Supporting Information

TPE-Lightened Amphiphilic Block Copolymers: Synthesis and Application in the Detection of Nitroaromatic Pollutants

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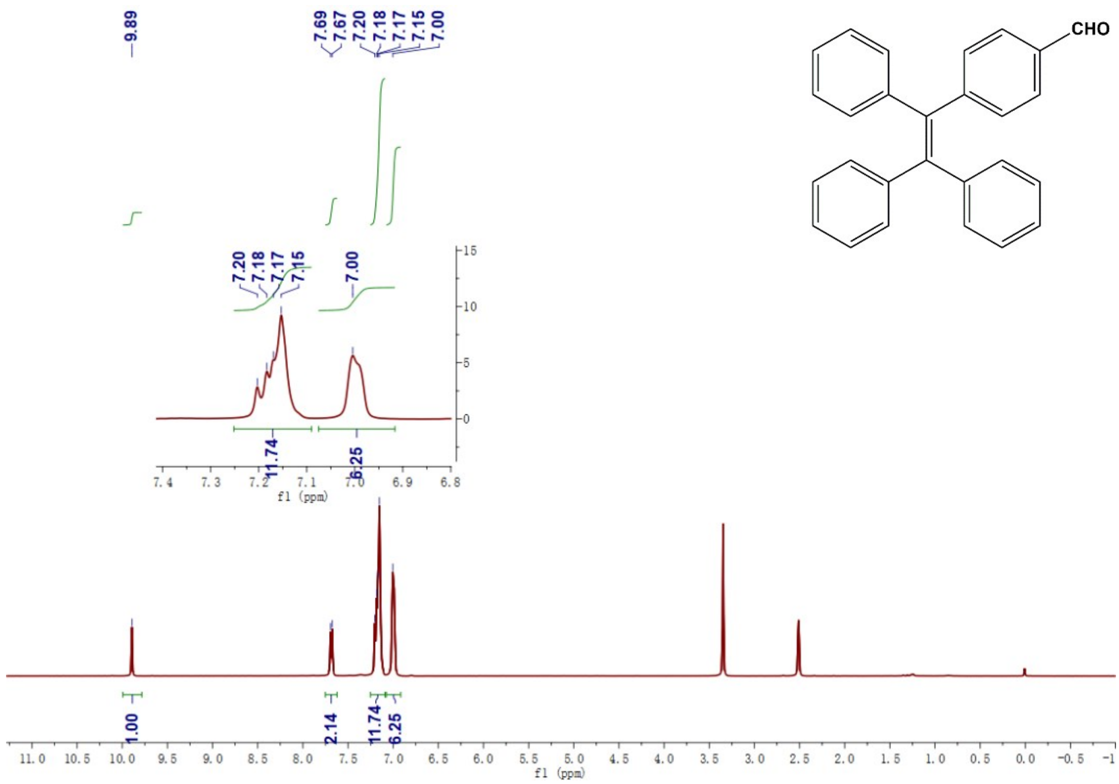


Fig. S1 ^{1}H NMR spectrum of 4-(1,2,2-triphenylvinyl) benzaldehyde (DMSO-d_6)

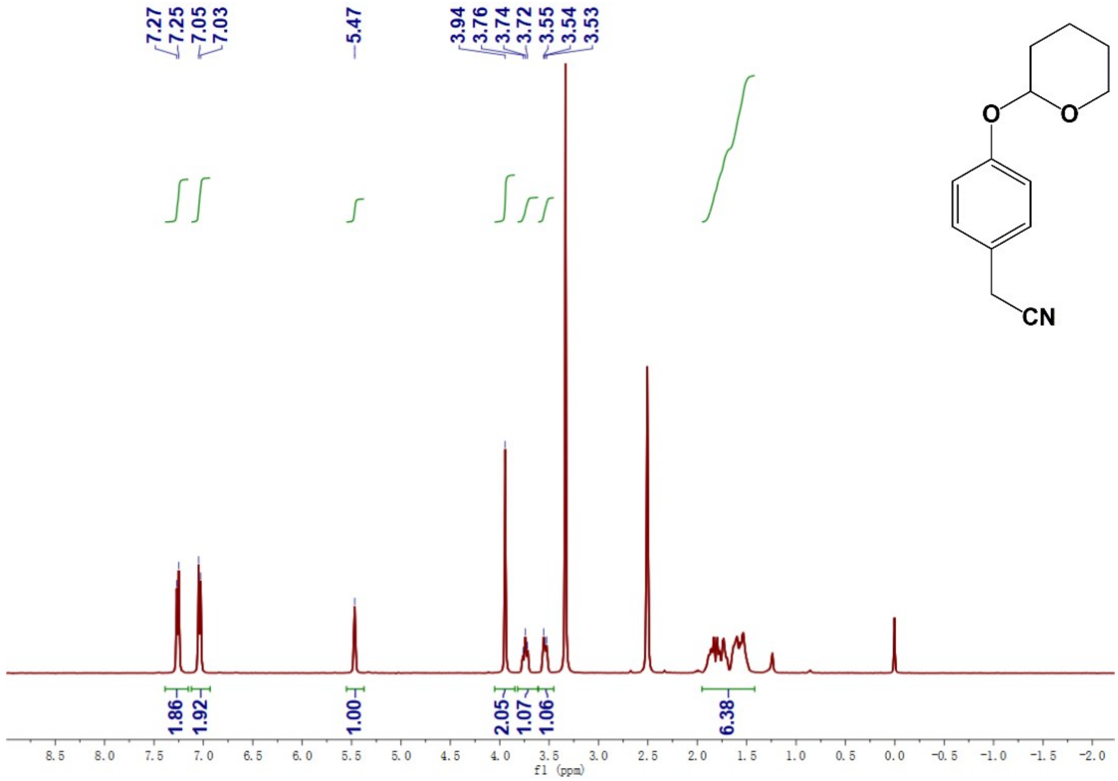


Fig. S2 ^{1}H NMR spectrum of compound 1 (DMSO-d_6)

