Electronic Supplementary Material (ESI) for RSC Advances

A pyridomethene-BF_2 complex-based chemosensor for detection of hydrazine

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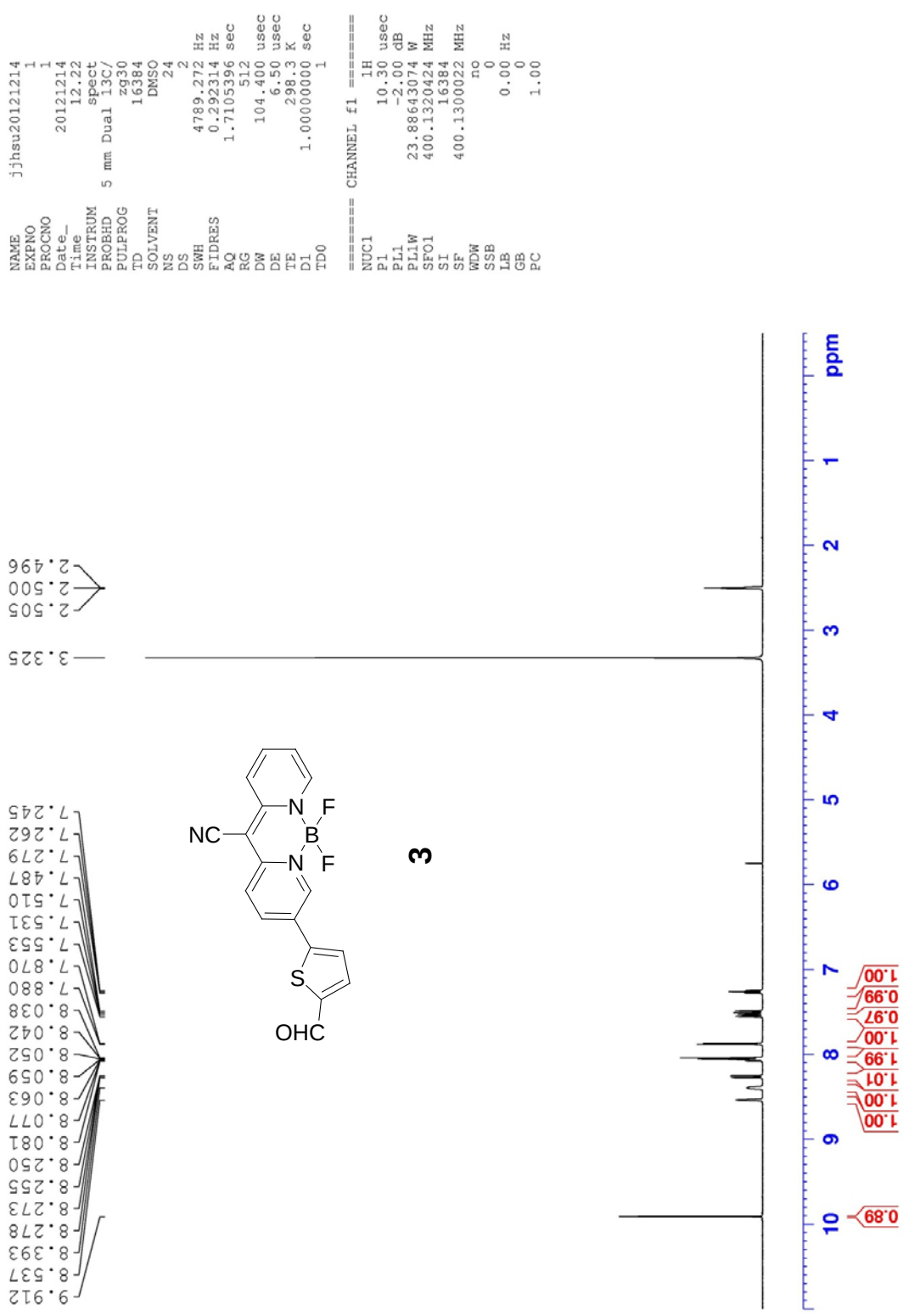

