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

Electronic Supplementary Information

Dual recognition colorimetric sensing of thrombin based on surface imprinted aptamer-Fe_3O_4

Mingmei Shen, Yuanyuan Wang, Xianwen Kan*

College of Chemistry and Materials Science, Anhui Normal University, Wuhu 241000, P.R. China; The Key Laboratory of Functional Molecular Solids, Ministry of Education; Anhui Laboratory of Molecule-Based Materials, Anhui Key Laboratory of Chemo-Biosensing.

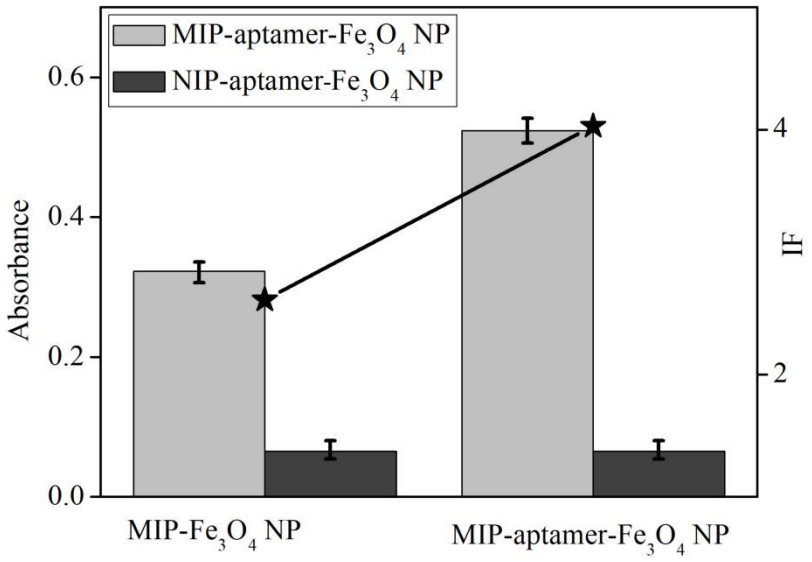

Figure S1 The UV-vis absorbance intensity change at 652 nm of MIP-Fe_3O_4NP and MIP-Aptamer-Fe_3O_4NP in the presence of thrombin. IF (IF=$\Delta A_{MIP}/\Delta A_{NIP)}$ of MIP-Fe_3O_4NP and MIP-aptamer-Fe_3O_4NP.

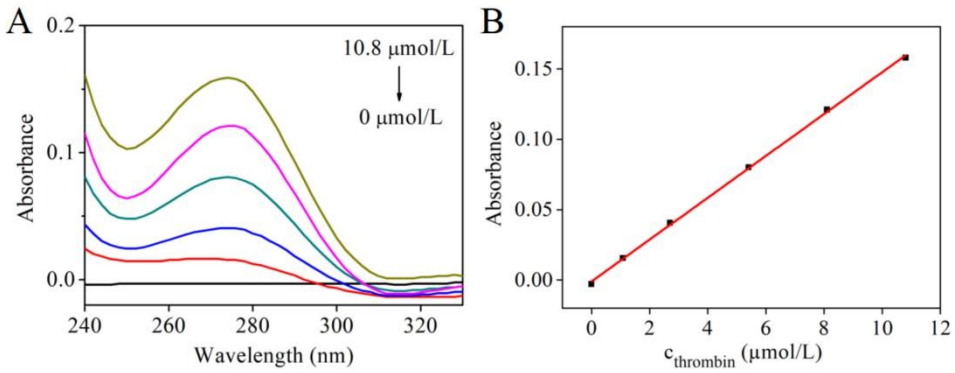

Figure S2 (A) UV-vis absorption spectra of different concentrations of thrombin. (B) Linear calibration plot between the absorbance intensity and concentration of thrombin.

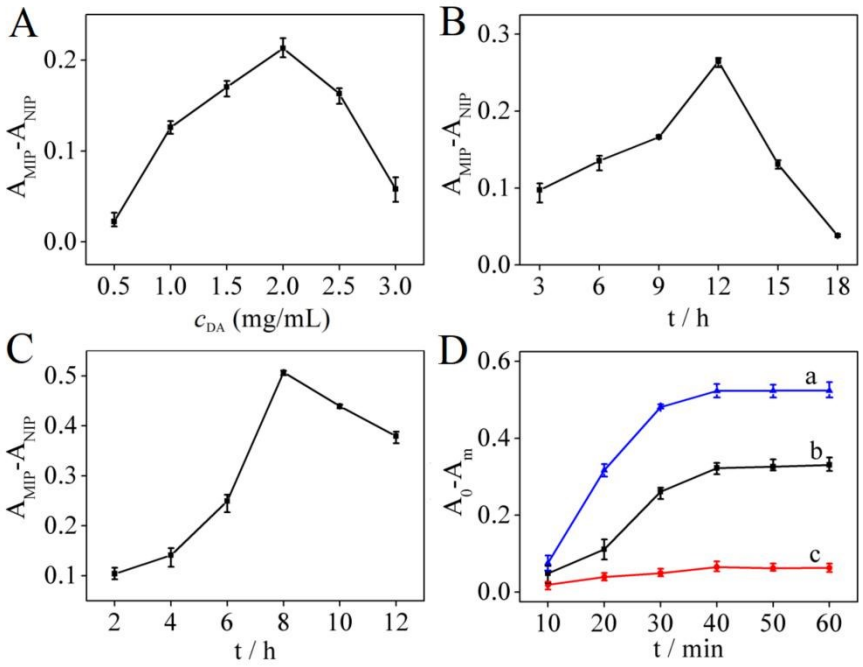

Figure S3 The optimized conditions of (A) the concentration of DA, (B) polymerization time of polymerization, (C) extraction time for MIP-aptamer-Fe_3O_4NP preparation, and (D) rebinding adsorption time of (a) MIP-aptamer-Fe_3O_4NP, (b) MIP-Fe_3O_4NP, (c) NIP-aptamer-Fe_3O_4NP for thrombin.