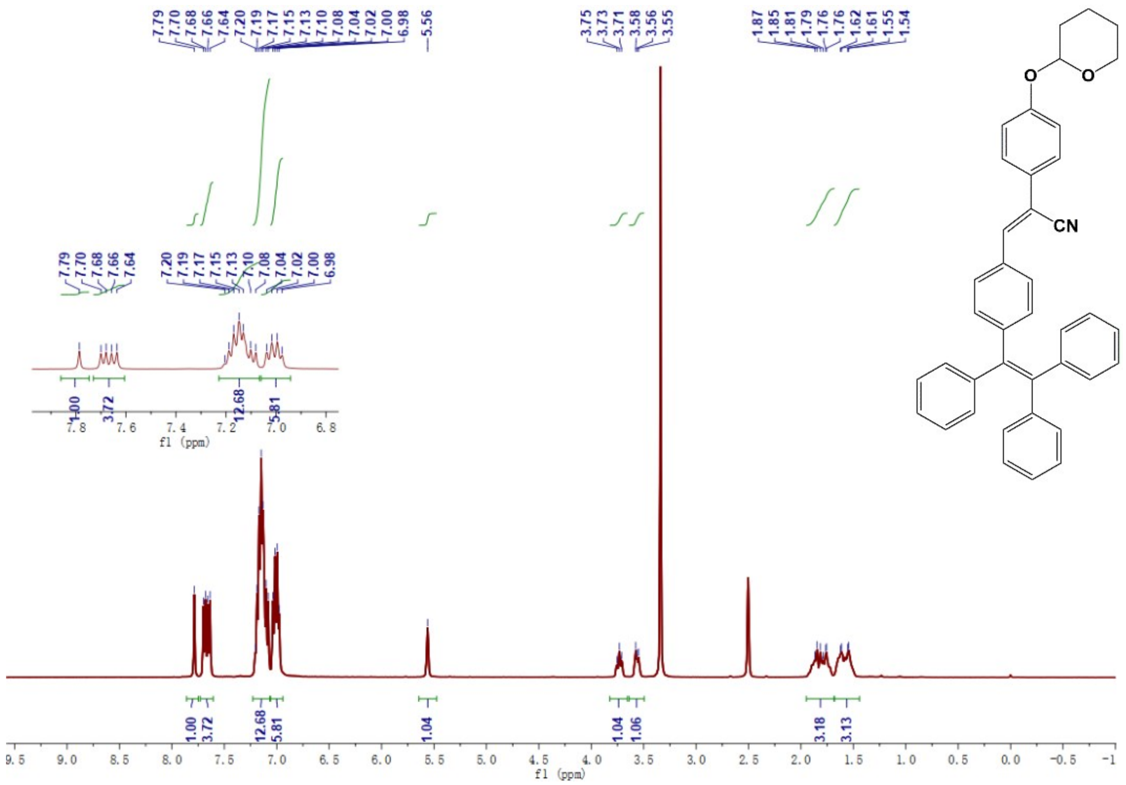


Fig. S3 ^{1}H NMR spectrum of compound 2 (DMSO-d_6)

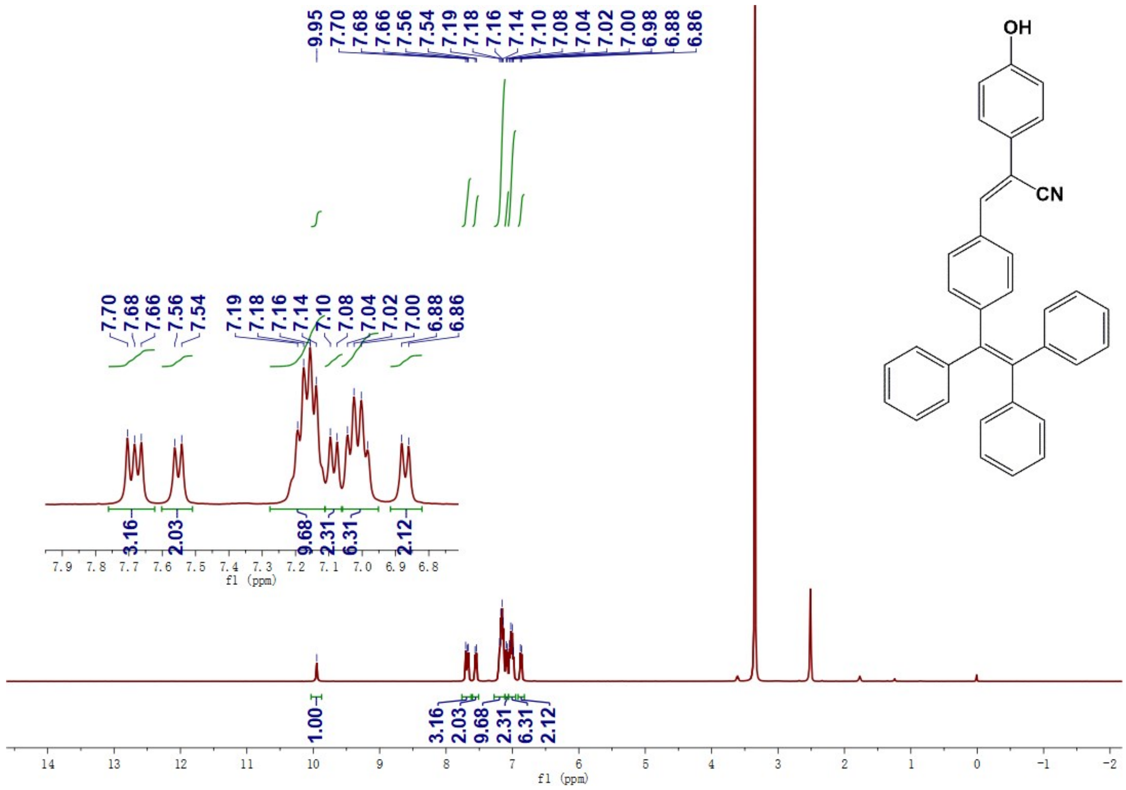


Fig. S4 ^{1}H NMR spectrum of compound 3 (DMSO-d_6)

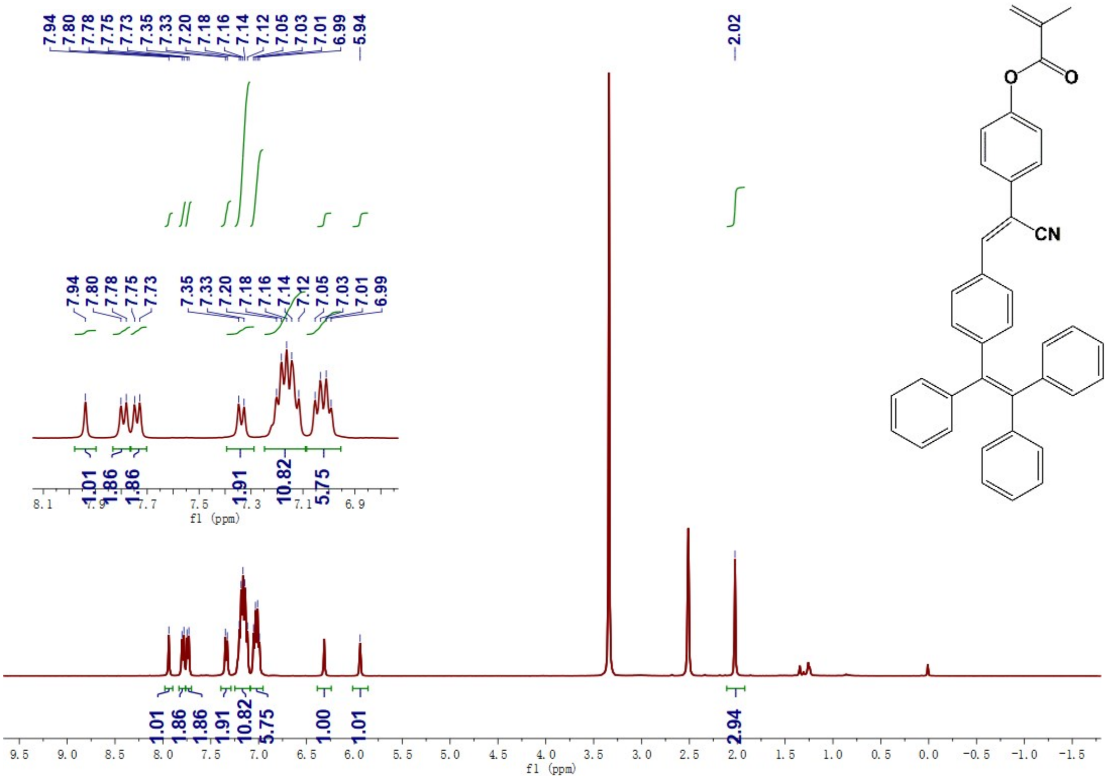


Fig. S5 ^{1}H NMR spectrum of monomer 1 (DMSO-d_6)

