

## Electronic Supplementary Information

### Synthesis of a borylated boron-dibenzopyrromethene enabling visual detection of H<sub>2</sub>O<sub>2</sub> vapor

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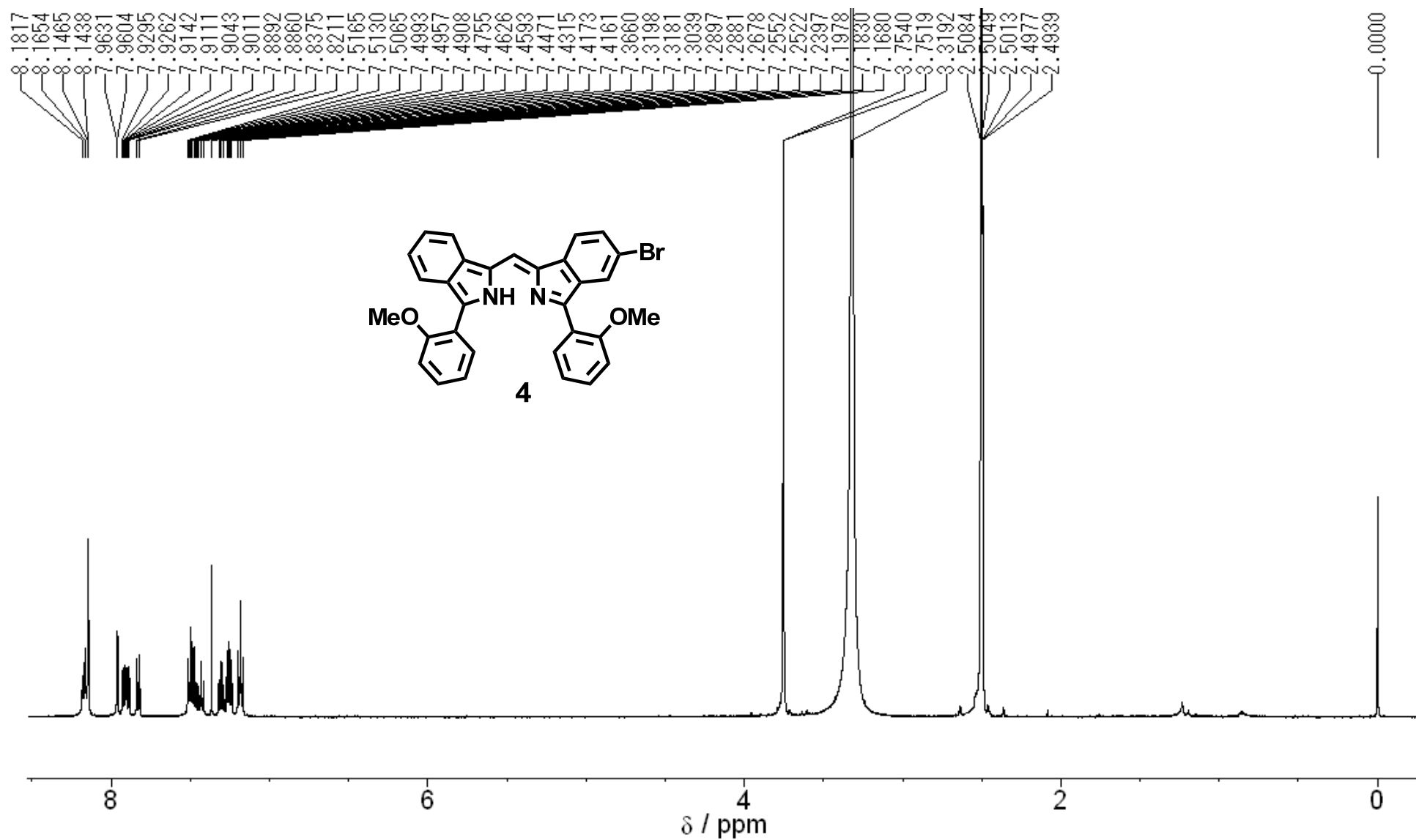


Fig. S1  $^1\text{H NMR}$  spectrum of dye 4 in  $\text{DMSO-}d_6$  at room temperature.

