

Supporting Information for

**Ether-soluble hole-transporting polymers based on
triphenylamine/phenothiazine moiety with shallow HOMO level**

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Scheme S1 Synthetic routes of the monomers

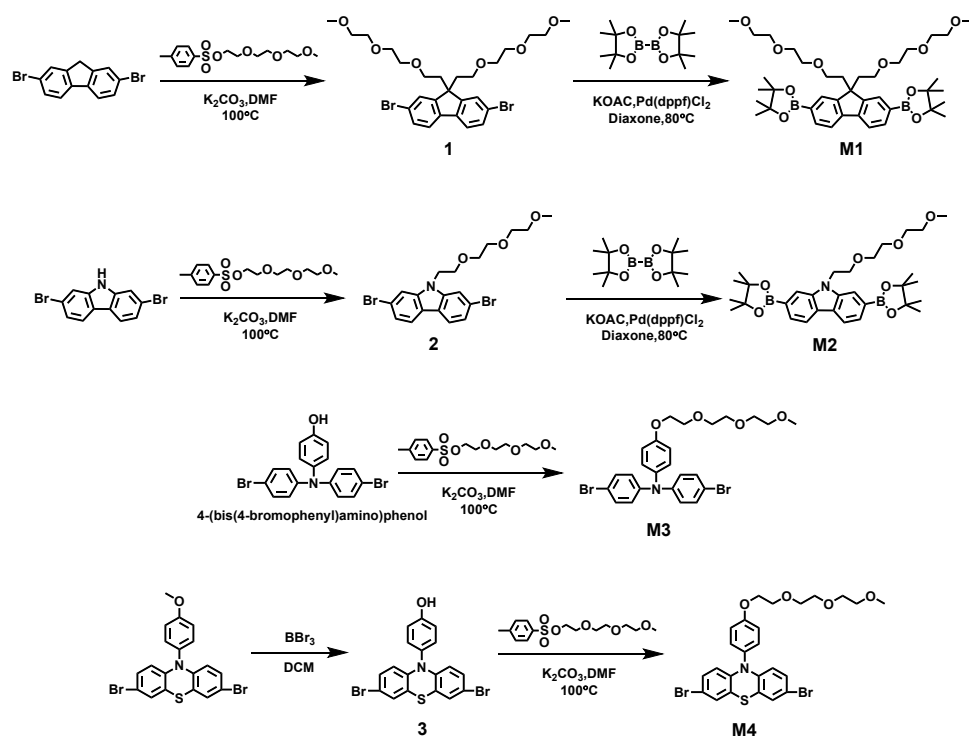


Figure S1 UV-vis absorption spectra of pristine and rinsed polymer film.

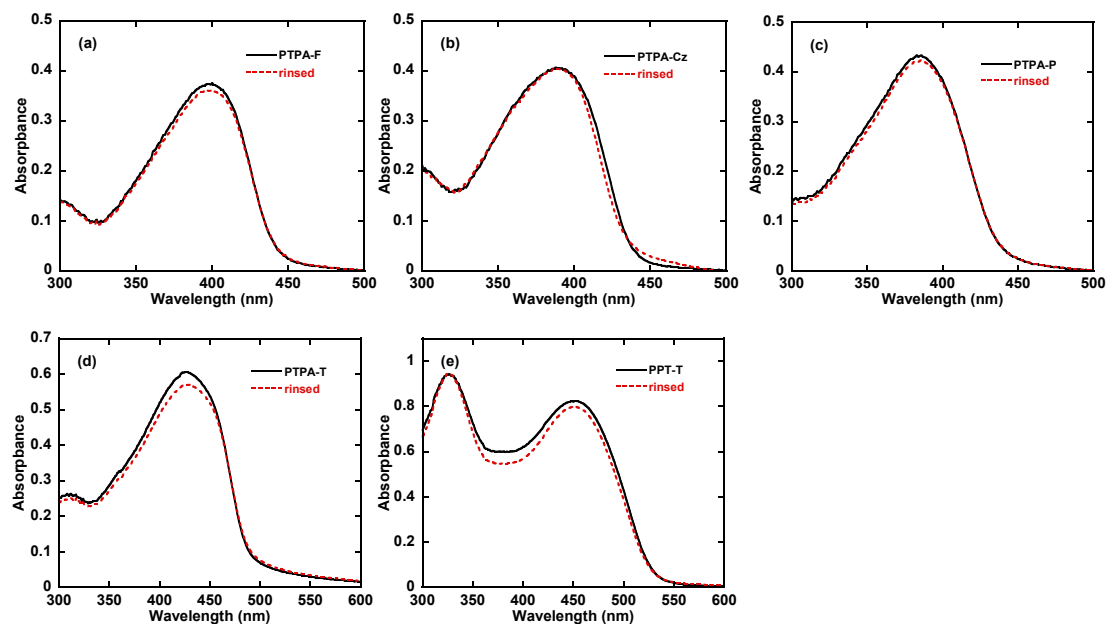


Figure S2 J-V curves of PTPA-P/ZnO based devices.

