Supporting Information

Multiple stimuli-responsive hydrogels of gluconamide-tailored anthracenes

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†These authors contributed equally to this work.

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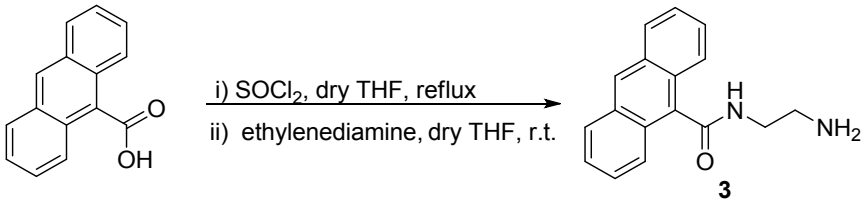
1. Synthesis and spectra data



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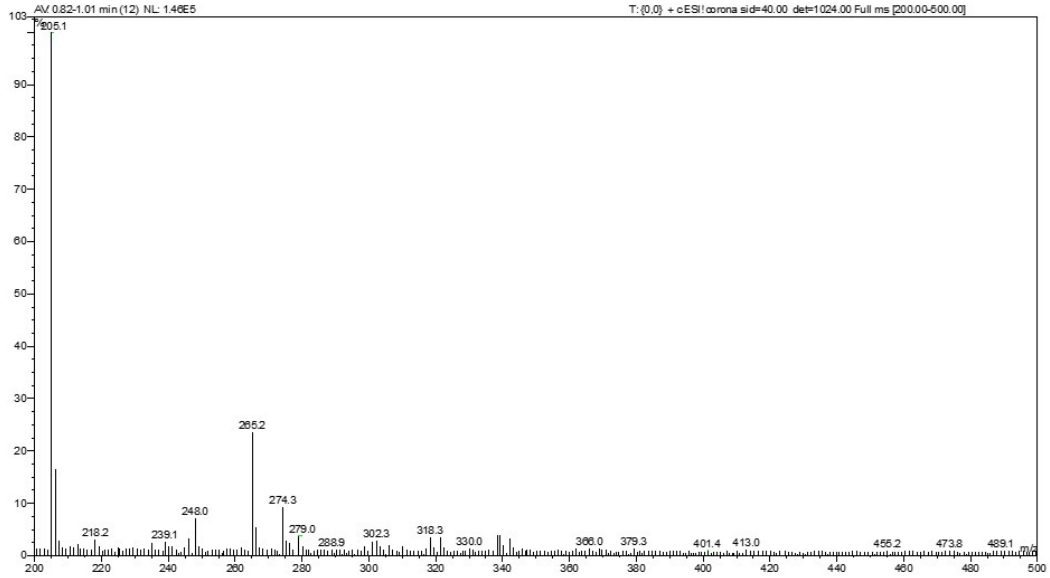
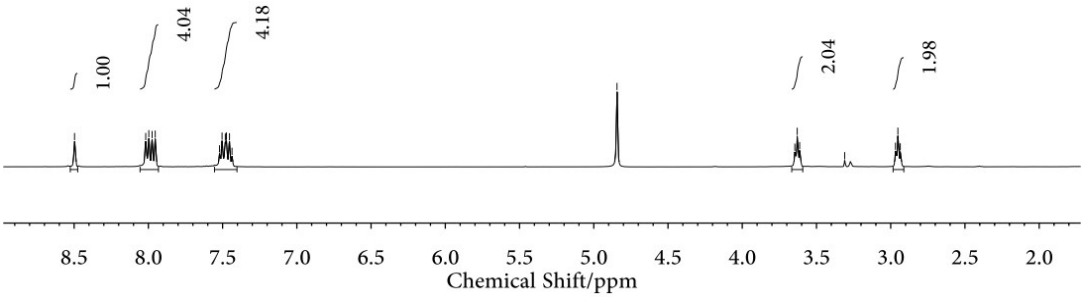
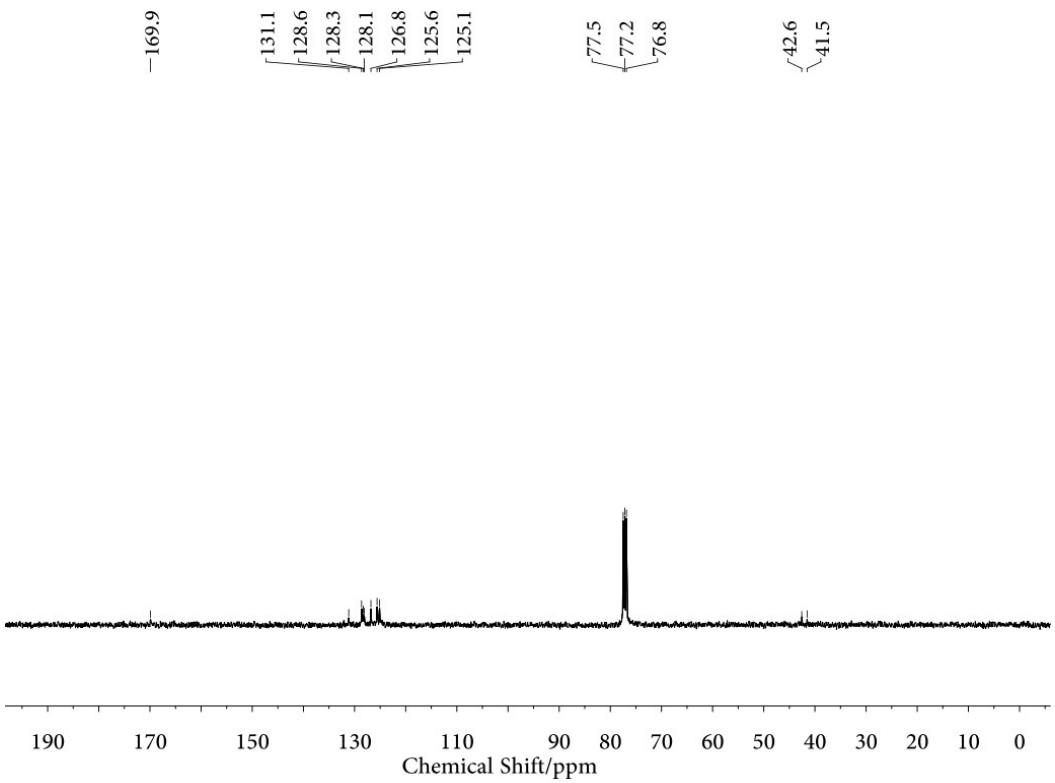