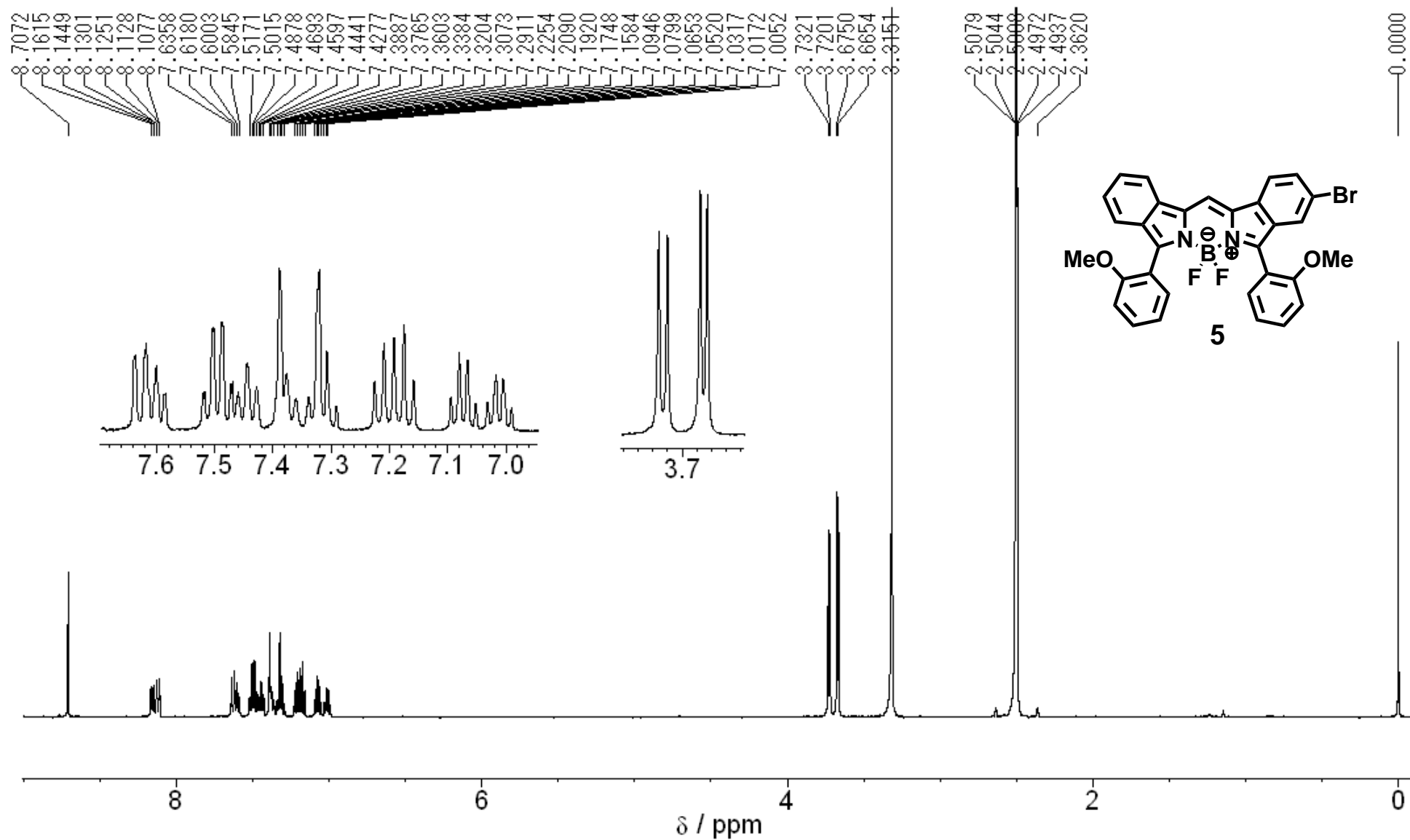


Fig. S2  $^1\text{H}$  NMR spectrum of dye **5** in  $\text{DMSO-}d_6$  at room temperature.