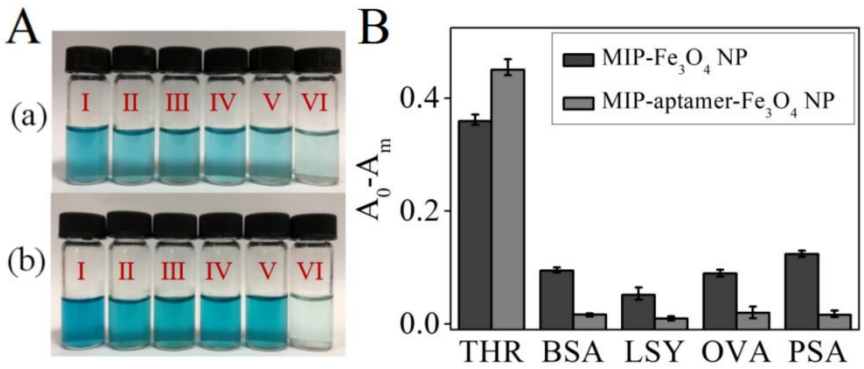

Figure S4 (A)The photograph images of the supernate of MIP-Fe_3O_4 NP (a) and MIP-aptamer-Fe_3O_4 NP (b) for the detection of blank (I), BSA(II), LSY(III), OVA(IV), PSA (V), and thrombin (VI). (B) Histogram of the responses (A_0-A_m) of ox-TMB in the presence of MIP-Fe_3O_4 NP and MIP-aptamer-Fe_3O_4 NP for the detection of thrombin, BSA, LSY, OVA, and PSA.

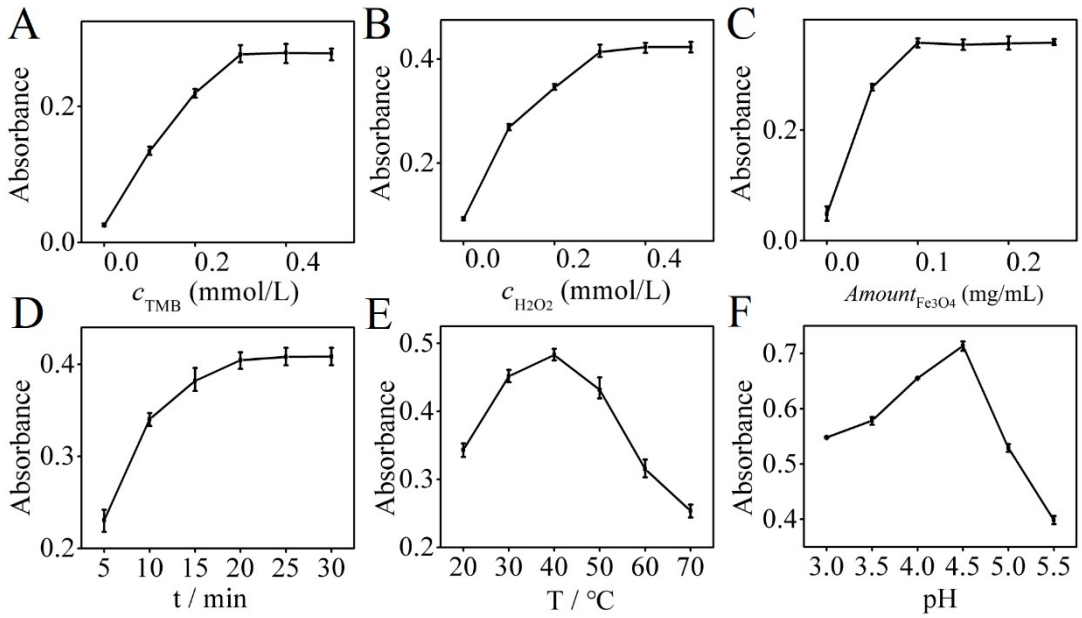

Figure S5 The optimal conditions of the concentration of (A) TMB, (B) H_2O_2, and the amount of (C) Fe_3O_4 NP, the reaction (D) temperature, (E) pH and (F) time.

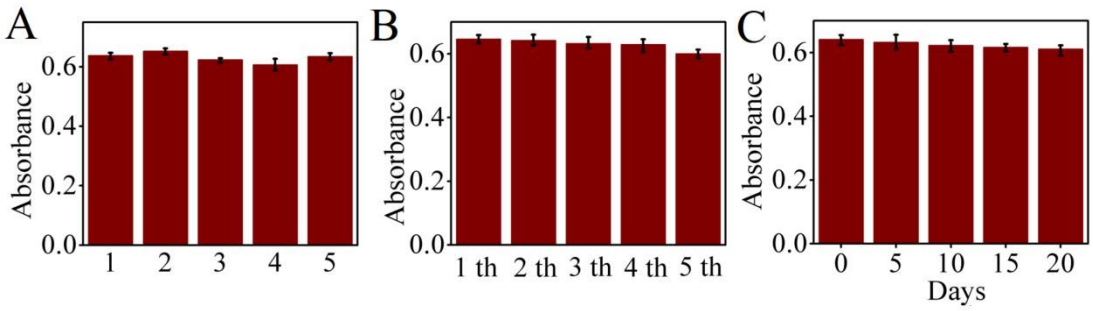

Figure S6 Reproducibility (A), regeneration (B), and stability (C) of MIP-aptamer-Fe_3O_4 NP.