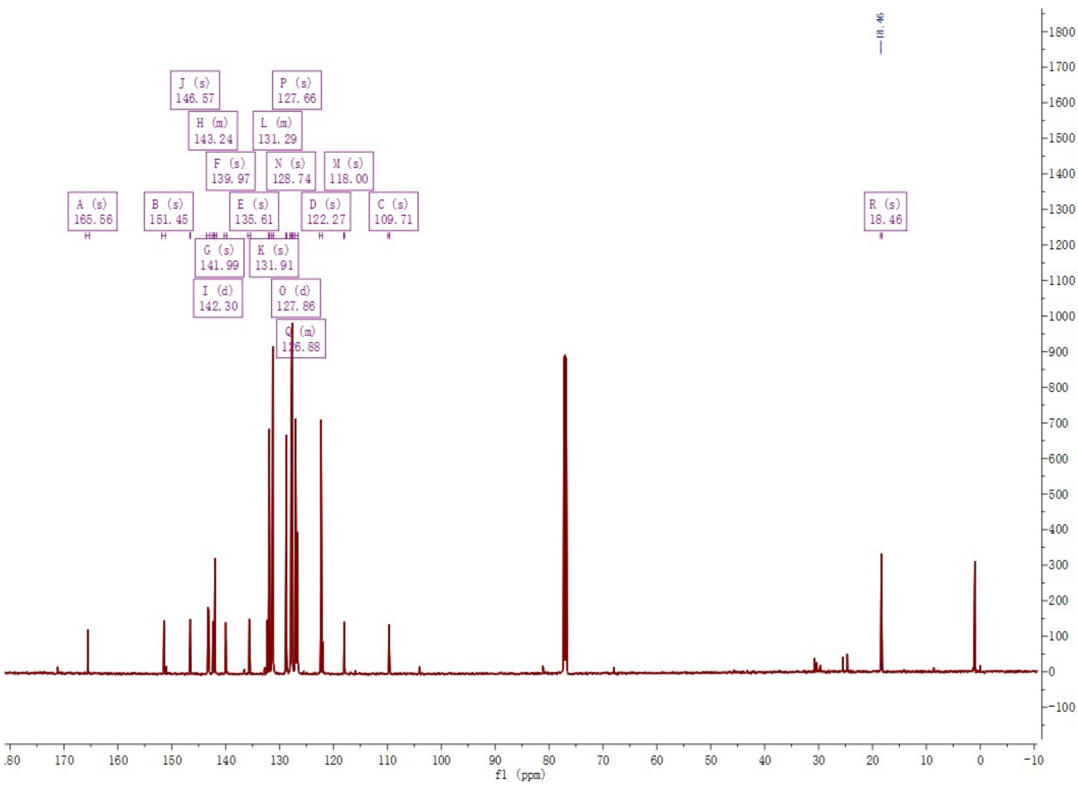
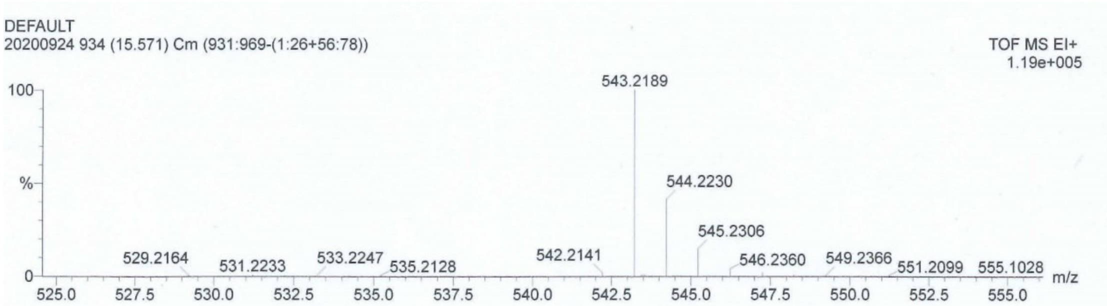


Fig. S6 ^{13}C NMR spectrum of monomer 1 ($CDCl_3$)



Minimum:	10.00				-1.5		
Maximum:	100.00		30.0	5.0	50.0		
Mass	RA	Calc. Mass	mDa	PPM	DBE	i-FIT	Formula
543.2189	100.00	543.2198	-0.9	-1.7	26.0	1023.3	C39 H29 N 16O2

Fig. S7 Mass spectrum of monomer 1

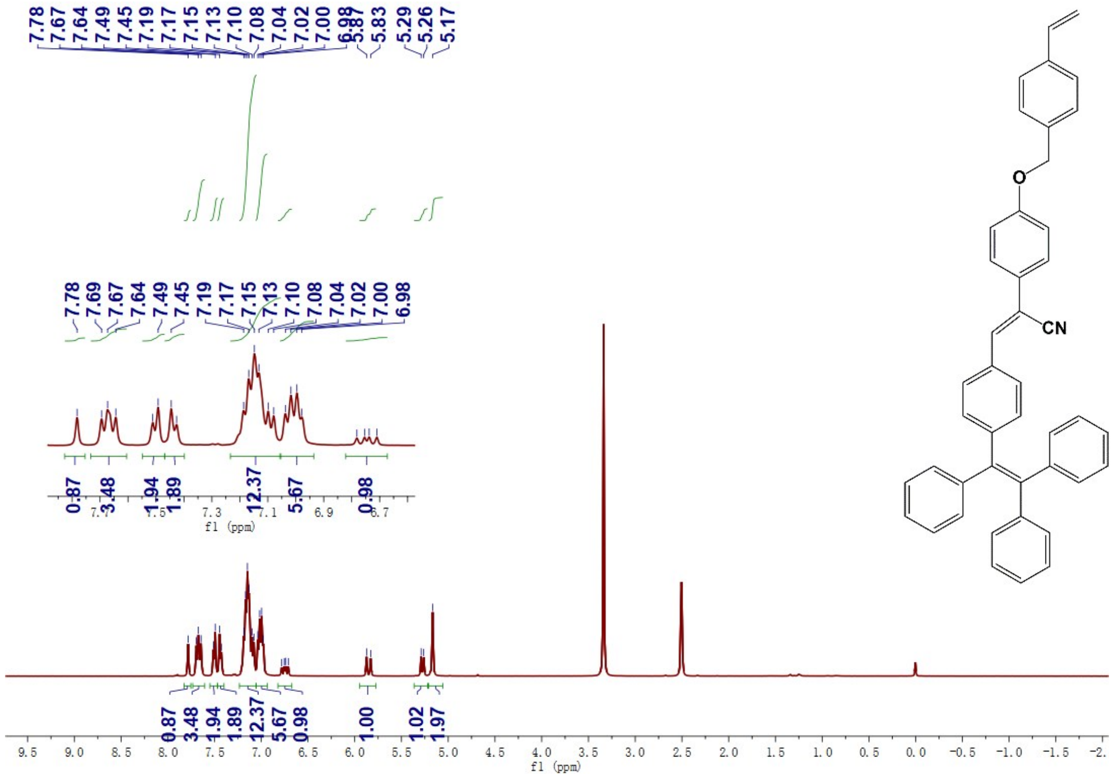


Fig. S8 ^{1}H NMR spectrum of monomer 2 (DMSO-d_6)

