

## **Supporting Information**

# **A New Ratiometric Fluorescent Probe Based on BODIPY for Highly Selective Detection of Hydrogen Sulfide**

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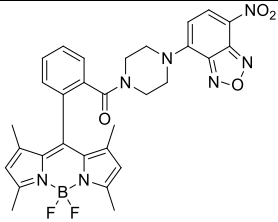
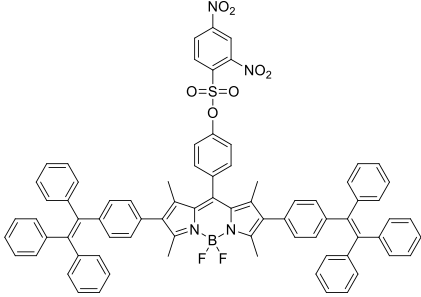
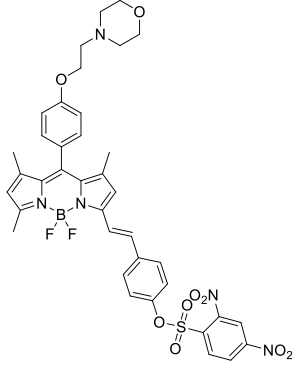
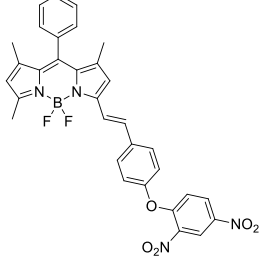
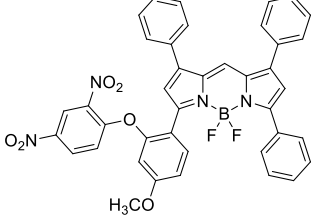
College of Biological, Chemical Sciences and Engineering, Jiaying University, Jiaying Key Laboratory of  
Molecular Recognition and Sensing, Jiaying 314001, China.