Figure S1. ^{1}H NMR spectrum of **3**

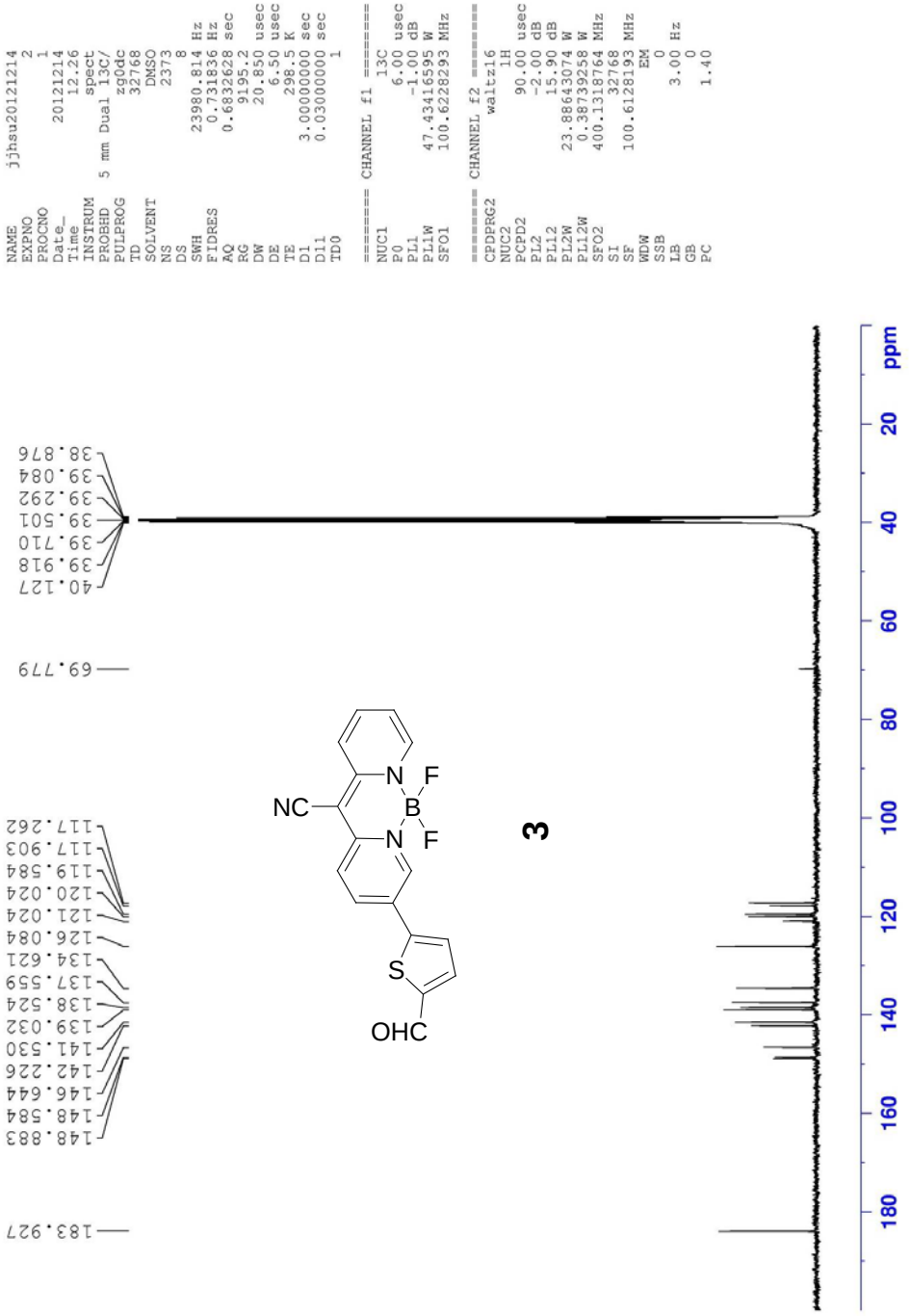

Figure S2. ^{13}C NMR spectrum of **3**

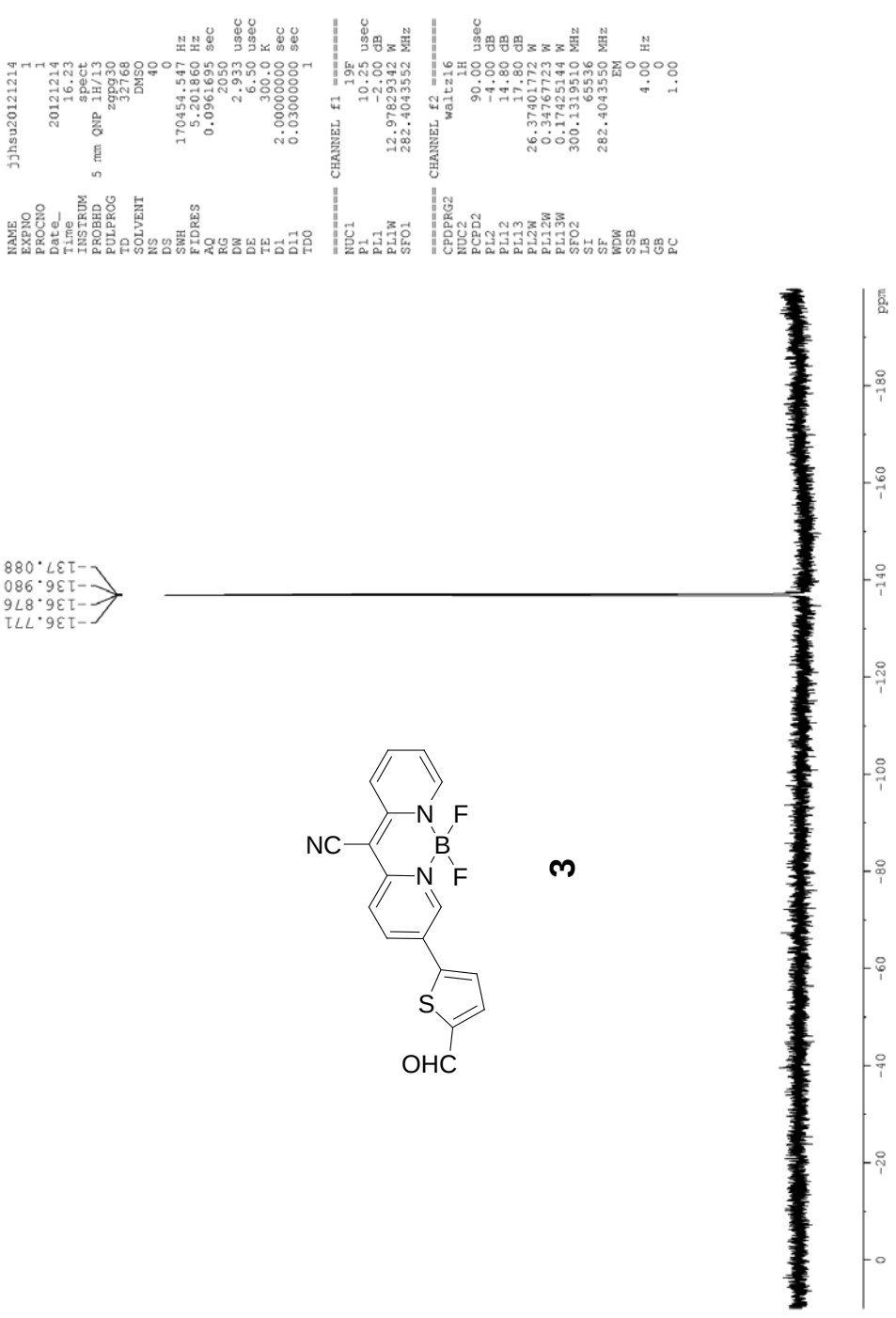

Figure S3. ^{19}F NMR spectrum of **3**

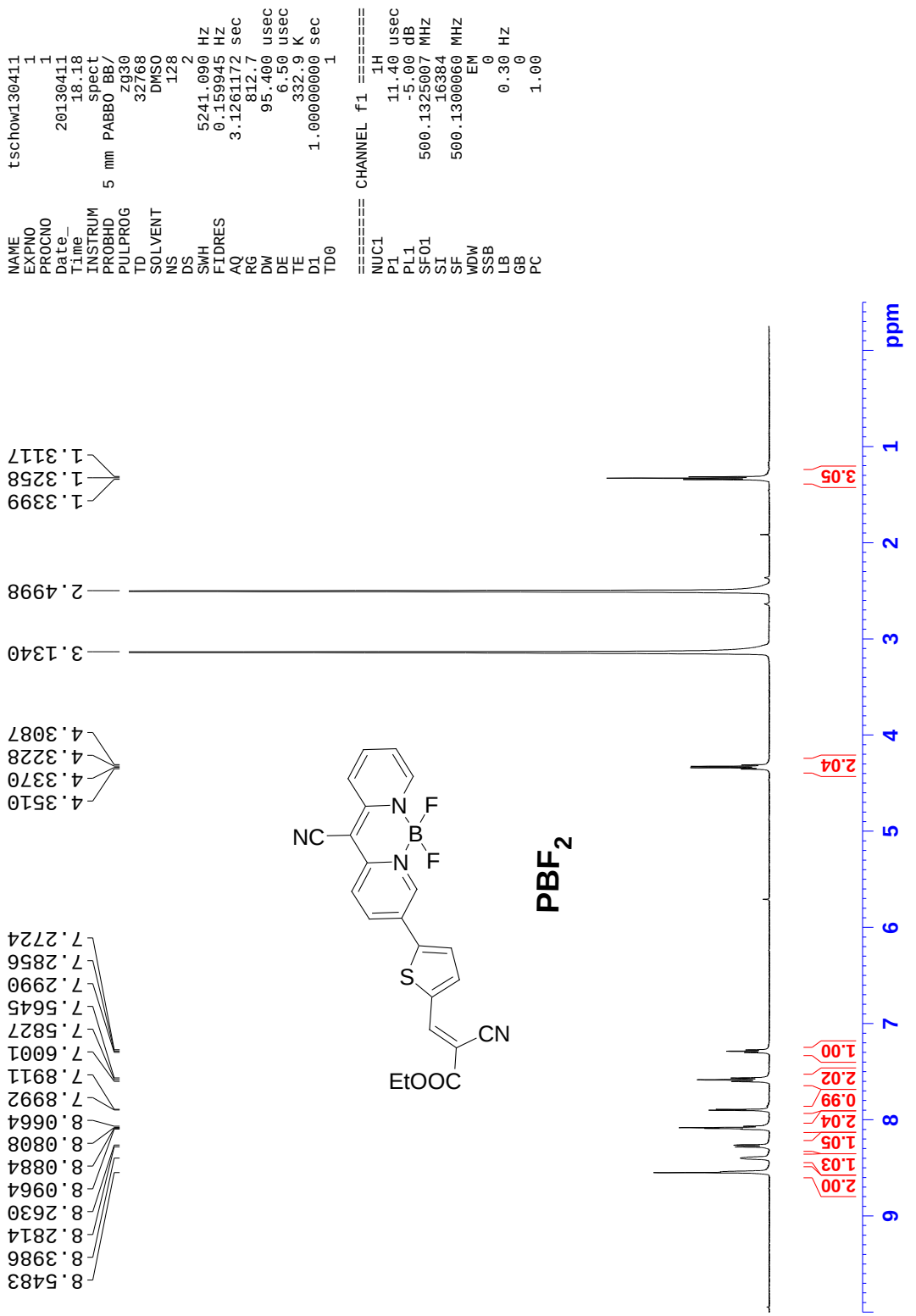

