Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Electronic Supplementary Information (ESI)

A novel ratiometric fluorescence probe with AIE-based for specific detection of Hcy/Cys and imaging of living cells in vivo

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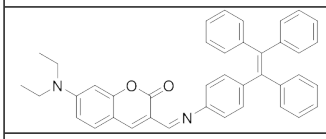
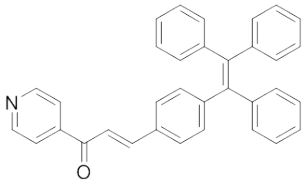
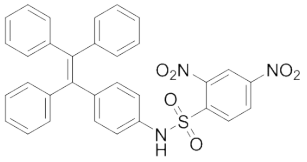
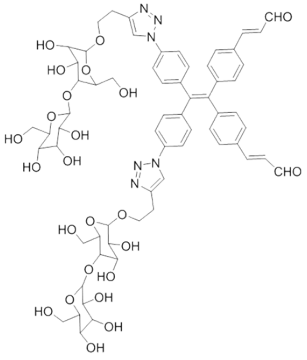
Table S1 Fluorescent probes based on TPE ligands for the selective detection of biothiols (individually or in pairs)

Probe	Selectivity	Type	detection limit	Biological system	Ref.
	Cys+Hcy	Turn-on	5μm	No study	[16g]
	Hcy	Ratiometric	0.346μm	No study	[16b]
	Cys	turn-on	0.18μm	HeLa cells	[16f]
	Cys	Ratiometric	25μm	HepG2 cells	Ref.16h

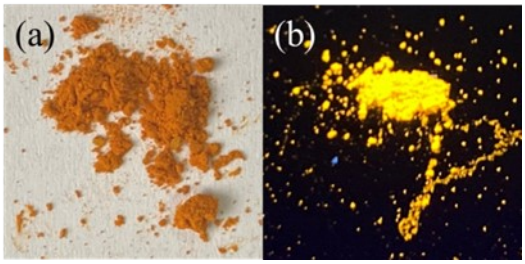


Fig.S1 Color of the probe powder under visible light (a) and UV light (b).

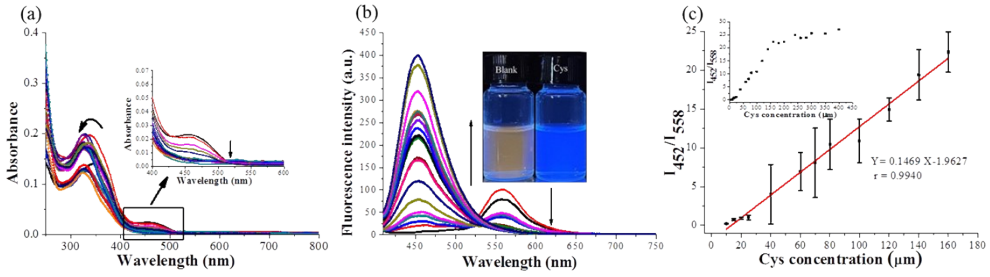


Fig.S2 (a) Absorption spectra of probe (10 μM) upon addition of increasing concentrations of Cys (0−400 μM) in CH_3CN/phosphate buffer (3:7 v/v, 20 mM, pH 7.4) for 35 min. (b) Fluorescence spectra of probe (10 μM) upon addition of increasing concentrations of Cys (0−400 μM) in

acetonitrile/phosphate buffer (3:7 v/v, 20mM, pH 7.4) for 35min. The inset shows fluorescence changes of 1 in the absence and presence of Cys under UV light at 365 nm.(c)Linear plot of the emission ratio (I_{452}/I_{558}) against Cys concentration (10−160 μM) when using probe(10 μM). The inset shows the emission ratio (I_{452}/I_{558}) as a function of Cys concentration.