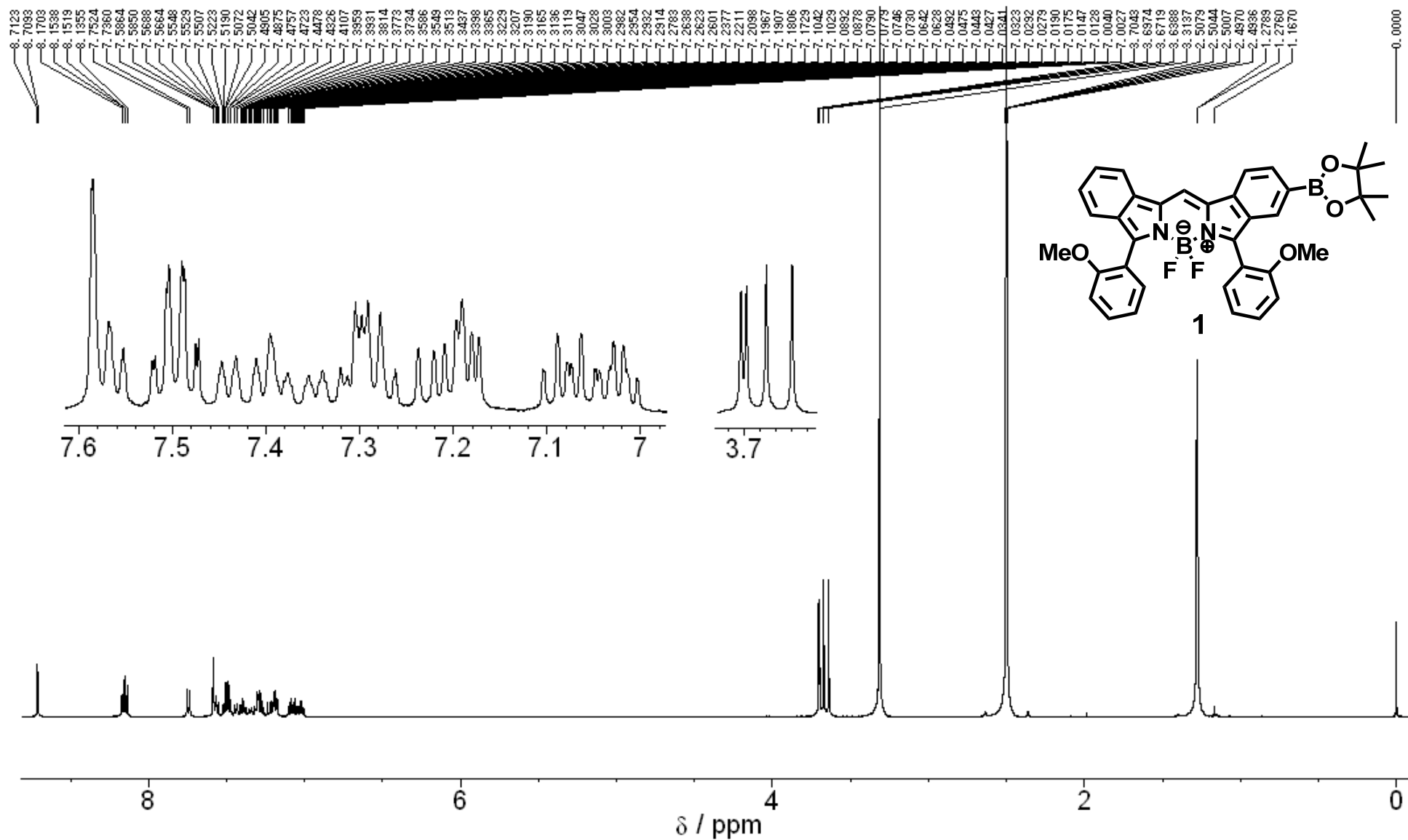