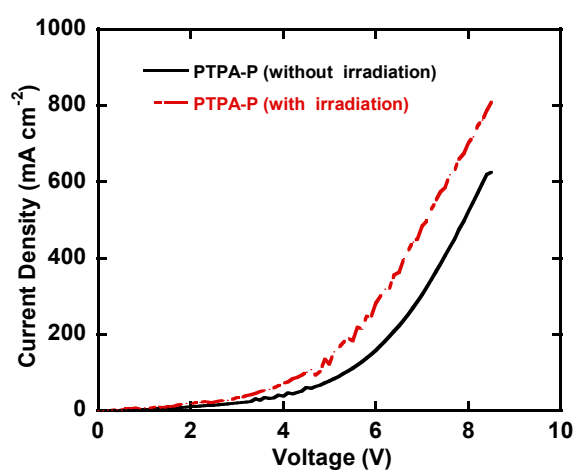
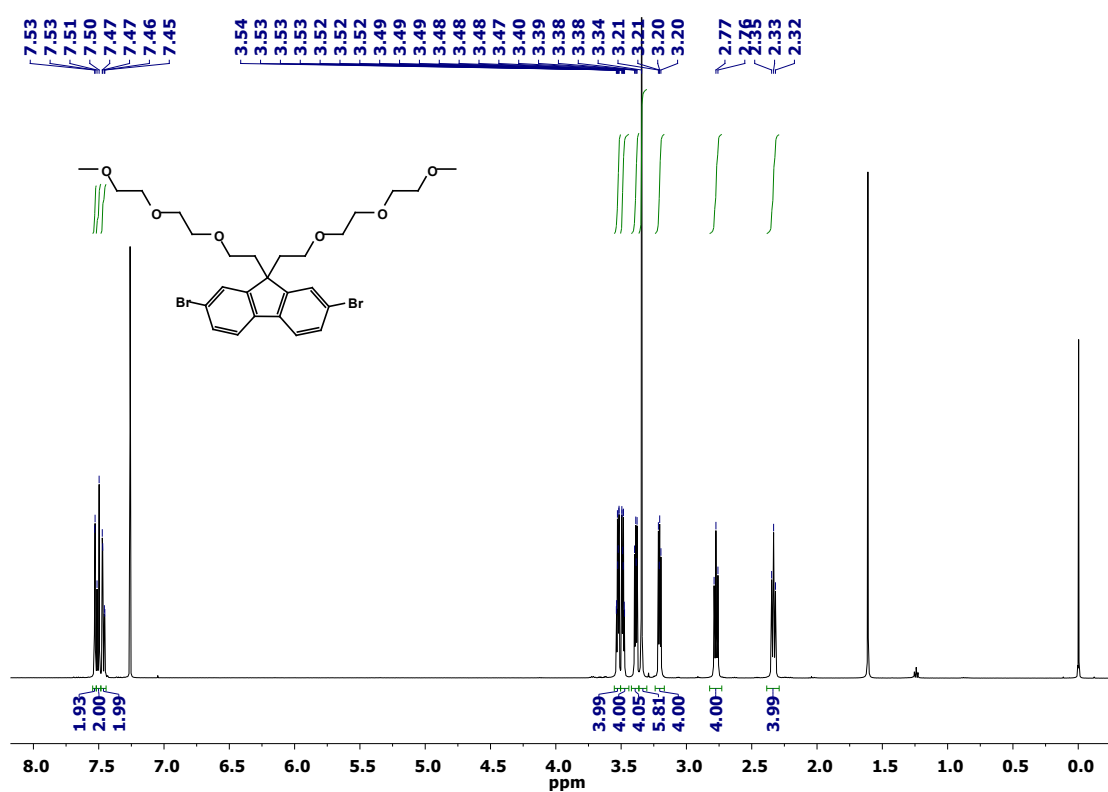
