Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supplementary Information

A divergent strategy for the synthesis of redox-active verdazyl radical polymers

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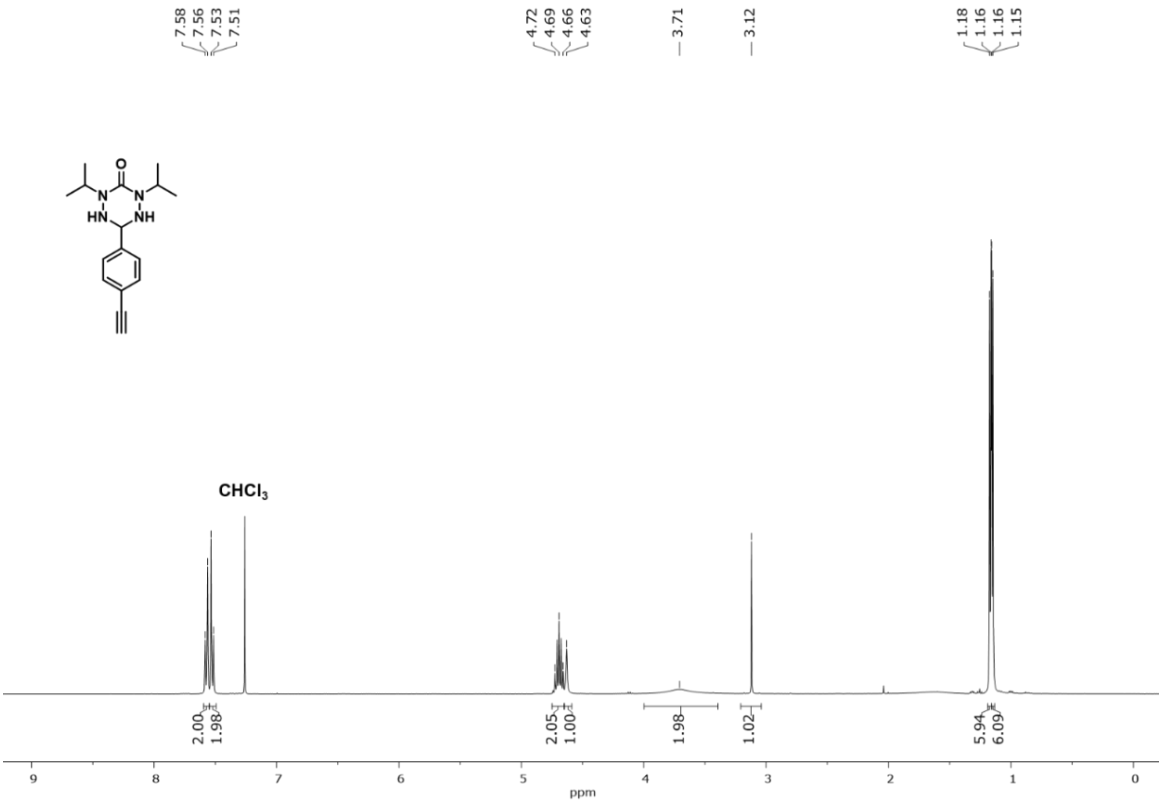

Fig. S1 ^{1}H NMR spectrum of tetrazane **2** in $CDCl_3$.