Figure S4. ^{1}H NMR spectrum of **PBF$_2$**

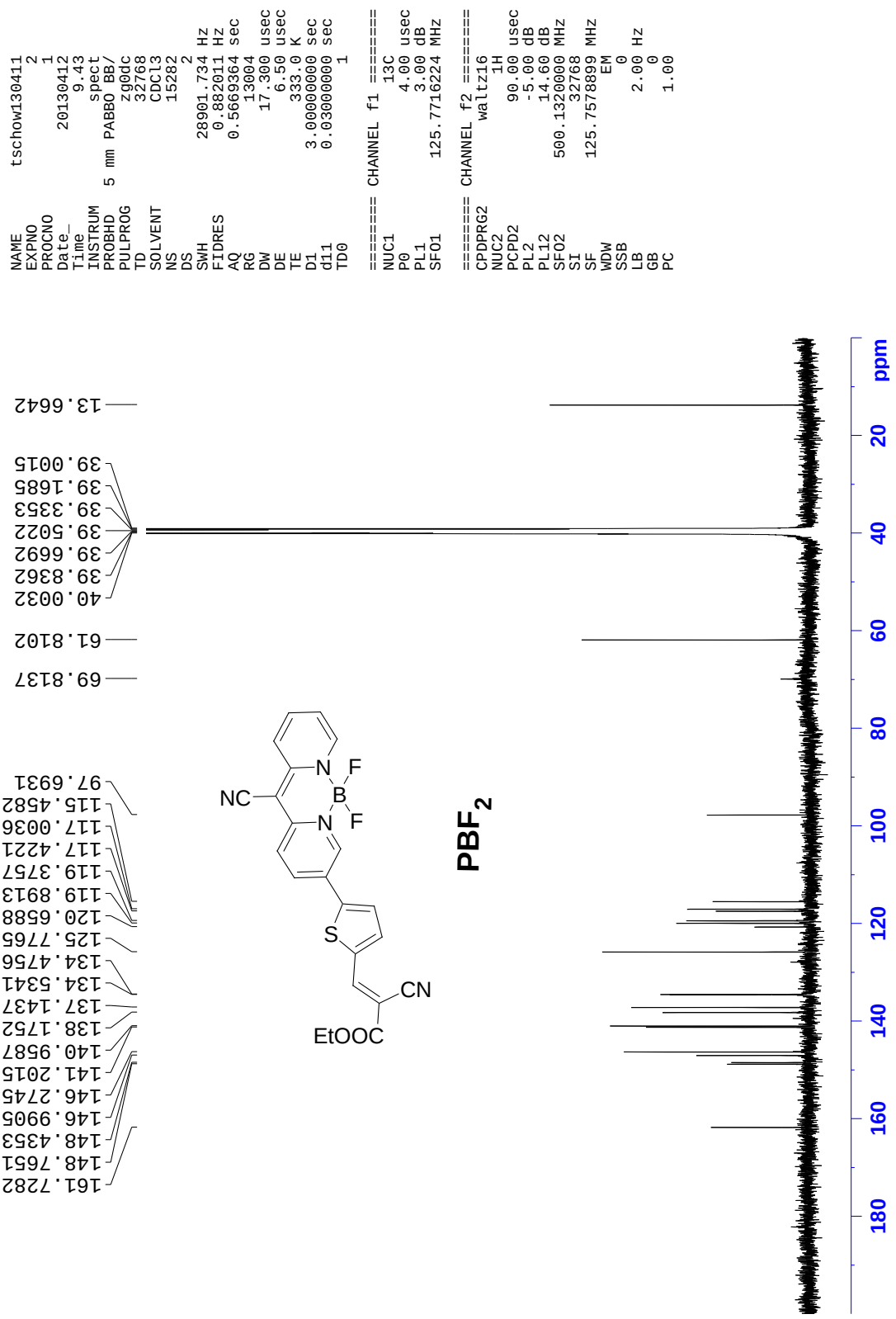

Figure S5. ^{13}C NMR spectrum of **PBF$_2$**

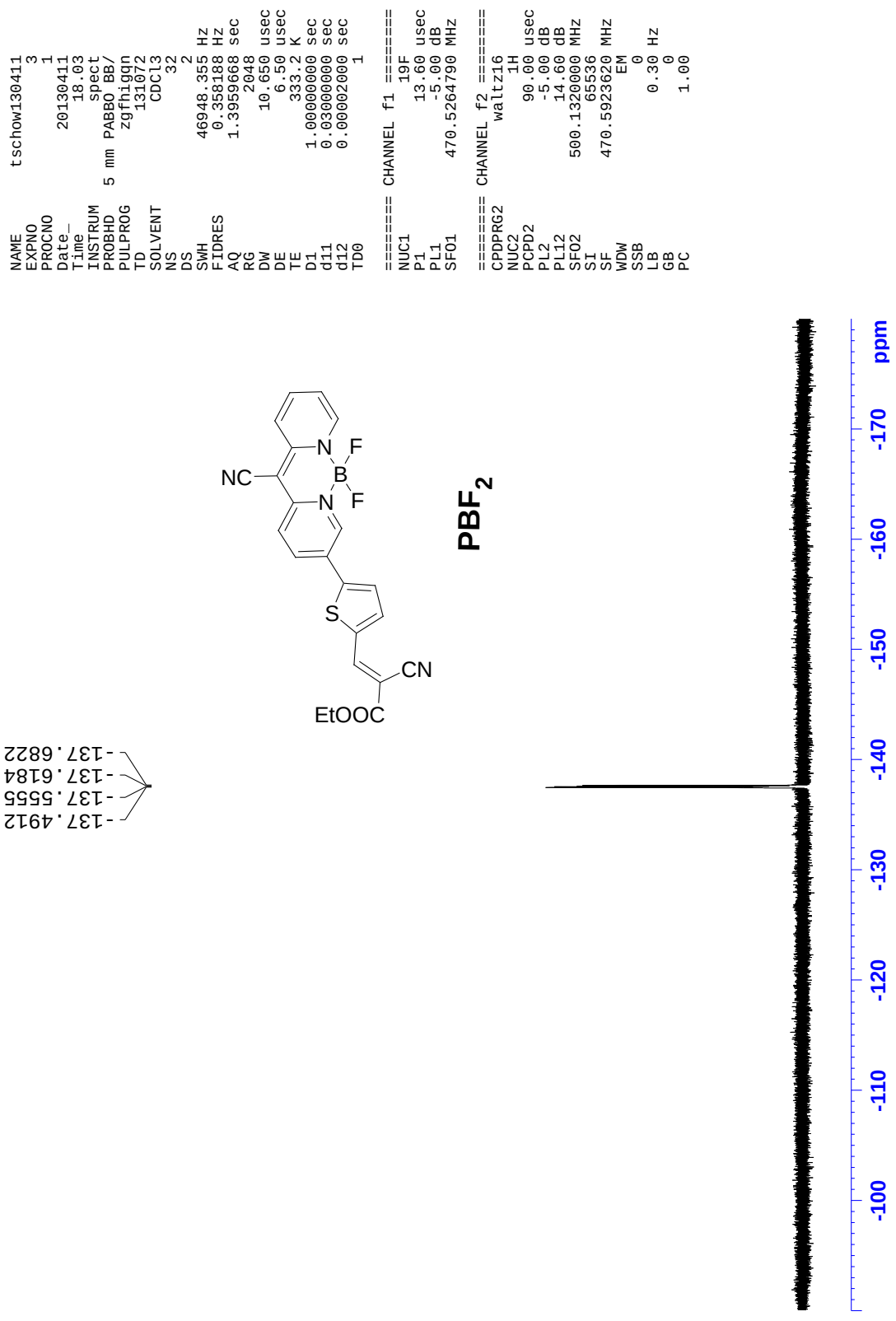

Figure S6. ^{19}F NMR spectrum of **PBF$_2$**

