

Electronic Supplementary Information (ESI)

**Fluorescent Binary Ensemble with Pattern Recognition
Ability for Identifying Multiple Metalloproteins and
Applications in Serum and Urine**

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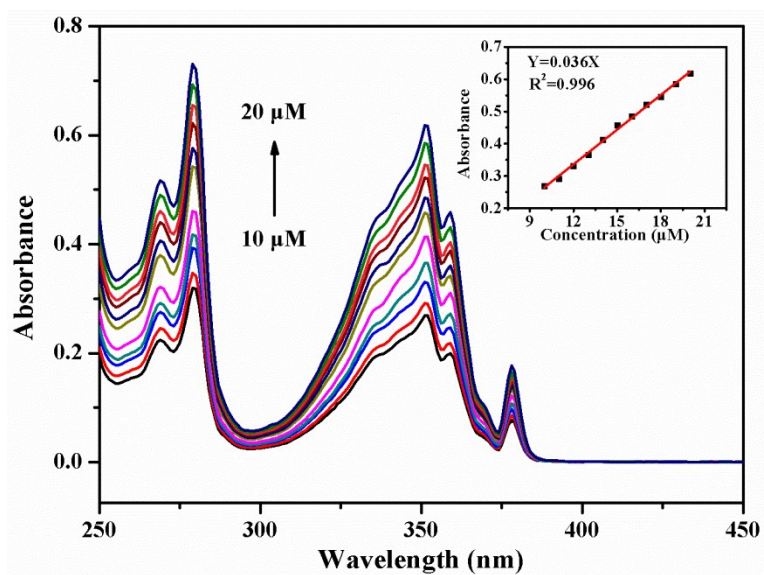


Fig. S1 UV-vis absorption spectra of **1** in methanol at different concentration.

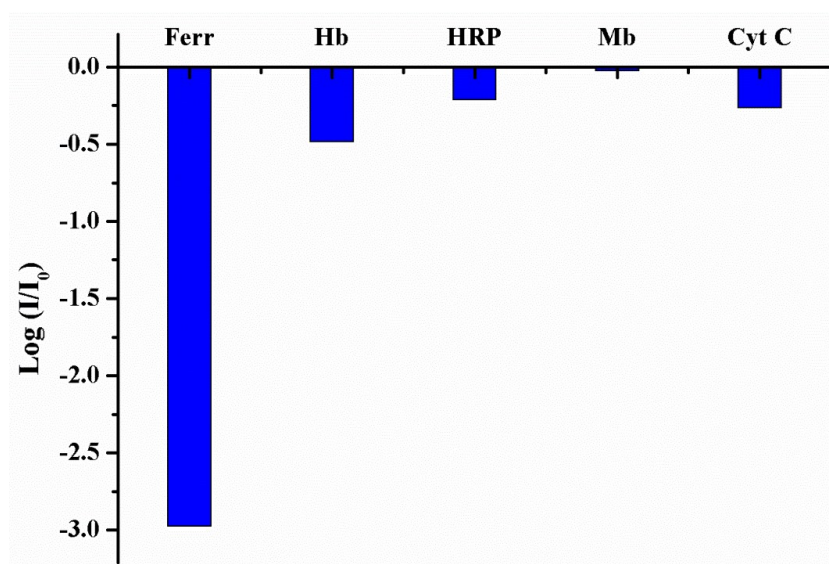


Fig. S2 The relative fluorescent intensity at 381 nm of **1**/SDBS (5 μM/0.2 mM) in the presence of different metalloprotein (5 μM).