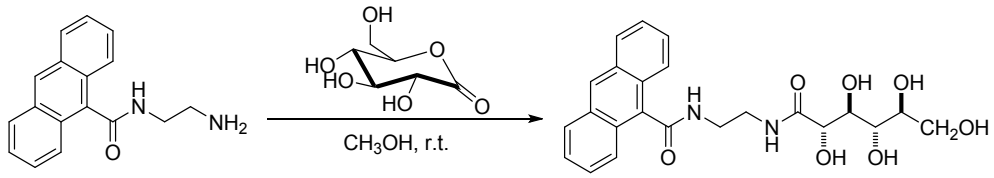
ESI-MS (+) spectrum of **3**



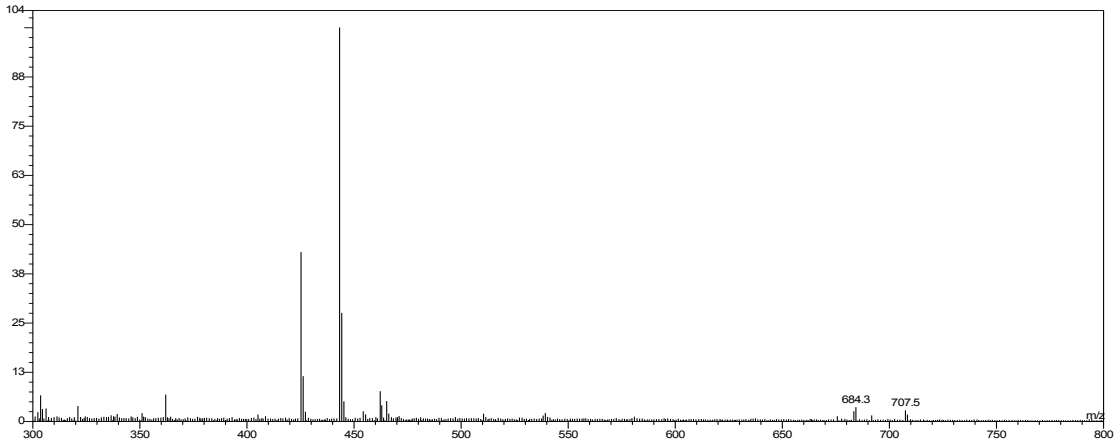
^{1}H NMR spectrum of **3** (400 MHz, CD_3OD, ppm)



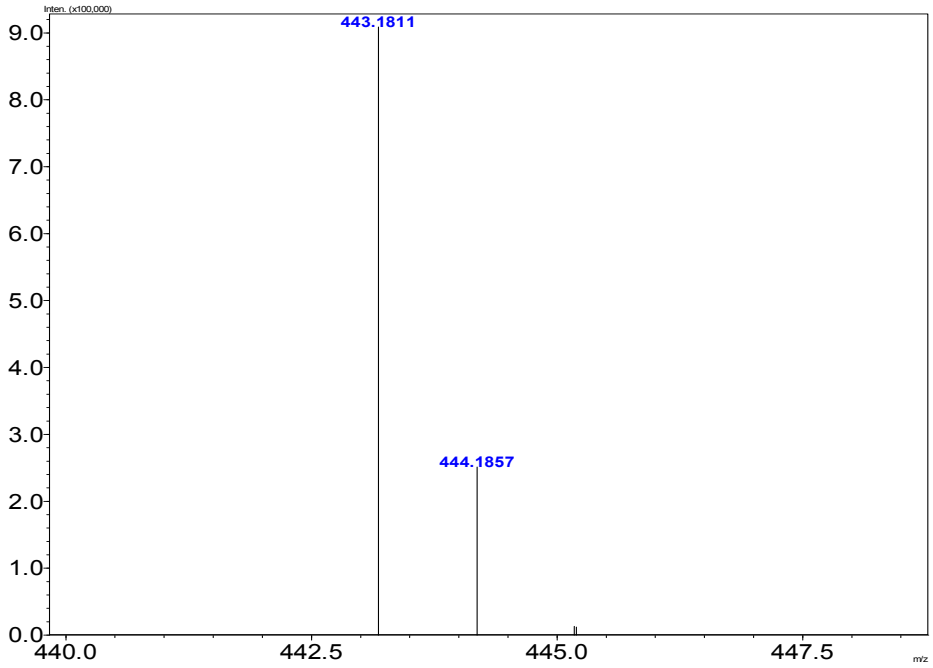
^{13}C NMR spectrum of **3** (100 MHz, $CDCl_3$, ppm)