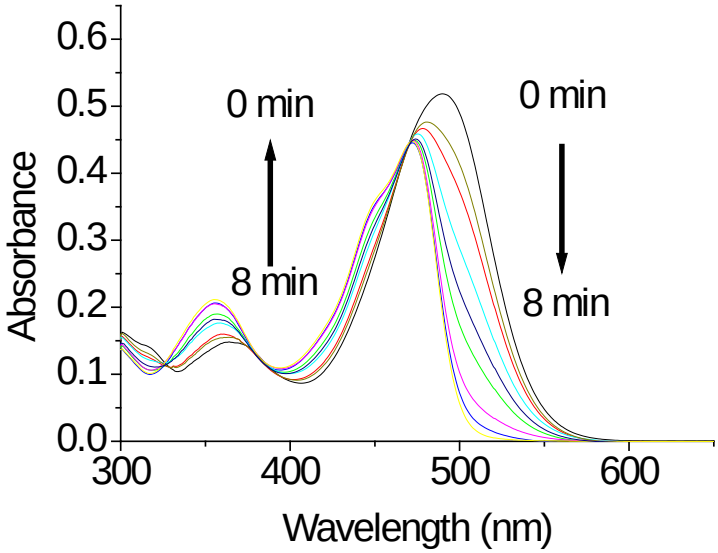

Figure S7. Time-dependent absorption spectra of sensor **PBF_2** (1 x 10^{-5} M) upon the addition of hydrazine (10 equiv) in a mixture of acetate buffer (pH 4.0, 10 mM) and DMSO (1/9, v/v). The