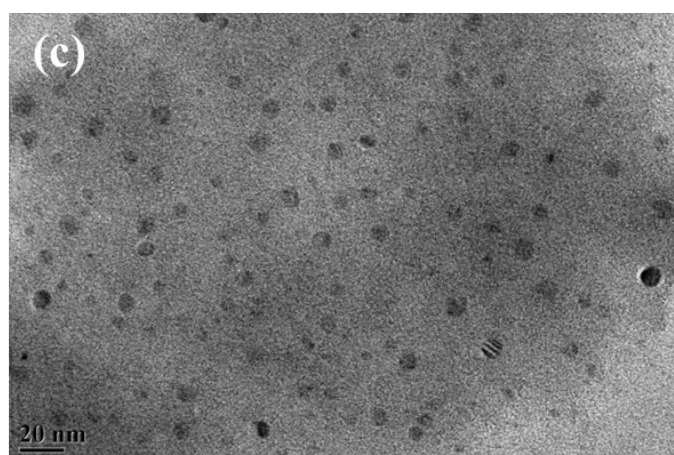
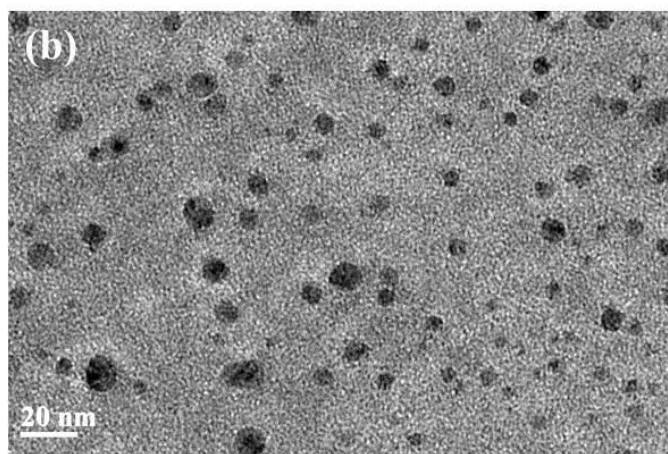
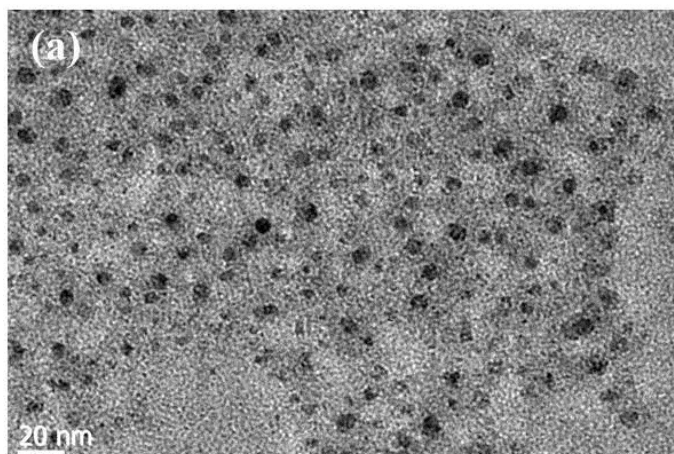


Fig. S3 TEM images of (a) **1**/SDBS (5 μ M/0.2 mM), (b) **1**/SDBS/TRF (5 μ M/0.2 mM/10 μ M), and (c) **1**/SDBS (5 μ M/1 mM).