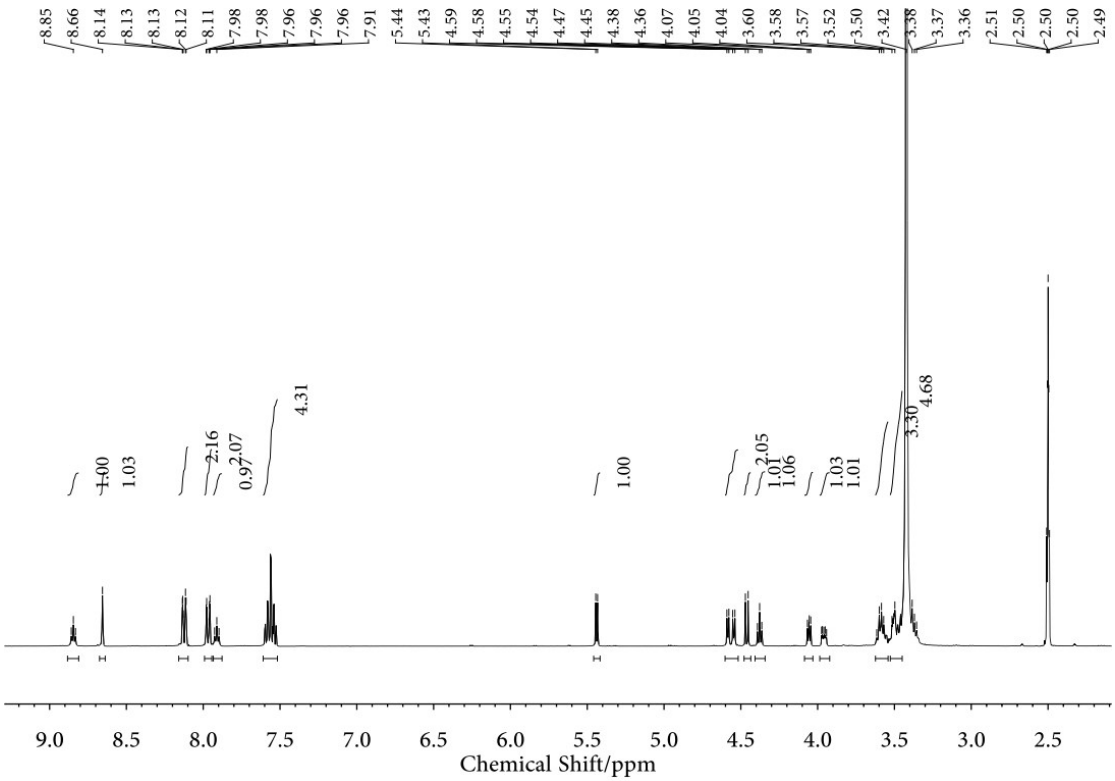
1



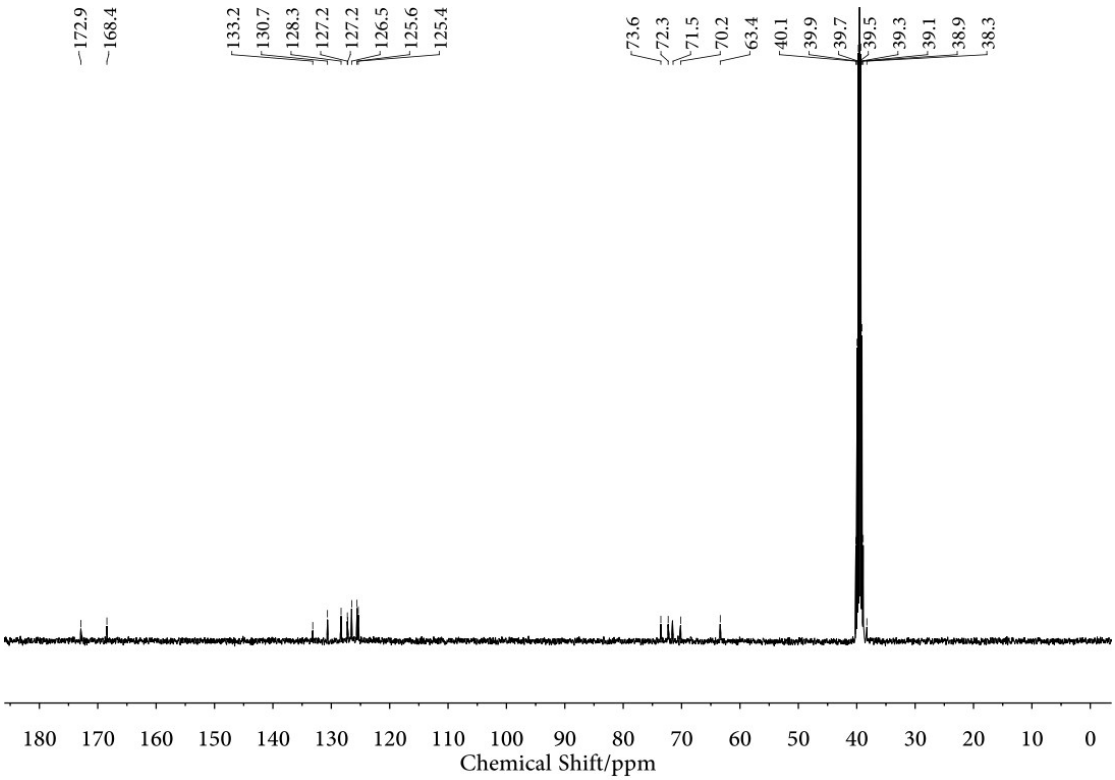
ESI-MS (+) spectrum of **1**



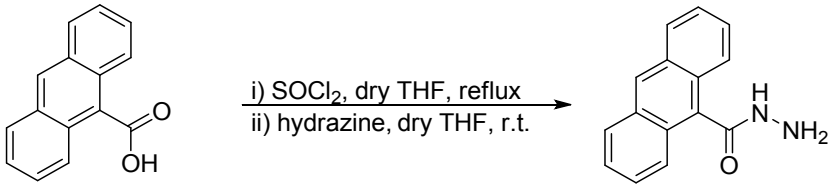
HRMS-ESI (+) spectrum of **1**



^{1}H NMR spectrum of **1** (400 MHz, d_6-DMSO, ppm)



^{13}C NMR spectrum of **1** (100 MHz, d_6-DMSO, ppm)