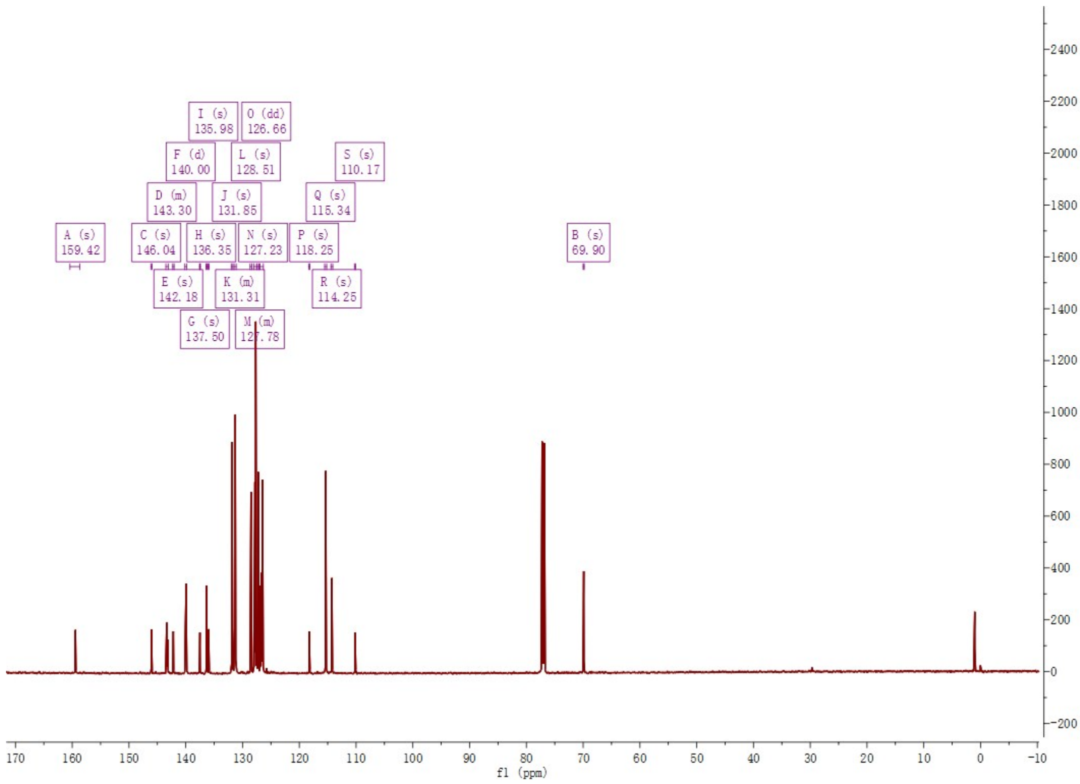


Fig. S9 ^{13}C NMR spectrum of monomer 2 ($CDCl_3$)

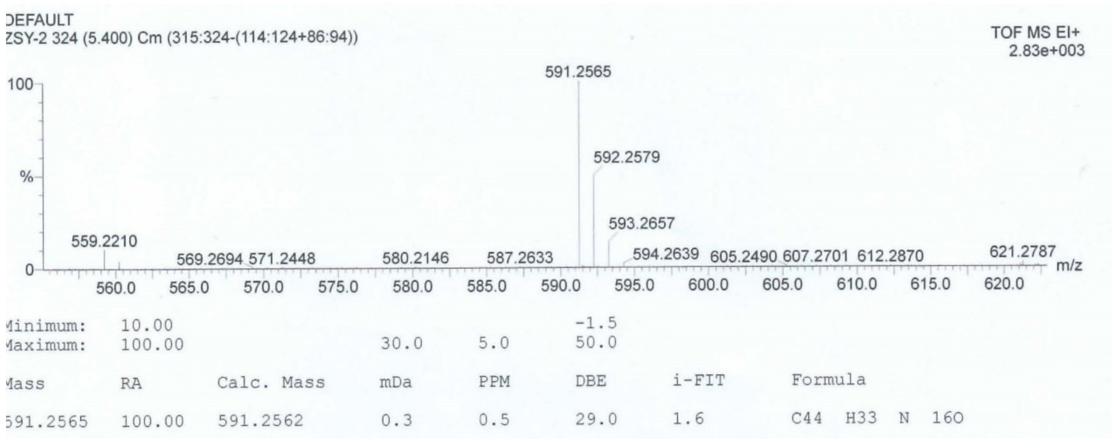


Fig. S10 Mass spectrum of monomer 2

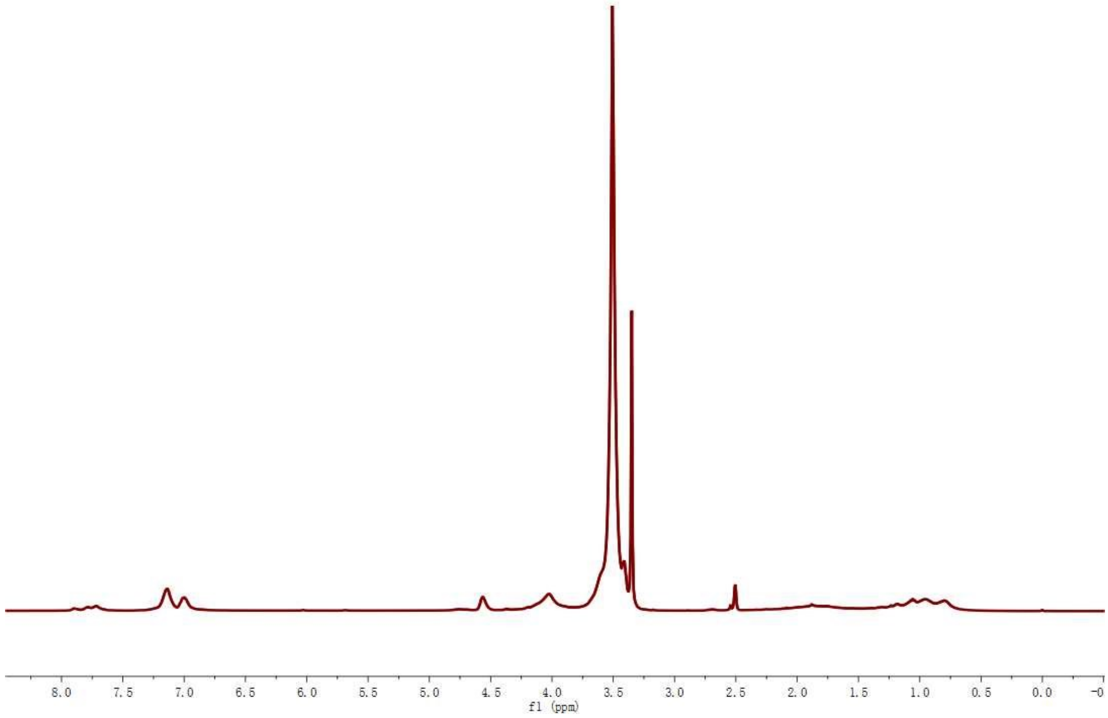


Fig. S11 ^{1}H NMR spectrum of P1 (DMSO-d_6)