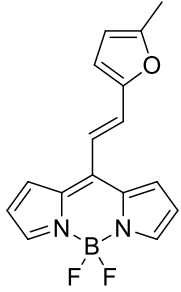
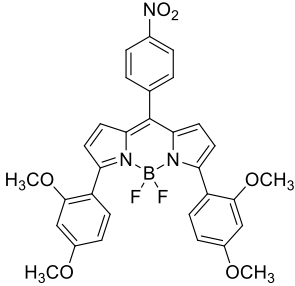
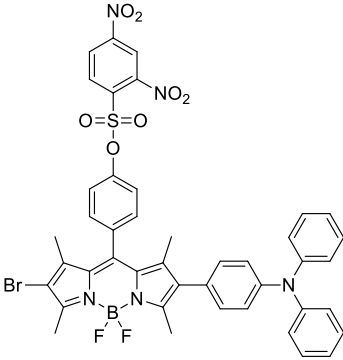
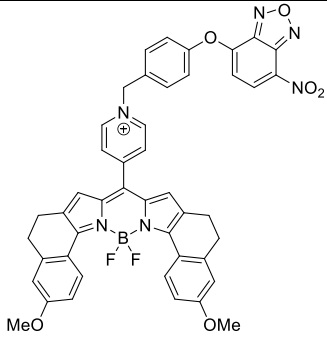
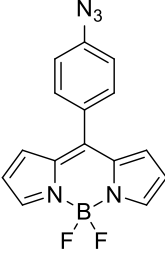
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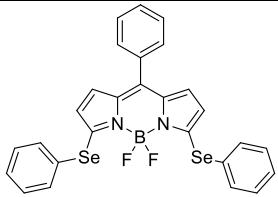
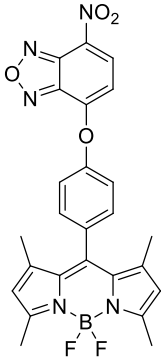
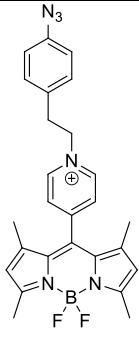
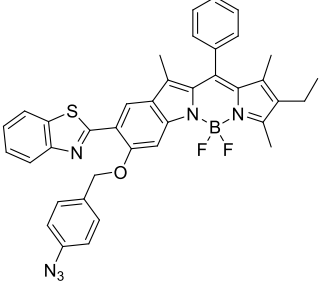
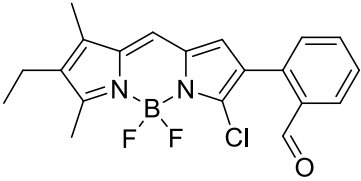
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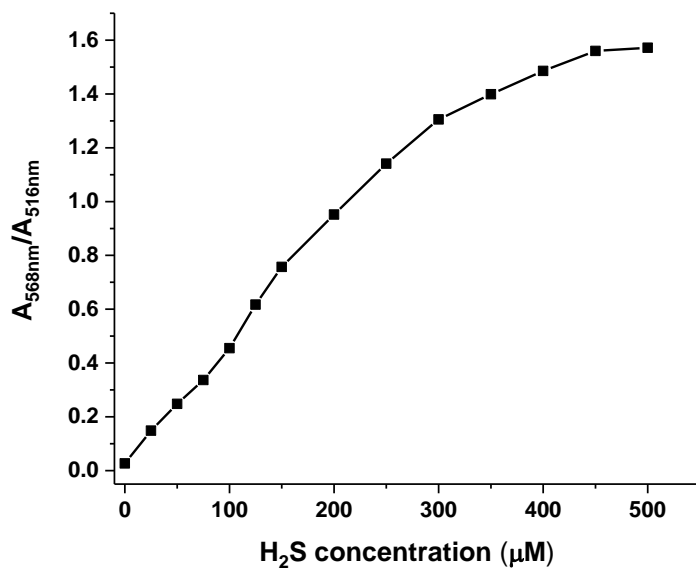