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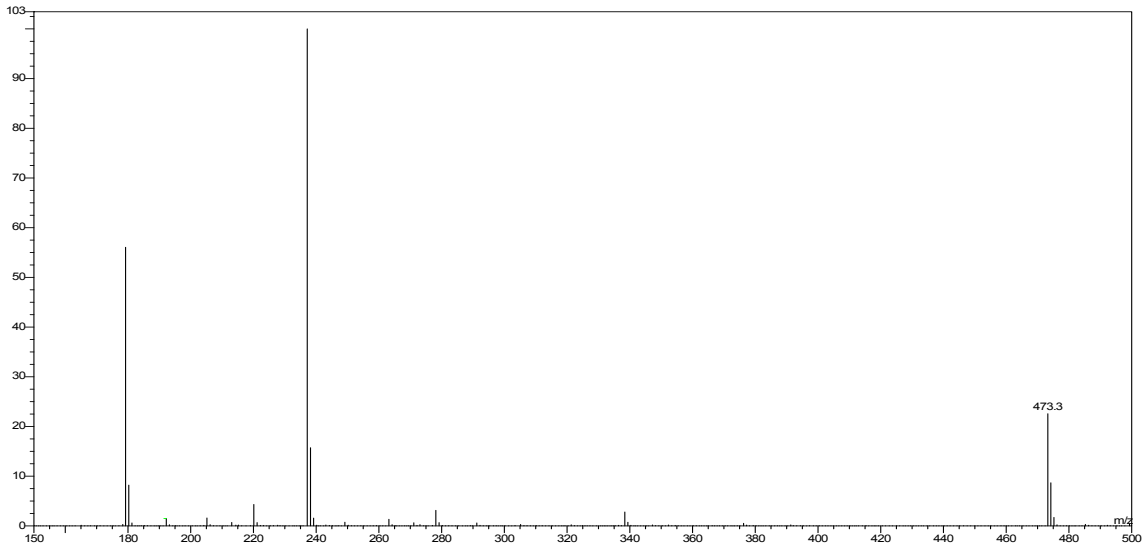
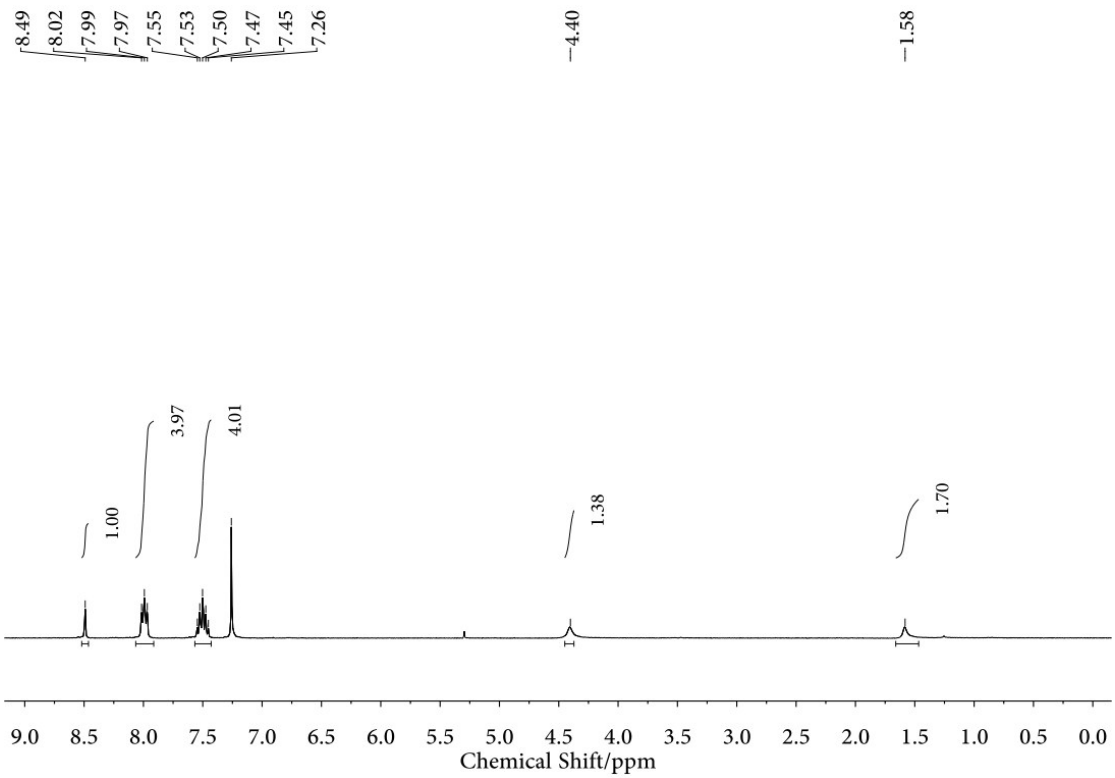
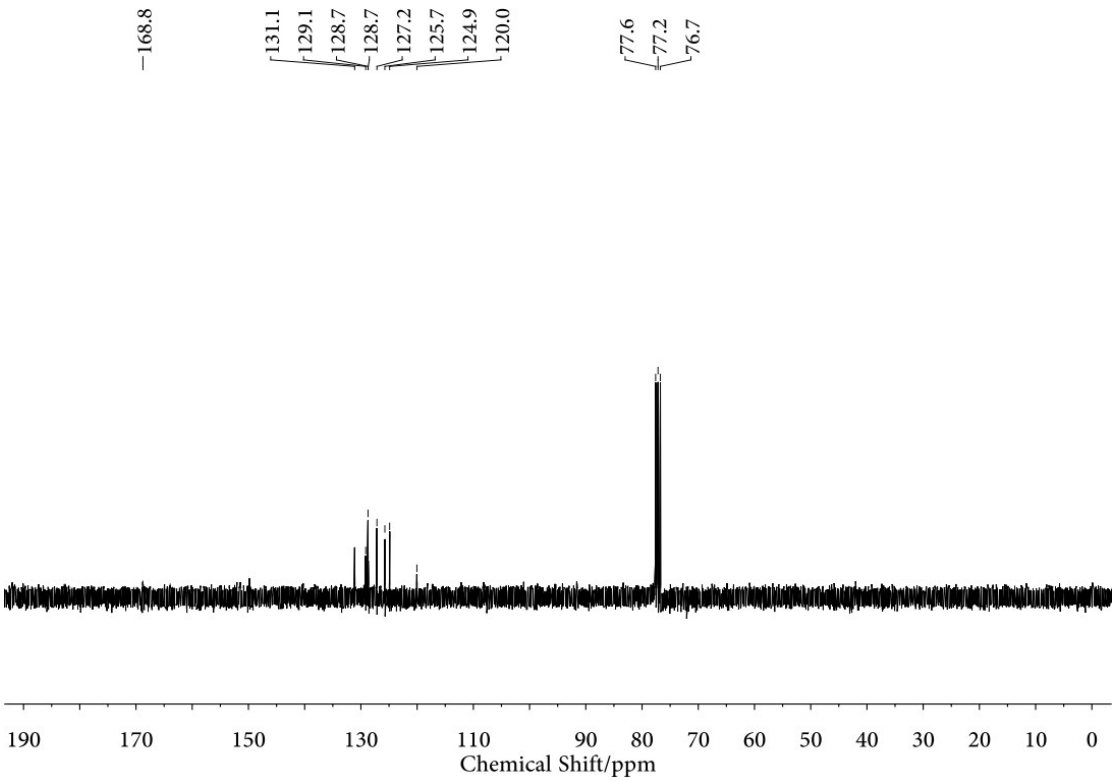