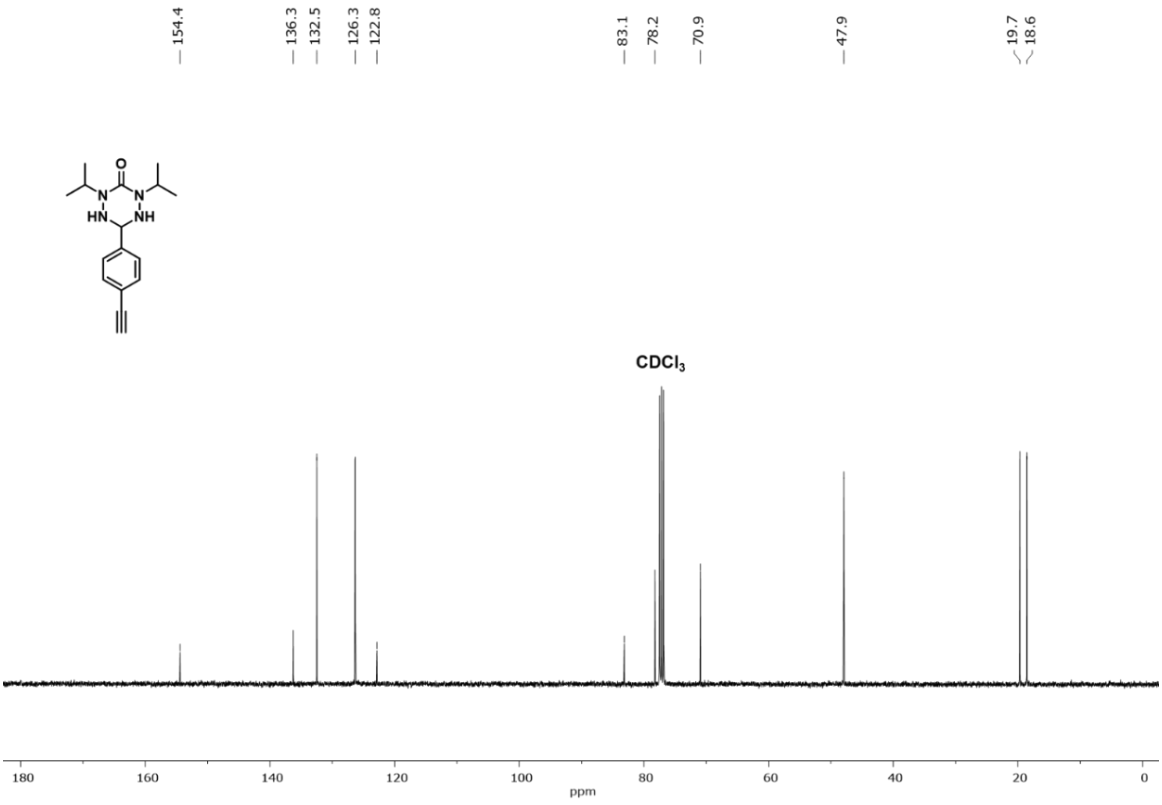

Fig. S2 $^{13}C\{^{1}H\}$ NMR spectrum of tetrazane **2** in $CDCl_3$.

