

Supporting Information

Synthesis of Arylene Ether-Type Hyperbranched Poly (Triphenylamine) for Lithium Battery Cathodes

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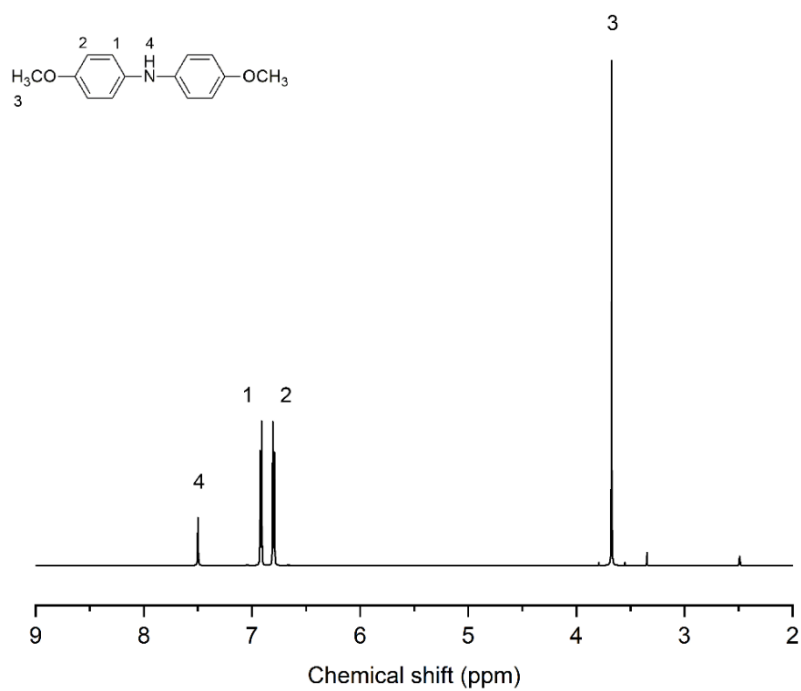
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a



b

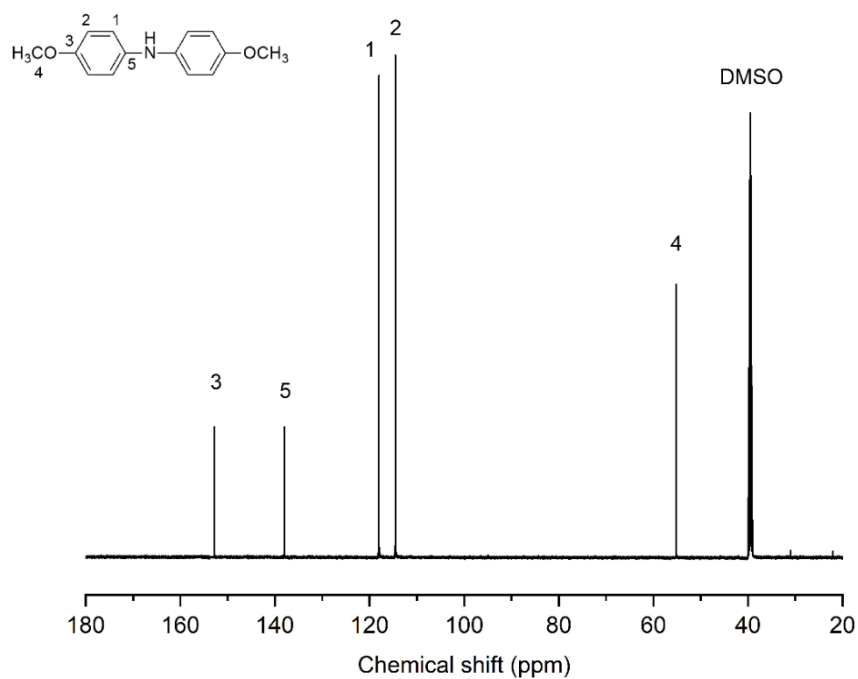


Figure S1. (a) ¹H NMR spectra of 1 (DMSO-*d*₆, 600 MHz). (b) ¹³C NMR spectra of 1 (DMSO-*d*₆, 150 MHz).