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**Table S1.** The BODIPY-Based fluorescent probe for detection of H<sub>2</sub>S

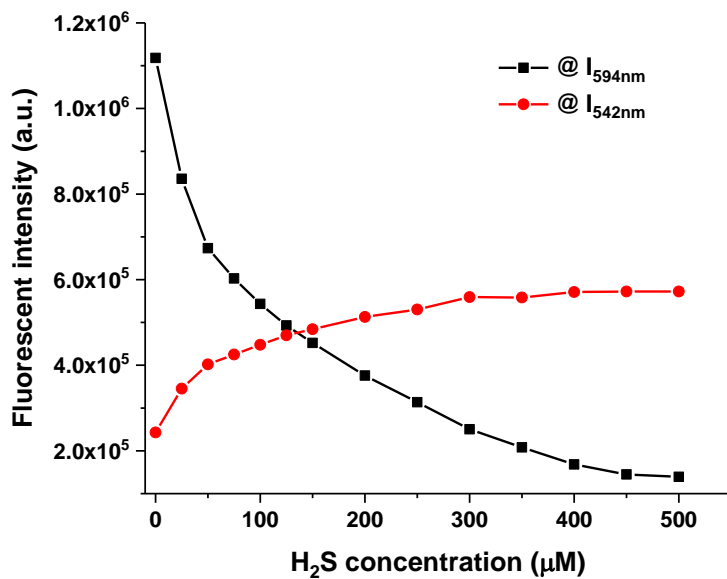
Probe structure	Response mode	Response time	Detection limit	Reference
	Turn-on 520 nm	60 min (100 $\mu$ M H <sub>2</sub> S)	105 nM	37
	Turn-on 520 nm	210 s	6.39 nM	26
	Turn-on 587 nm	1 min (50 $\mu$ M H <sub>2</sub> S)	51 $\mu$ M	20
	Turn-on 592 nm	20 min (100 $\mu$ M H <sub>2</sub> S)	1.27 $\mu$ M	24
	Turn-off 615 nm	20 min	0.203 $\mu$ M	28