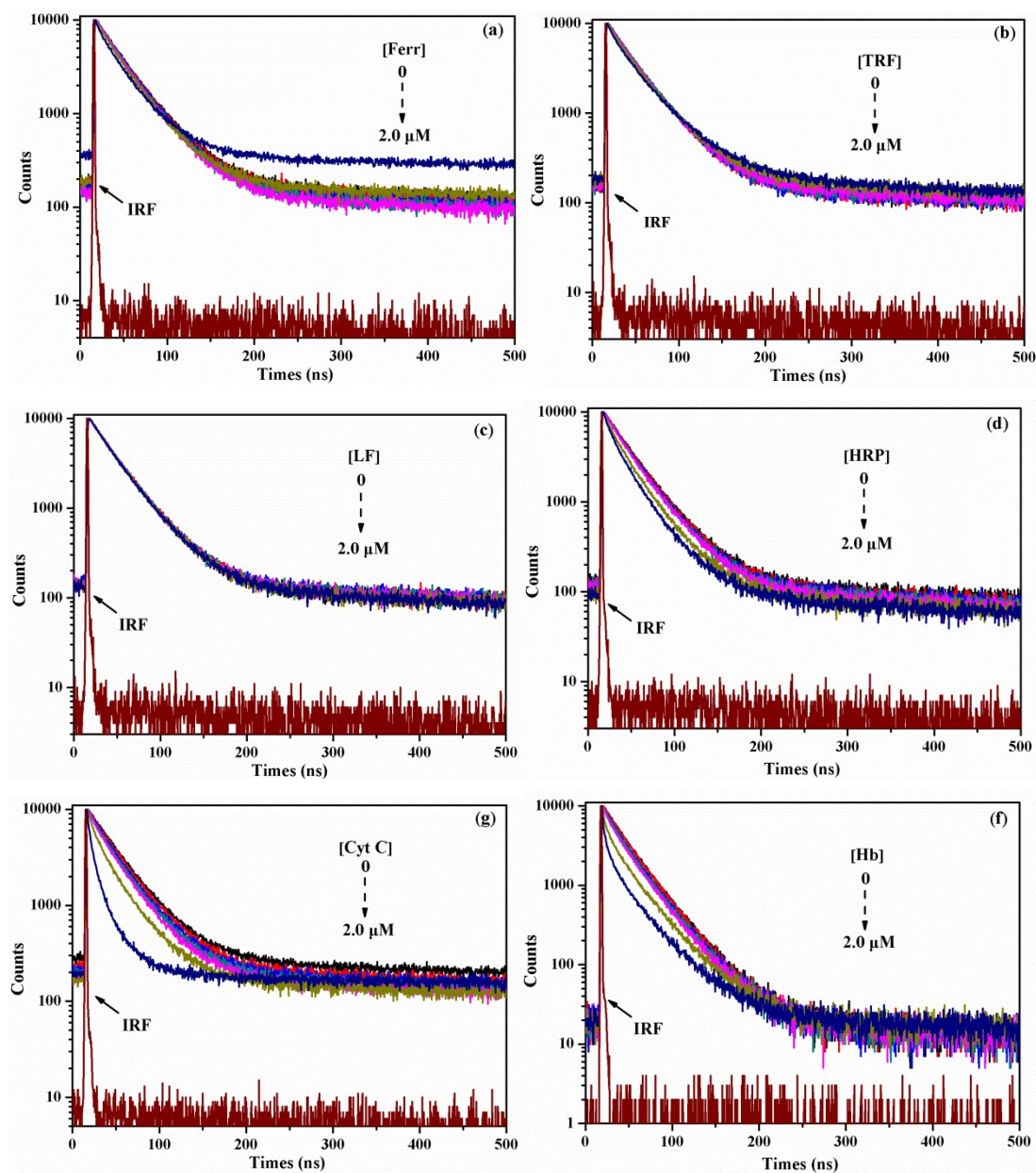


Fig. S4 Time-resolved fluorescence decays of 1/SDBS (5 μM /0.2 mM) upon titration of different metalloproteins: (a) Ferr, (b) TRF, (c) LF, (d) HRP, (e) Cyt C, and (f) Hb ($\lambda_{\text{ex}} = 343.4 \text{ nm}$, $\lambda_{\text{em}} = 498 \text{ nm}$).

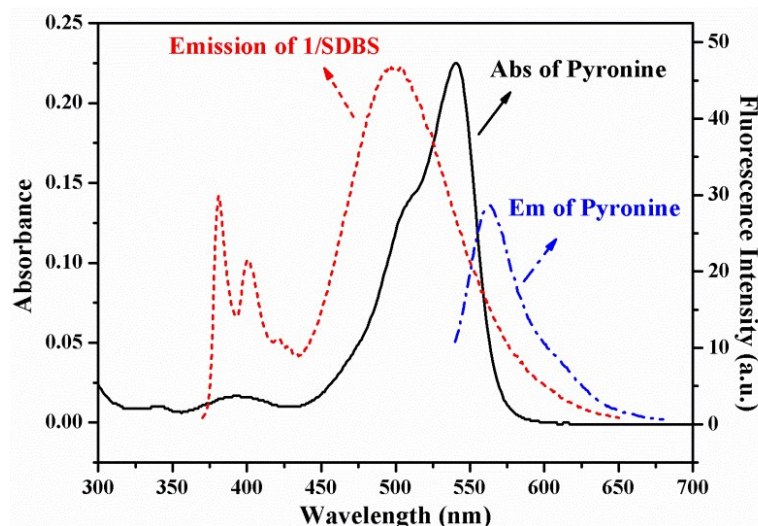


Fig. S5 Fluorescence emission spectrum of 1/SDBS (5 μM /0.2 mM) ($\lambda_{\text{ex}} = 354 \text{ nm}$) and the absorbance and emission spectra of pyronine (5 μM , $\lambda_{\text{ex}} = 540 \text{ nm}$).