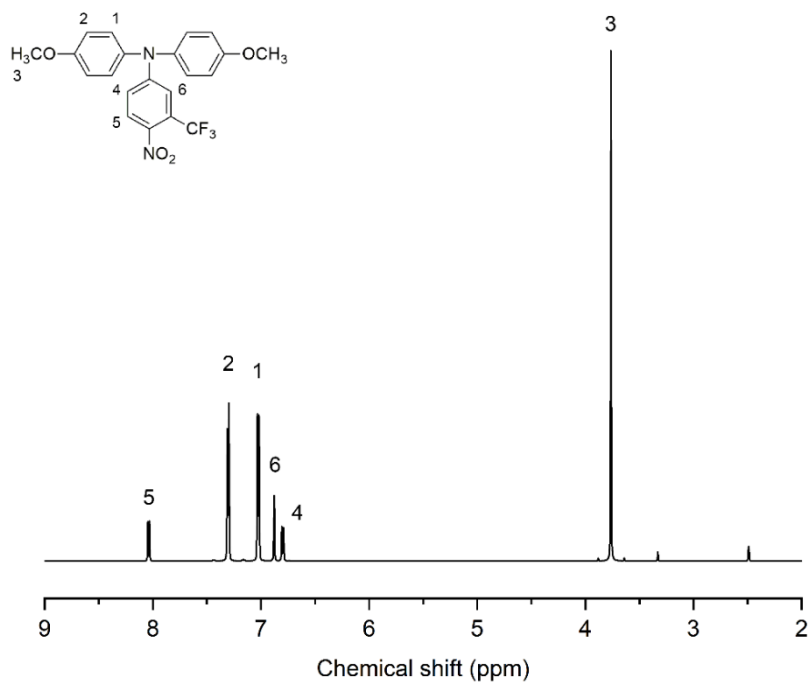
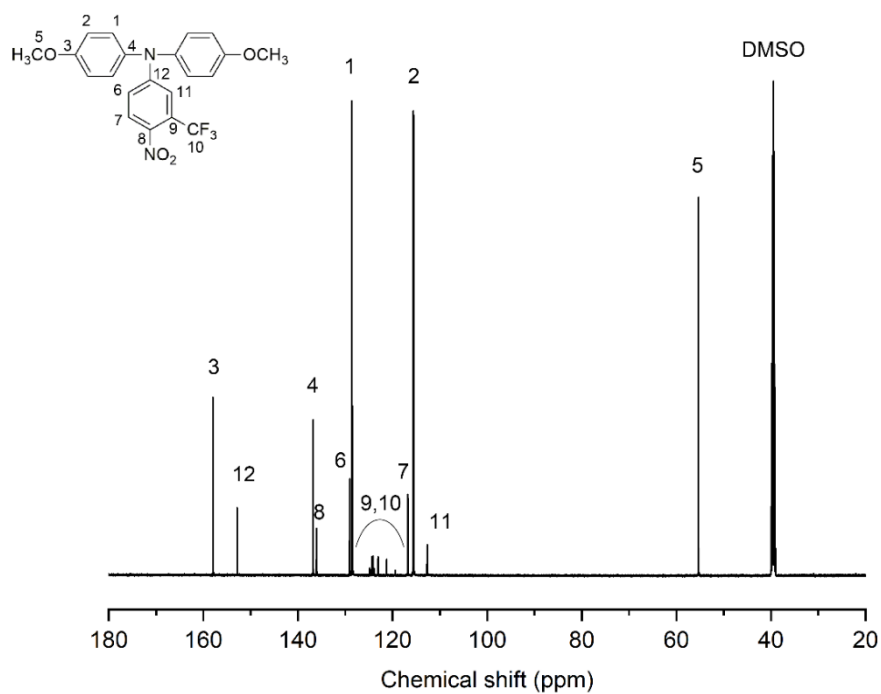
a**b**

Figure S2. (a) ¹H NMR spectra of 2 (DMSO-*d*₆, 600 MHz). (b) ¹³C NMR spectra of 2 (DMSO-*d*₆, 150 MHz).