	Turn-on 496 nm	30 min	99.4 nM	22
	Turn-on 627 nm	40 min	1.3 $\mu$ M	18
	Turn-on 716 nm	150 s (150 $\mu$ M H <sub>2</sub> S)	6.74 $\mu$ M	19
	Turn-on 685 nm	10 min (100 $\mu$ M)	1.15 $\mu$ M	25
	Turn-off 516 nm	-	0.17 $\mu$ M	38

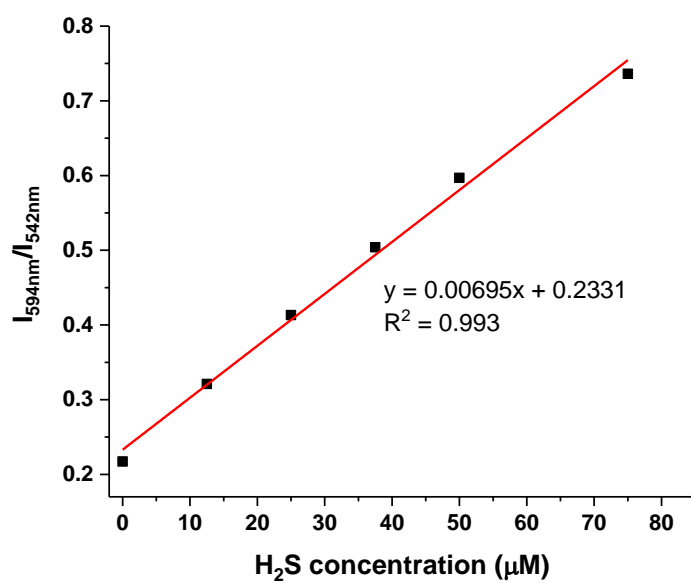
	Turn-off 610 nm	20 min	2.5 nM	39
	Turn-on 510 nm	-	2.6 $\mu$ M	27
	Turn-on 515 nm	15 min	2.05 $\mu$ M	23
	Turn-on 700 nm	90 min	46 nM	40
	Ratiometric fluorescence From 542 nm to 594 nm	60 min	3.5 $\mu$ M	This Work



**Figure S1.** The absorption ratio at 568 nm and 516 nm of probe **BH** (5 μM) toward different concentration of H<sub>2</sub>S in aqueous solution of DMSO/PBS (v/v 1/1, pH 7.4), recorded after 60 min.



**Figure S2.** The fluorescence intensity at 568 nm and 516 nm of probe **BH** (5 μM) toward increasing H<sub>2</sub>S concentration (0–500 μM) in aqueous solution of DMSO/PBS (v/v 1/1, pH 7.4), recorded after 60 min.



**Figure S3.** Linear relationship of the fluorescence intensity ratio ( $I_{594\text{nm}}/I_{542\text{nm}}$ ) of probe **BH** toward  $\text{H}_2\text{S}$  concentration (0–75  $\mu\text{M}$ ), recorded after 60 min.

