

## Supporting Information

Construction of an effective far-red fluorescent and colorimetric platform containing a merocyanine core for specific and visual detection of thiophenol in both aqueous medium and living cells

Xin Sun,<sup>a</sup> Mengzhao Wang,<sup>a</sup> Yanan Lu,<sup>a</sup> Zhengliang Lu,<sup>\*,a</sup> Chunhua Fan,<sup>\*,a</sup> Yizhong Lu<sup>\*,b</sup>

<sup>a</sup> School of Chemistry and Chemical Engineering, University of Jinan, Jinan 250022, China.

<sup>b</sup> School of Materials Science and Engineering, University of Jinan, Jinan 250022, China. Email:

Corresponding author's fax: +86-531-82765475

Corresponding email: *zhengliang.lu@yahoo.com; chm\_fanch@ujn.edu.cn; mse\_luyz@ujn.edu.cn*

## Contents

Figure S1 <sup>1</sup> H NMR of <b>FRP-Thio</b> .....	S2
Figure S2 <sup>13</sup> C NMR of <b>FRP-Thio</b> .....	S2
Figure S3 HRMS of <b>FRP-Thio</b> .....	S3
Figure S4 Time-dependent fluorescence changes of <b>FRP-Thio</b> to thiophenol .....	S3
Figure S4 Color changes of <b>FRP-Thio</b> without or with competing analytes .....	S4
Figure S6 pH effect of <b>FRP-Thio</b> toward PhSH .....	S4
Figure S7 HRMS of <b>FRP-Thio</b> with thiophenol .....	S5
Figure S8 MTT assay of <b>FRP-Thio</b> with SH-SY5Y cells.....	S5

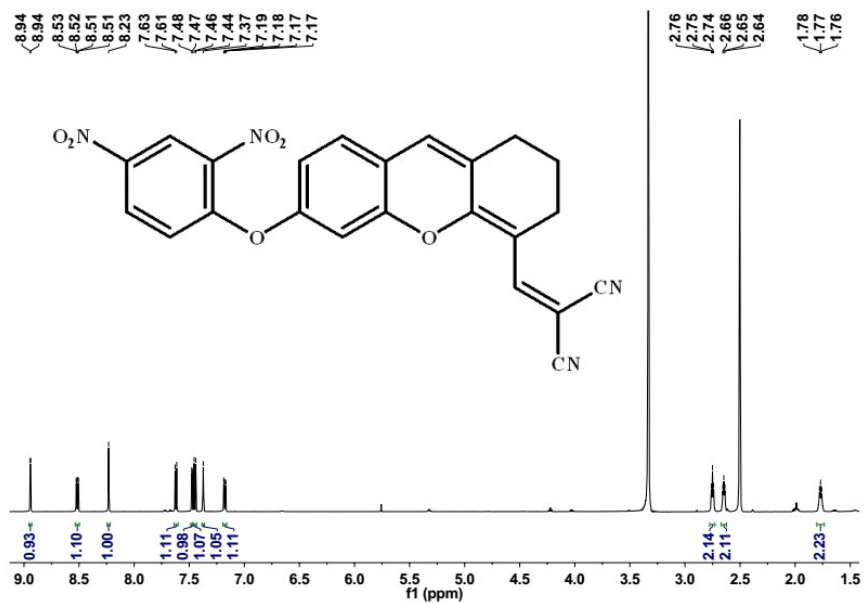


Figure S1. <sup>1</sup>H NMR spectrum of FRP-Thio (DMSO-*d*<sub>6</sub>, 600 MHz).