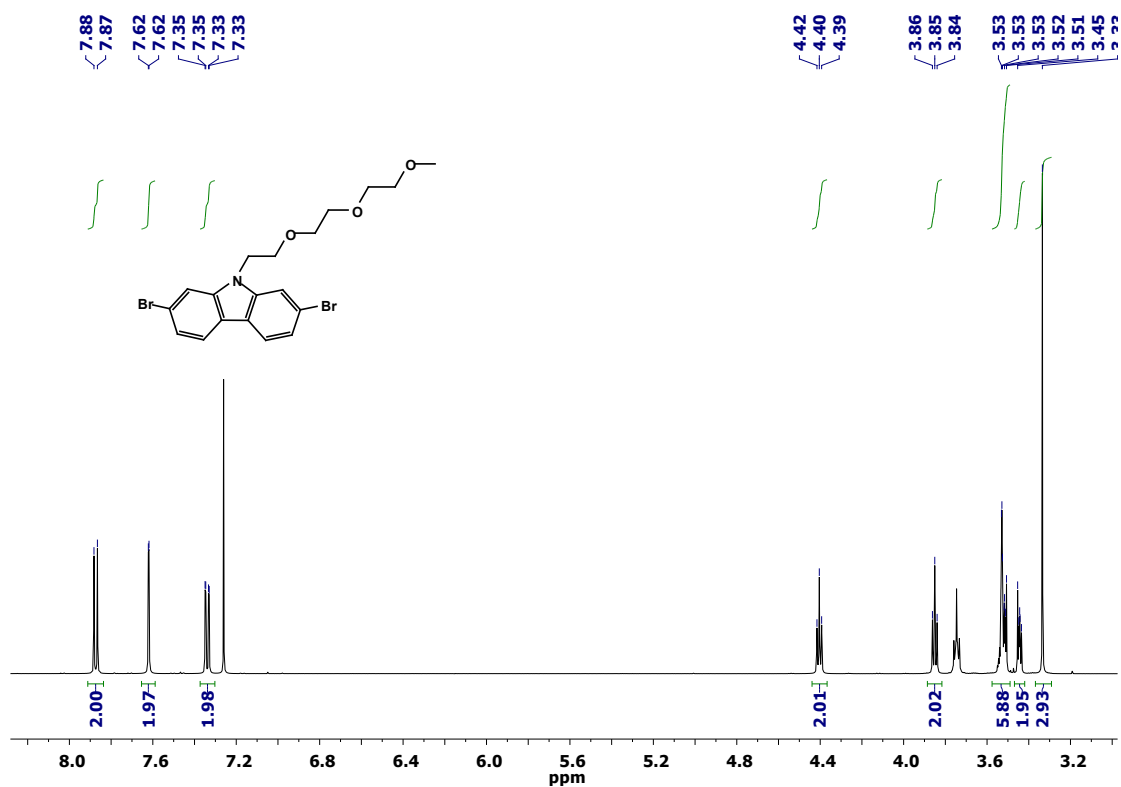
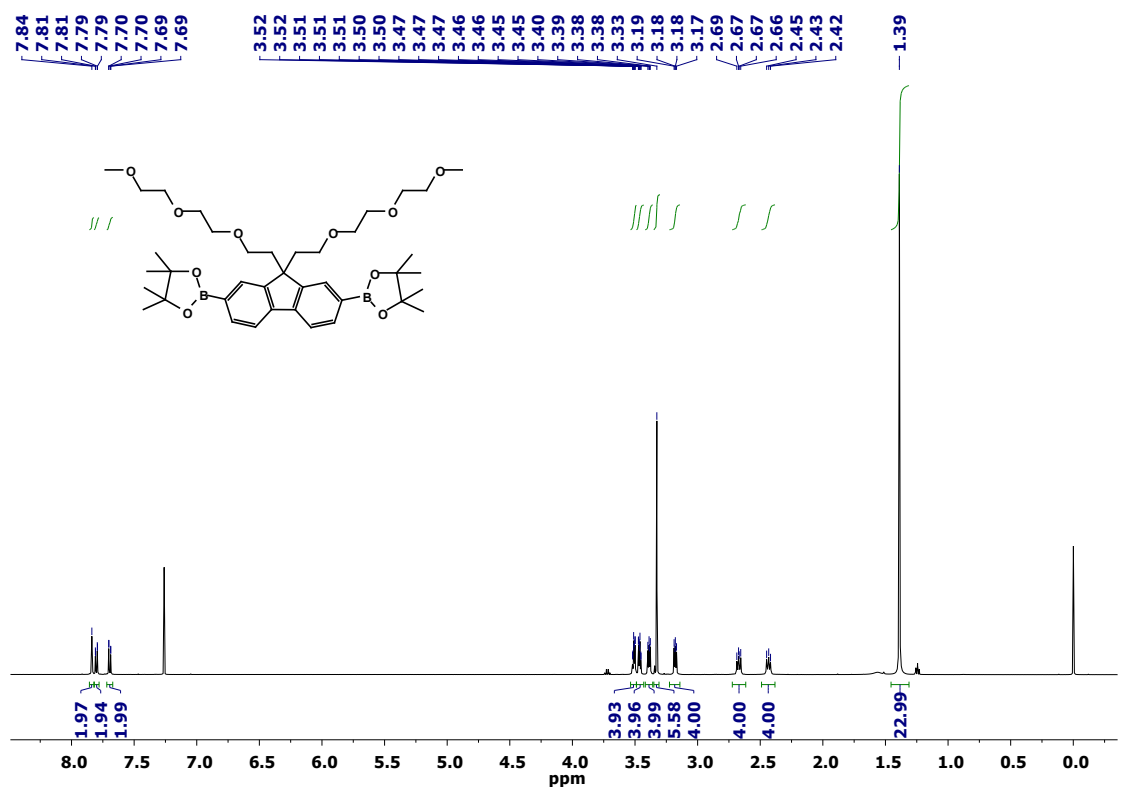
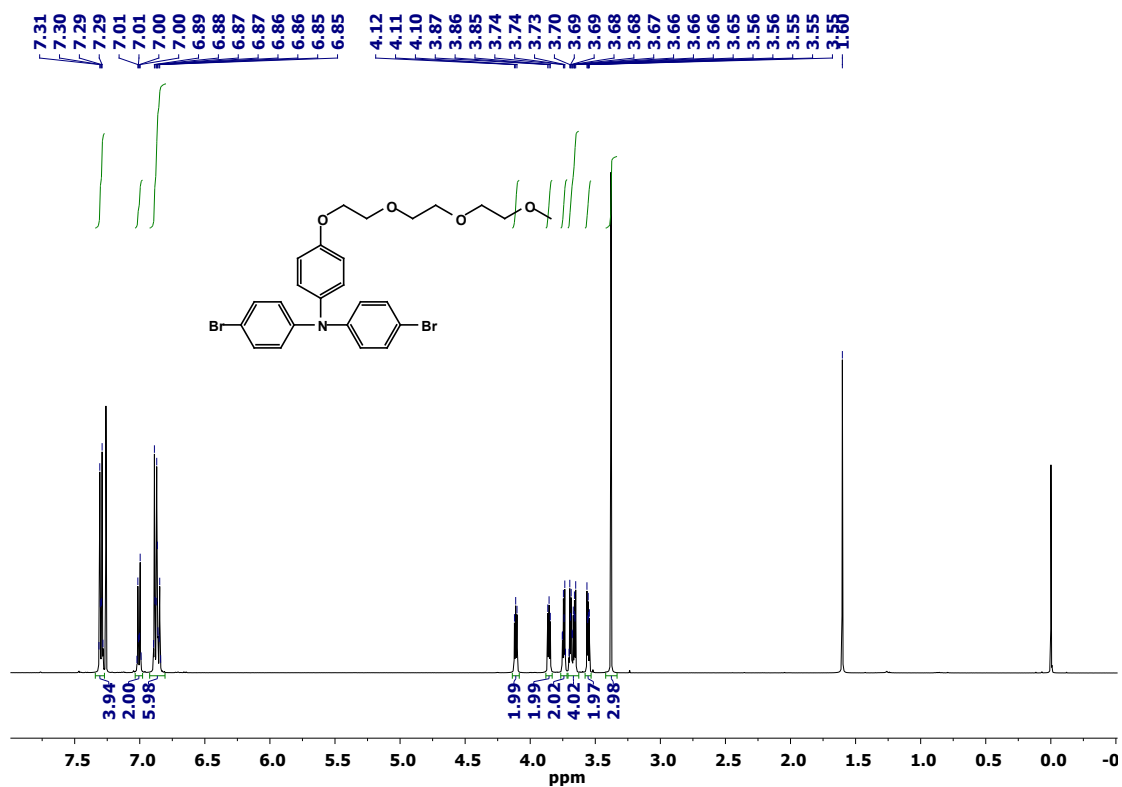