## Display Report

### Analysis Info

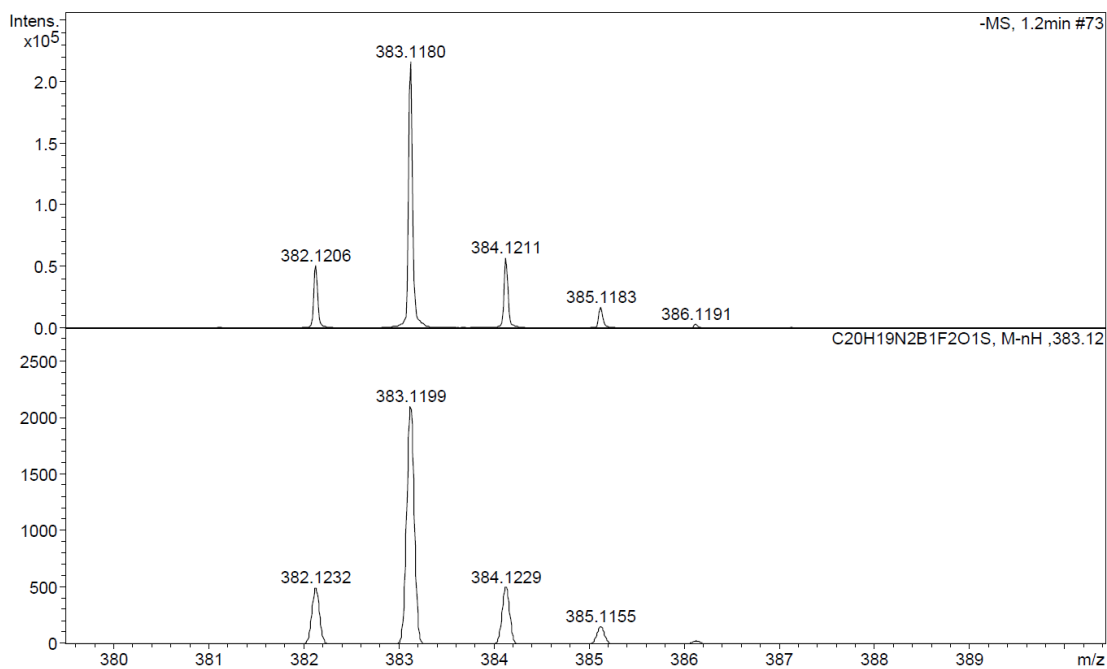
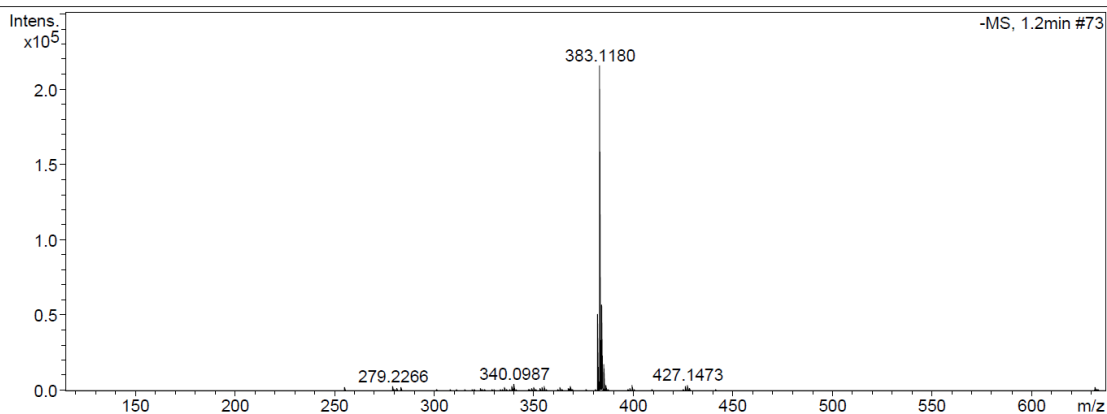
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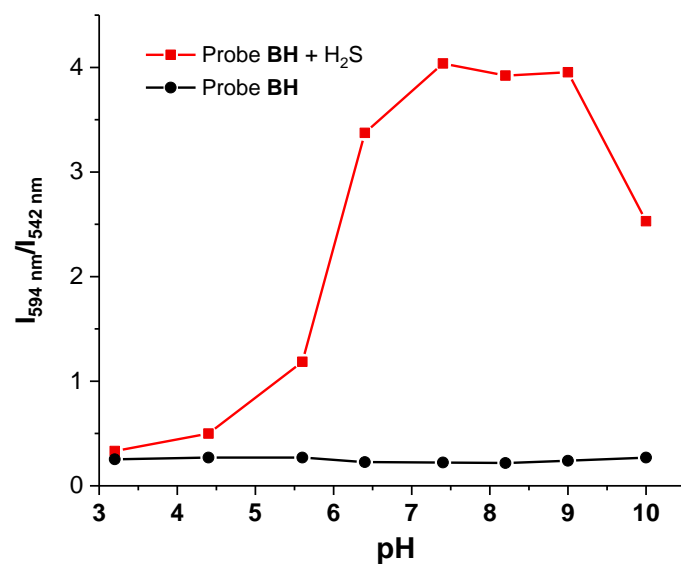
### Acquisition Parameter