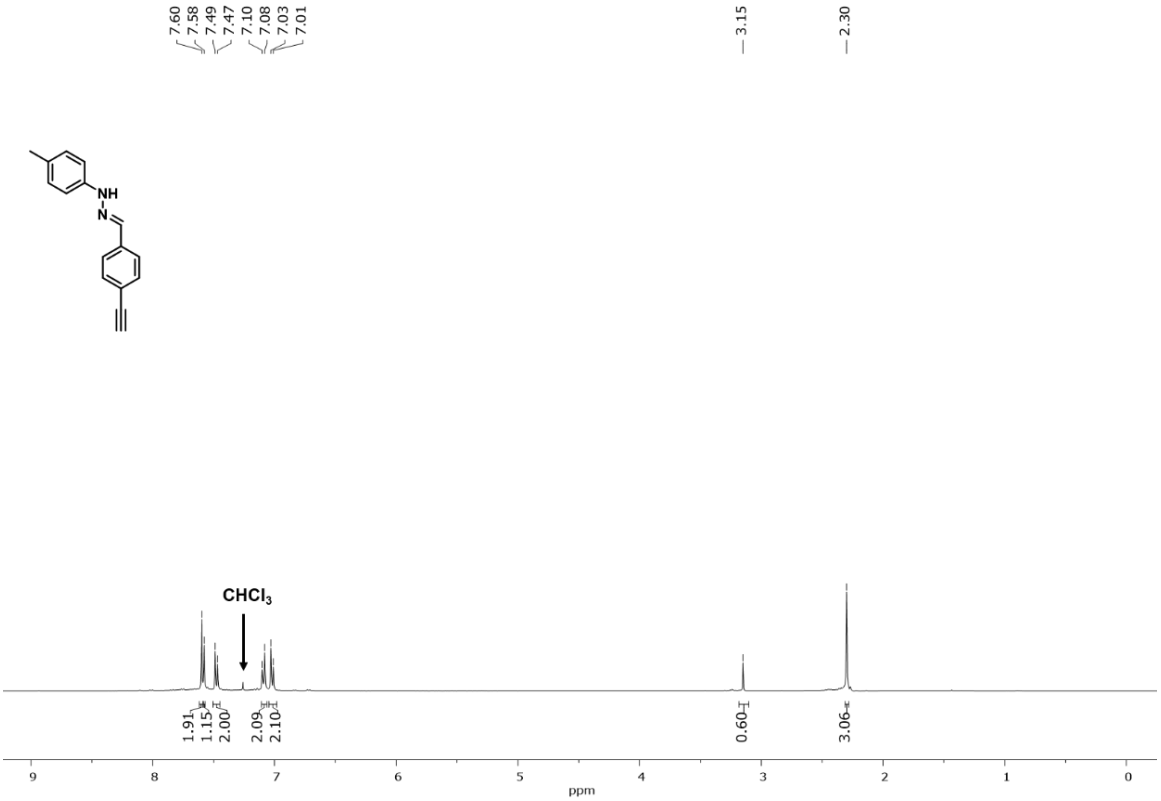

Fig. S3 ^{1}H NMR spectrum of hydrazone **4** in $CDCl_3$.