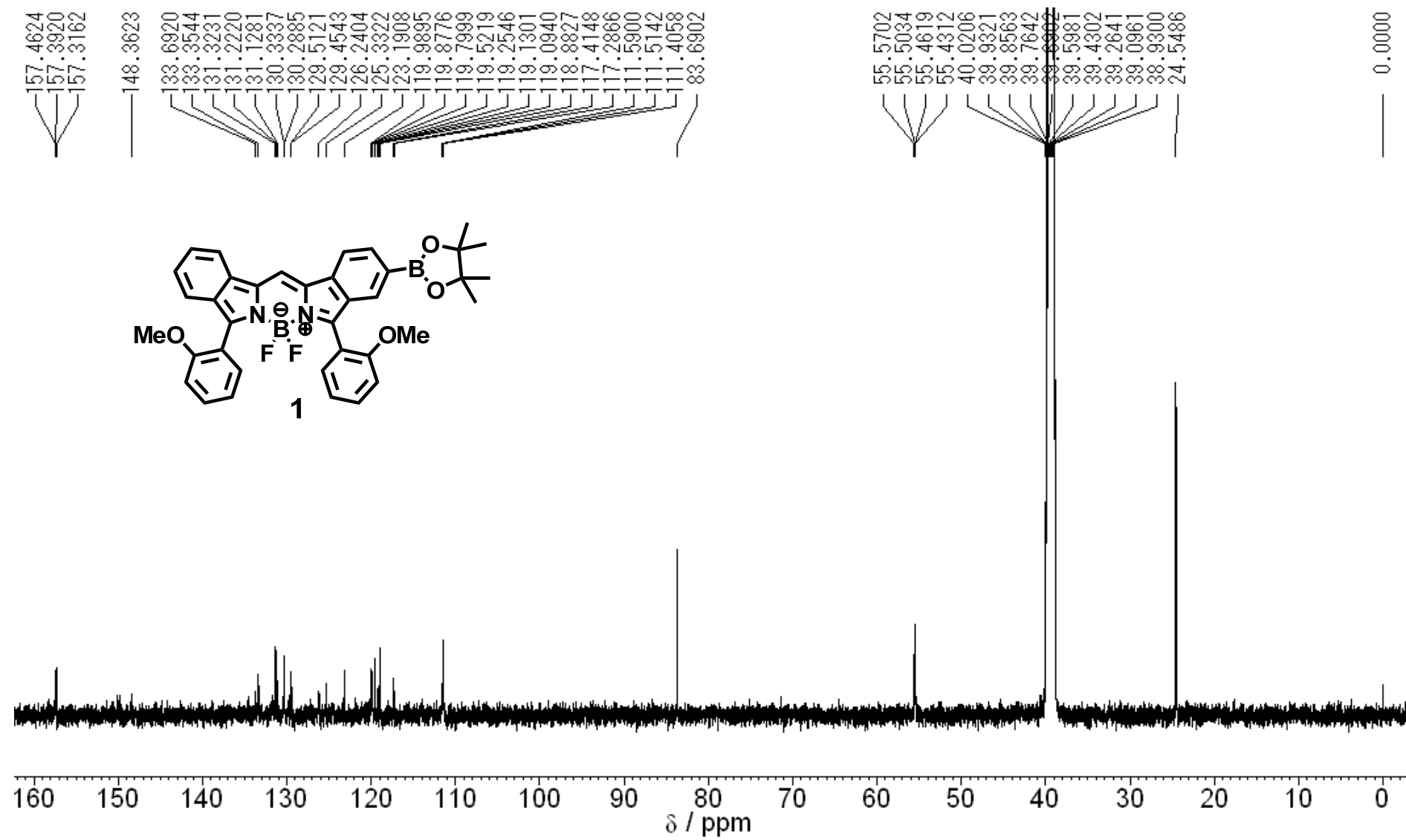
