

Supporting Information

A metal-free coumarin-based fluorescent probe for turn on monitoring carbon monoxide in aqueous solution and living cells

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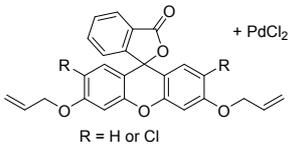
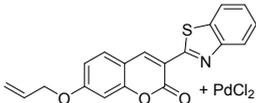
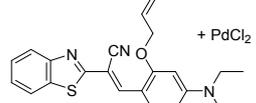
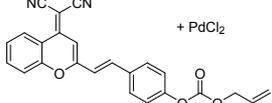
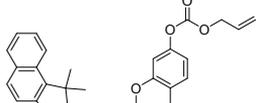
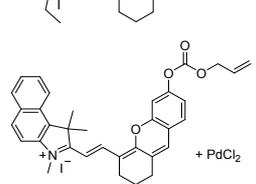
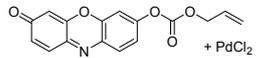
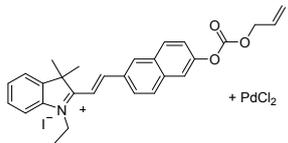
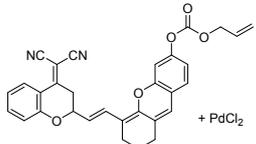
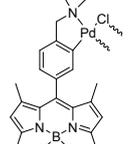
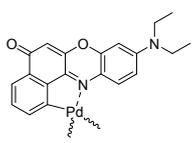
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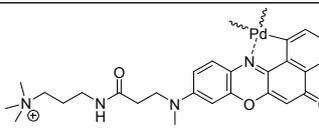
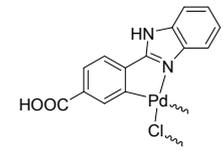
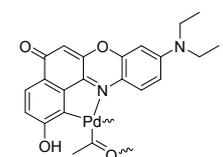
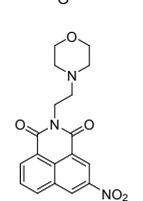
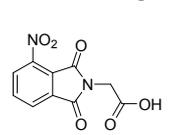
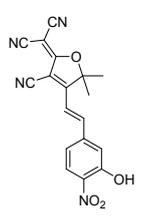
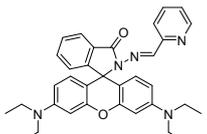
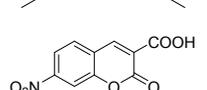
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Table S1. Comparison of the properties of fluorescent probes for CO.

Probe	Pd-free	solvent	LOD	Linear range	Ref.
	No	PBS with 0.5% DMSO, v/v	46 nM, 29 nM	0 – 50 μM	16
	No	PBS with 50% DMSO, v/v	78nm	0.4 – 70 μM	17
	No	PBS with 5% DMSO, v/v	30.8 nM	1 – 5 μM	18
	No	PBS with 50% DMSO, v/v	57 nM	0 – 30 μM	19
	No	PBS	0.17 μM	0 – 60 μM	20
	No	PBS with 0.5% DMSO, v/v	3.2 nM	0 – 8 μM	21
	No	PBS	62 nM	0 – 25 μM	22
	No	HEPES with 20% DMSO	3.8 μM	0 – 30 μM	23
	No	PBS	0.33 μ M	1 – 100 μM	24
	No	DPBS	Not mentioned	Not mentioned	25
	No	PBS with 5% DMSO	50 nM	0 – 1.5 μM	26

Continued table S1. Comparison of the properties of fluorescent probes for CO.