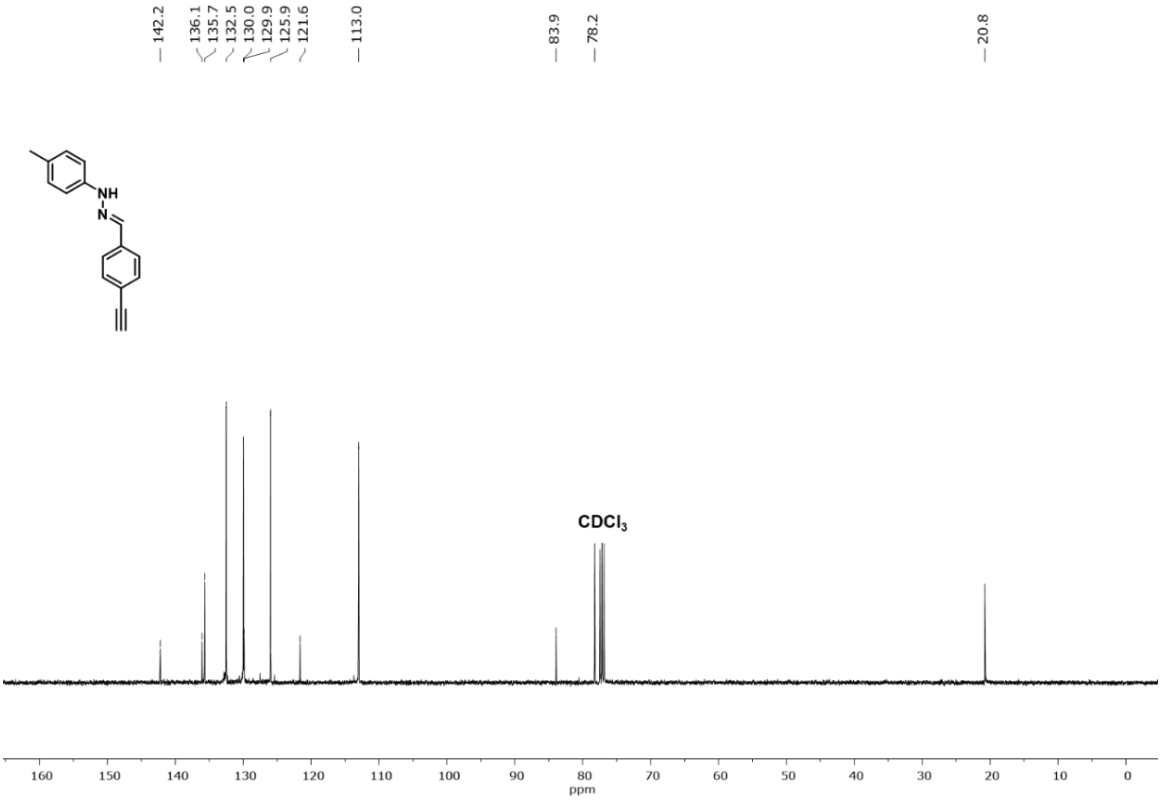

Fig. S4 $^{13}C\{^{1}H\}$ NMR spectrum of hydrazone **4** in $CDCl_3$.

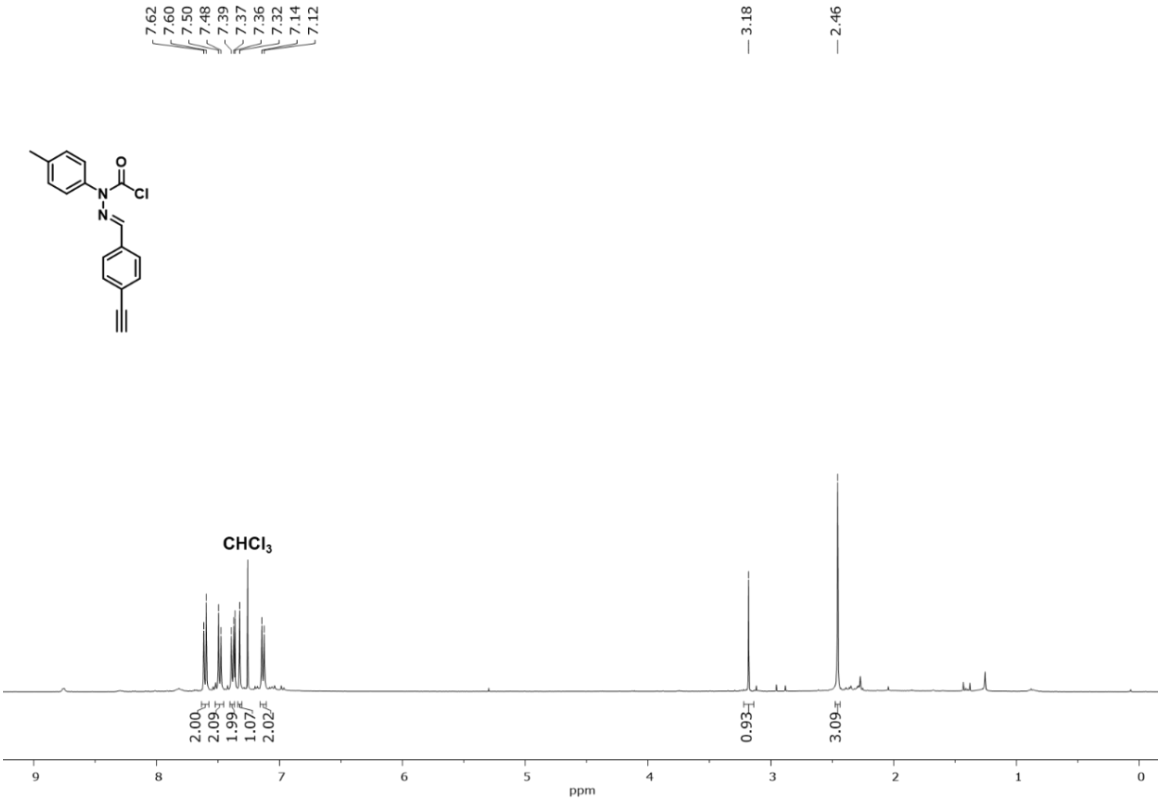

Fig. S5 ^{1}H NMR spectrum of chloroformylhydrazone **5** in $CDCl_3$.