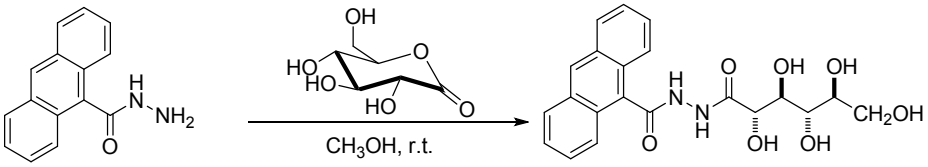
ESI-MS (+) spectrum of **4**



^{1}H NMR spectrum of **4** (400 MHz, $CDCl_3$, ppm)



^{13}C NMR spectrum of **4** (100 MHz, $CDCl_3$, ppm)



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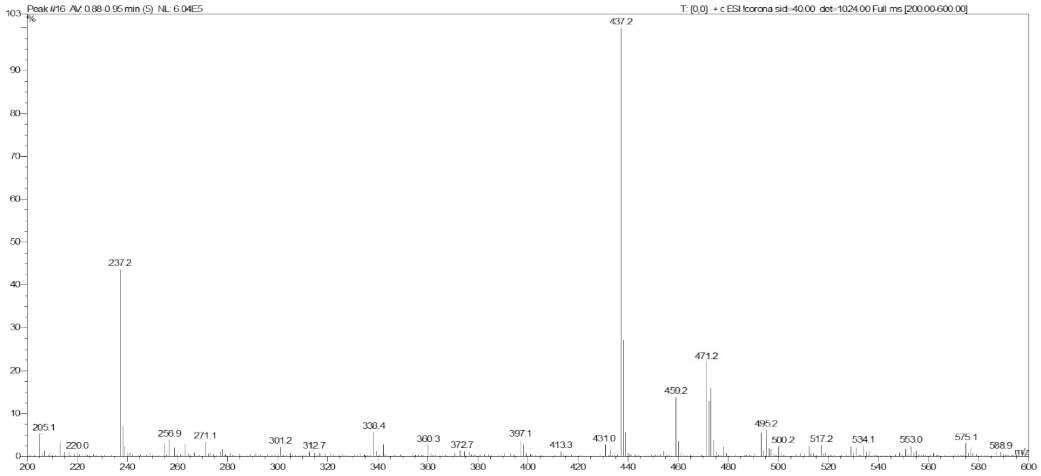
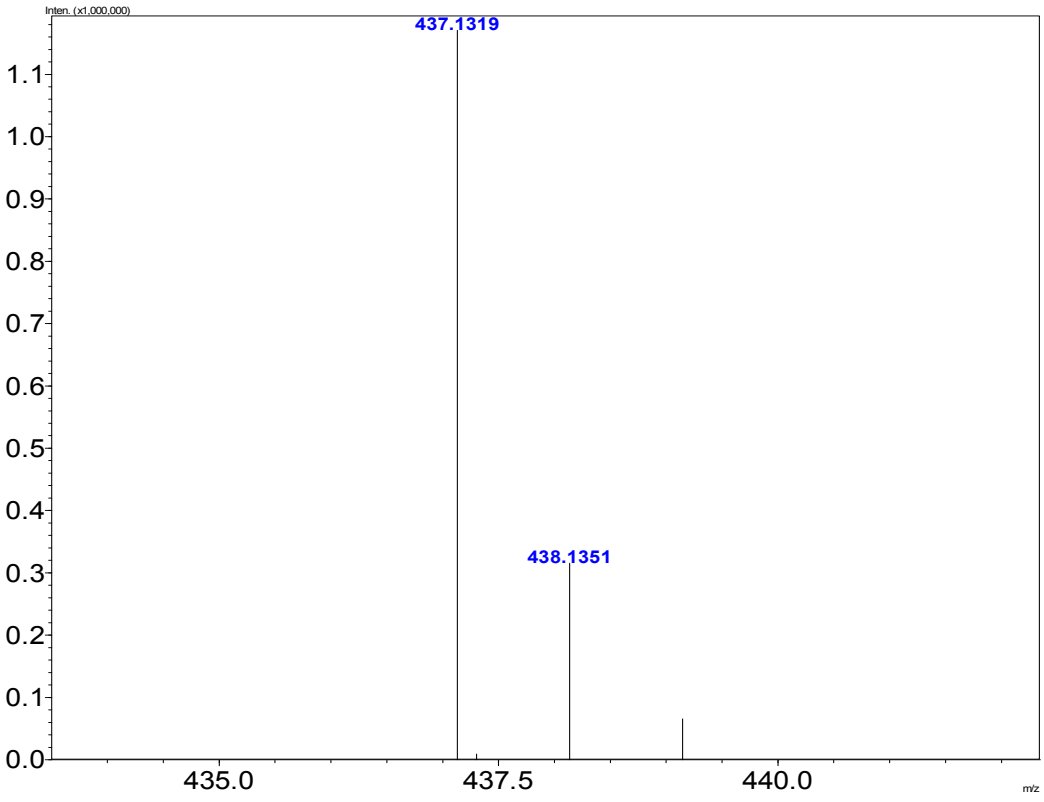
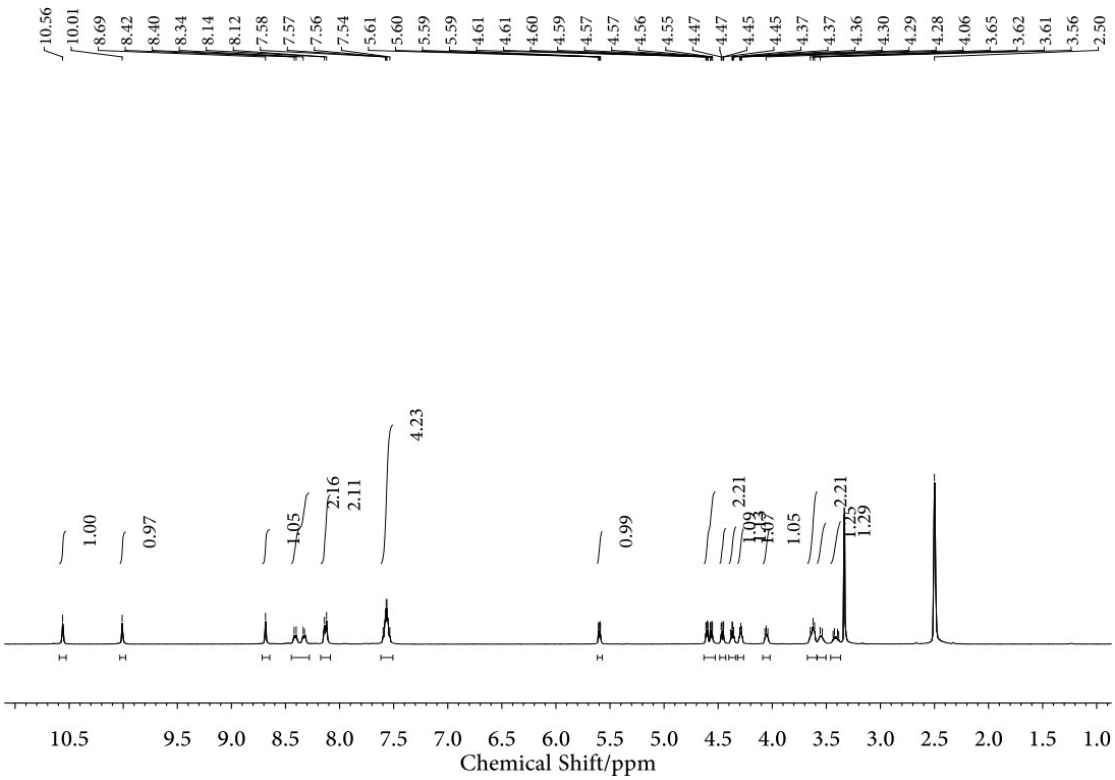