arrows indicate the change of incubation time 0 to 8 min.

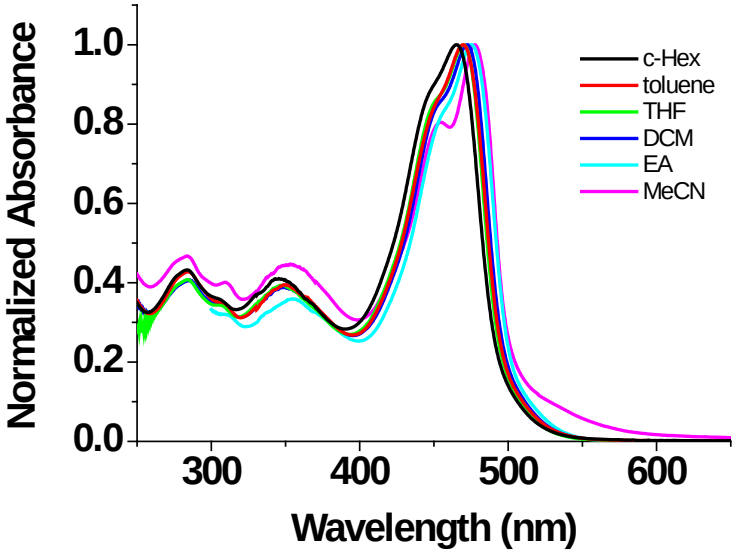

Figure S8. Normalized absorption spectra of **PBF$_2$** in cyclohexane, toluene, THF, ethyl acetate, dichloromethane, and acetonitrile.