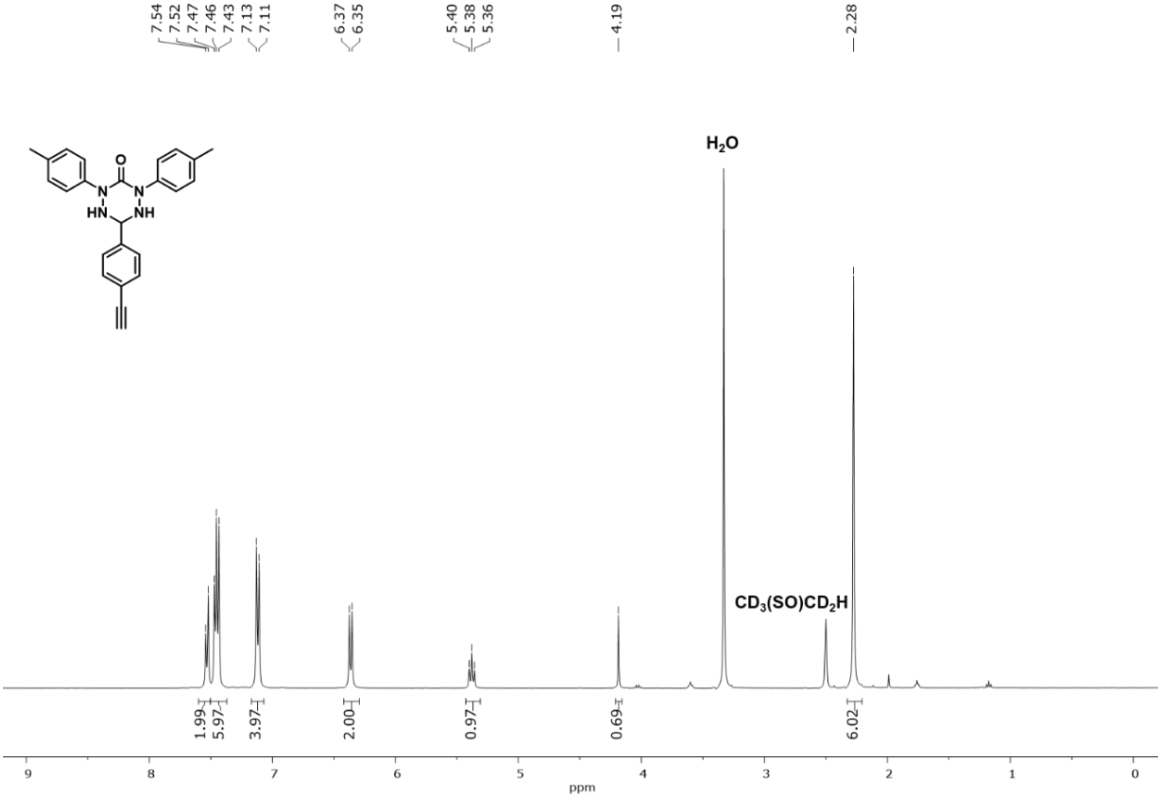

Fig. S6 ^{1}H NMR spectrum of tetrazane **6** in DMSO-d_6.