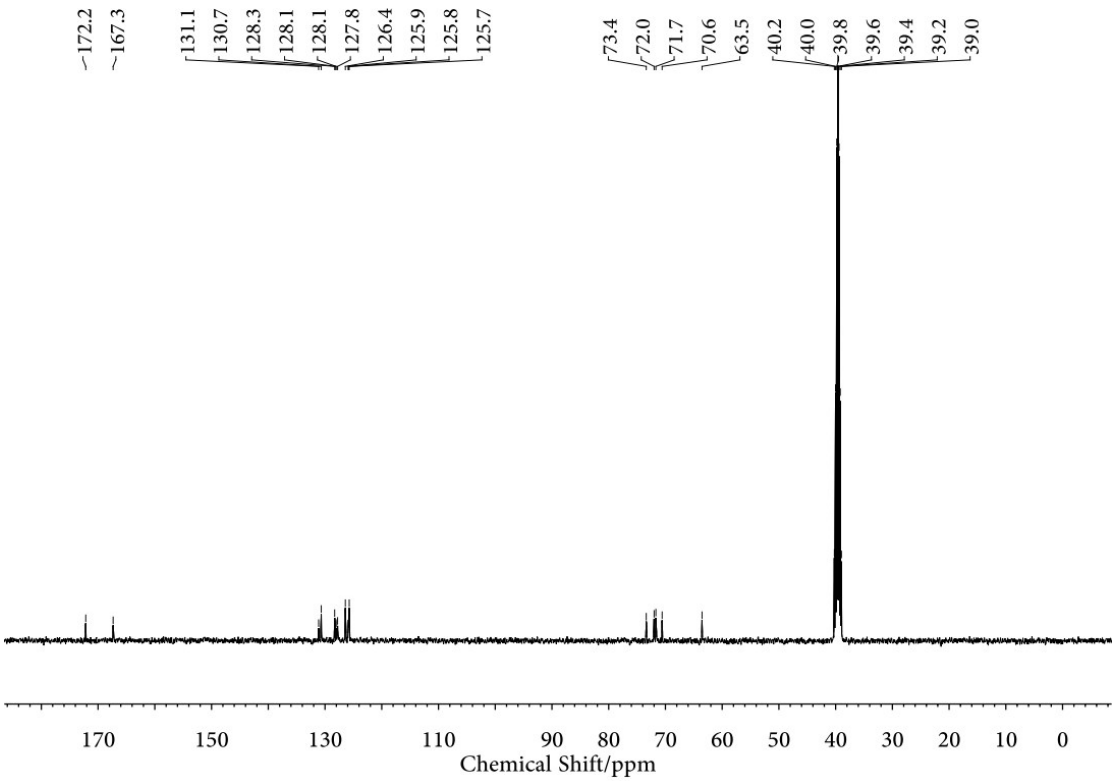
ESI-MS (+) spectrum of **2**



HRMS-ESI (+) spectrum of **2**



^{1}H NMR spectrum of **2** (400 MHz, d_6-DMSO, ppm)



^{13}C NMR spectrum of **2** (100 MHz, d_6-DMSO, ppm)

2. Statistic diameter of fibers in hydrogels 1 and 2

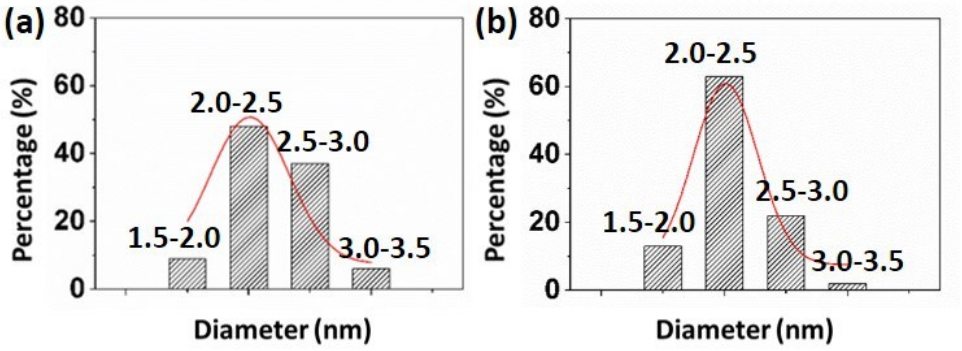


Fig. S1 Statistic diameter of fibers in (a) hydrogel **1** and (b) hydrogel **2** (conc. of **1** = 8 mg/mL, conc. of **2** = 7 mg/mL).

