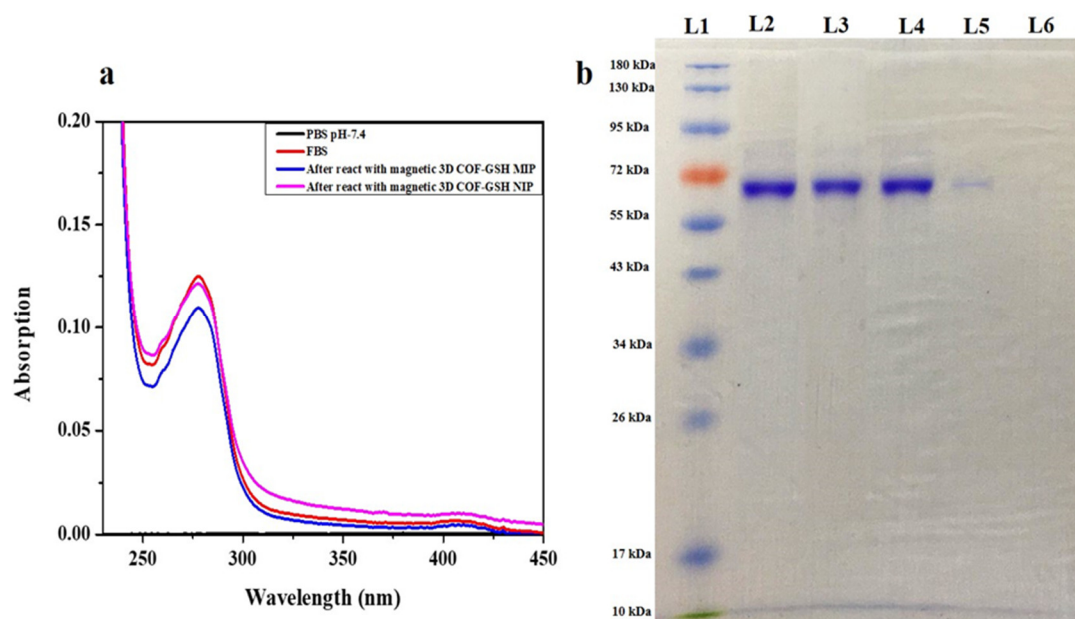
Figure S1. FT-IR spectra of Tp and cTp (a), enlarged(b).



**Figure S2.** N<sub>2</sub> adsorption-desorption isotherm and pore size distribution(inset) of magnetic 3D COFs.



**Figure S3.** XRD of magnetic 3D COF nanoparticles. Two  $\theta$  values and crystal planes 30.2° (220), 35.4° (311), 43.2° (400), 53.4° (422), 57.2° (511), and 62.4° (440) were characteristic peaks of Fe<sub>3</sub>O<sub>4</sub>.



**Figure S4.** (a) UV-vis spectrum and (b) SDS-PAGE of practical analysis for fetal bovine serum of magnetic 3D COF-GSH MIPs. L1: Marker, L2: Fetal bovine serum (FBS), L3; and L4: supernatant solution after adsorption with magnetic 3D COF-GSH MIPs and NIPs respectively, L5; and L6: Eluted solution from magnetic 3D COF-GSH MIPs and NIPs in 0.5% SDS and 0.1 % HOAc (1:1) respectively.

**Table S1.** Optimization of amounts of TEOS and APTES in synthesis reaction of magnetic 3D COF-GSH MIPs/NIPs.

| Amount of Magnetic 3D COF-GSH(mg) | Amount of TEOS( $\mu$ L) | Amount of APTES( $\mu$ L) | $Q_{\text{magnetic 3D COF MIPs}} (\text{mg g}^{-1})$ | $Q_{\text{magnetic 3D COF NIPs}} (\text{mg g}^{-1})$ |
|-----------------------------------|--------------------------|---------------------------|--|--|
| 3                                 | 50                       | 10                        | 201.2 $\pm$ 15.1                                     | 62.5 $\pm$ 5.2                                       |
|                                   |                          | 20                        | 352.2 $\pm$ 10.3                                     | 87.2 $\pm$ 9.5                                       |
|                                   |                          | 30                        | 251.3 $\pm$ 11.3                                     | 74.2 $\pm$ 8.6                                       |
|                                   | 30                       | 10                        | 281.3 $\pm$ 9.6                                      | 68.3 $\pm$ 8.6                                       |
|                                   |                          | 30                        | 248.3 $\pm$ 12.5                                     | 59.5 $\pm$ 7.8                                       |
|                                   |                          | 60                        | 208.6 $\pm$ 14.6                                     | 56.5 $\pm$ 6.6                                       |