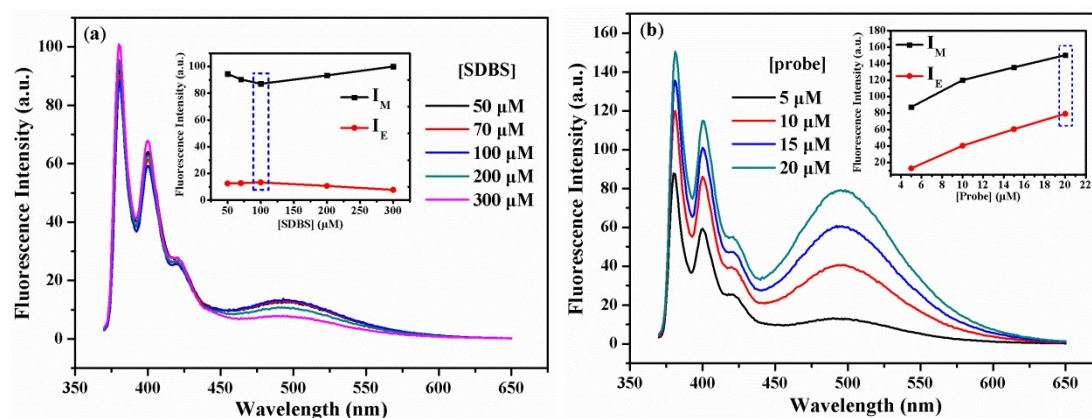


Fig. S6 (a) Fluorescence emission spectra of **1** (5 μM) in a series of different concentrated SDBS solutions containing 1% human serum (10 mM HEPES, pH 7.4). Inset: Fluorescence intensity of monomer at 381 nm (I_M) and excimer at 495 nm (I_E) of **1** (5 μM) as a function of SDBS concentration in 1% human serum (10 mM HEPES, pH 7.4). (b) Fluorescence emission of **1** (5 μM) at different concentration in 0.1 mM SDBS aqueous solution containing 1% human serum (10 mM HEPES, pH 7.4). Inset: Fluorescence intensity of monomer at 381 nm (I_M) and excimer at 495 nm (I_E) of **1** (5 μM) in 0.1 mM SDBS solution containing 1% human serum (10 mM HEPES, pH 7.4).