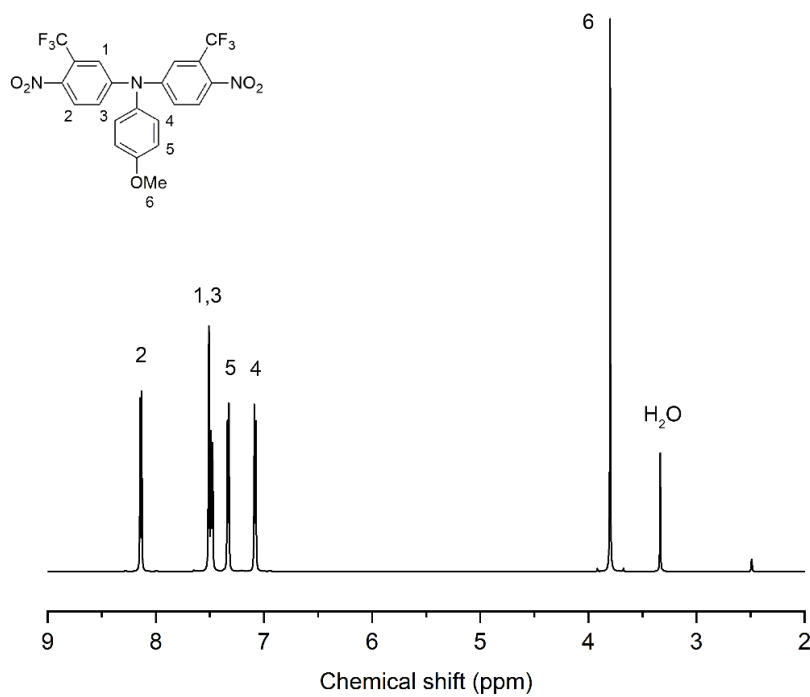
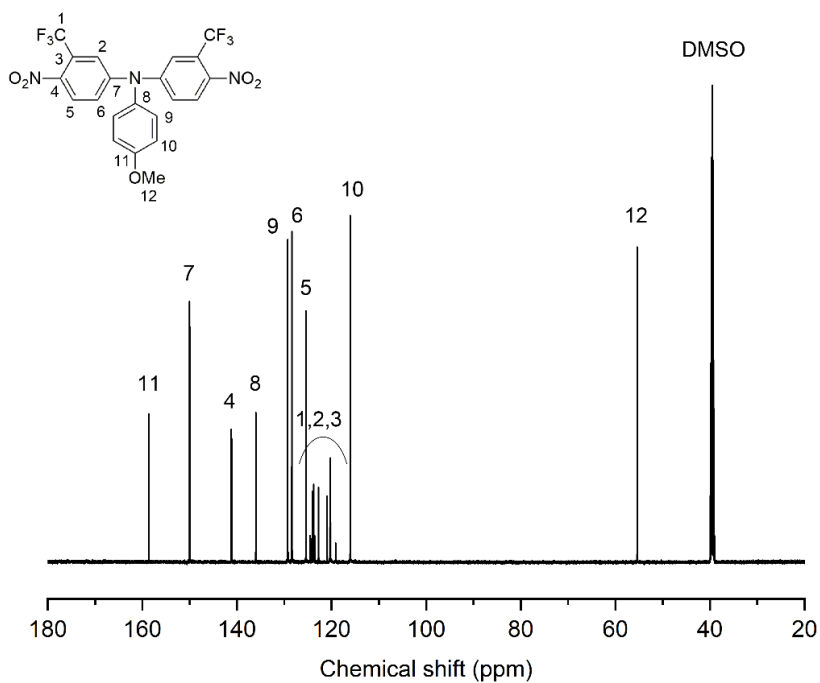
a**b**

Figure S3. (a) ^1H NMR spectra of **3** (DMSO- d_6 , 600 MHz). (b) ^{13}C NMR spectra of **3** (DMSO- d_6 , 150 MHz).

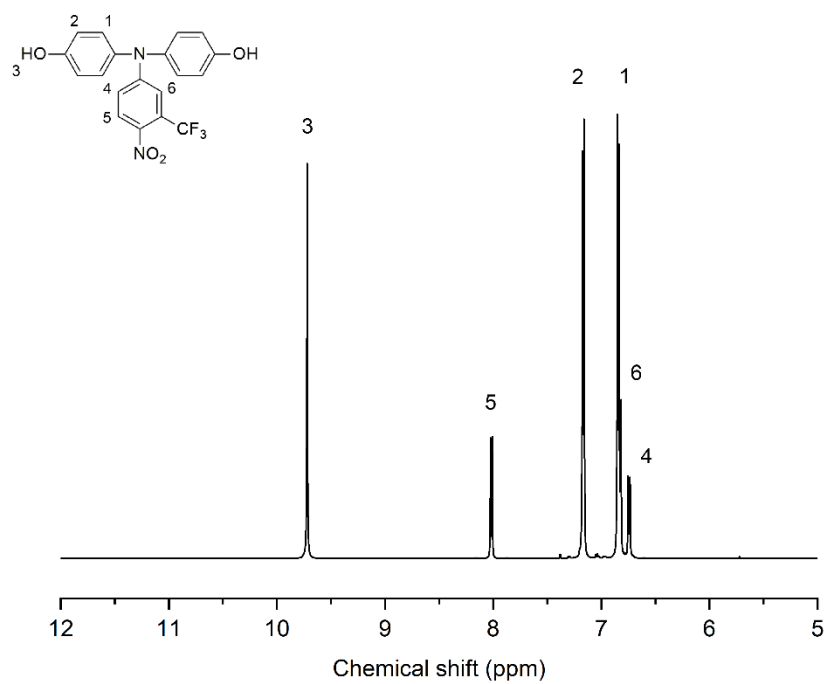
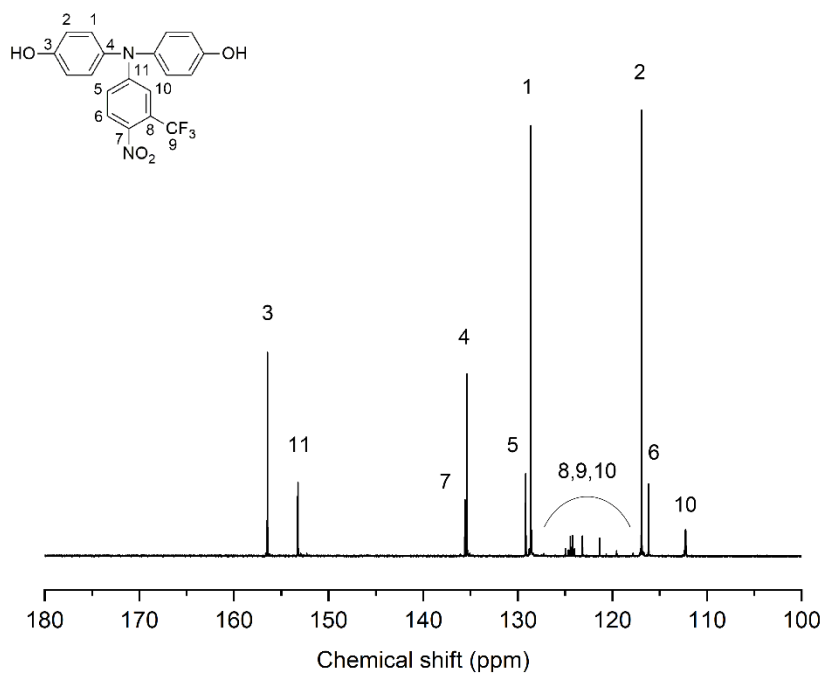
a**b**