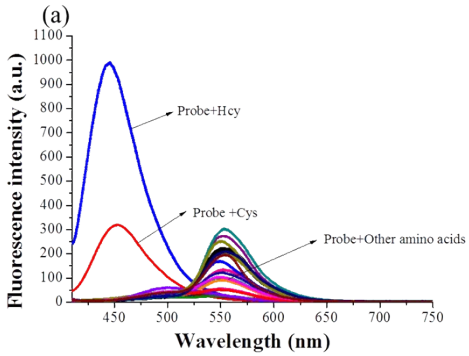


Fig.S3 Fluorescence responses of Probe (10μM) to 300 μM of different amino acids in CH_3CN/phosphate buffer (3:7 v/v, 20mM, pH 7.4)

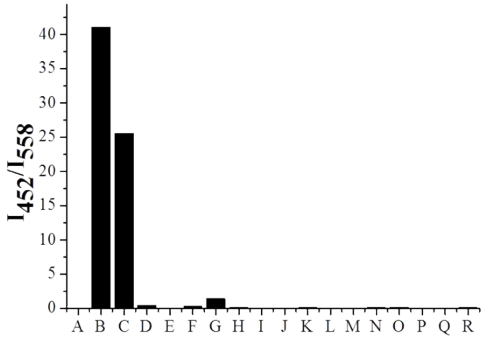


Fig.S4 The emission ratio I_{452}/I_{558} of Probe (10 μM) in the presence of other analytes. (A) Blank, (B) Hcy, (C) cys, (D) Cystine, (E) 3-Mercaptopropionic acid, (F) SO_3^{2-}, (G) HS^-, (H) Al^{3+}, (I) Br^-, (J) $C_2O_4^{2-}$, (K) Ca^{2+}, (L) F^-, (M) K^+, (N) Mg^{2+}, (O) $S_2O_3^{2-}$, (P) SO_4^{2-}, (Q) ascorbic acid, (R) Zn^{2+}

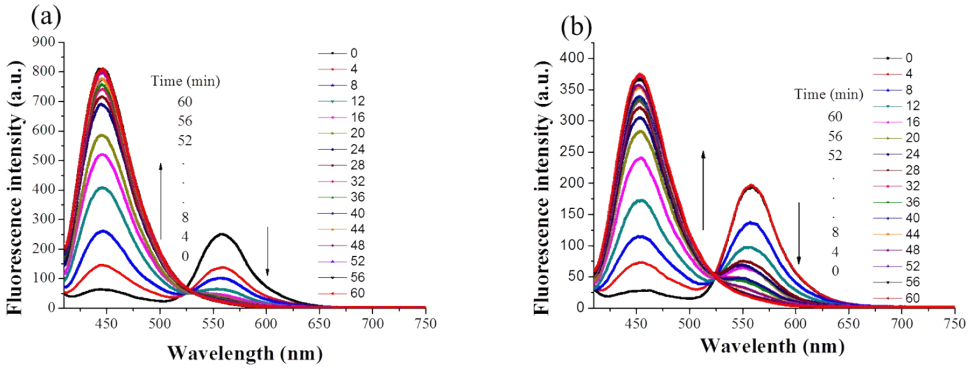


Fig.S5 Time-dependent fluorescence spectra of probe (10 μM) with 30 equiv. of Hcy (a) and Cys (b)