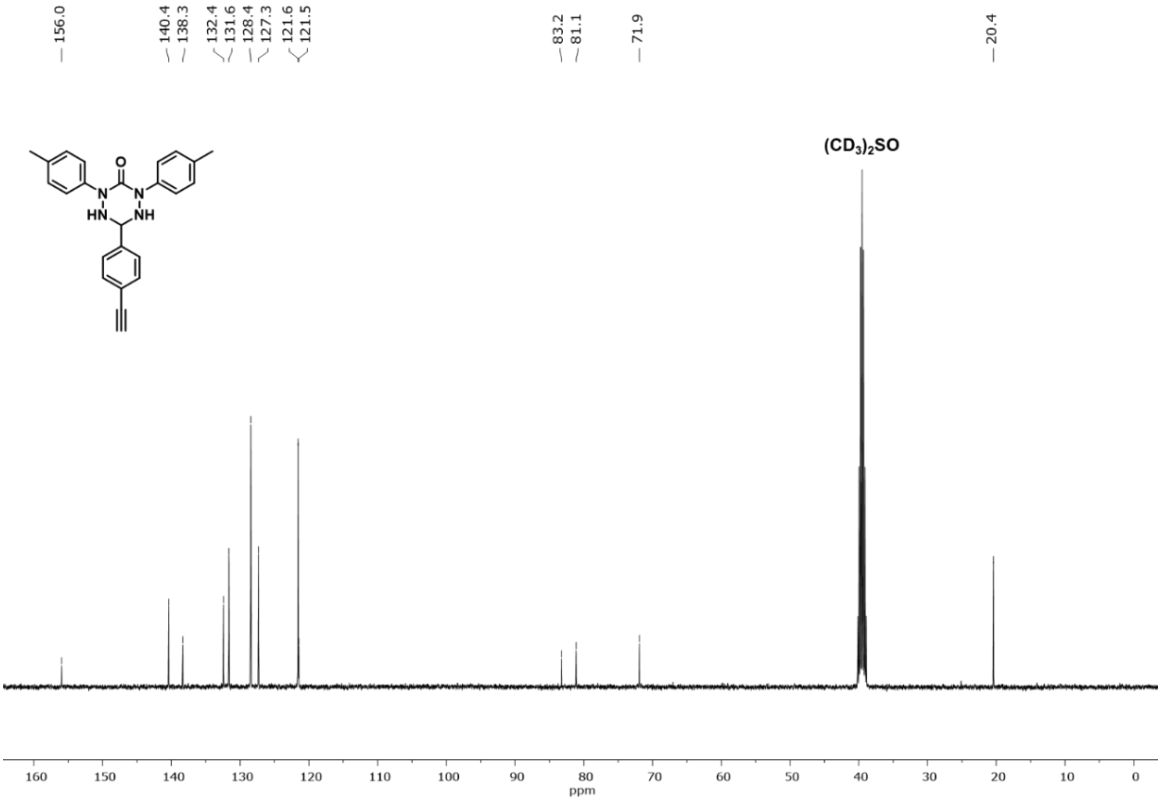

Fig. S7 $^{13}C\{^{1}H\}$ NMR spectrum of tetrazane **6** in DMSO-d_6.