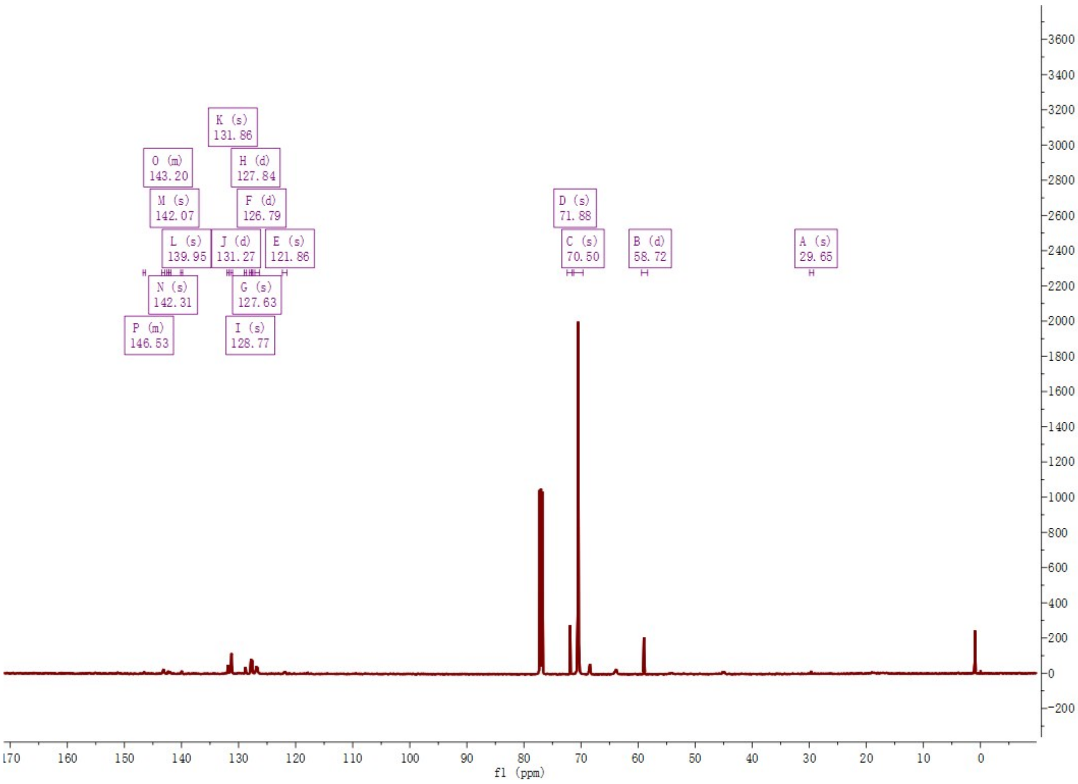


Fig. S12 ^{13}C NMR spectrum of polymer 1 ($CDCl_3$)

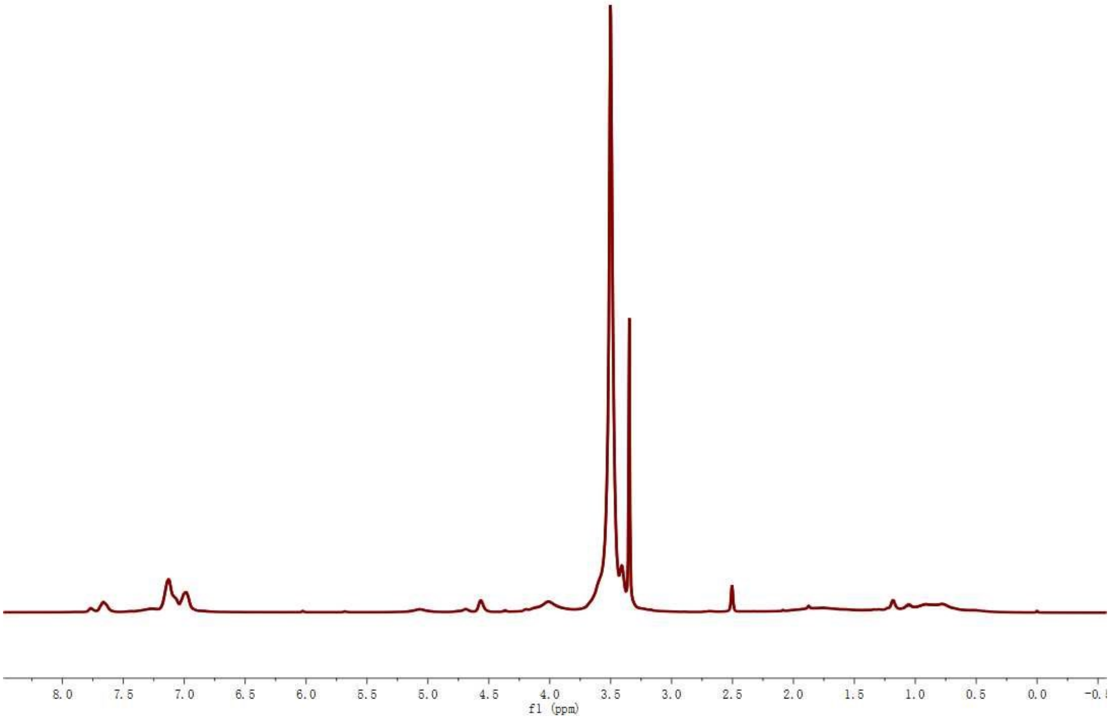


Fig. S13 ^{1}H NMR spectrum of P2 (DMSO-d_6)

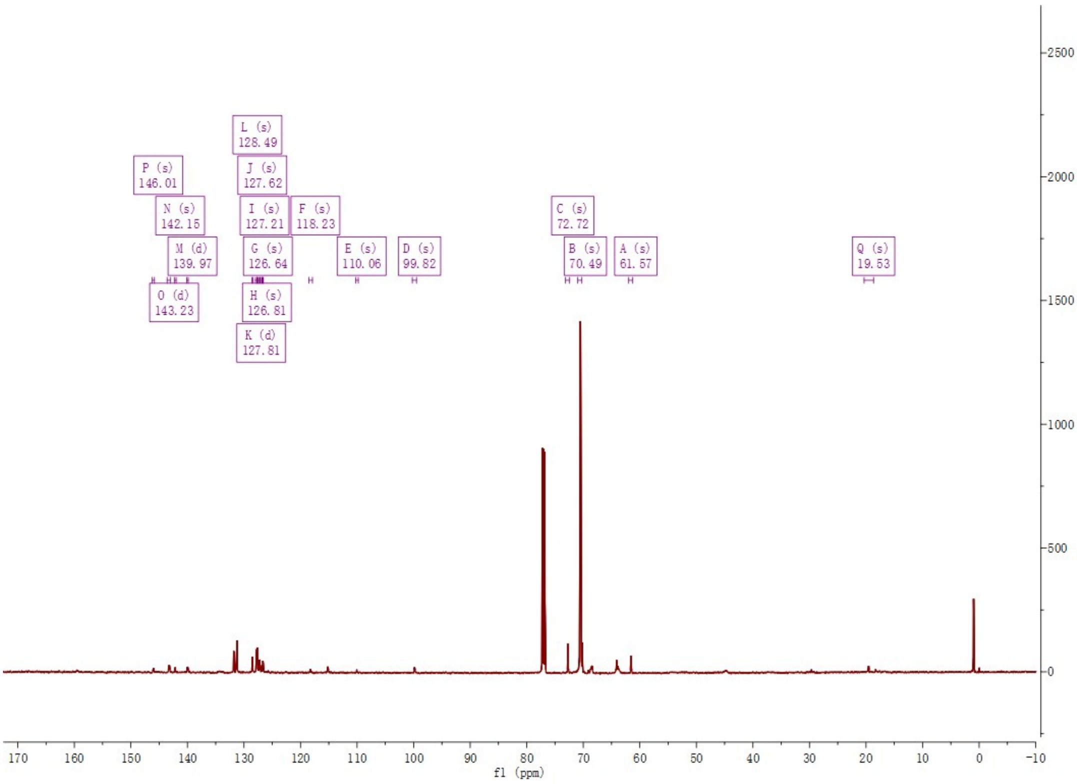


Fig. S14 ^{13}C NMR spectrum of polymer 2 ($CDCl_3$)