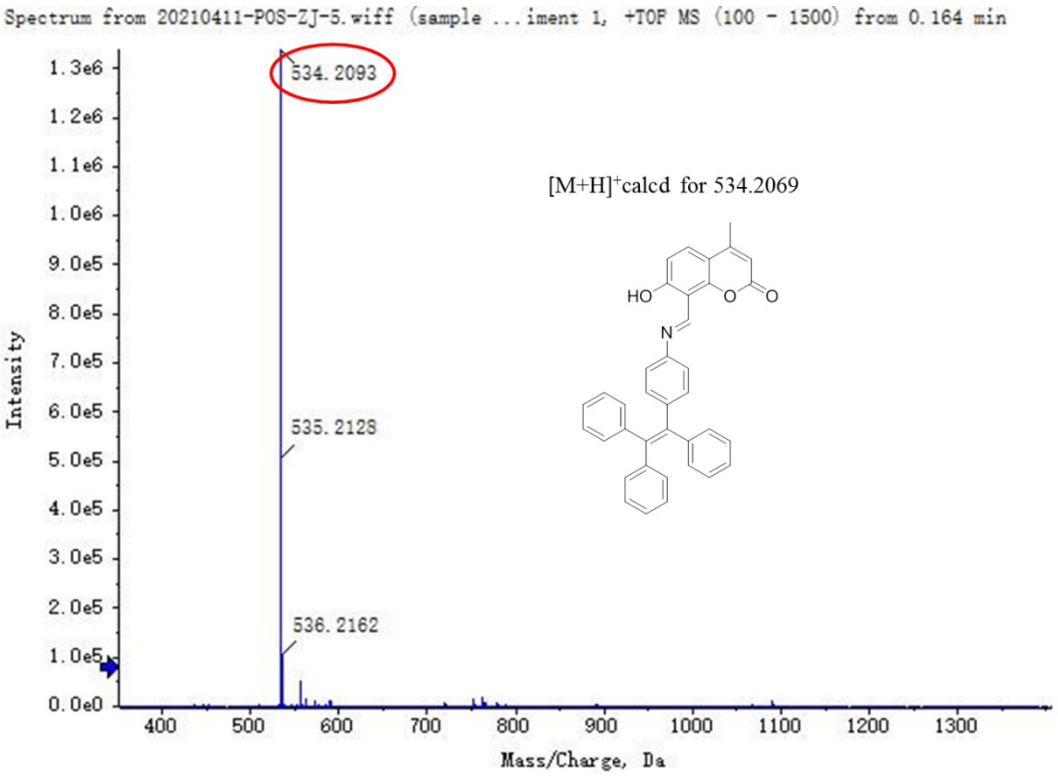


Fig.S6 HRMS spectrum of probe in CH_3OH

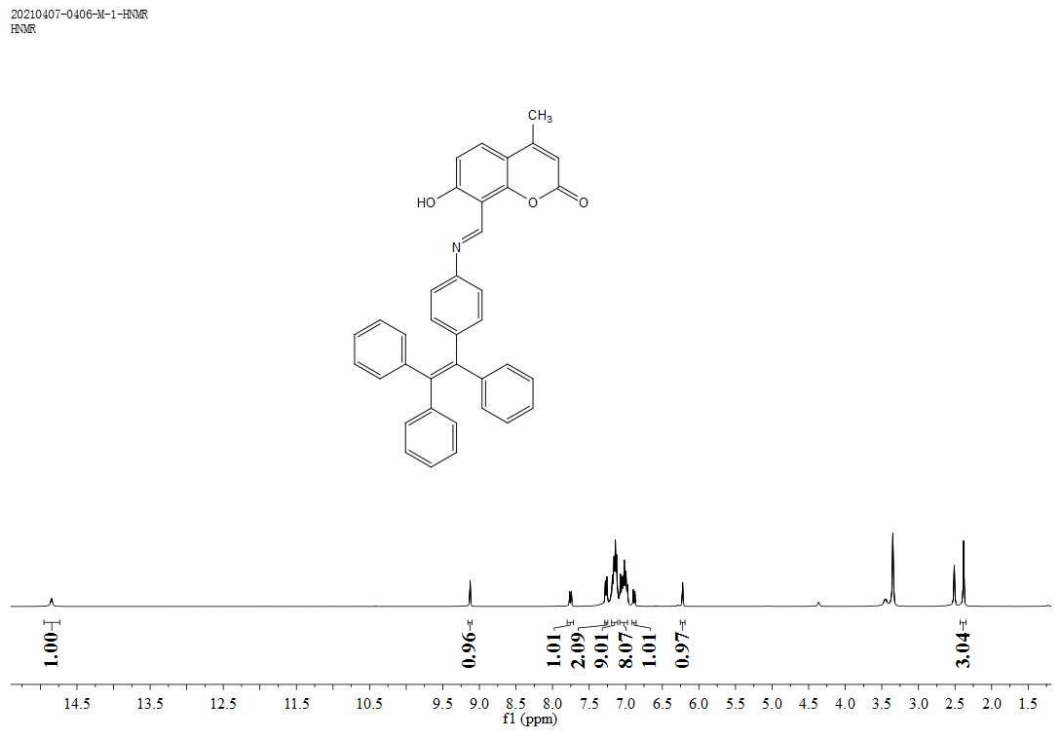


Fig.S7 ^{1}H-NMR spectrum of probe in DMSO-d6

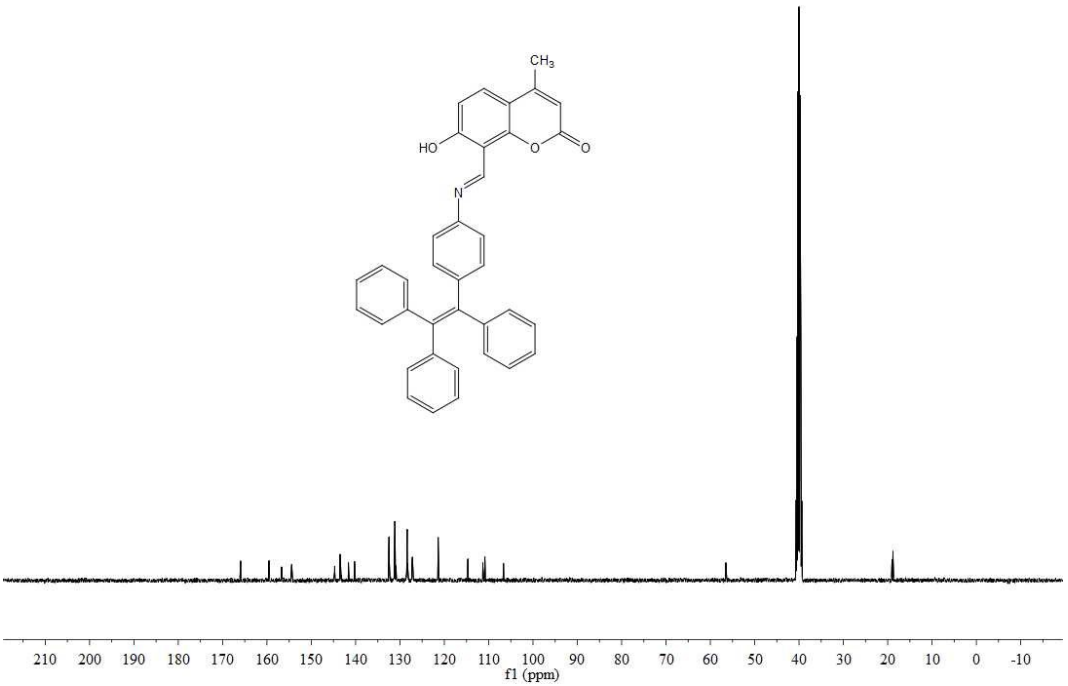