Probe	Pd-free	solvent	LOD	Linear range	Ref.
	No	DMSO/DPBS = 1 : 19, v/v	0.23 μM	5 – 25 μM	27
	No	HEPES with 50% EtOH	0.06 μM	0 – 6 μM	28
	No	Methanol	Not mentioned	Not mentioned	29
	Yes	HEPES with 1% DMSO	0.60 μM	1–10 μM	30
	Yes	PBS with 0.5% DMSO, v/v	16 nM	0–14 μM	31
	Yes	HEPES with 30% DMSO, v/v	6.1nM	0 – 7 μM	32
	Yes	PBS	10 nM	0.1 – 1.0 μM	33
	Yes	PBS with 1% DMSO, v/v	12 nM	0 – 20 μM	This work

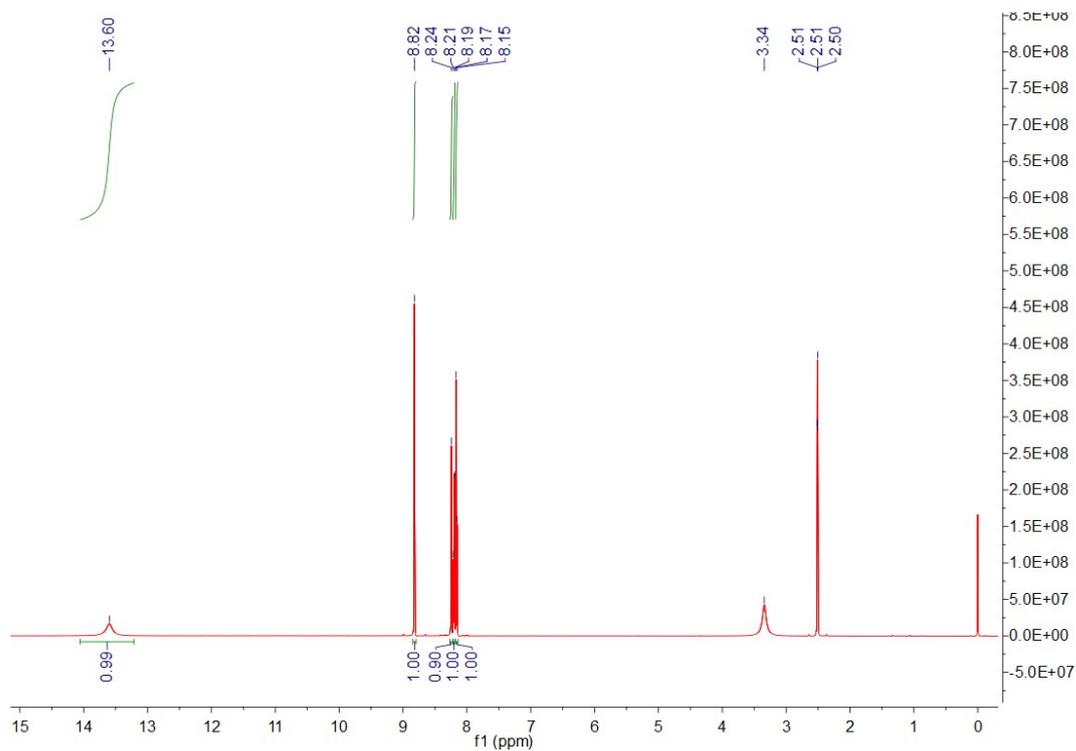


Figure S1. ^1H NMR of probe NCCA in DMSO-d_6 .