3. X-ray diffraction of hydrogels 1 and 2

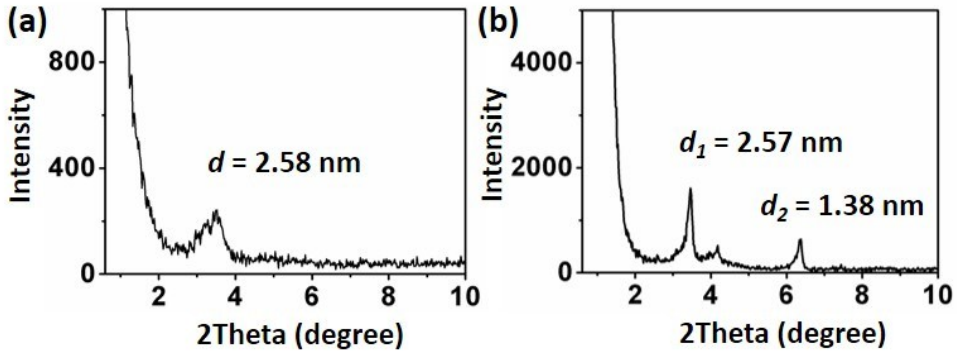


Fig. S2 X-ray diffraction of (a) hydrogel **1** and (b) hydrogel **2** (conc. of **1** = 8 mg/mL, conc. of **2** = 7 mg/mL).

4. Dynamic frequency sweep of *G'* and *G''* of hydrogels 1 and 2

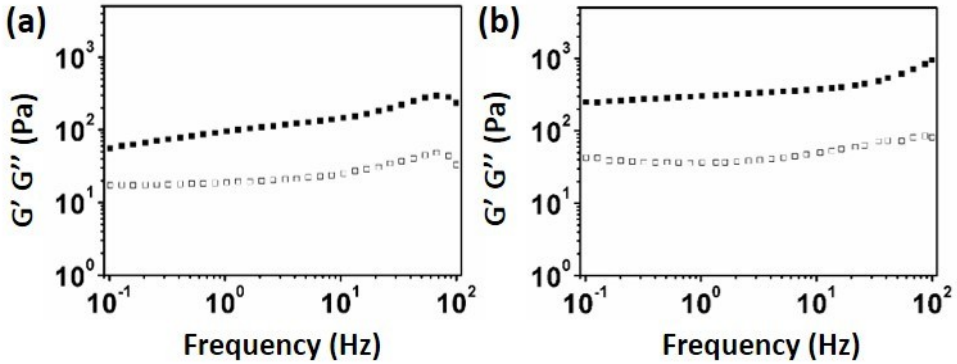


Fig. S3 Frequency sweep of the storage modulus *G'* (■) and the loss modulus *G''* (□) of (a) hydrogel **1** and (b) hydrogel **2** (conc. of **1** = 8 mg/mL, conc. of **2** = 7 mg/mL, 2% strain is used).

5. TEM images of hydrogel 1 after irradiation

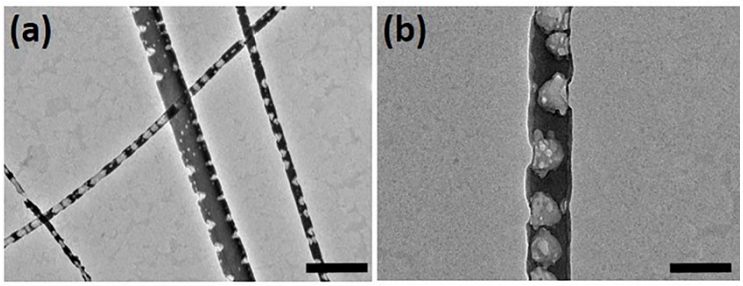


Fig. S4 TEM images of hydrogel **1** (conc. of **1** = 8 mg/mL) after irradiation at 365 nm for 12 h. Scale bars are 1 μm and 200 nm for (a) and (b), respectively.

6. ^{1}H NMR spectra of 2 before and after irradiation

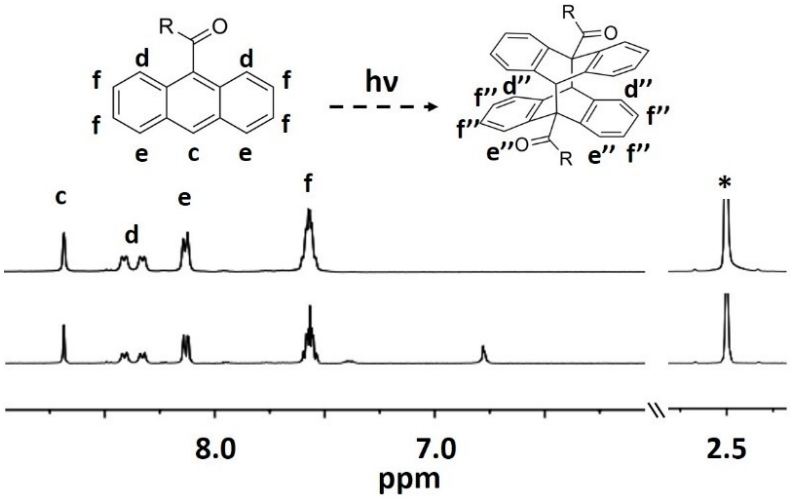


Fig. S5 ^{1}H NMR spectra of **2** before (top) and after (bottom) irradiation at 365 nm for 12 h. (400 MHz, d_6-DMSO, conc. of **2** = 7 mg/mL, *represents solvent peak)

7. Time-dependent UV-Vis spectra of 2 triggered by UV light

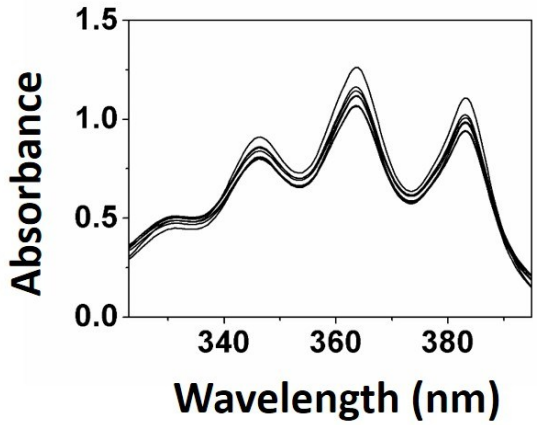


Fig. S6 Time-dependent UV-Vis spectra of **2** triggered by UV light at 365 nm (H_2O, conc. of **2** = 0.5 mg/mL).