Source Type	ESI	Ion Polarity	Negative	Set Nebulizer	0.4 Bar
Focus	Not active			Set Dry Heater	200 °C
Scan Begin	100 m/z	Set Capillary	4000 V	Set Dry Gas	4.0 l/min
Scan End	1000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



**Figure S4.** ESI-MS spectrum of reaction product of probe **BH** with H<sub>2</sub>S.

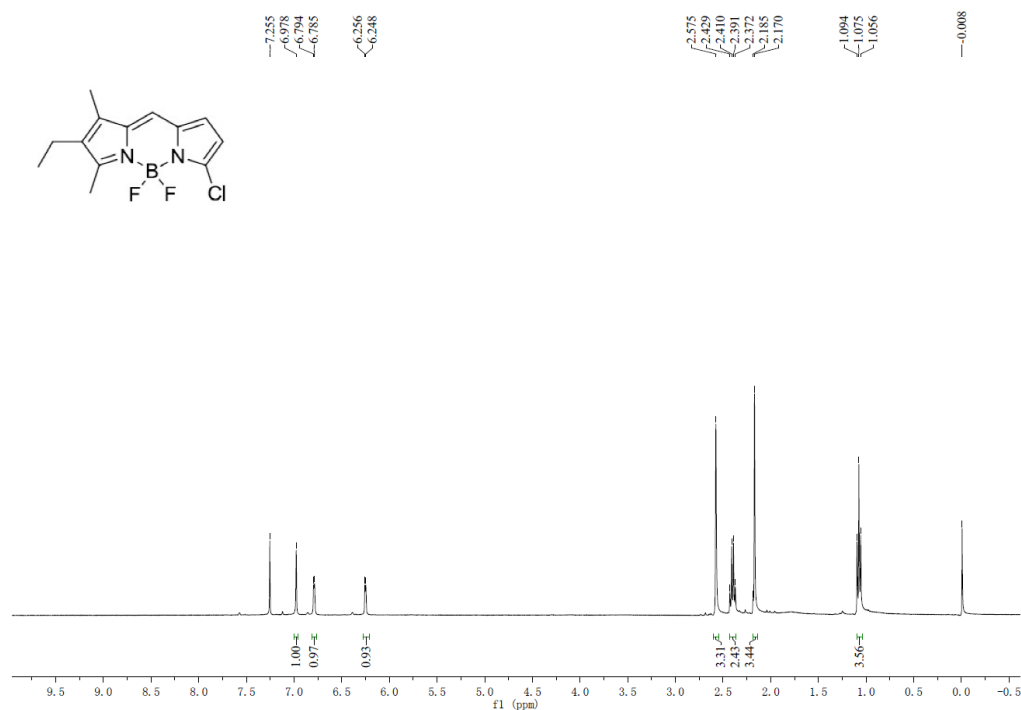




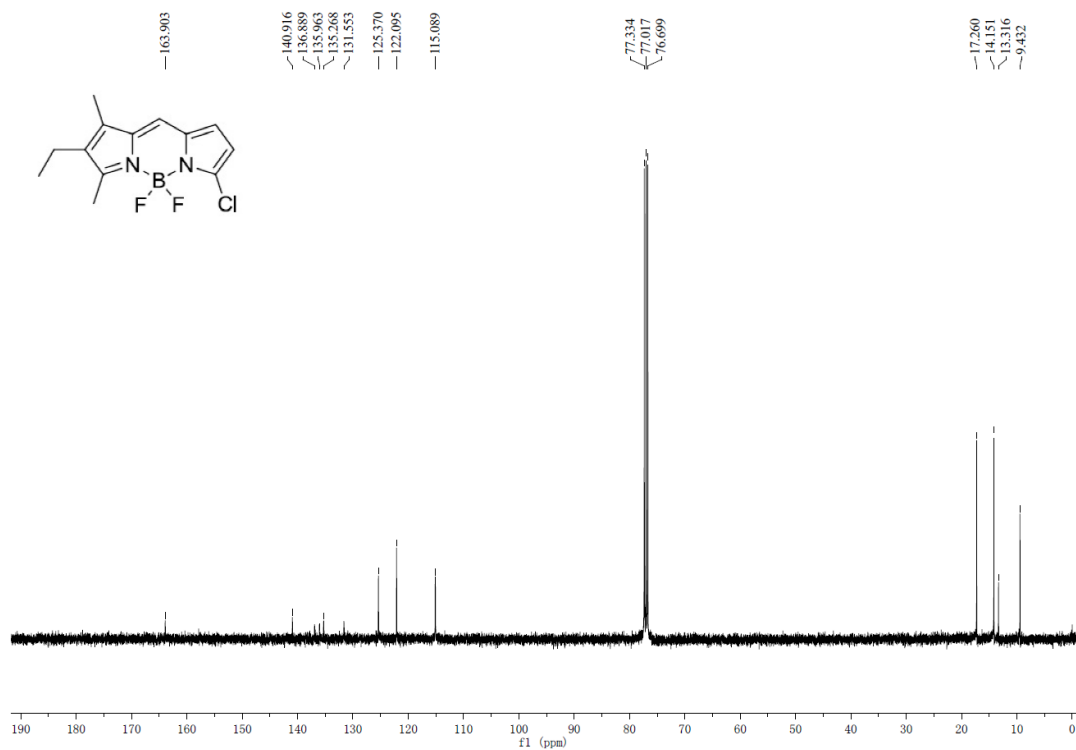
**Figure S5.** The fluorescence intensity ratios ( $I_{594\text{ nm}}/I_{542\text{ nm}}$ ) of probe **BH** (5  $\mu\text{M}$ ) in the absence (●) or presence (■) of H<sub>2</sub>S (500  $\mu\text{M}$ ) at various pH values, recorded after 60 min.