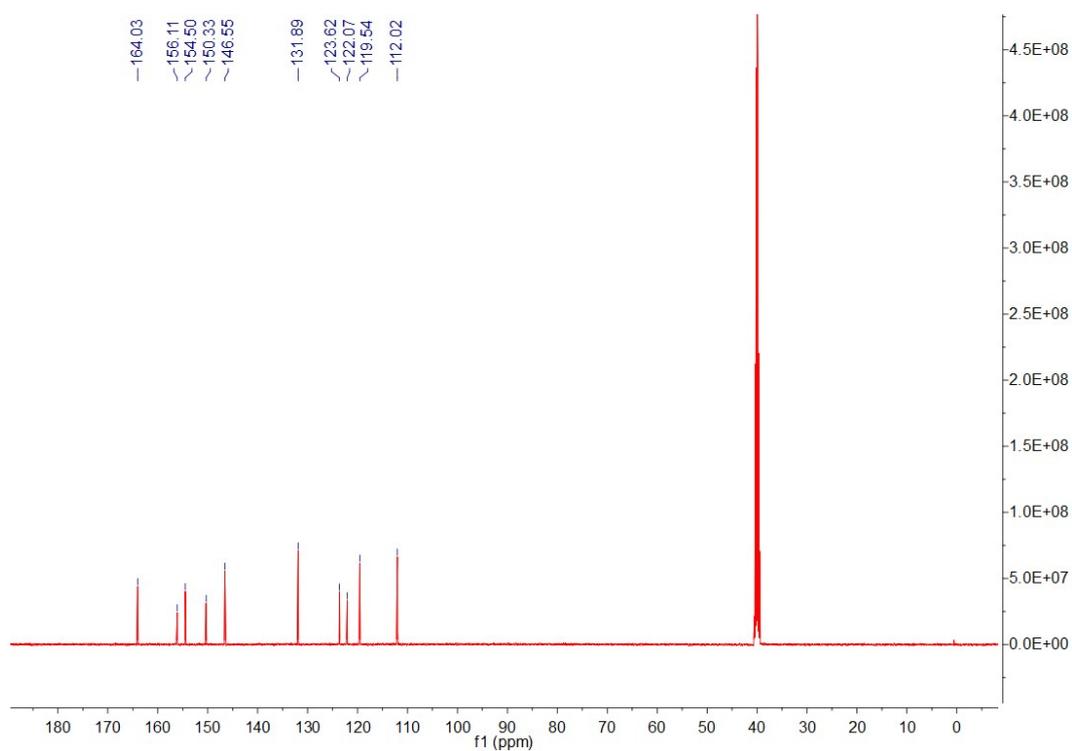


Figure S2. ^{13}C NMR of probe NCCA in DMSO-d_6 .

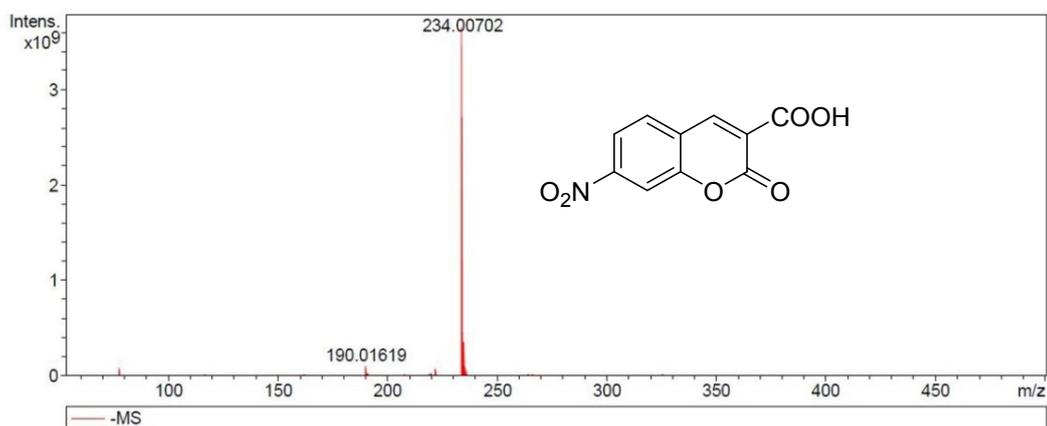


Figure S3. HRMS of probe NCCA in CH₃CN.

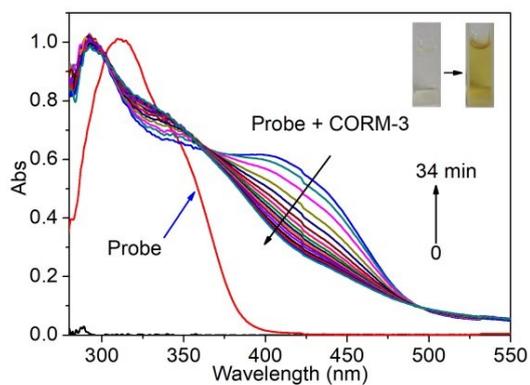


Figure S4. Changes of UV-vis spectra of probe NCCA with CORM-3 over time. Inset: Color change.