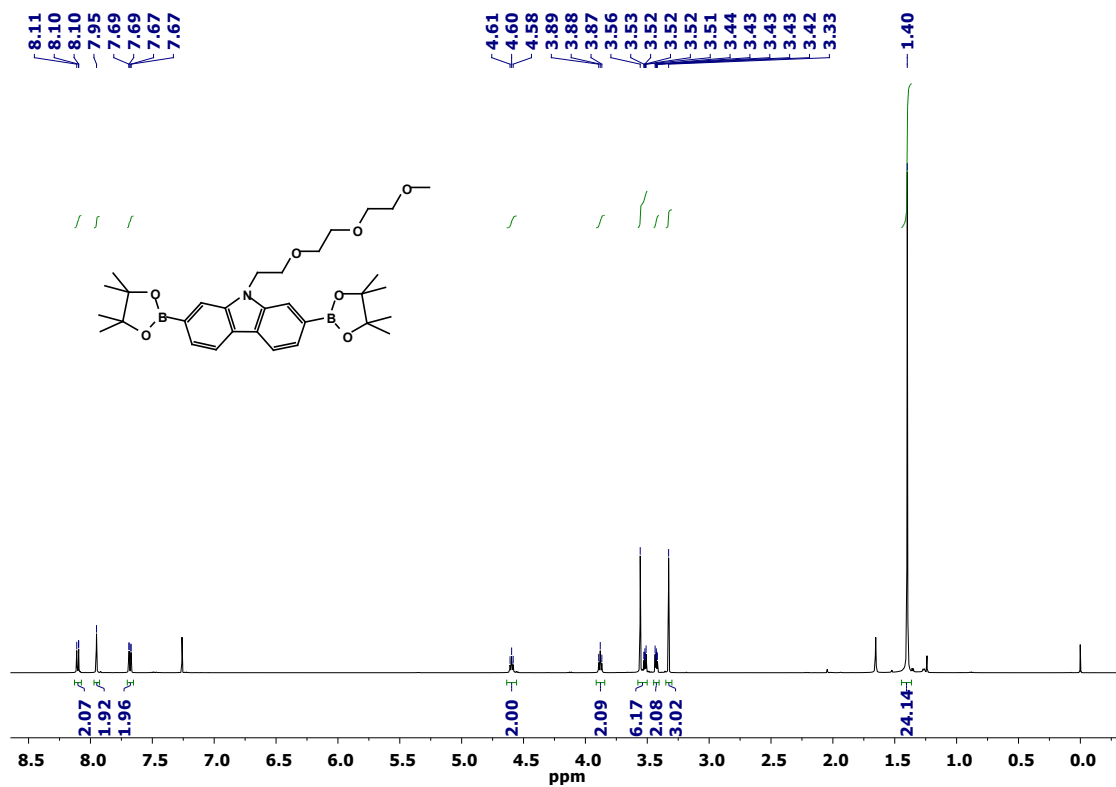


Figure S3 ¹H NMR spectra of monomers.