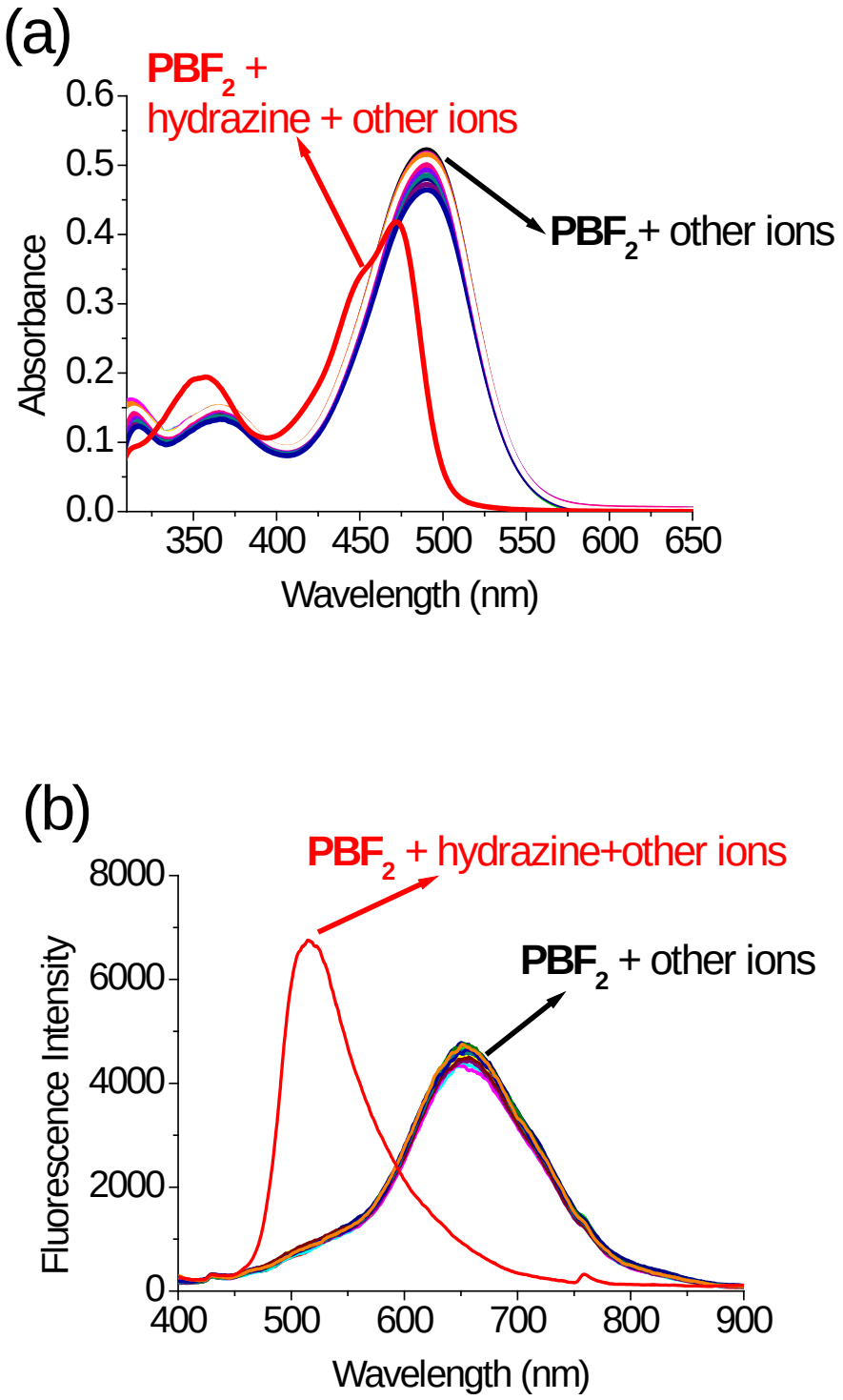

Figure S9. (a) Absorption and (b) fluorescence spectra of **PBF_2** (1 x 10^{-5} M in a mixture of acetate buffer (pH 4.0, 10 mM) and DMSO (1/9, v/v)) in the presence of hydrazine and ions (F^-, Cl^-, Br^-, I^-, CN^-, ClO_4^-, $H_2PO_4^-$, HSO_4^-, NO_3^-, $CH_3CO_2^-$, Li^+, Na^+, K^+, Cs^+, Ag^+, Ba^{2+}, Ca^{2+}, Mg^{2+}, Co^{2+}, Cu^{2+}, Pb^{2+}, Zn^{2+}, Y^{3+}).

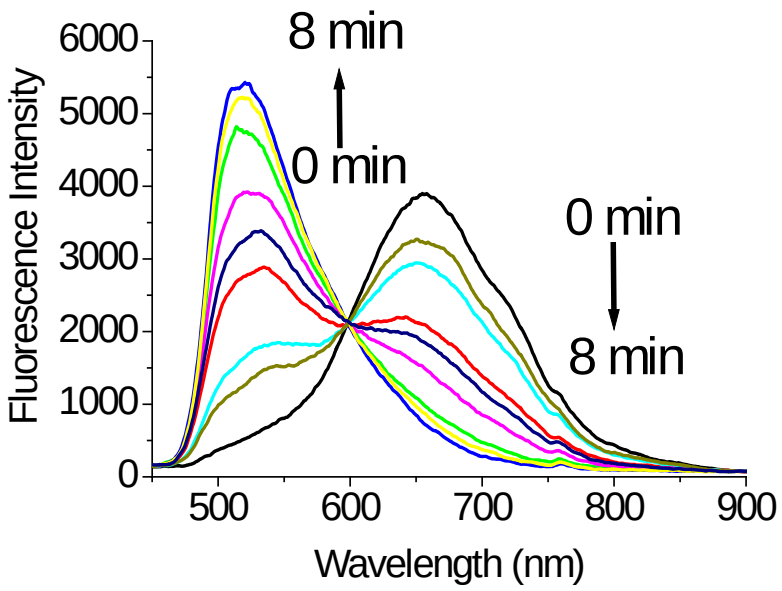

Figure S10. The fluorescence intensity of sensor **PBF_2** (1×10^{-5} M) incubated with hydrazine (2×10^{-4} M) for 0-8 min.

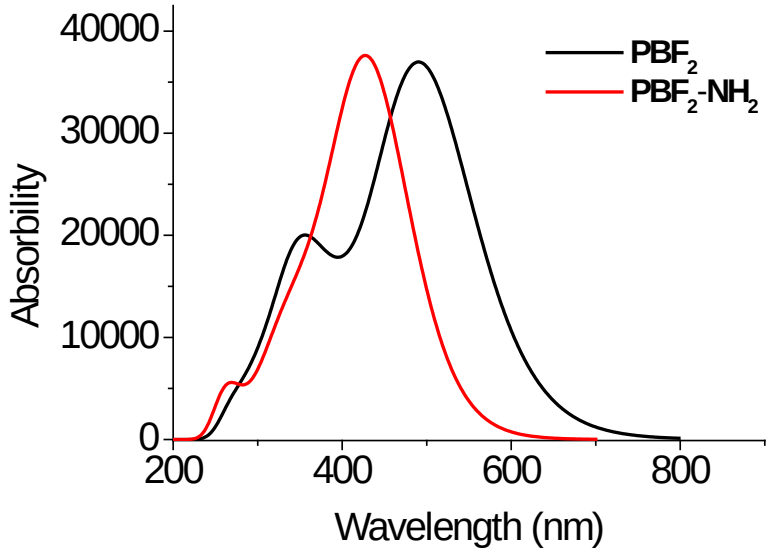

Figure. S11 The simulated absorption spectra of sensor **PBF_2** (black line) and **PBF_2-NH_2** (red line).