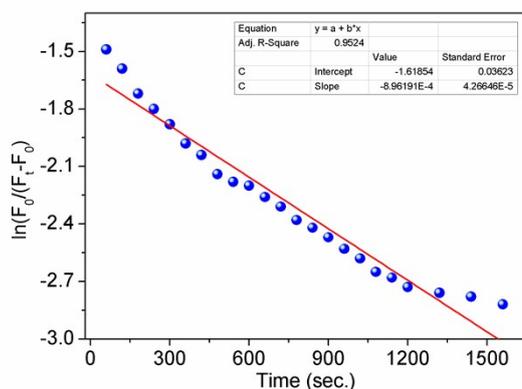


Figure S5. Plot of normalized fluorescence intensity of probe (10 μM) in the presence of CO (800 μM) with time ($\lambda_{ex} = 100$ nm, $\lambda_{em} = 450$ nm)

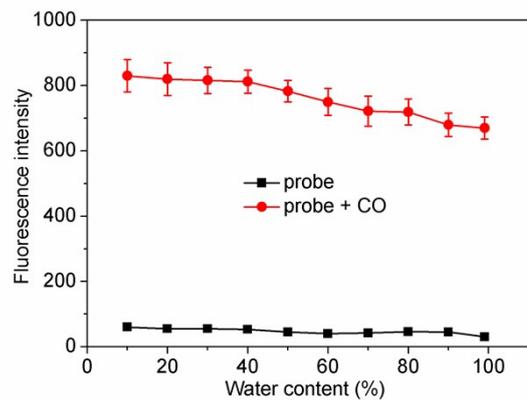


Figure S6. Changes of fluorescence intensity of probe NCCA (10 μ M) with and without CORM-3 (100 μ M) in mixed solution with different water contents.

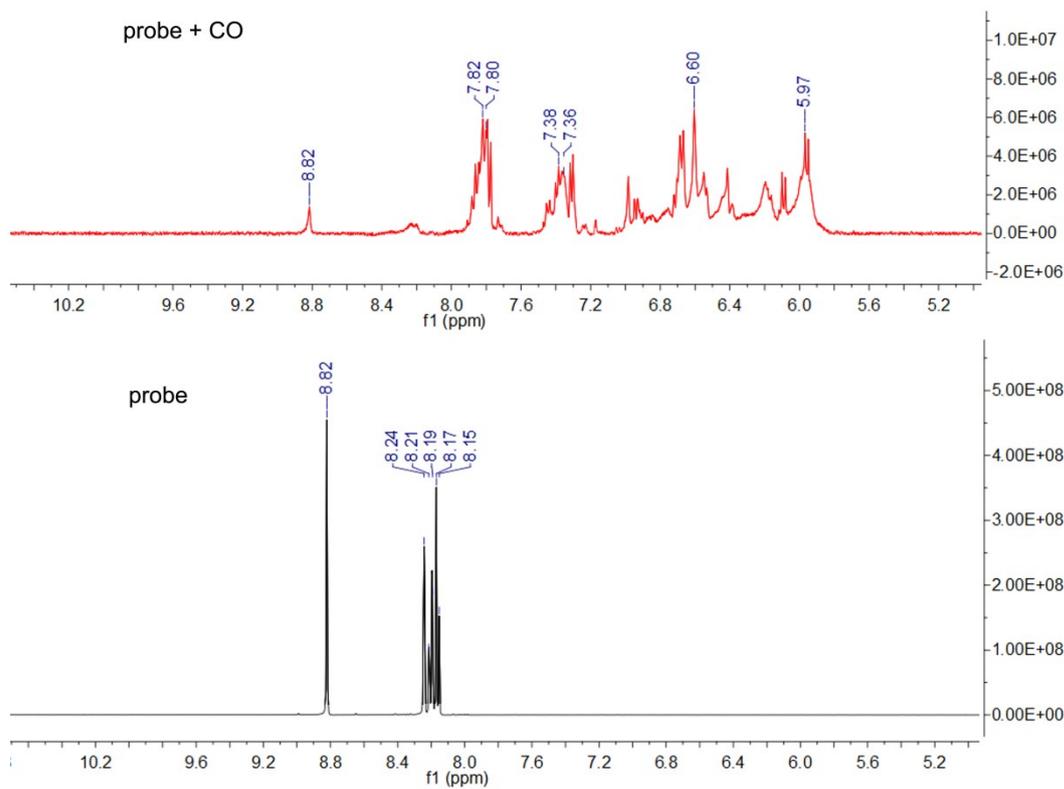


Figure S7. ¹H NMR of probe NCCA with CORM-3 in DMSO-d₆.