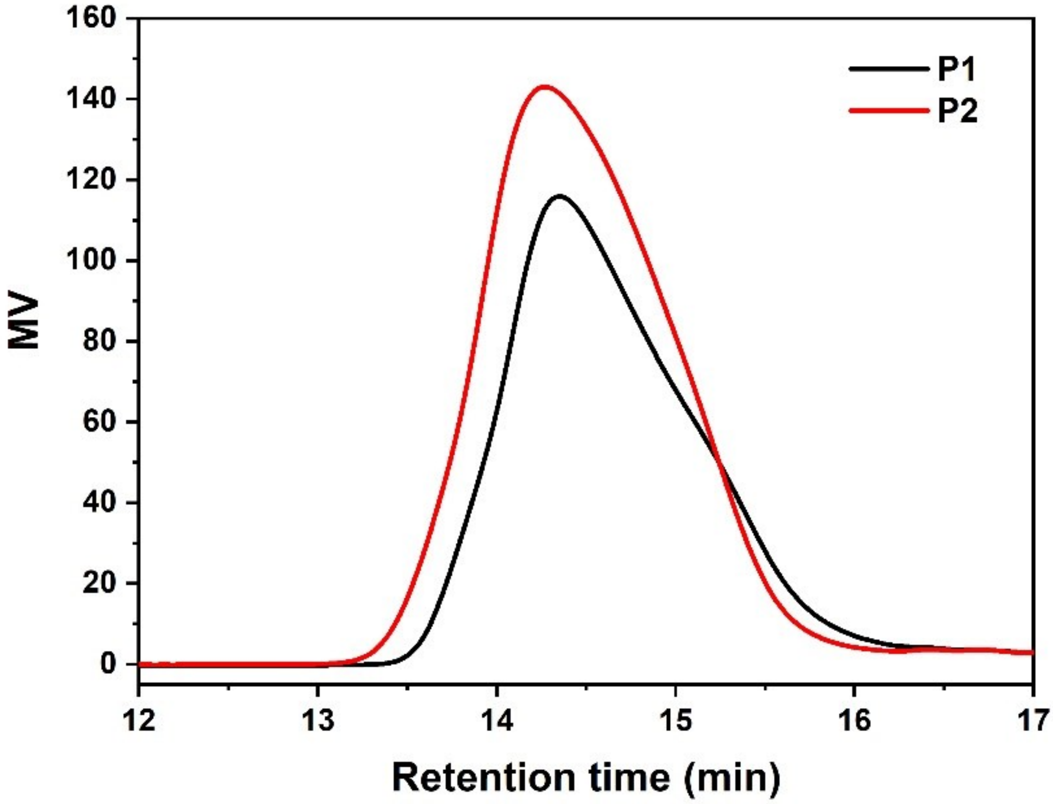


Fig. S15 GPC analysis of P1 and P2 with THF as a mobile phase at a flow rate of 1 mL/min and with column temperature of 30℃.

Sample	Mn	Mw	MP	Mz	PDI
P1	12906	15728	17253	19619	1.300
P2	15342	19970	21563	24710	1.302

Table S1. GPC data of P1 and P2.

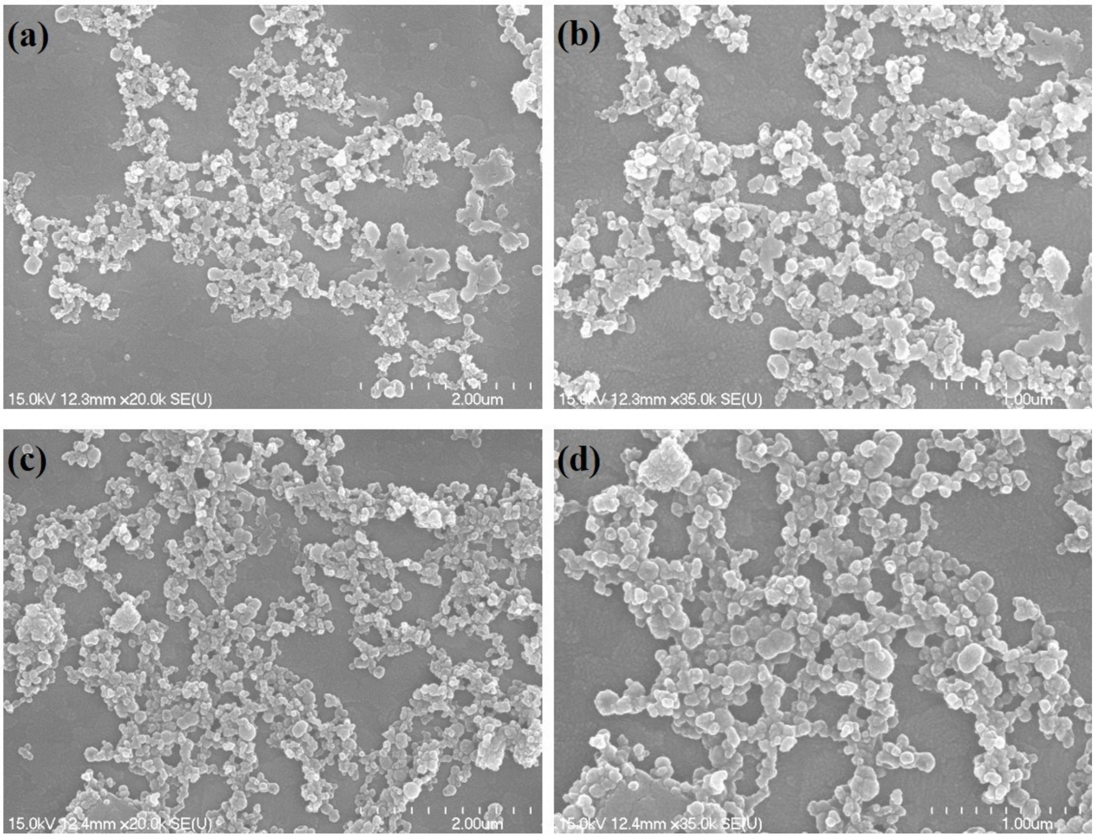


Fig. S16 SEM images of P1 (a, b) and P2 (c, d) in THF/water mixture (f_w=99%) with different scales.