Figure S4. (a) ^1H NMR spectra of 4 (DMSO- d_6 , 600 MHz). (b) ^{13}C NMR spectra of 4 (DMSO- d_6 , 150 MHz).

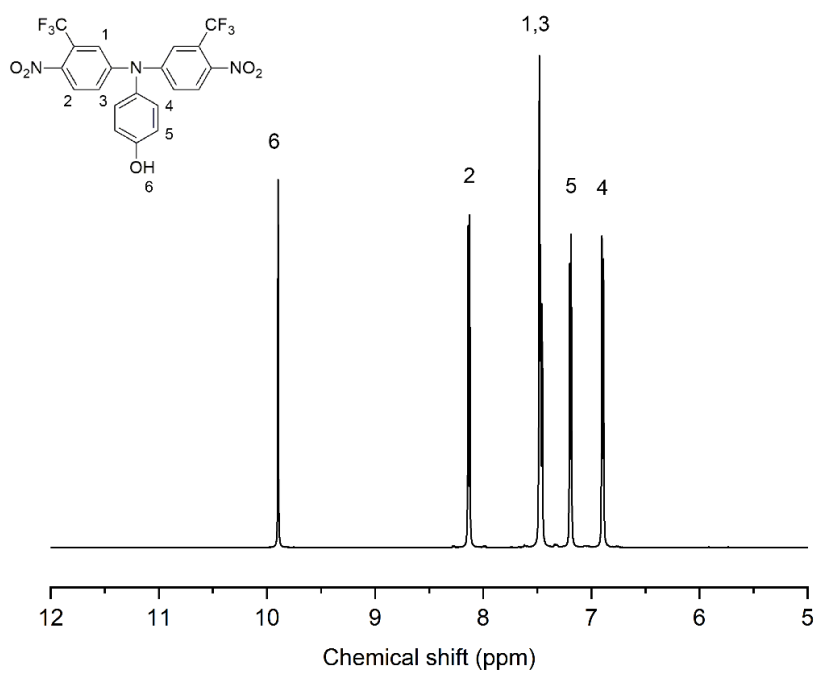
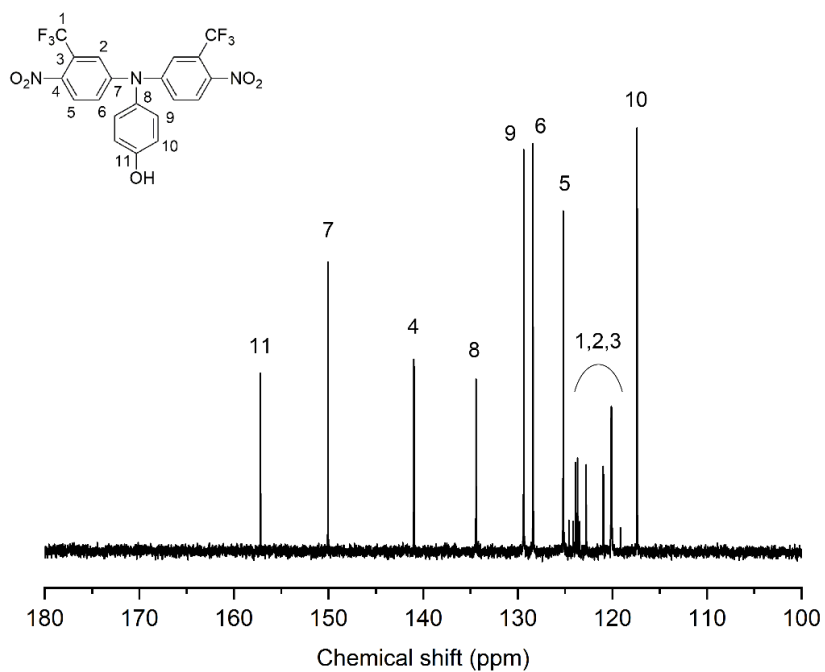
a**b**