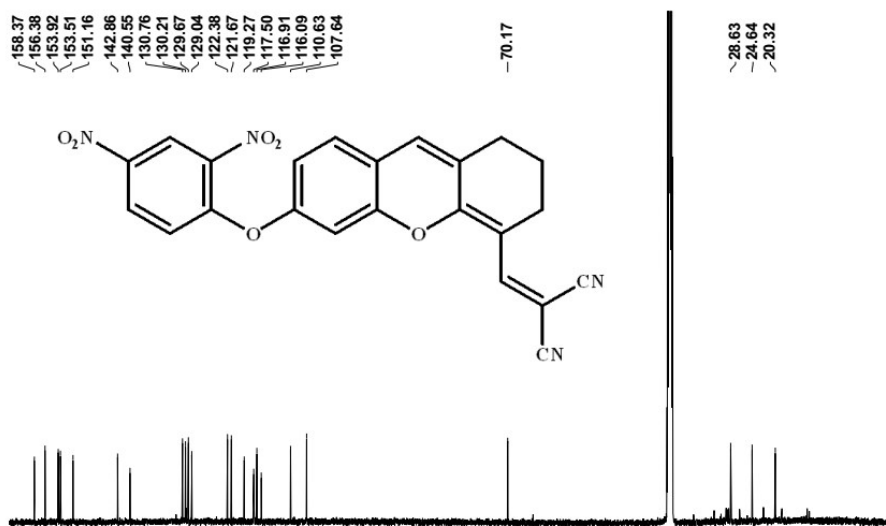
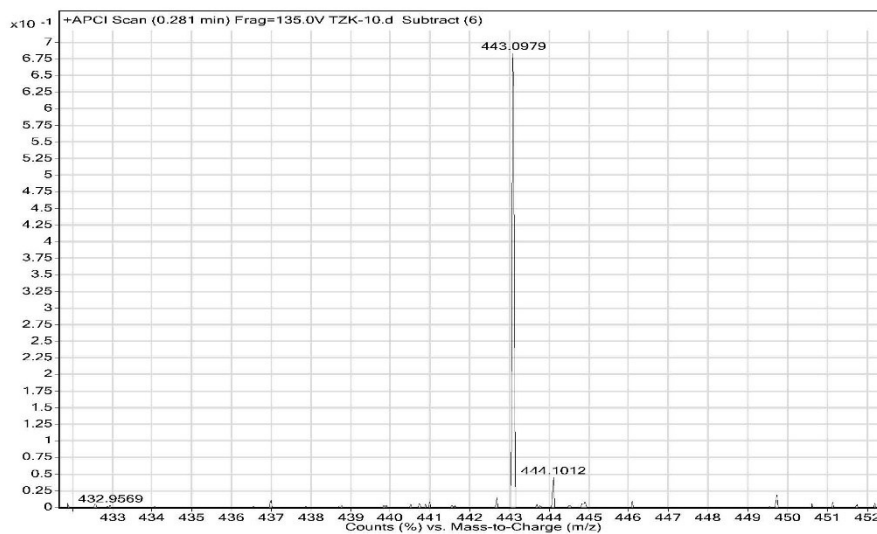
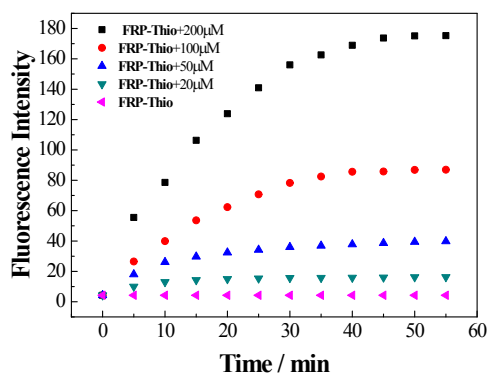


Figure S2. <sup>13</sup>C NMR spectrum of FRP-Thio (DMSO-*d*<sub>6</sub>, 600 MHz).

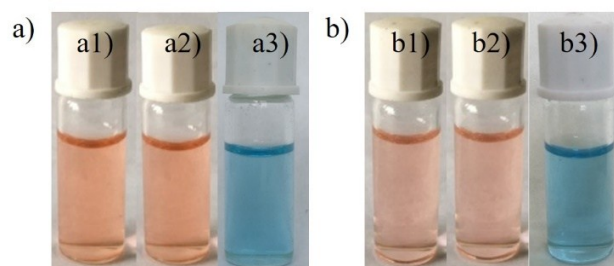
Sample Name	TZK-10	Position	P1-E7	Instrument Name	Instrument 1	User Name	
Inj Vol	-1	InjPosition		SampleType	Sample	IRM Calibration Status	Success
Data Filename	TZK-10.d	ACQ Method	0103.m	Comment		Acquired Time	11/29/2018 11:03:50 PM