# Copies of $^1\text{H}$ and $^{13}\text{C}$ NMR spectra of new compounds

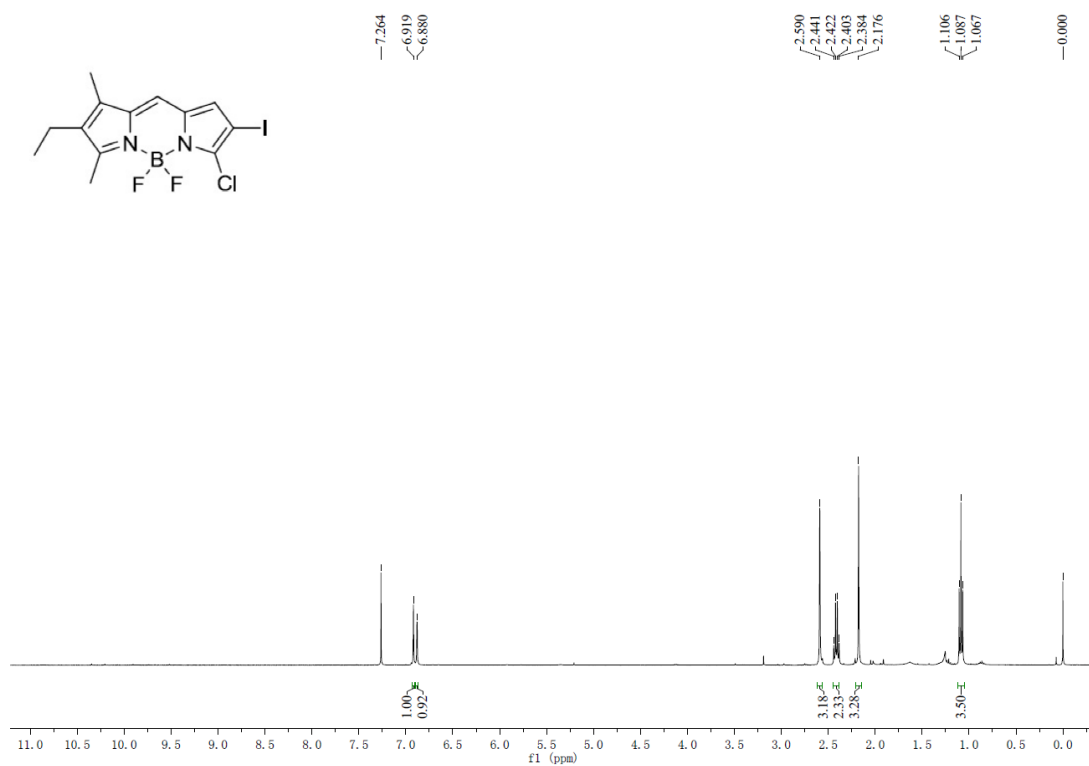
$^1\text{H}$  NMR spectra (400 MHz) of compound **2** in  $\text{CDCl}_3$  solution



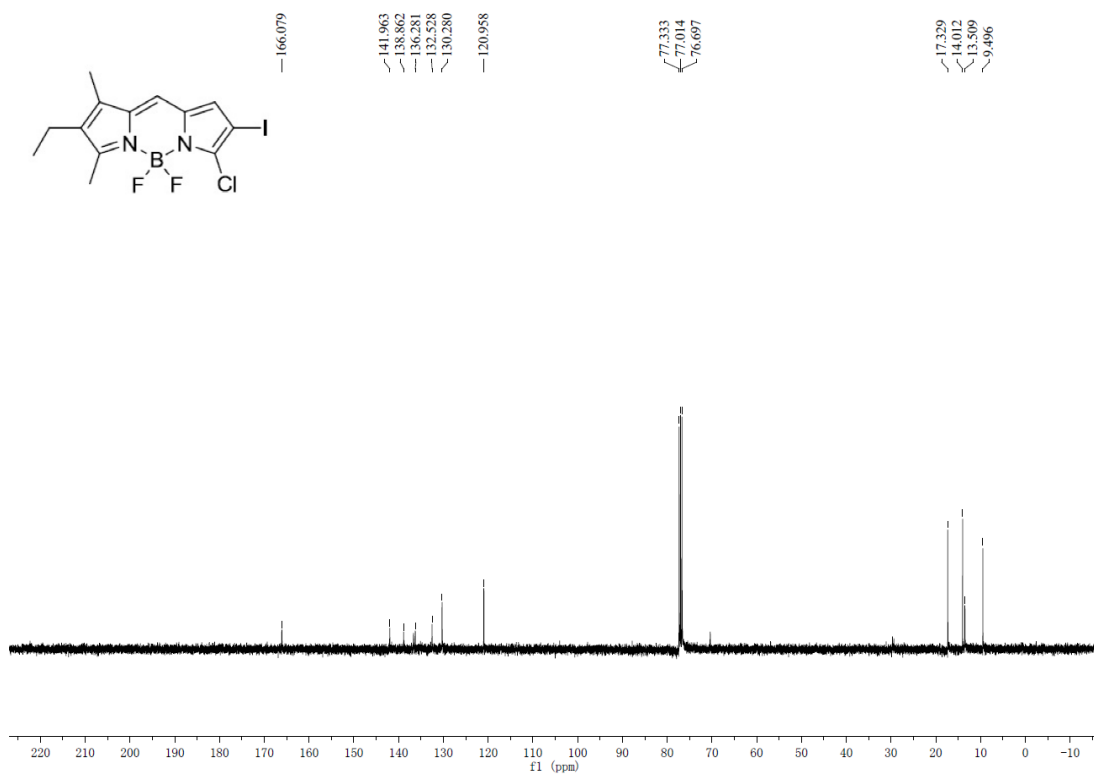
$^{13}\text{C}$  NMR spectra (100 MHz) of compound **2** in  $\text{CDCl}_3$  solution