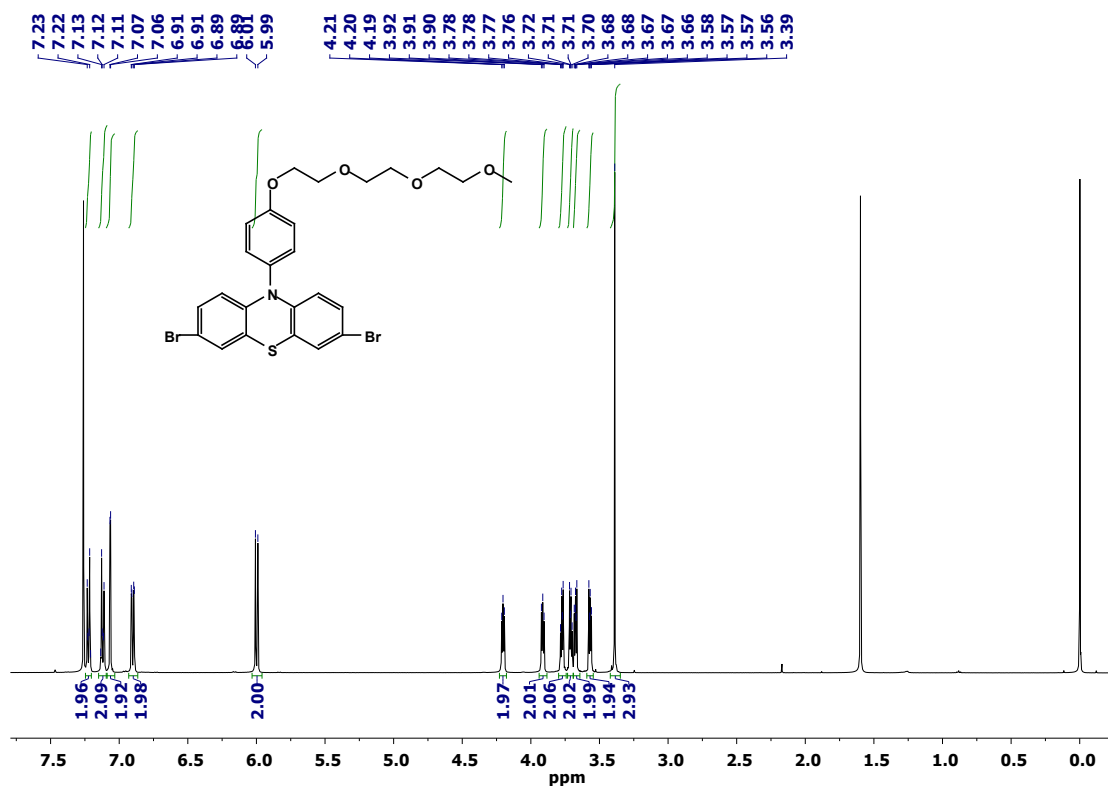
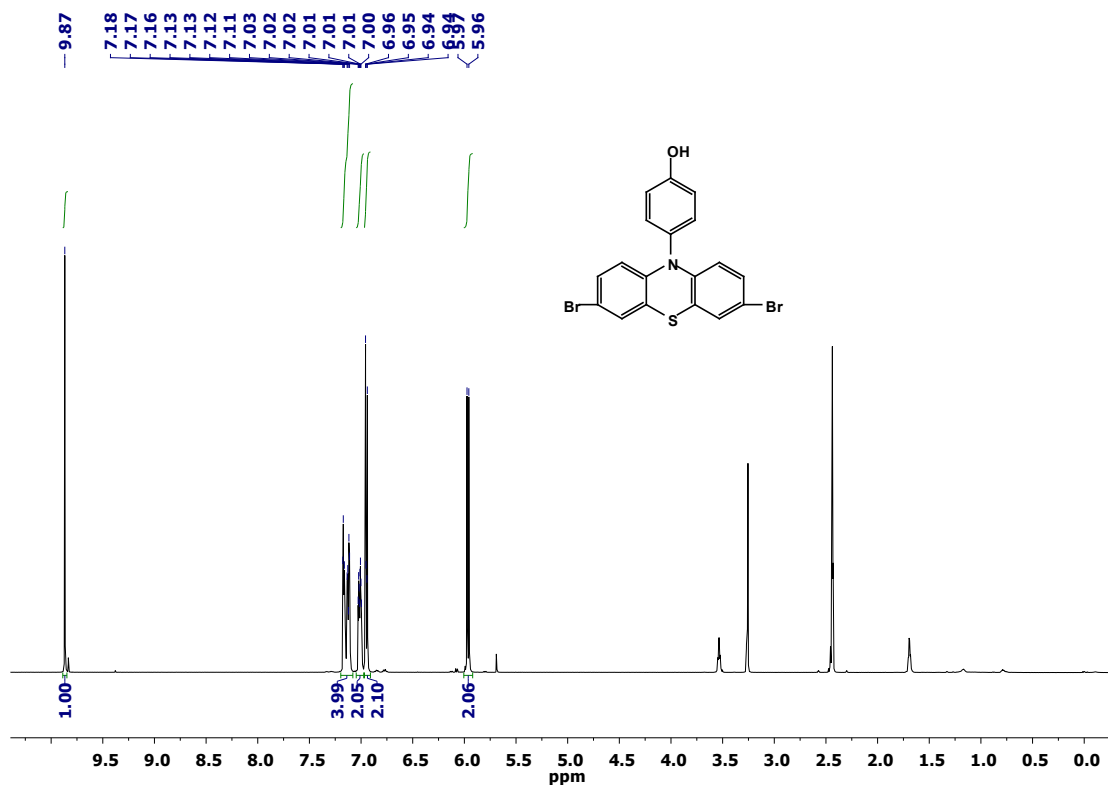