8. TEM images of hydrogel 1 with Cl^-, AcO^- and $H_2PO_4^-$

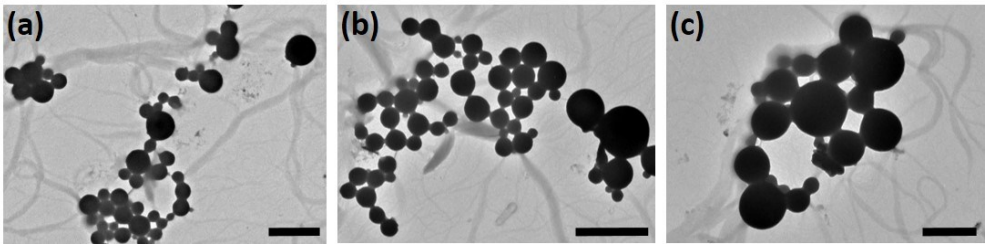


Fig. S7 TEM images of hydrogel **1** with (a) Cl^-, (b) AcO^- and (c) $H_2PO_4^-$, Scale bar is 2 μm for (a) and (b), and 1 μm for (c) (gelator: anion = 1:4, molar ratio; conc. of **1** = 8 mg/mL).

9. Dynamic frequency sweep of *G'* and *G''* of hydrogel 2 with anions

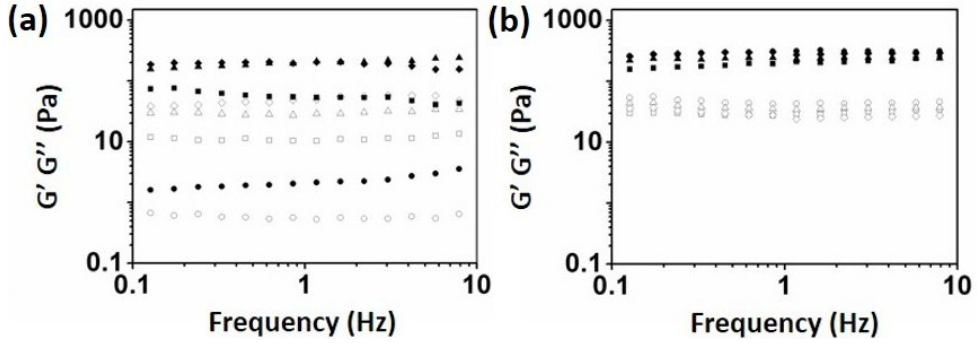


Fig. S8 Frequency sweep of the storage modulus *G'* (solid) and the loss modulus *G''* (hollow) of hydrogel **2** (▲/△) with (a) Cl^-(◆/◇), AcO^- (■/□), $H_2PO_4^-$(●/○) and (b) Br^-(◆/◇), I^-(■/□), NO_3^-(●/○) (gelator: anion =1:4, molar ratio, conc. of **2** = 7 mg/mL).

10. Dynamic frequency sweep of *G'* and *G''* of hydrogels 1/TNF and 2/TNF

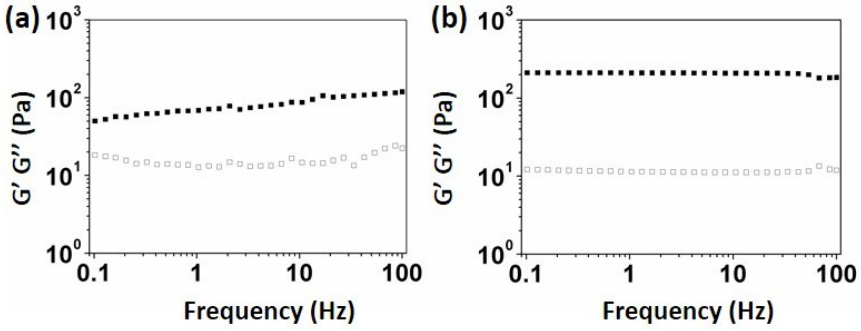


Fig. S9 Frequency sweep of the storage modulus *G'* (■)and the loss modulus *G''* (□) of (a) hydrogel **1/TNF** (1:1 molar ratio, conc. of **1** = 8 mg/mL, 2% strain is used) and (b) hydrogel **2/TNF** (1:1 molar ratio, conc. of **2** = 7 mg/mL, 2% strain is used).

11. TEM images of hydrogels 1/TNF and 2/TNF

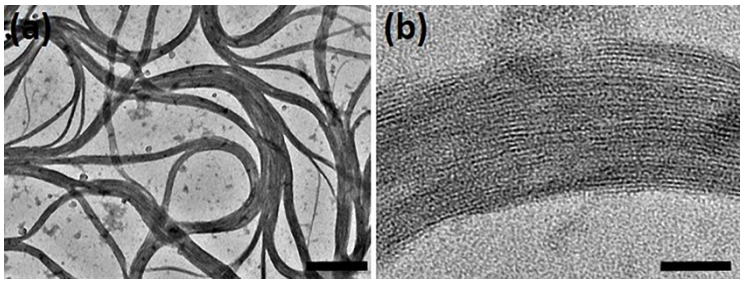


Fig. S10 TEM images of **1**/**TNF** (1:1 molar ratio). Scale bar is 500 and 50 nm for (a) and (b), respectively.

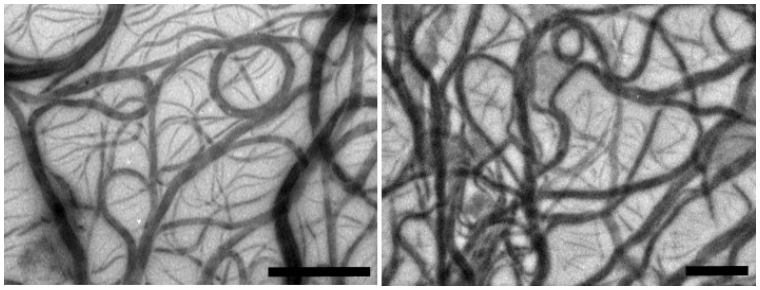


Fig. S11 TEM images of **2**/**TNF** (1:1 molar ratio). Scale bar is 2 μm.