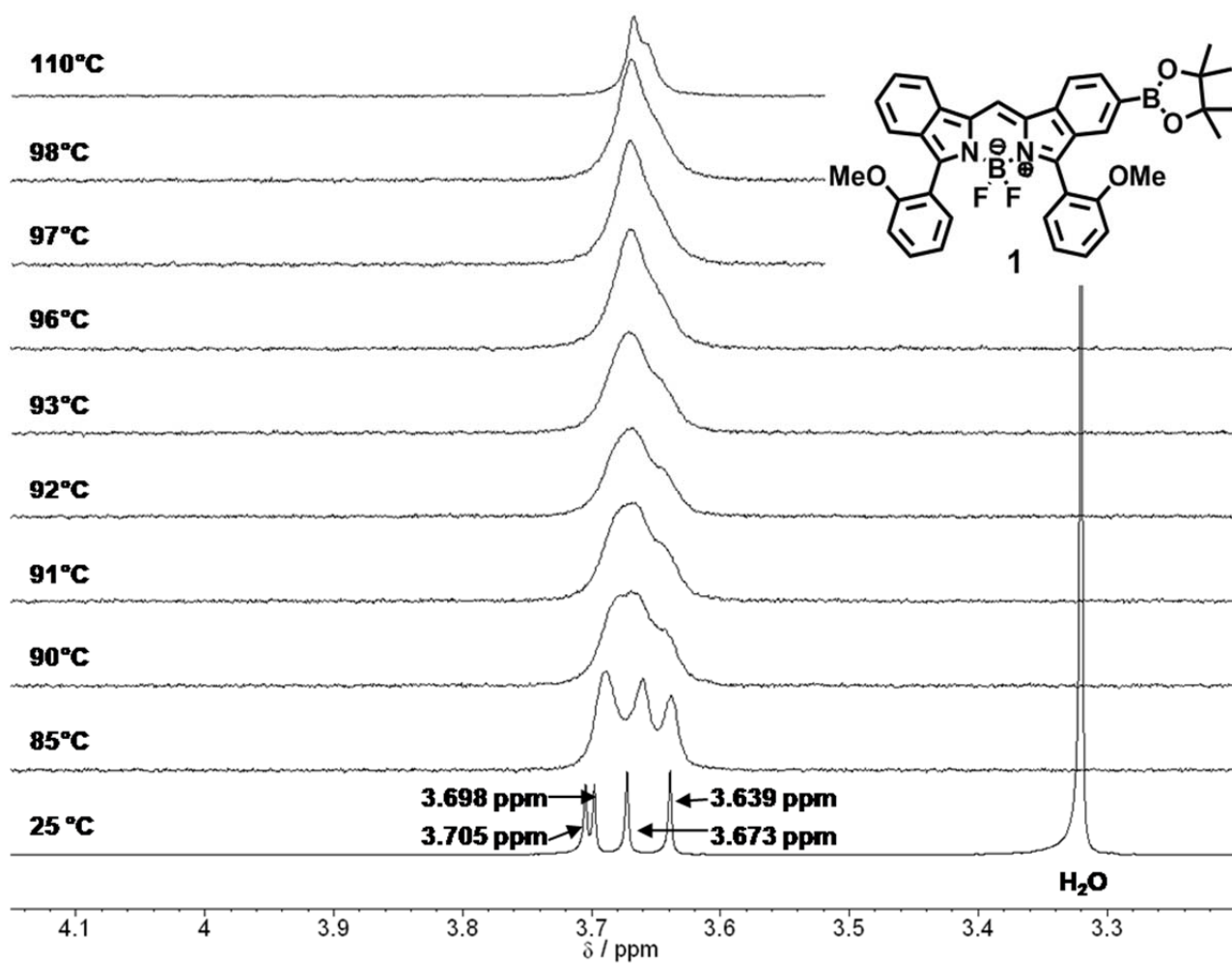