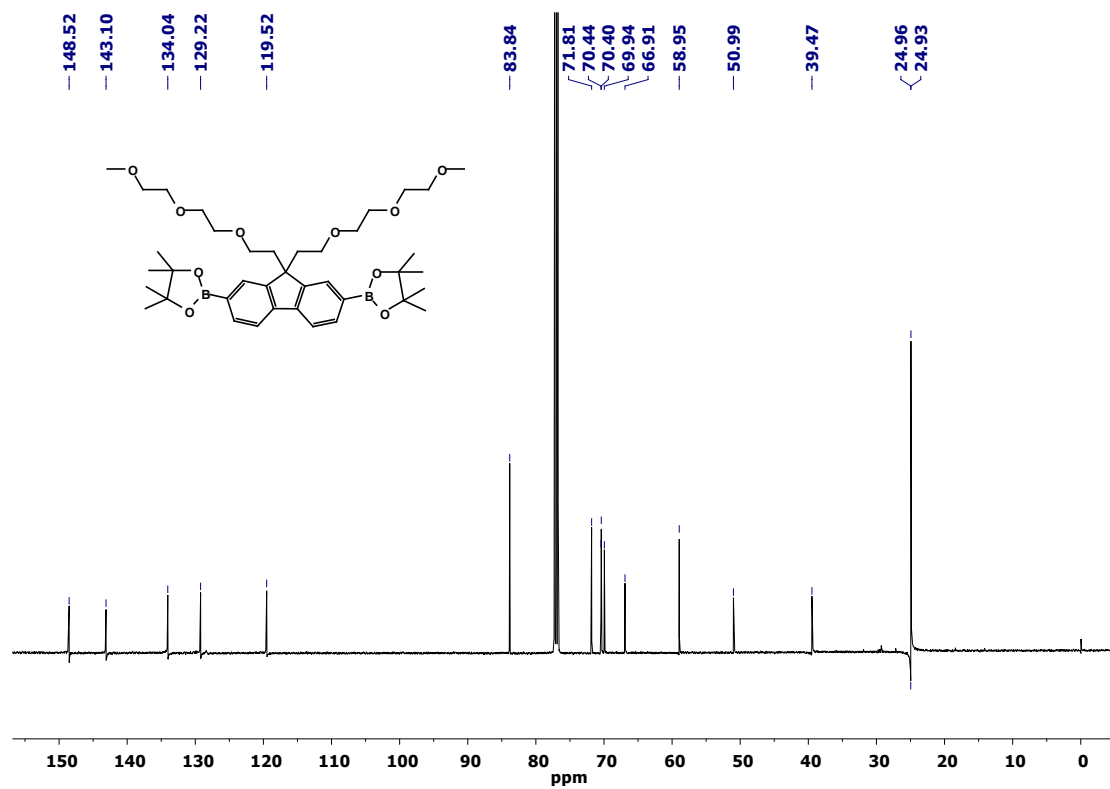
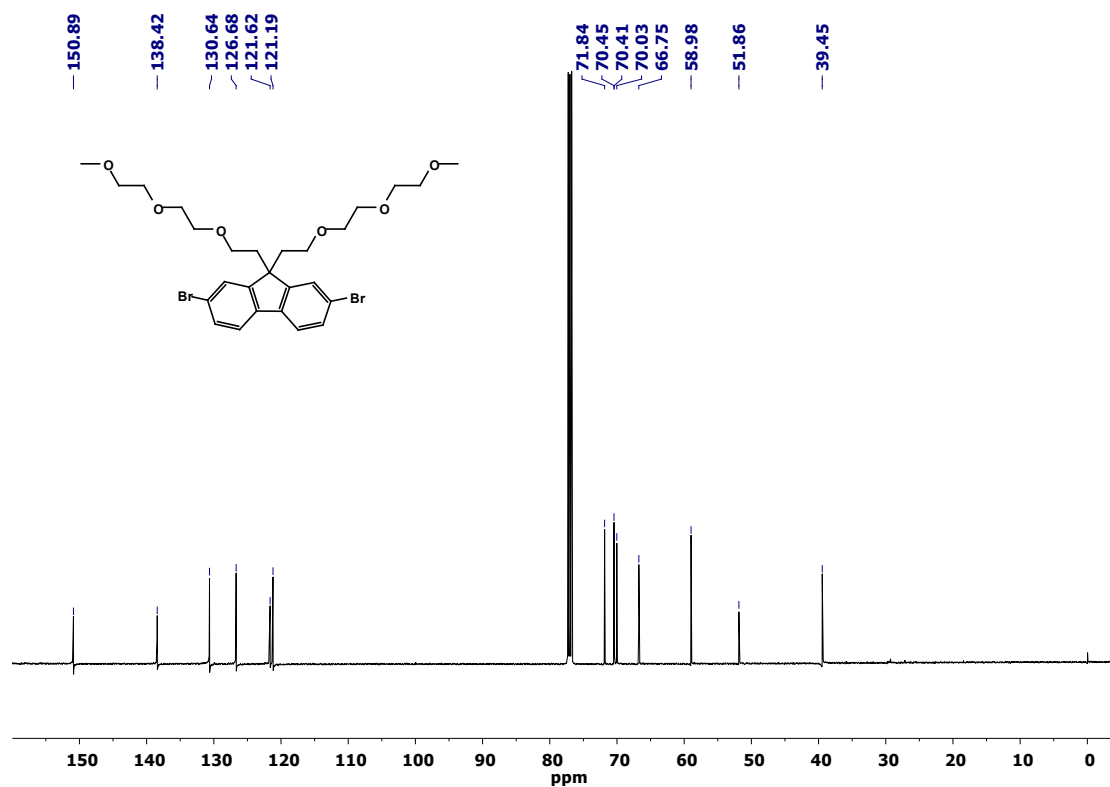
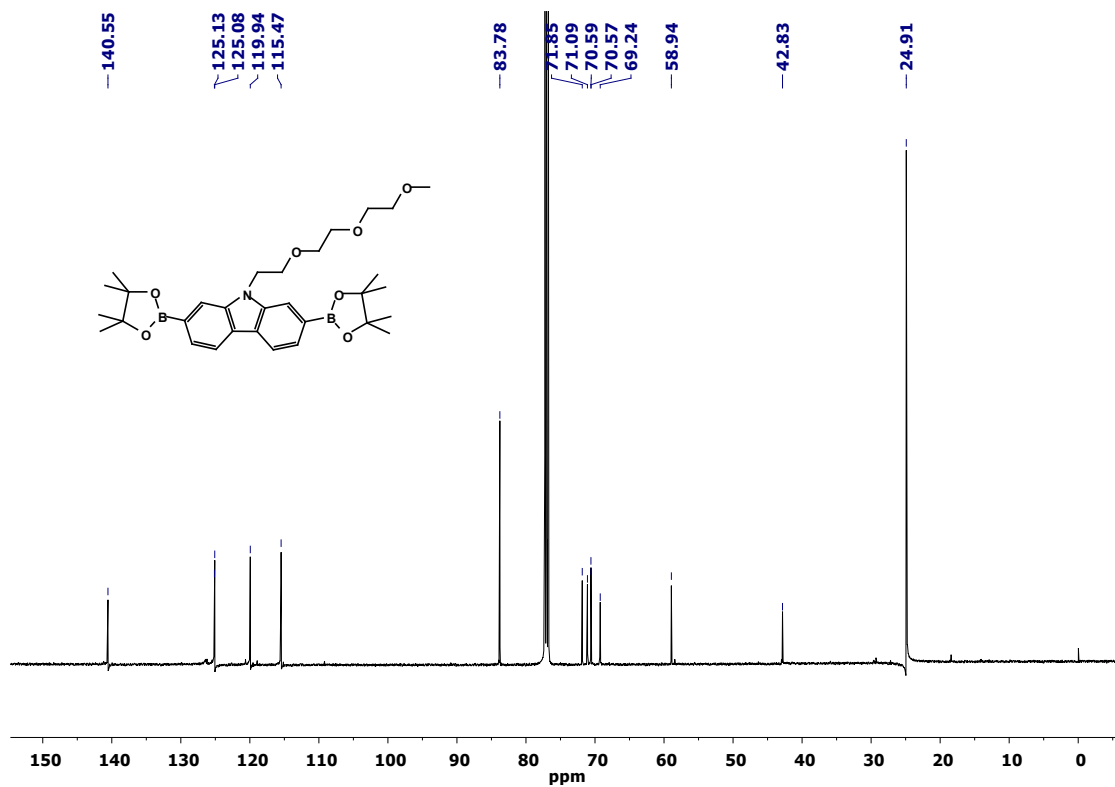