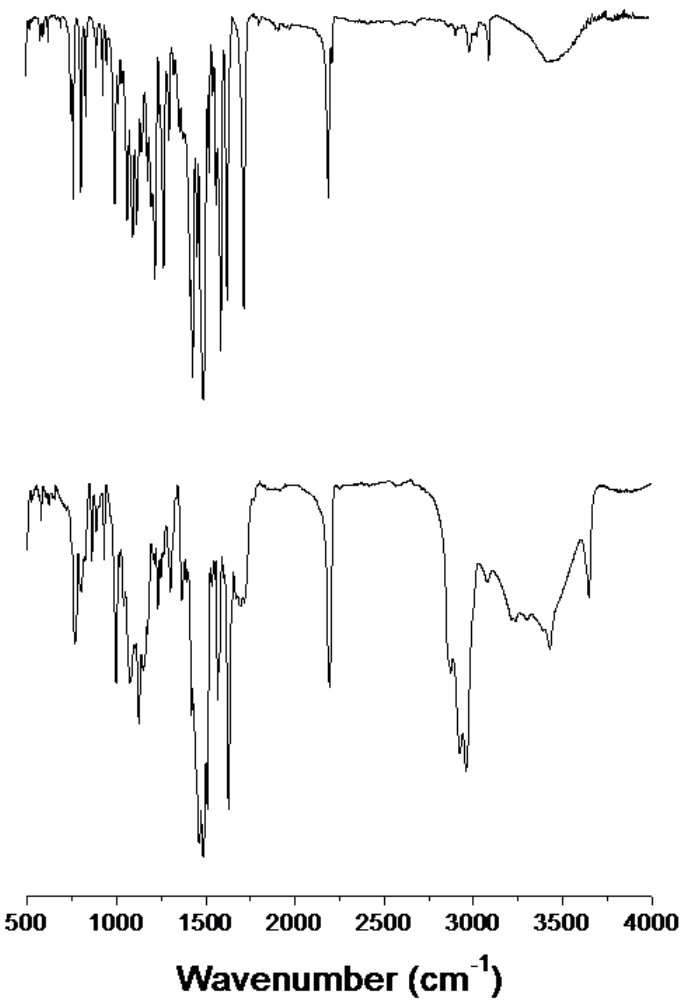

Figure S12. IR spectra of probe **PBF$_2$** (upper line), and **PBF$_2$** upon addition of hydrazine (bottom line).

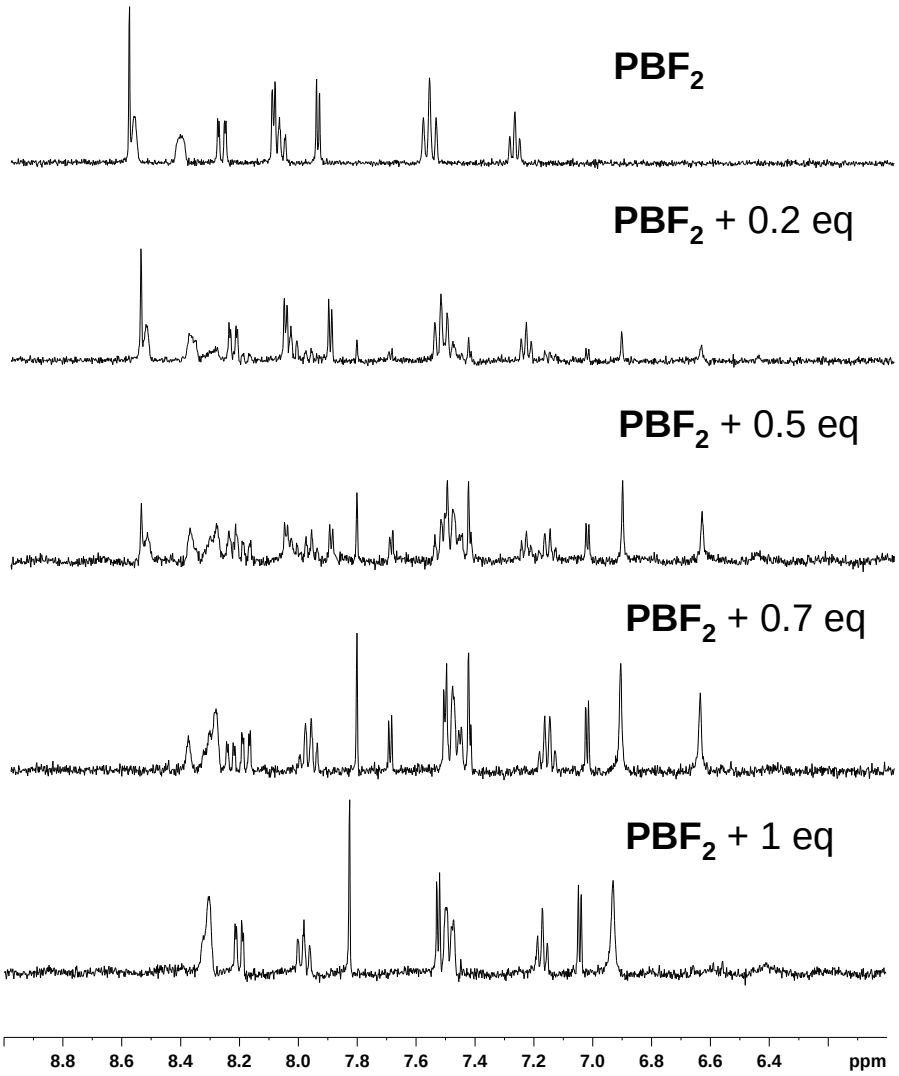

Figure S13. ^{1}H NMR spectra for a continuous change of **PBF_2** to **PBF_2-NH_2**.