Fig. S3  $^1\text{H}$  NMR spectrum of dye **1** in  $\text{DMSO-}d_6$  at room temperature.



**Fig. S4**  $^{13}\text{C}$  NMR spectrum of dye **1** in  $\text{DMSO-}d_6$  at room temperature.



**Fig. S5** Variable temperature  $^1\text{H}$  NMR spectra of **1** in  $\text{DMSO-}d_6$ , revealing that one set of signals due to 3.673 and 3.705 ppm was firstly coalesced at 92 °C followed by second coalescence at 97 °C between other signals due to methoxy protons ( $\Delta G^\ddagger = 78.23 \text{ kJ mol}^{-1}$ ). It means that *anti*- and *syn*-isomers, in which the anisole moieties are located on the opposite and same face of the dibenzopyrromethene core, respectively, are present at room temperature in  $\text{DMSO-}d_6$ .

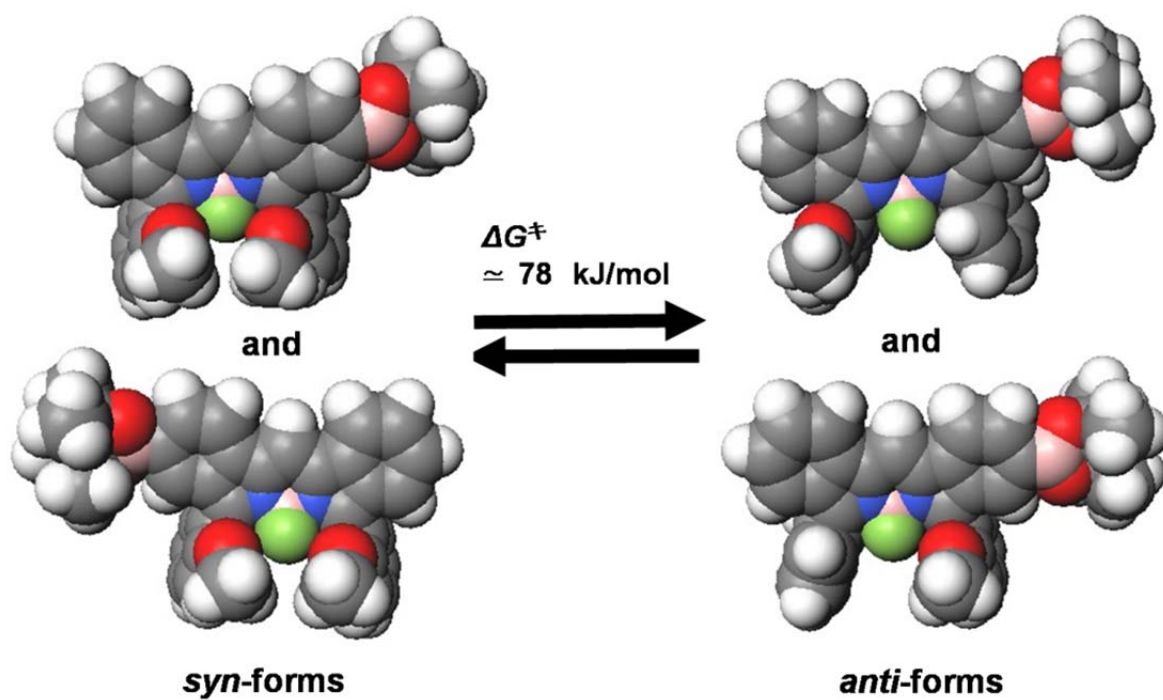


Fig. S6 Proposed isomers of 1.

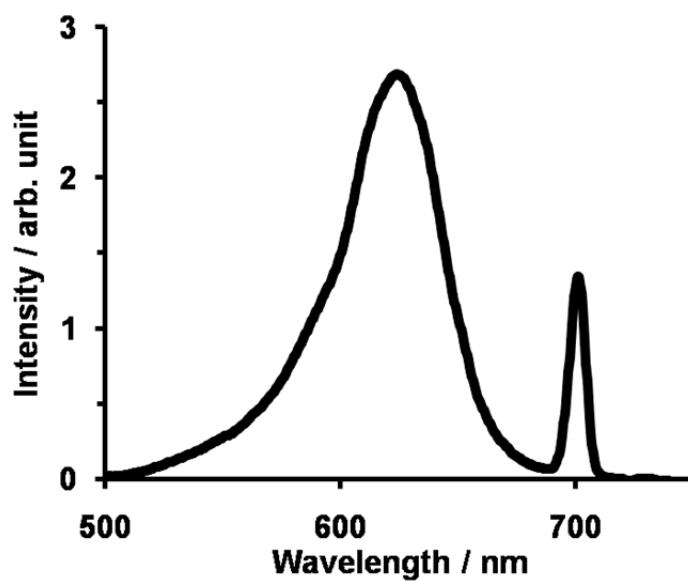


Fig. S7 Excitation spectrum of 1 (5  $\mu\text{M}$ ), which was associated with the emission, in THF at 25  $^\circ\text{C}$ .