Figure S5. (a) ^1H NMR spectra of 5 (DMSO- d_6 , 600 MHz). (b) ^{13}C NMR spectra of 5 (DMSO- d_6 , 150 MHz).

a

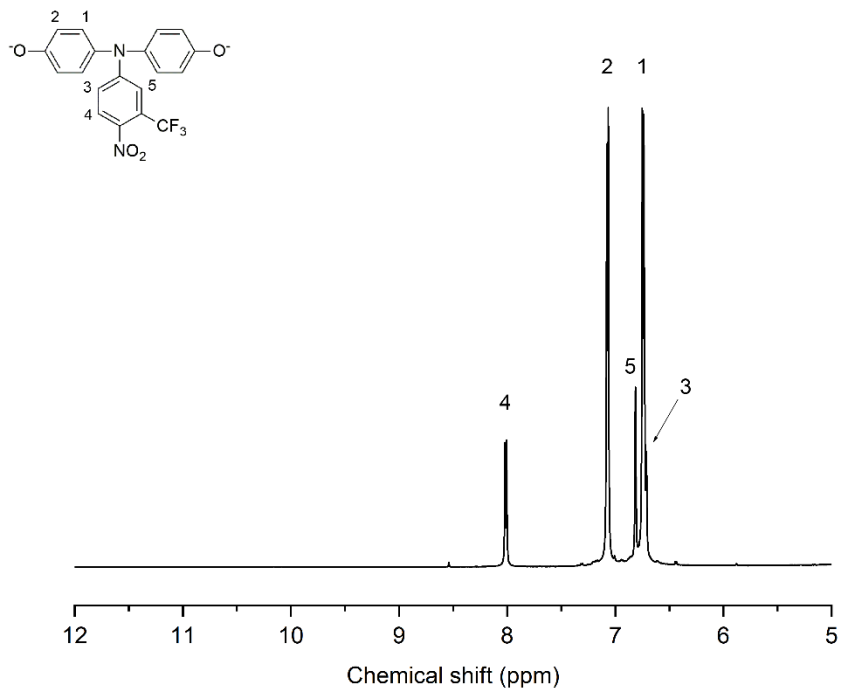
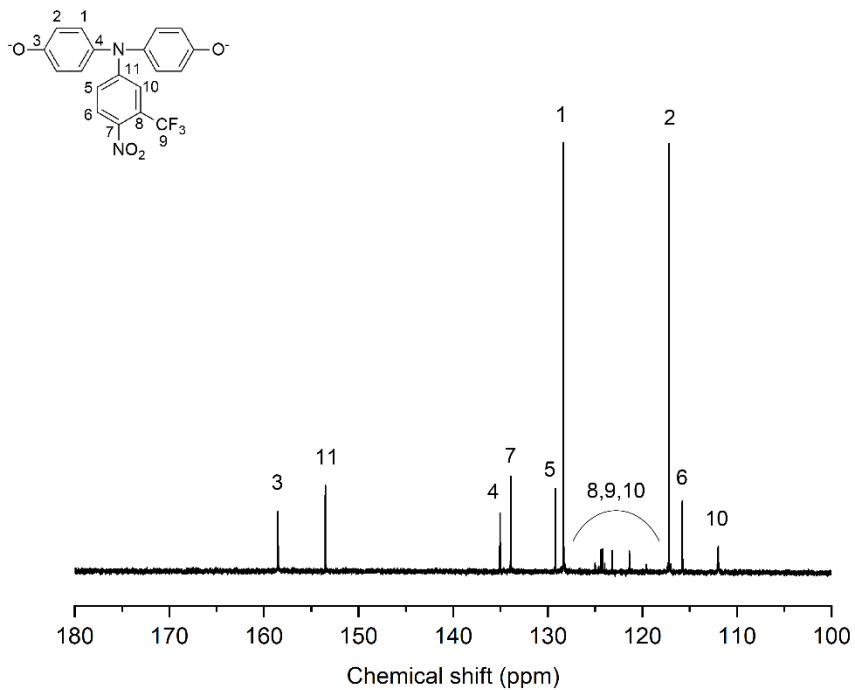
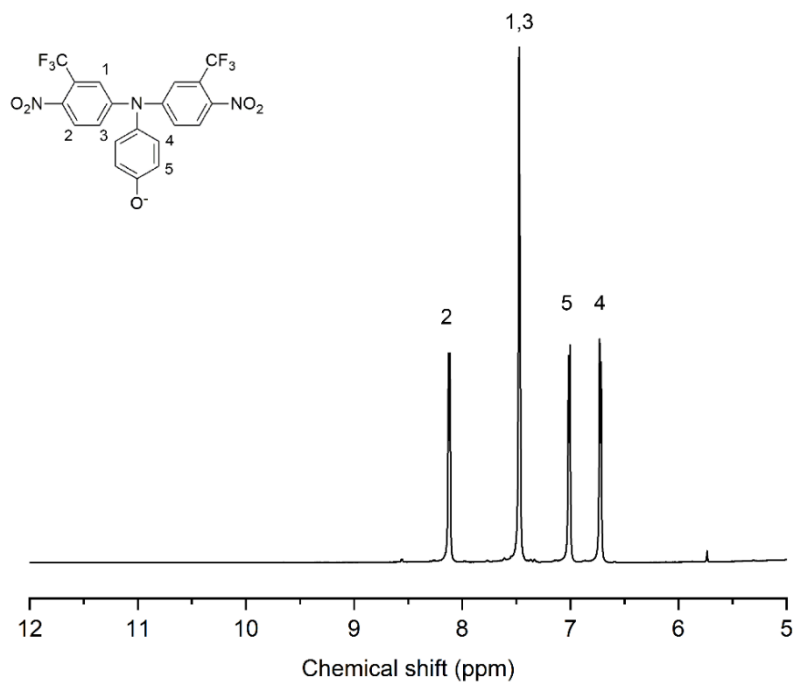
**b**