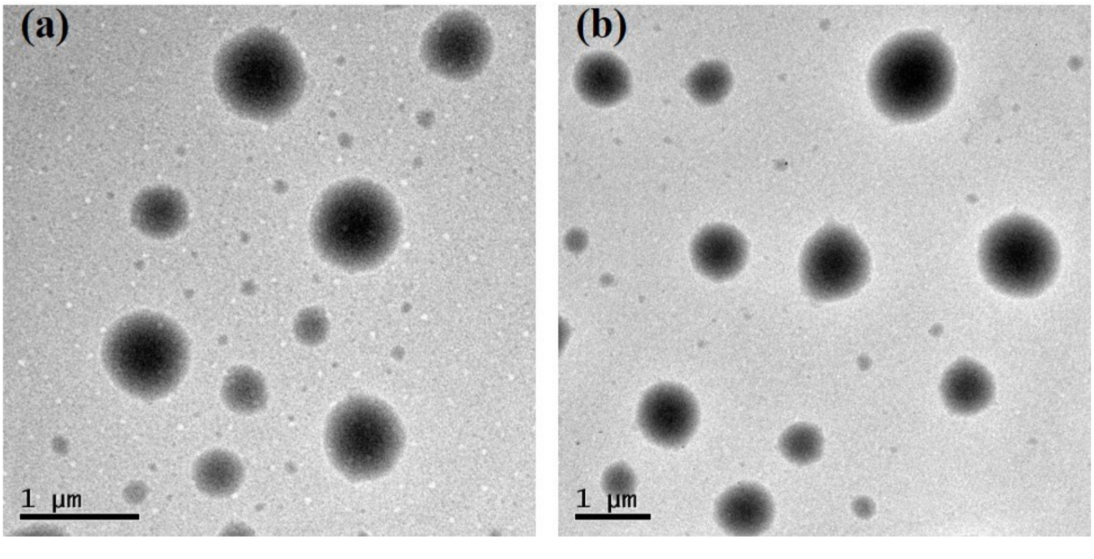


Fig. S17 TEM images of P1 (a) and P2 (b) in THF/water mixture (f_w=99%)

Publication	Materials used	1,3-Dinitrobenzene	p-Nitrotoluene	Nitrobenzene
[1]	Pillar-layered metal-organic framework	K_{SV}=1.3 × 10^4 M^{-1} LOD=1.53 × 10^{-5} M	--------------	K_{SV}=1.2 × 10^4 M^{-1} LOD=1.61 × 10^{-5} M
[2]	linear 1,4-diazine-triphenylamine based polymers	K_{SV}=2.11 × 10^4 M^{-1} LOD=7.34 × 10^{-6} M	K_{SV}=2.97 × 10^4 M^{-1} LOD=2.88 × 10^{-6} M	K_{SV}=2.49 × 10^4 M^{-1} LOD=3.55 × 10^{-6} M
[3]	Fluorescent 2D metal–organic framework nanosheets	K_{SV}=393.9 M^{-1}	K_{SV}=182.0 M^{-1}	K_{SV}=207.5 M^{-1}
[4]	Arylene–vinylene terpyridine conjugates	--------------	K_{SV}=1.19 × 10^4 M^{-1}	K_{SV}=8.08 × 10^3 M^{-1}
[5]	Triphenylamine-based luminescent metal-organic frameworks	--------------	K_{SV}=1.3 × 10^4 M^{-1}	K_{SV}=6.18 × 10^3 M^{-1}
[6]	Lanthanide-Based Coordination Polymers	--------------	--------------	K_{SV}=2.38 × 10^4 M^{-1} LOD=4.9 × 10^{-5} M
This work	P1	K_{SV}=3.4 × 10^5 M^{-1} LOD=1.19 × 10^{-7} M	K_{SV}=2.9 × 10^4 M^{-1} LOD=1.39 × 10^{-6} M	K_{SV}=2.5 × 10^4 M^{-1} LOD=1.59 × 10^{-6} M
	P2	K_{SV}=4.6 × 10^5 M^{-1} LOD=8.76 × 10^{-8} M	K_{SV}=4.4 × 10^4 M^{-1} LOD=9.16 × 10^{-7} M	K_{SV}=3.9 × 10^4 M^{-1} LOD=1.01 × 10^{-6} M

Table S2. Comparative study of the K_{SV} and the LOD achieved in material used for the fluorescence detection of NACs.

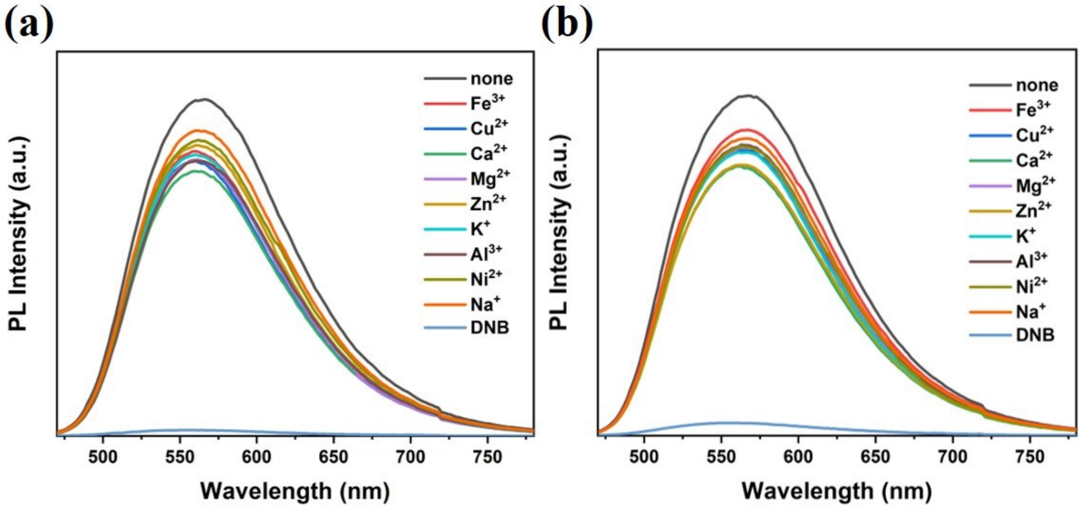


Fig. S18 PL intensity changes of P1 (a) and P2 (b) in THF/water solution (f_w=99%) following the addition of several metal ions and 1,3-dinitrobenzene. Excitation wavelength of P1: 369 nm; P2: 388 nm. Concentrations of both P1 and P2: 10 μM. Concentrations of all metal ions and 1,3-dinitrobenzene: 200 μM.

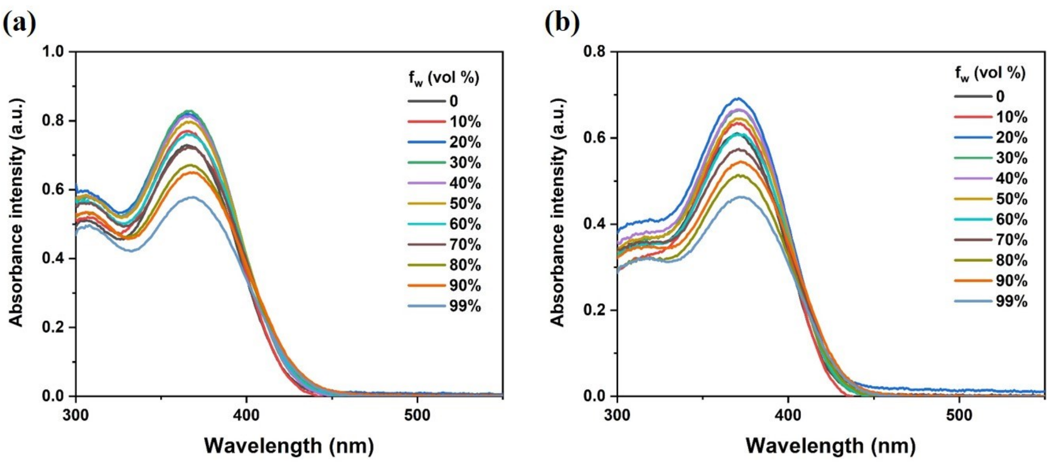


Fig. S19 UV-vis absorbance spectra of the P1 (a) and P2 (b) in THF/water mixture with different water fractions.