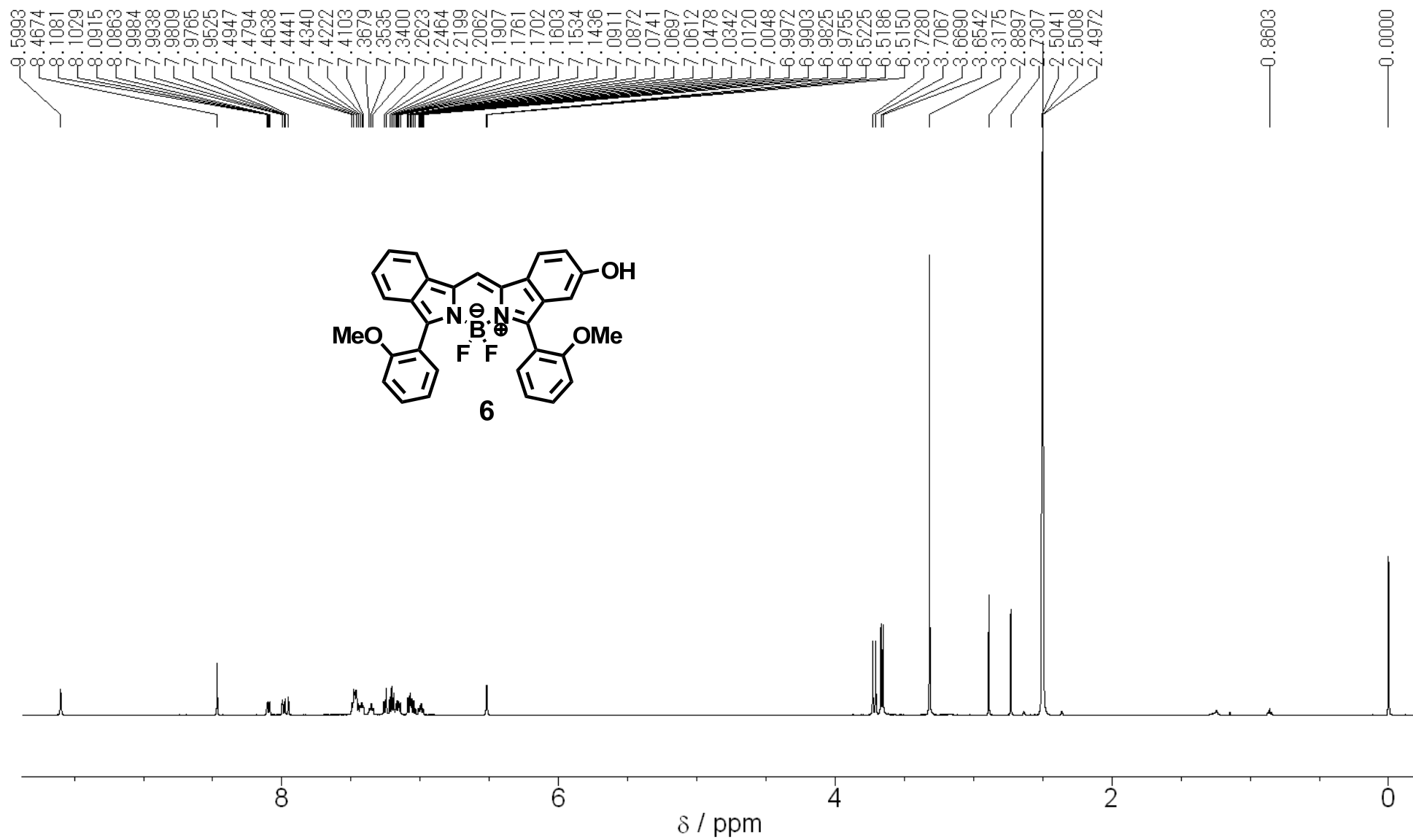
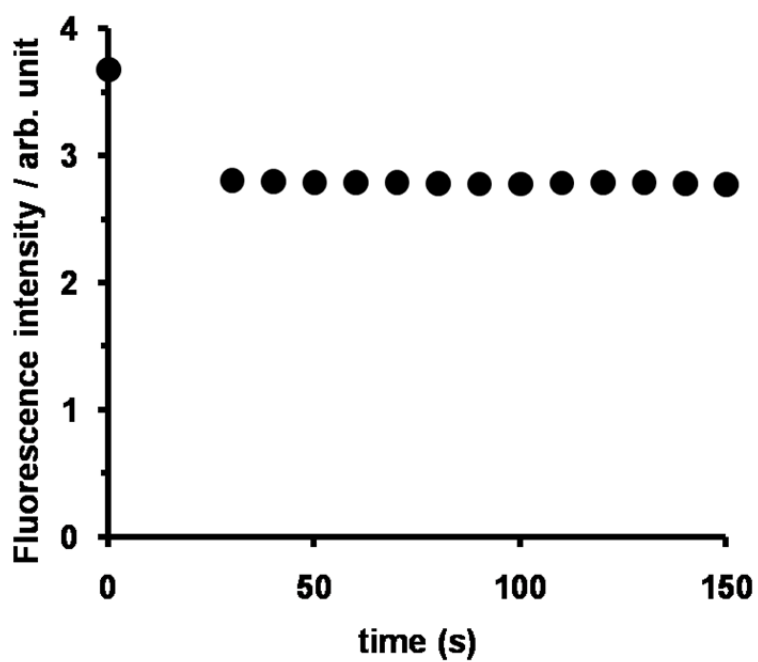
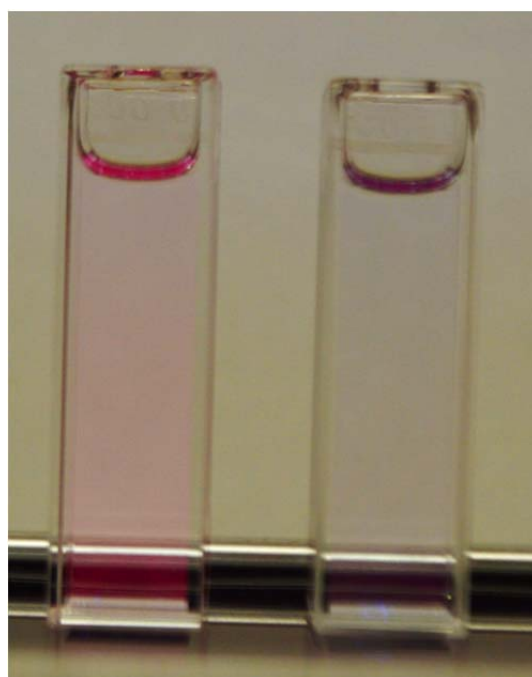


Fig. S8  $^1\text{H}$  NMR spectrum of dye 6 in  $\text{DMSO-}d_6$  at room temperature.





**Fig. S9** Time course of fluorescence spectra of **1** (5  $\mu\text{M}$ ) in the presence of TBAOH (50 $\mu\text{M}$ ) in EtOH/H<sub>2</sub>O (1:1 v/v) at 25 °C,  $\lambda_{\text{ex}}$ = 550 nm.



**Fig. S10** The photograph of **1** (5  $\mu\text{M}$ ) (left) and **1** (5  $\mu\text{M}$ ) with H<sub>2</sub>O<sub>2</sub> (80  $\mu\text{M}$ ) (right) in EtOH/H<sub>2</sub>O (1:1 v/v) in the presence of TBAOH (50  $\mu\text{M}$ ) at room temperature.