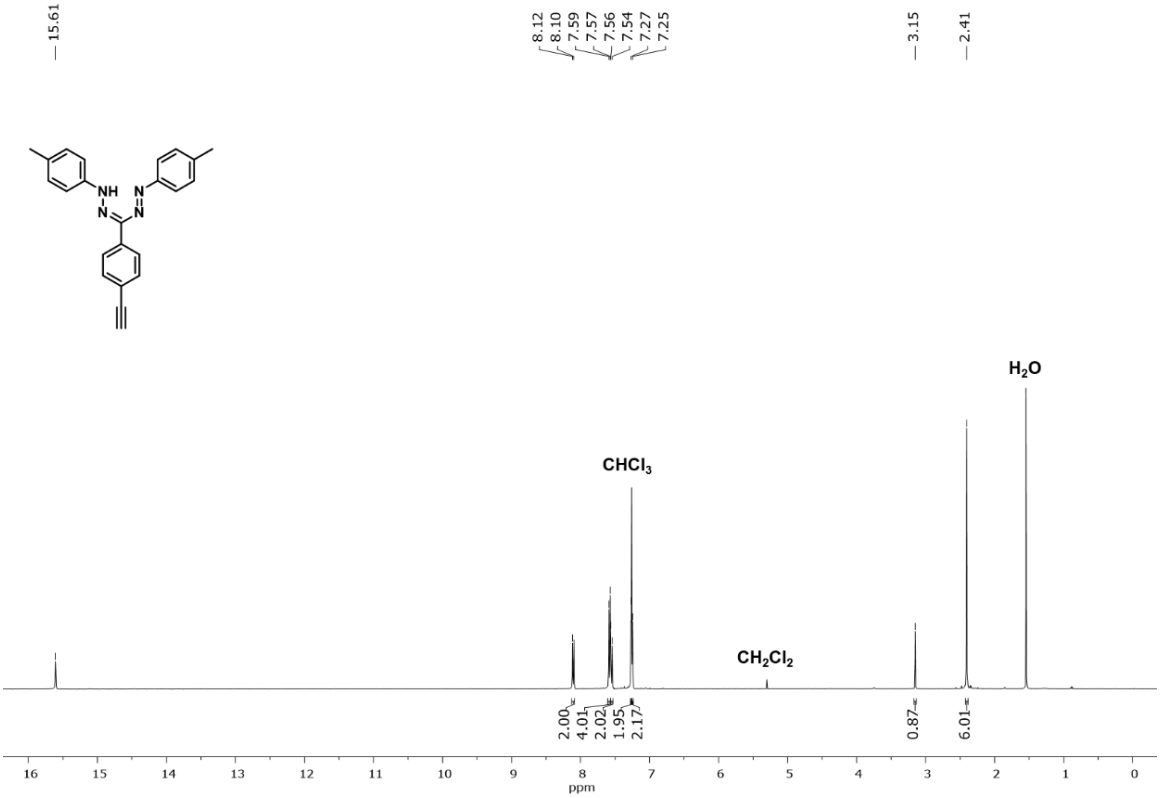

Fig. S8 ^{1}H NMR spectrum of formazan **8** in $CDCl_3$.