Figure S6. (a) ^1H NMR spectra of 4-K (DMSO-*d*6, 600 MHz). (b) ^{13}C NMR spectra of 4-K (DMSO-*d*6, 150 MHz).

a



b

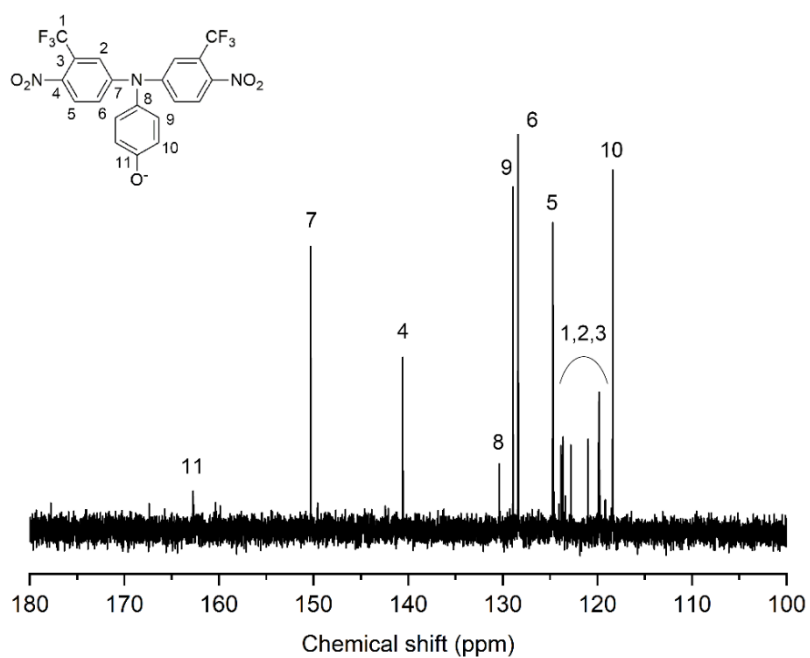


Figure S7. (a) ^1H NMR spectra of 5-K (DMSO- d_6 , 600 MHz). (b) ^{13}C NMR spectra of 5-K (DMSO- d_6 , 150 MHz).