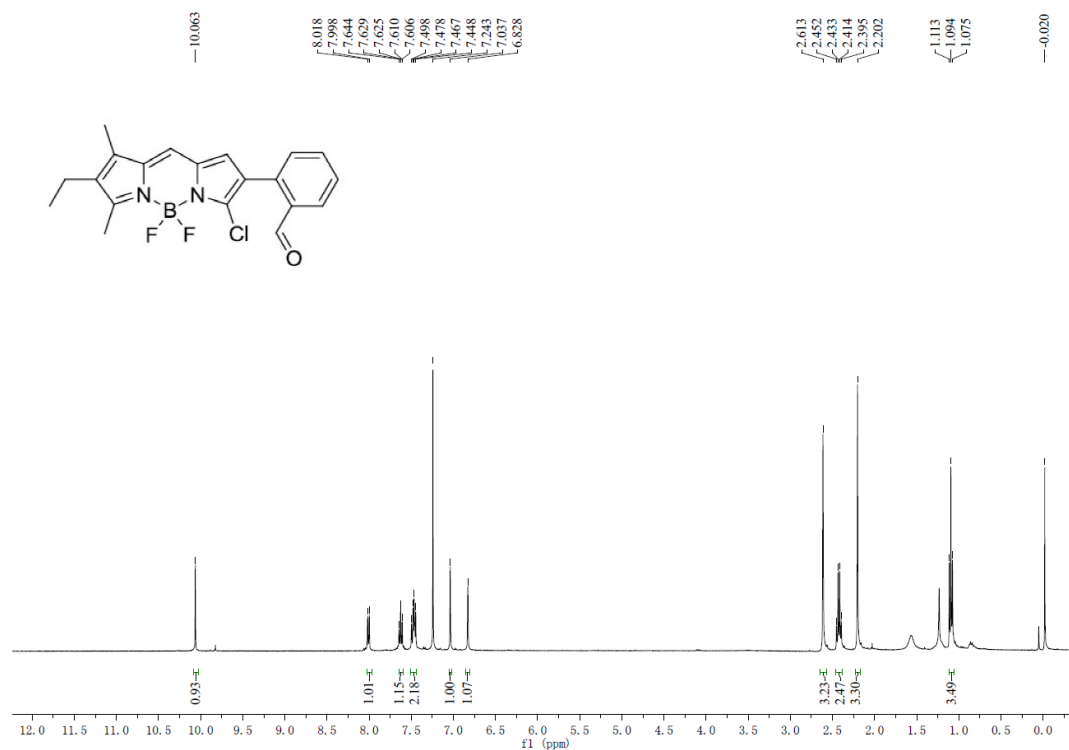
$^1\text{H}$  NMR spectra (400 MHz) of compound **3** in  $\text{CDCl}_3$  solution



$^{13}\text{C}$  NMR spectra (100 MHz) of compound **3** in  $\text{CDCl}_3$  solution



$^1\text{H}$  NMR spectra (400 MHz) of probe **HS** in  $\text{CDCl}_3$  solution



$^{13}\text{C}$  NMR spectra (100 MHz) of probe **HS** in  $\text{CDCl}_3$  solution