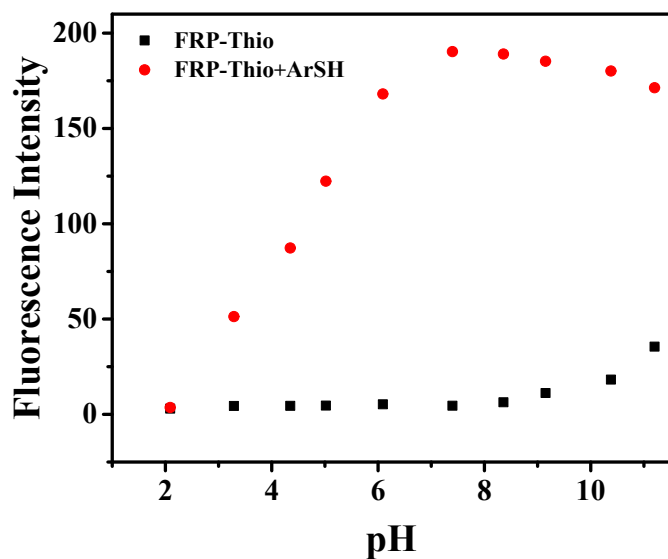
**Figure S3.** HRMS of **FRP-Thio** (DMSO- $d_6$ , 600 MHz).



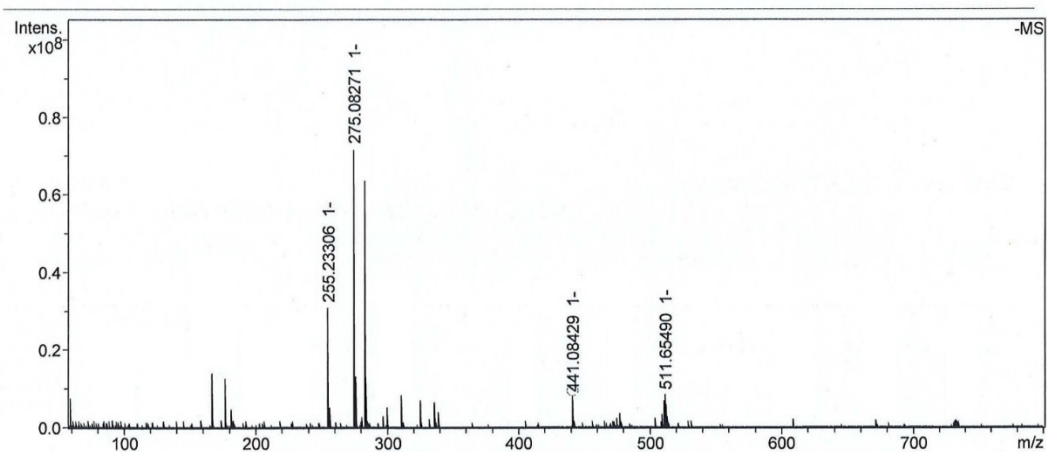
**Figure S4.** Time-dependent fluorescence changes of **FRP-Thio** ( $10 \mu\text{M}$ ) at  $645 \text{ nm}$  upon addition of thiophenol ( $0, 20, 50, 100, \text{ and } 200 \mu\text{M}$ ) in DMF aqueous solution ( $2:8, \text{ v/v}$ , PBS buffer  $20 \text{ mM}$ ,  $\text{pH } 7.4$ ).



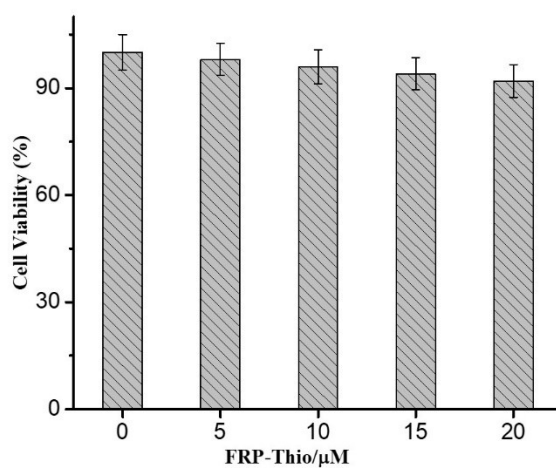
**Figure S5.** Color changes of **FRP-Thio** without or with competing analytes and PhSH in DMF-H<sub>2</sub>O (2:8, v/v, PBS buffer 20 mM, pH 7.4). a1 and b1) **FRP-Thio**. a2) Addition of various amino acids into a1). a3) Addition of PhSH into a2). b2) Addition of various anions and cations into b1). b3) Addition of PhSH into b2).



**Figure S6.** pH effect of **FRP-Thio** toward PhSH in DMF-H<sub>2</sub>O (2:8, v/v).



**Figure S7.** HRMS of **FRP-Thio** with thiophenol.



**Figure S8.** MTT assay of SH-SY5Y cells with **FRP-Thio** at different concentration (0-20 μM) for 24 hours.