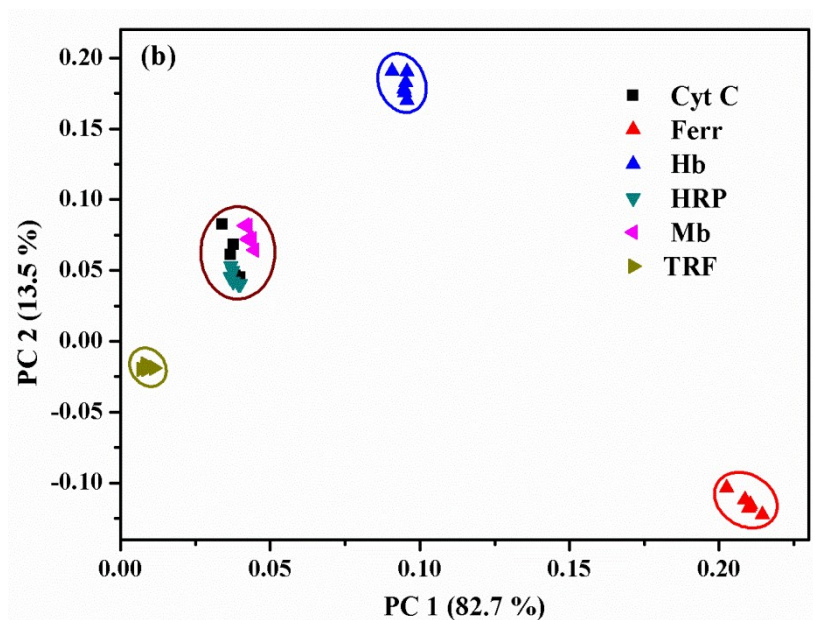
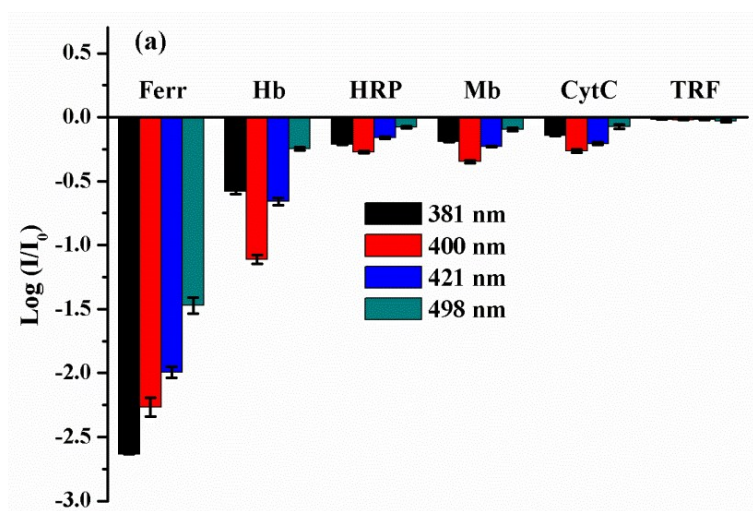


Fig. S7 (a) Recognition patterns for metalloproteins (2 μM) by collecting fluorescence variation of 1/SDBS (20 μM/0.3 mM) at four selected wavelengths in 5.0% human serum (10 mM HEPES, pH 7.4). Each value is an average of three parallel measurements. (b) Two-dimensional PCA plots for the discrimination of 7 metalloproteins (2 μM) in 5.0% human serum (10 mM HEPES, pH 7.4).

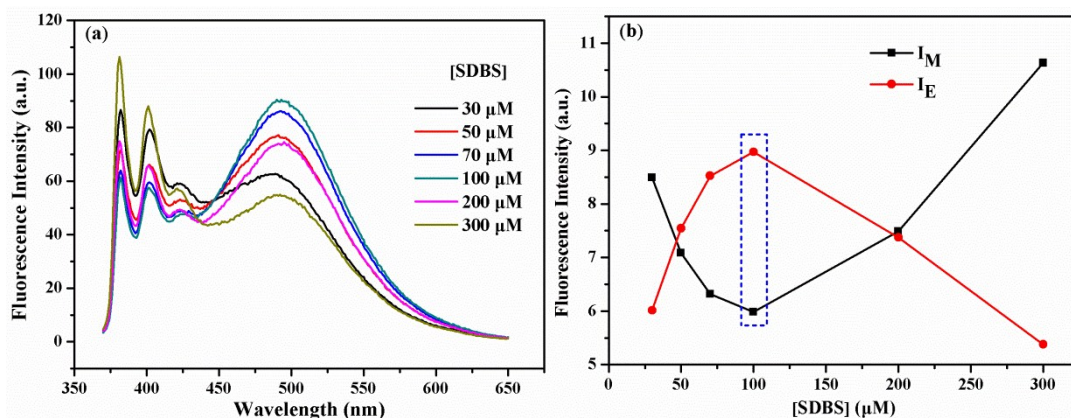


Fig. S8 (a) Fluorescence emission spectra of **1** (5 μM) in a series of different concentrated SDBS solutions containing 10.0% human urine (10 mM HEPES, pH 7.4). (b) Fluorescence intensity of monomer at 381 nm (I_M) and excimer at 498 nm (I_E) of **1** (5 μM) as a function of SDBS concentration in 10.0% human urine (10 mM HEPES, pH 7.4).