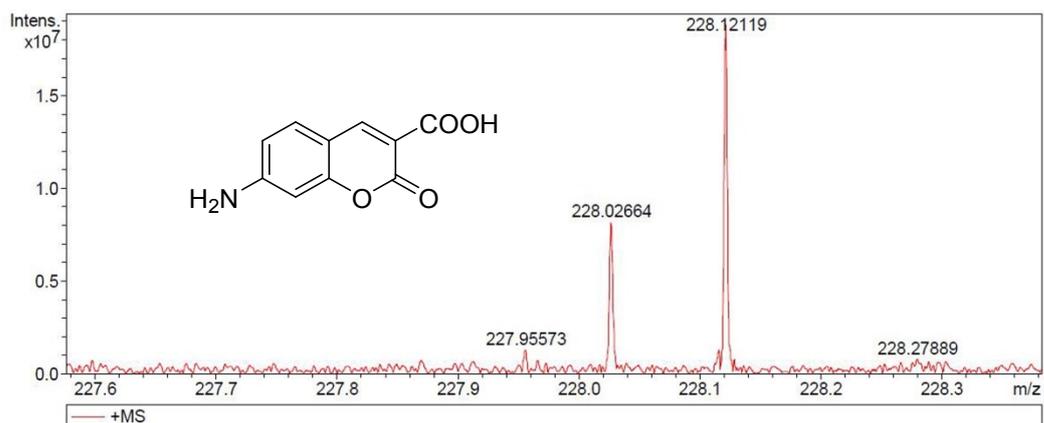


Figure S8. HRMS of probe NCCA with CORM-3 in DMSO-d₆.

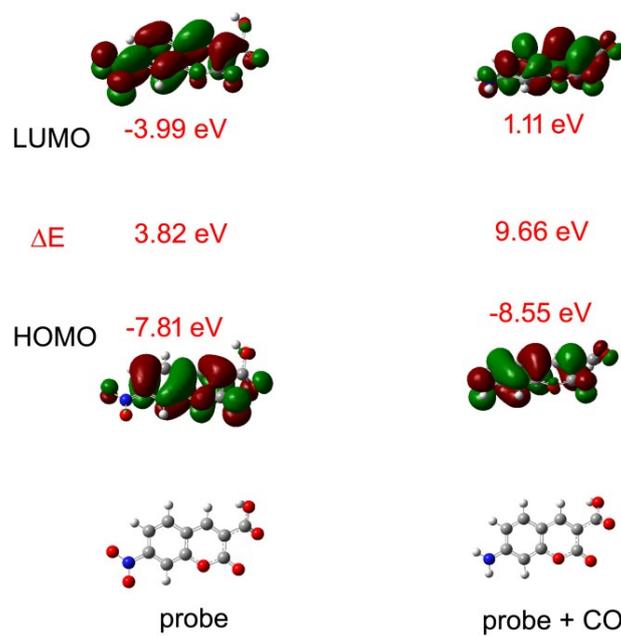


Figure S9. Optimized molecular structures and corresponding orbital electron distribution of probe with and without CORM-3.

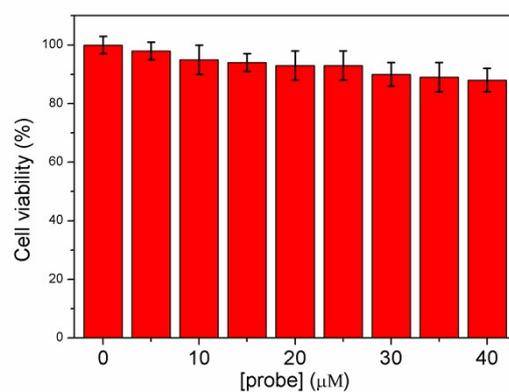


Figure S10. Cell viability of HepG2 cells after 24 hours of incubation with different concentrations of probe NCCA (0, 5, 10, 15, 20, 25, 30, 35 and 40 μM , respectively) by MTT assay.