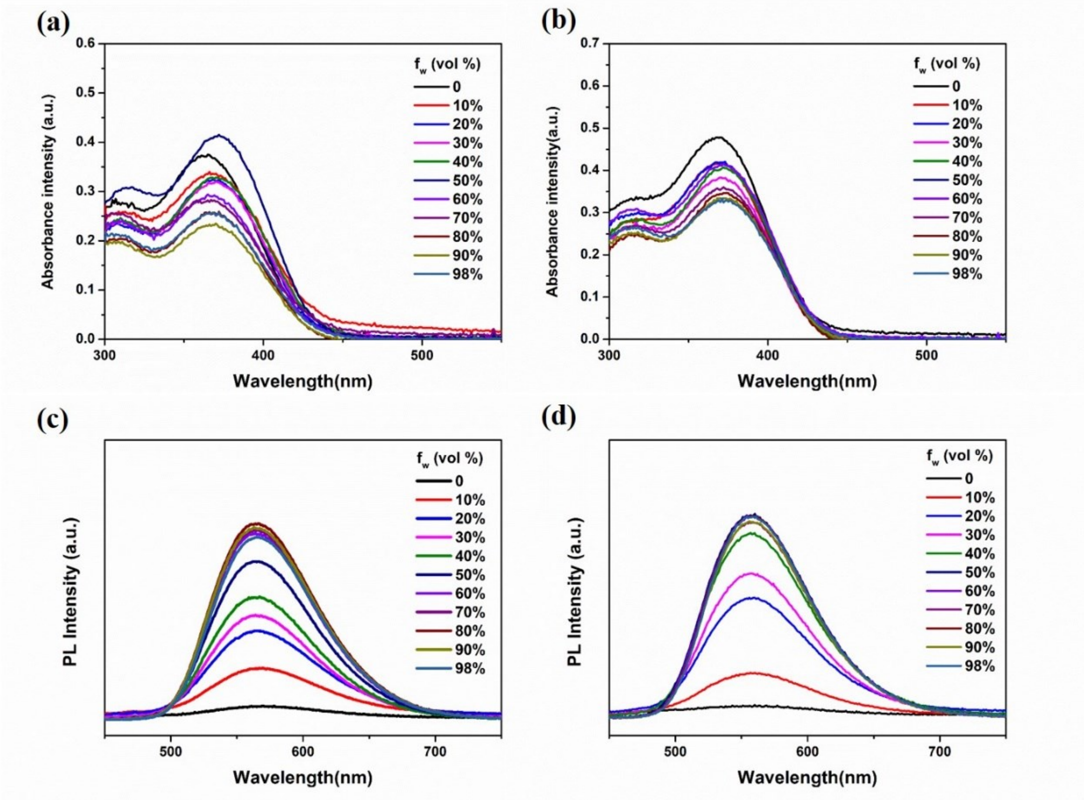


Fig. S20 UV-vis absorbance spectra of the P1 (a), P2 (b) and photo fluorescence spectra of the P1 (c), P2 (d) in DMSO/water mixture with different water fractions. Concentration: 10 μM.

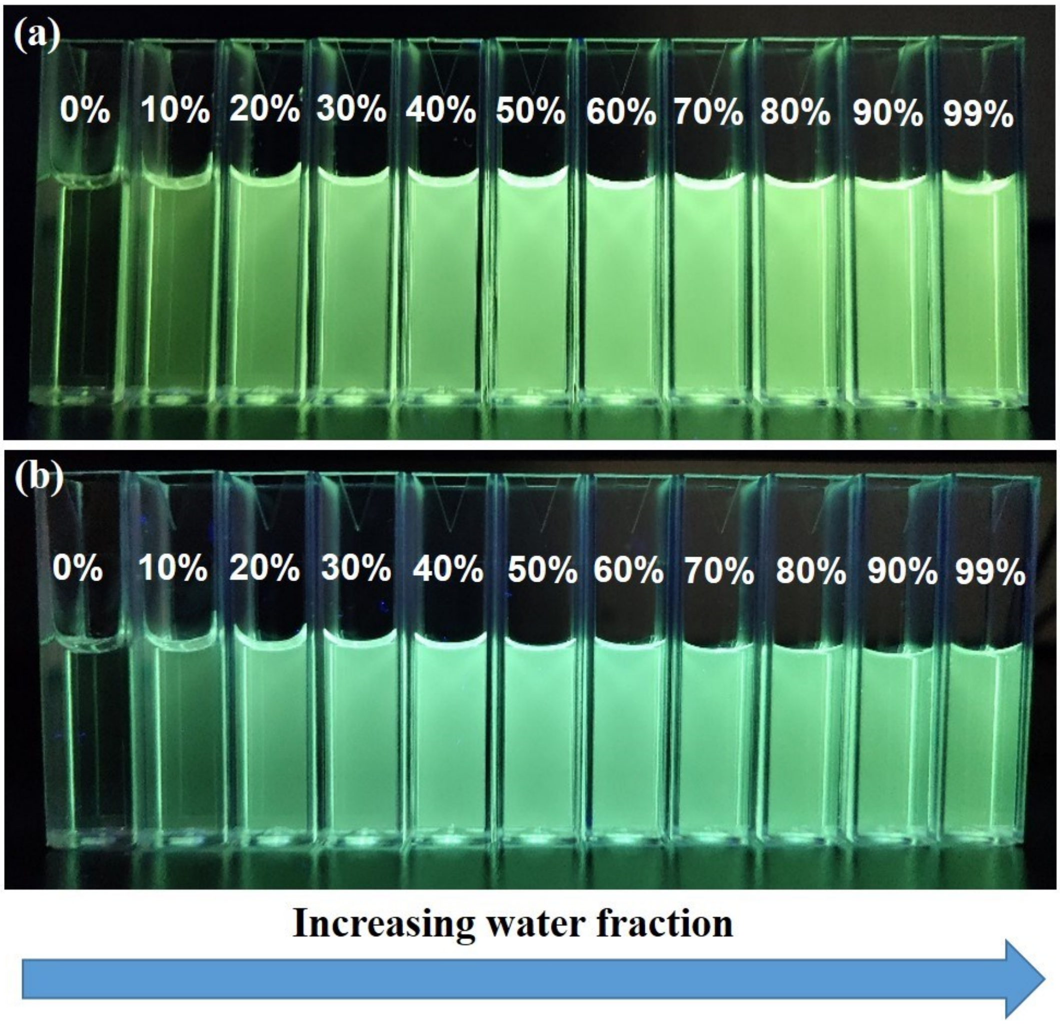


Fig. S21 Photographs of the P1 (a) and P2 (b) in DMSO/water mixture with increasing water fractions under a 365nm UV lamp. Concentration: 10 μM.

References

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