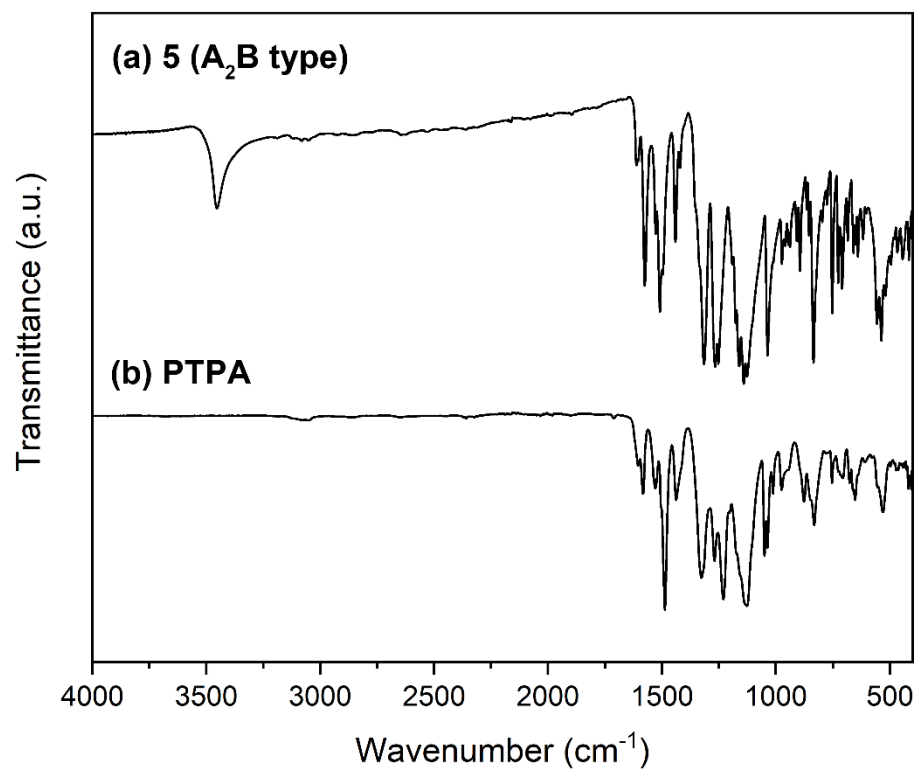


Figure S8. IR spectra of (a) 5 and (b) PTPA.