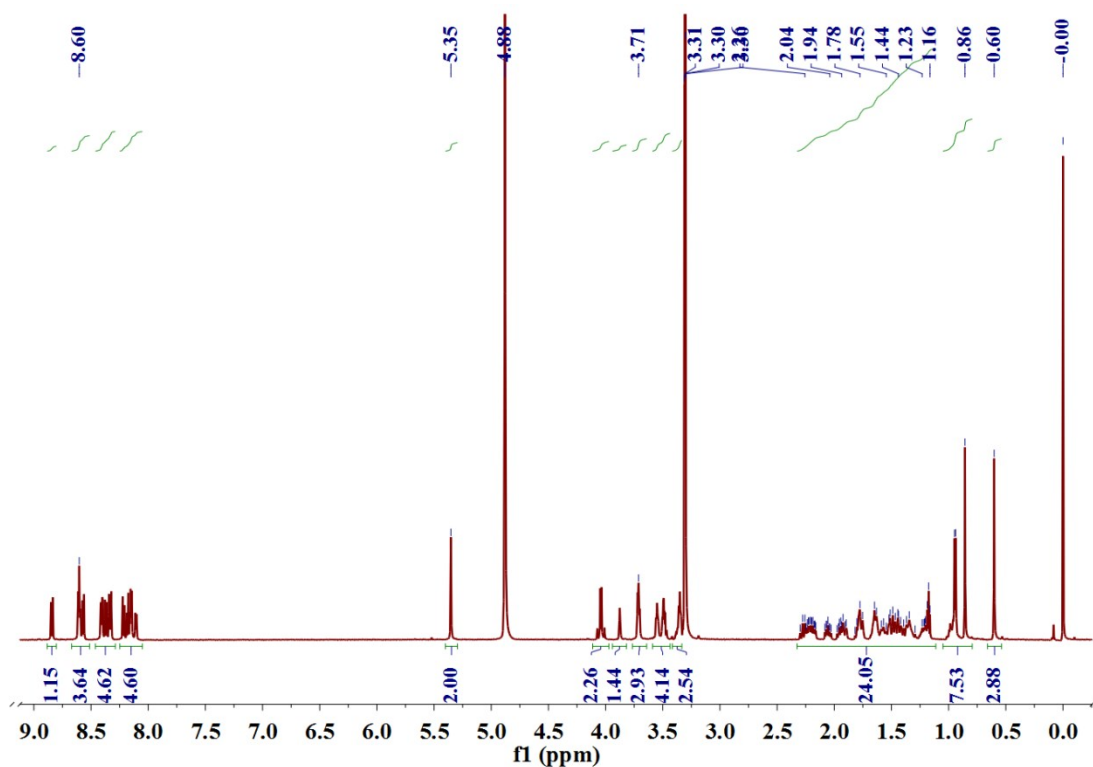


Fig. S9 The ^1H NMR spectrum of compound **1**

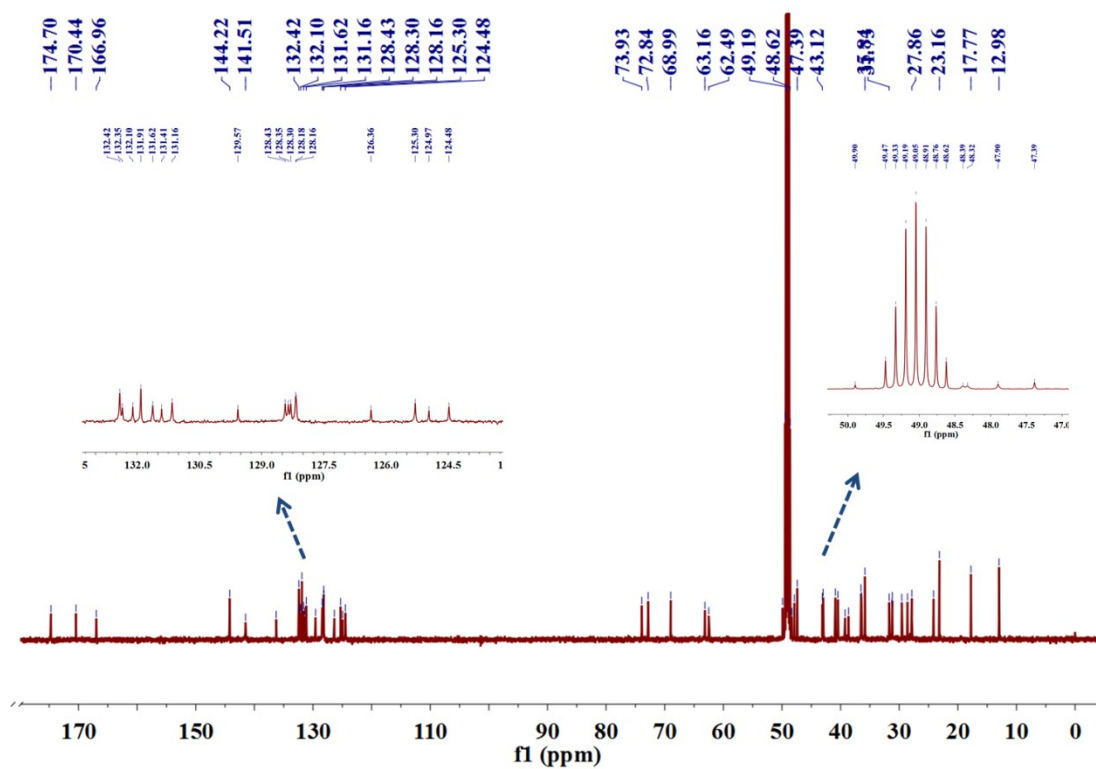