Fig.S8 ^{13}C-NMR spectrum of probe in DMSO-d6

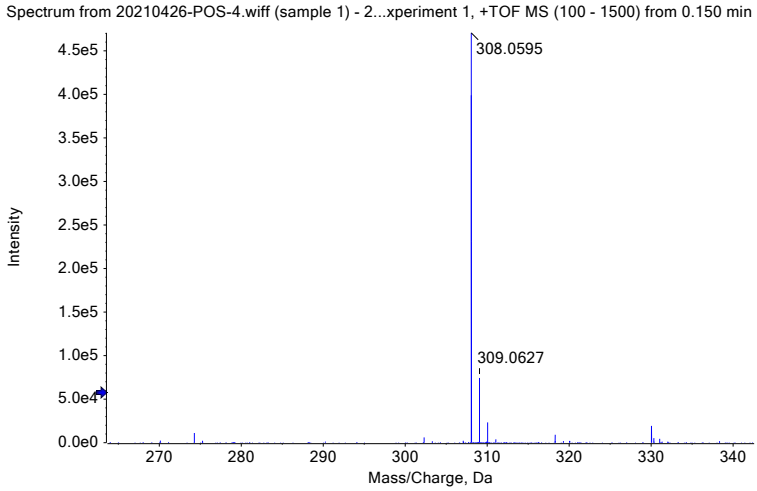


Fig.S9 HRMS spectrum of condensation product of **1** with Cys

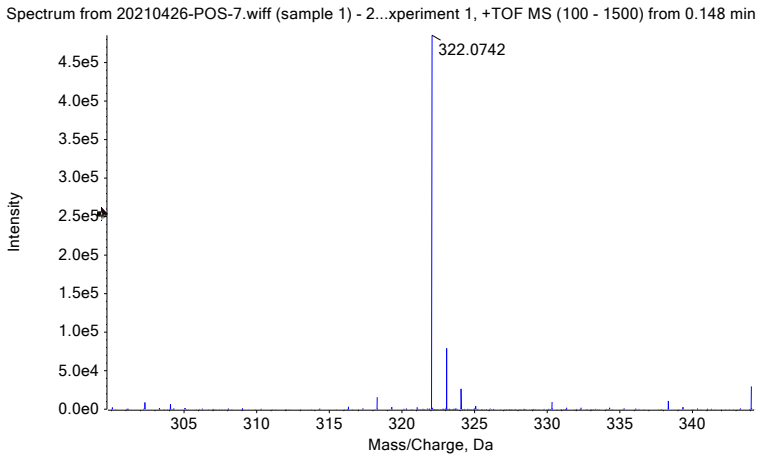


Fig.S10 HRMS spectrum of condensation product of 1 with HCy

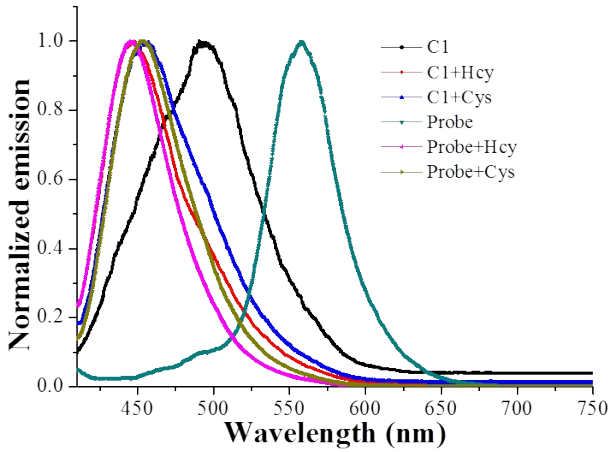


Fig.S11 Normalized fluorescence spectra of Probe and C1 (10 μM) in absence and presence of Hcy/Cys (300 μM) in acetonitrile/phosphate buffer (3:7 v/v, 20mM, pH 7.4)