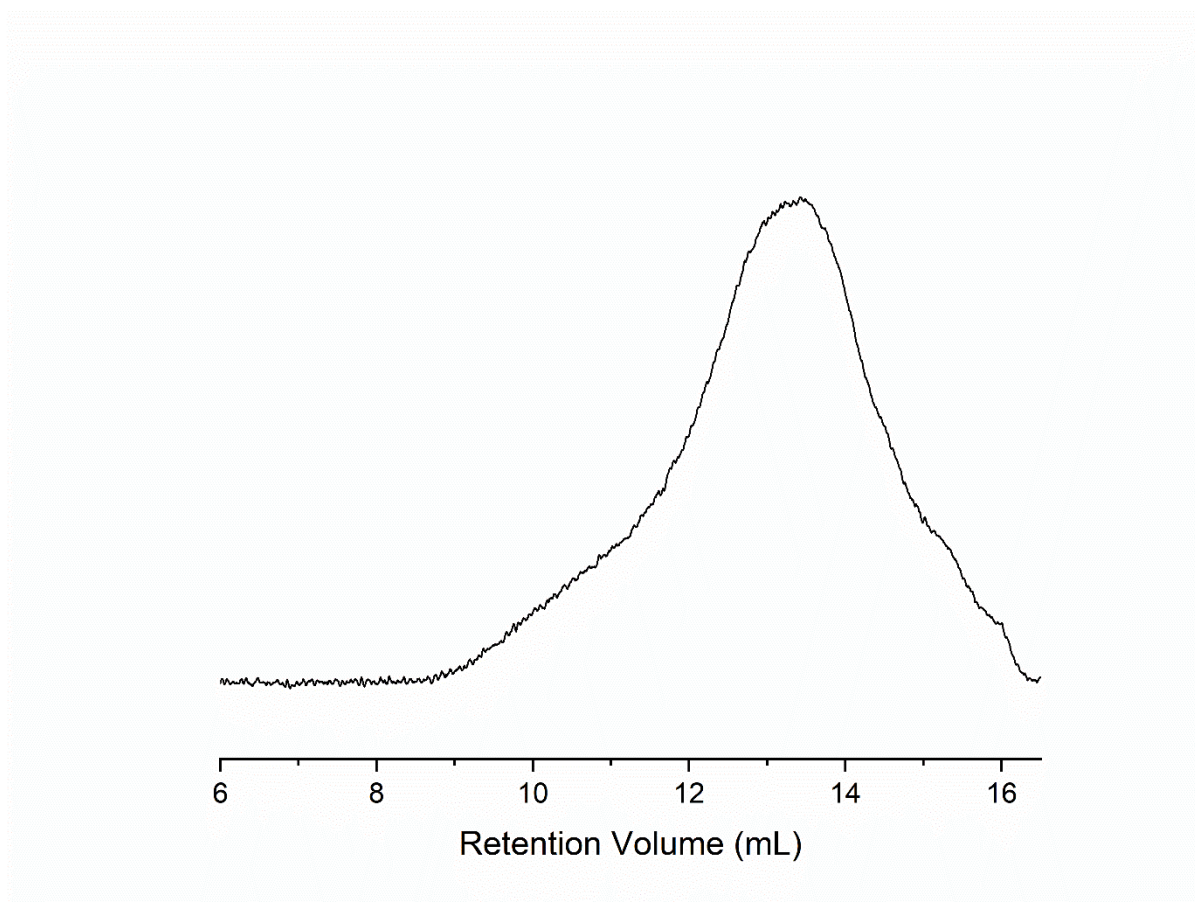


Figure S9. SEC traces of PTPA (THF, 36 °C, 0.6 mL/min). Estimated molecular weight was $M_n = 22,200$ and $M_w = 303,400$.

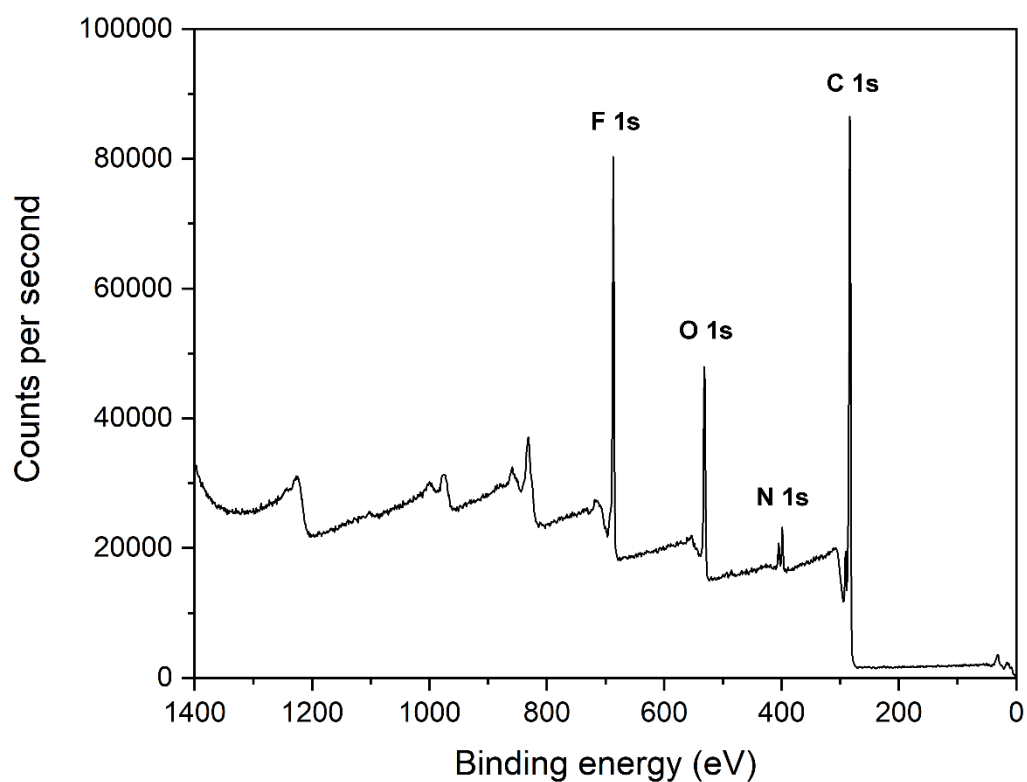


Figure S10. XPS spectrum of PTPA.

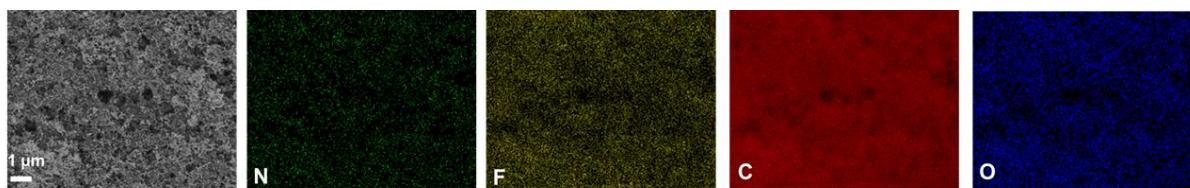


Figure S11. SEM images and element mapping images of PTPA cathode.