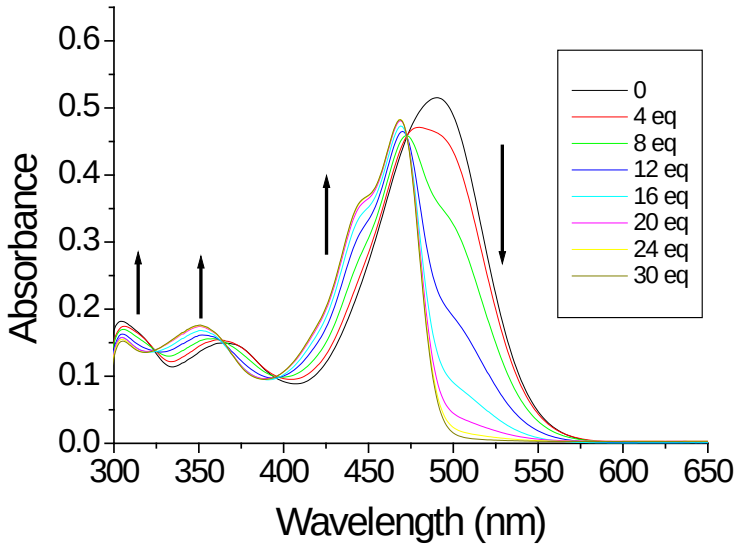

Figure S14. Change of absorption spectrum of **PBF_2** (1×10^{-5} M) upon the addition of *n*-propylamine (0~30 equiv at 4.0 equiv interval) in a mixed solvent of an acetate buffer (pH 4.0, 10 mM) and DMSO (1/9, v/v).

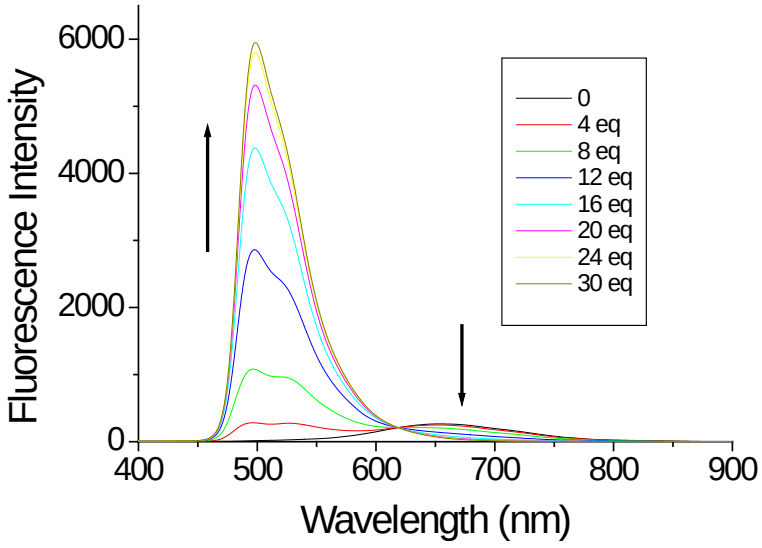

Figure S15. Fluorescence titration spectra of **PBF_2** (1×10^{-5} M in a mixture of acetate buffer (pH 4.0, 10 mM) and DMSO (1/9, v/v)) solution with different concentrations of *n*-propylamine (0~30 equiv at 4.0 equiv interval).

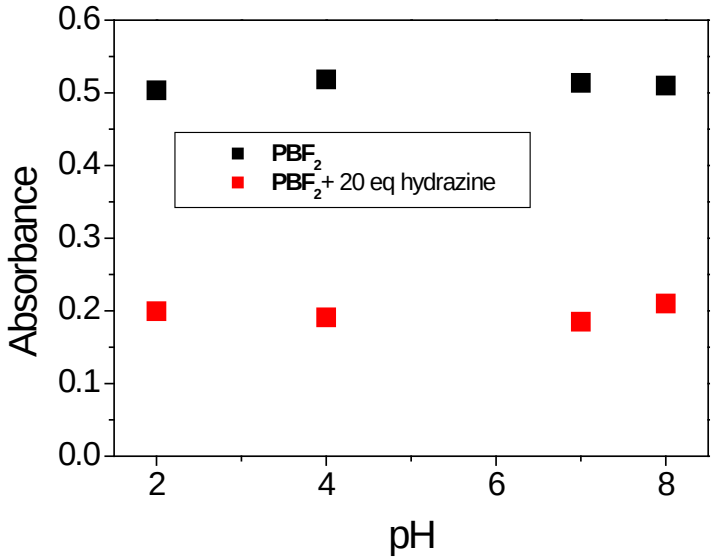

Figure S16. Changes of spectral intensity at different pH. The absorption intensity (490 nm) of **PBF_2** (1 x 10^{-5} M) solutions in a mixture of acetate buffer (pH 4.0, 10 mM) and DMSO (1/9, v/v) with and without hydrazine (20 equiv.).