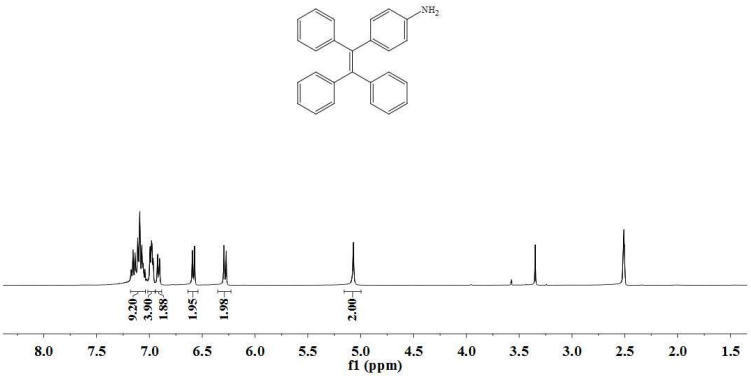


Fig.S12 ^{1}H-NMR spectrum of TPE-NH_2 in DMSO-d6

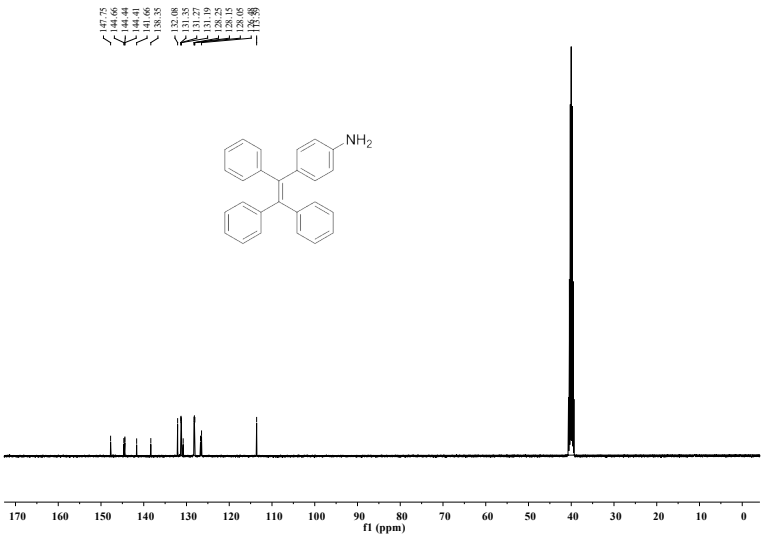


Fig.S13 ^{13}C-NMR spectrum of TPE-NH_2 in DMSO-d6

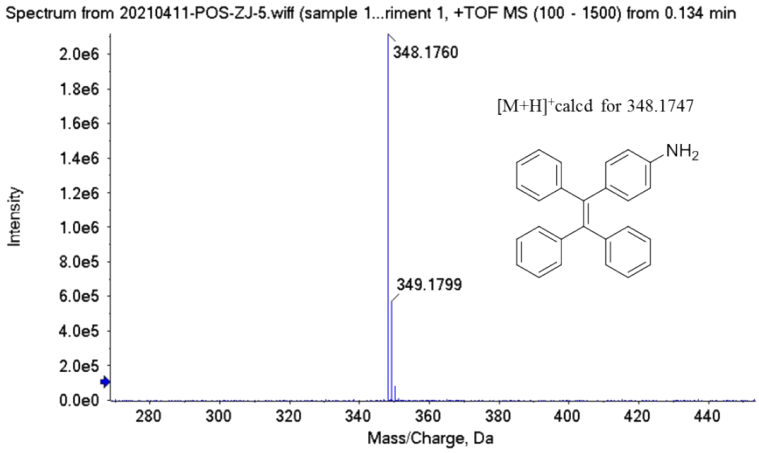


Fig.S14 HRMS spectrum of TPE-NH_2 in CH_3OH