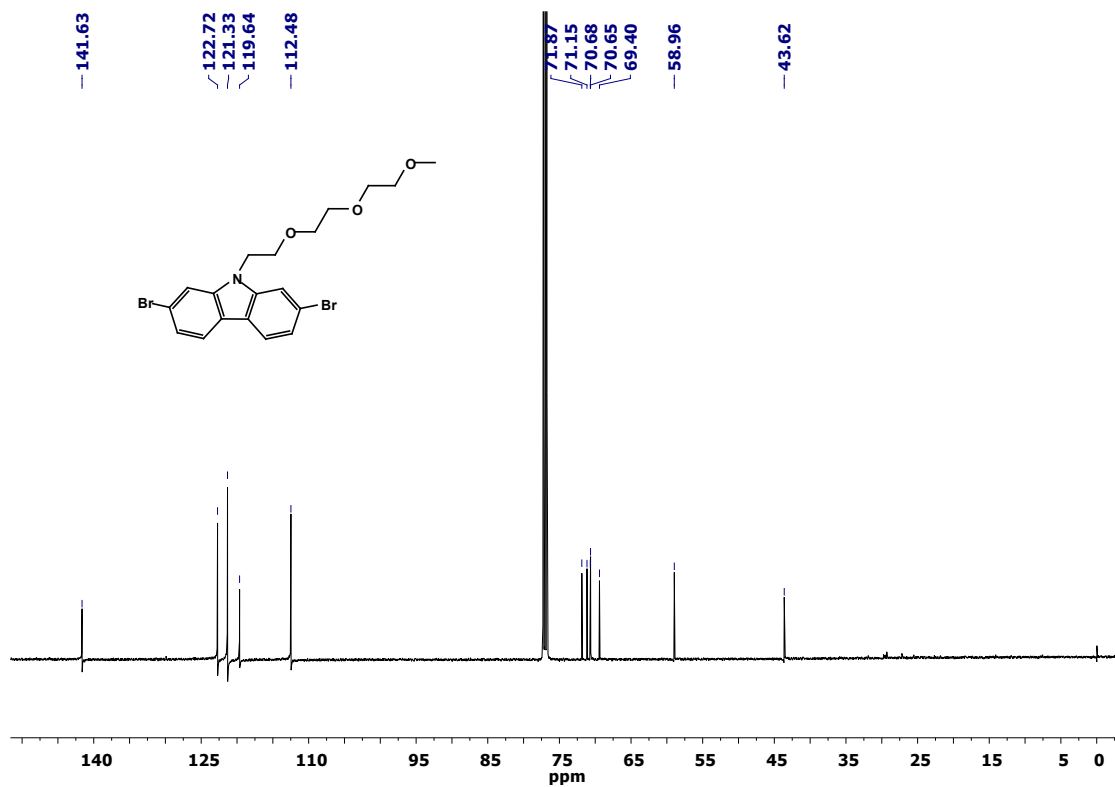


Figure S4 ^{13}C NMR spectra of monomers.