Fig. S10 The ^{13}C NMR spectrum of compound 1

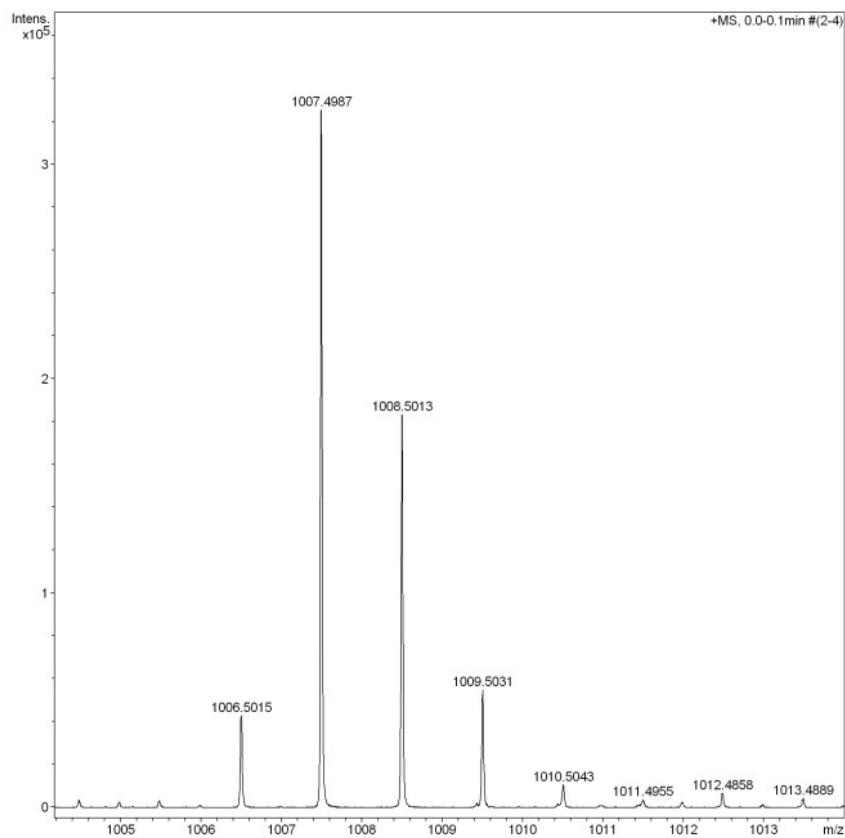


Fig. S11 The MS of compound 1