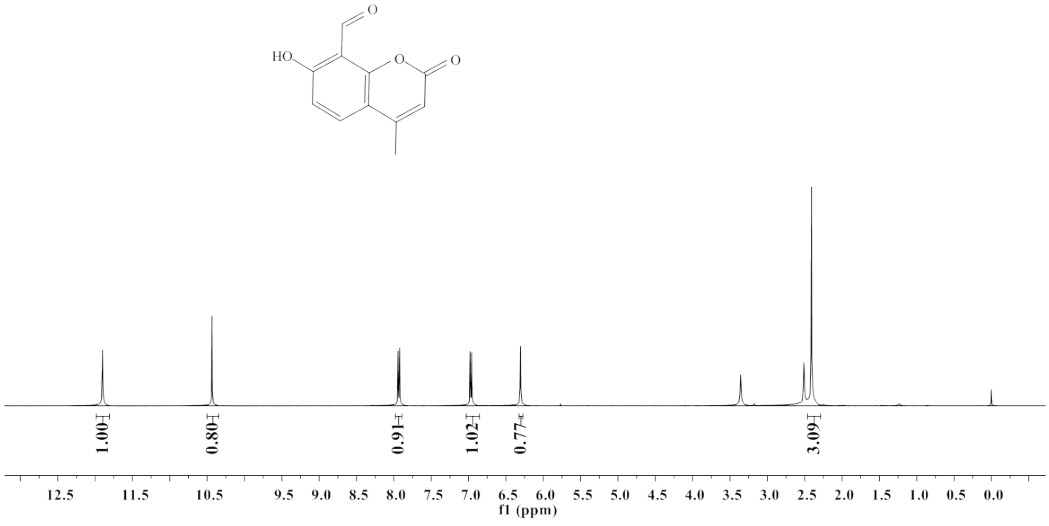


Fig.S15 ^{1}H-NMR spectrum of C**1** in DMSO-d6

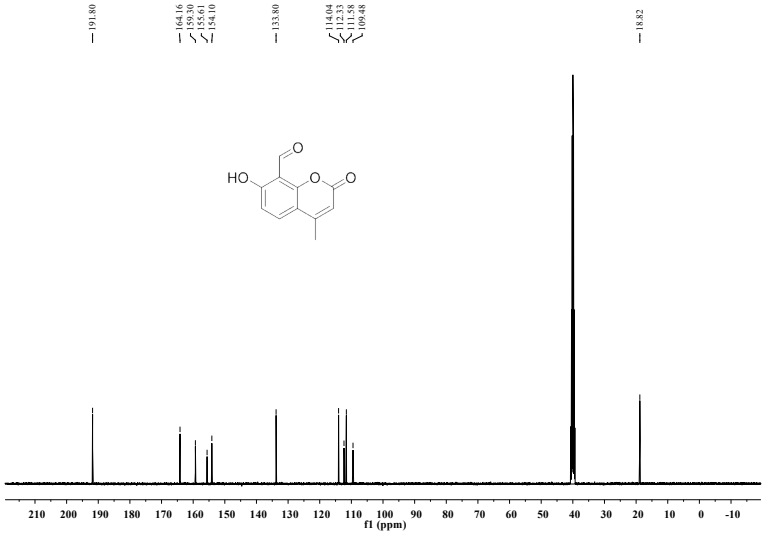


Fig.S16 ^{13}C-NMR spectrum of C**1** in DMSO-d6

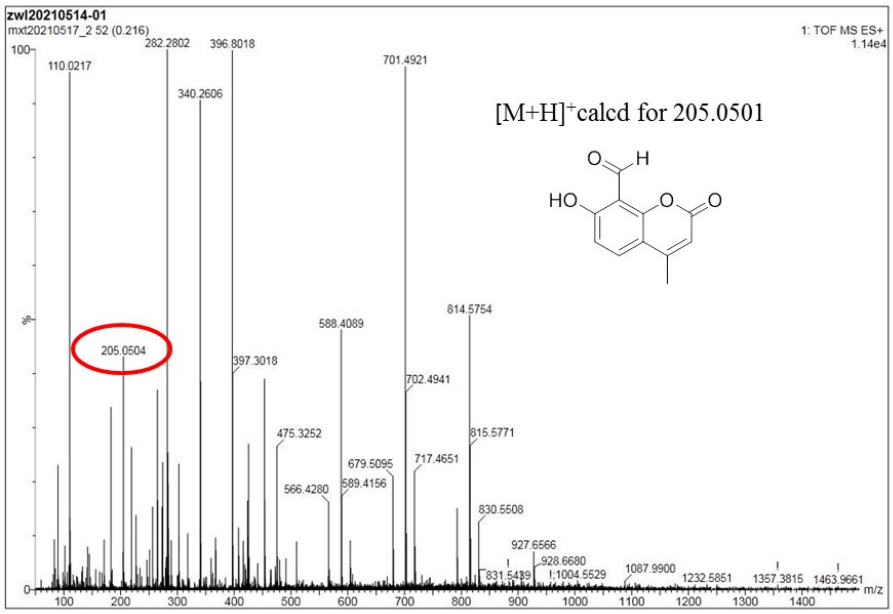


Fig.S17 HRMS spectrum of C**1** in CH_3OH