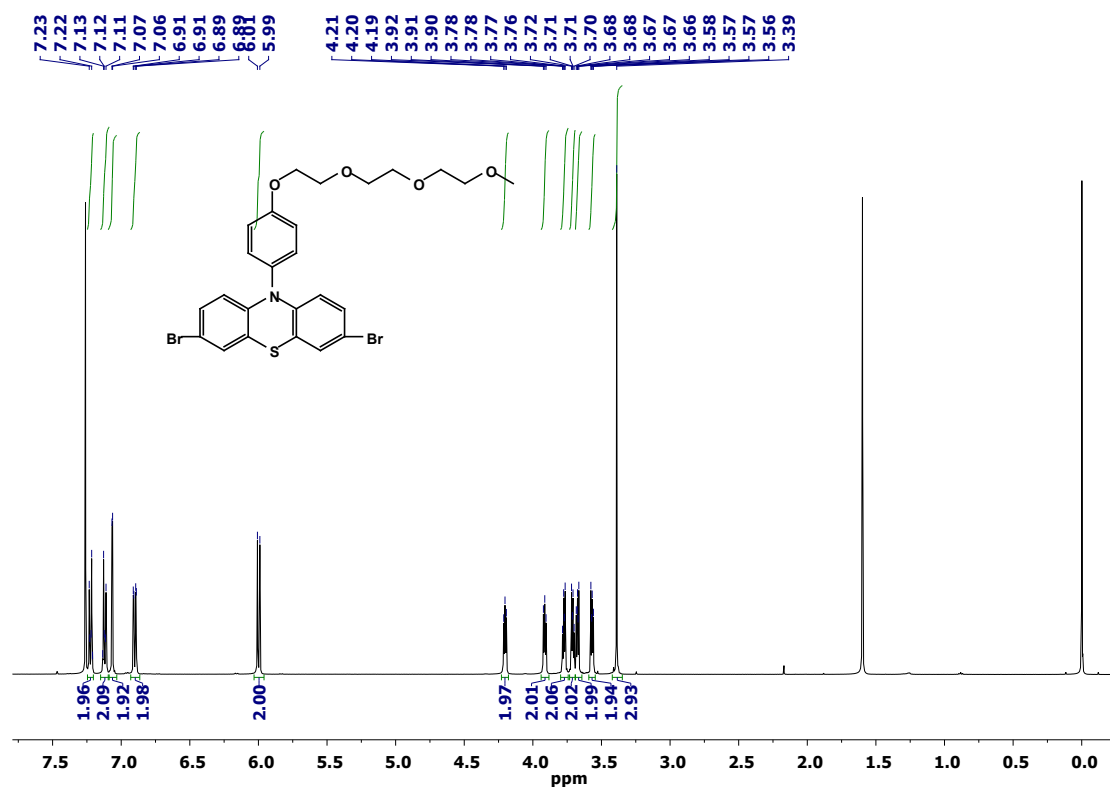


Figure S5 ^1H NMR spectra of polymers.