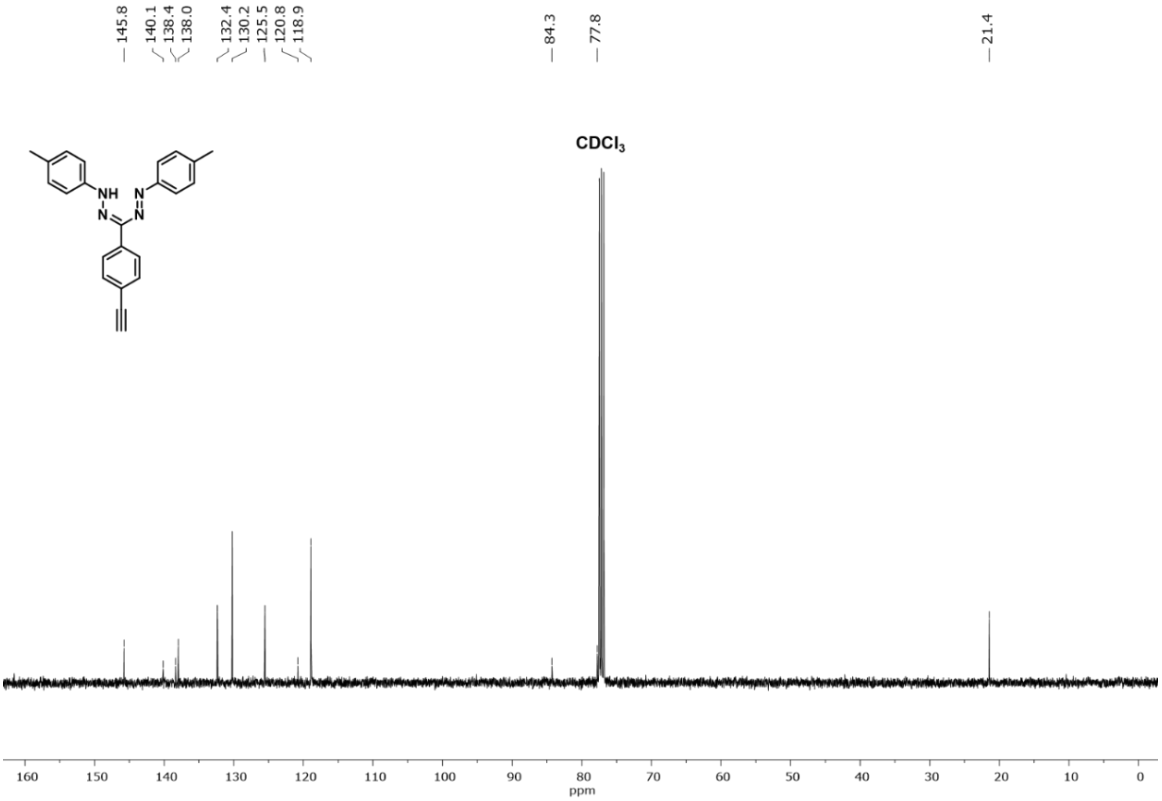

Fig. S9 $^{13}C\{^{1}H\}$ NMR spectrum of formazan **8** in $CDCl_3$.

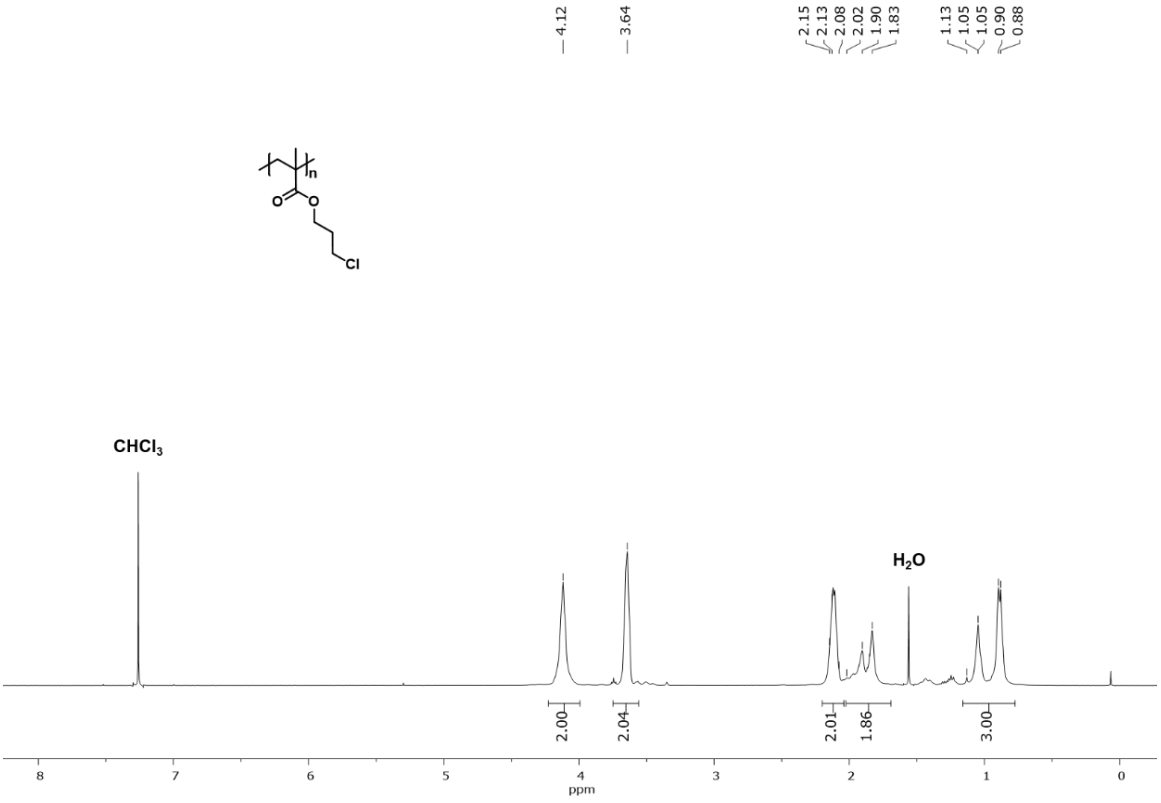

Fig. S10 ^{1}H NMR spectrum of polymer **Cl-P** in $CDCl_3$.

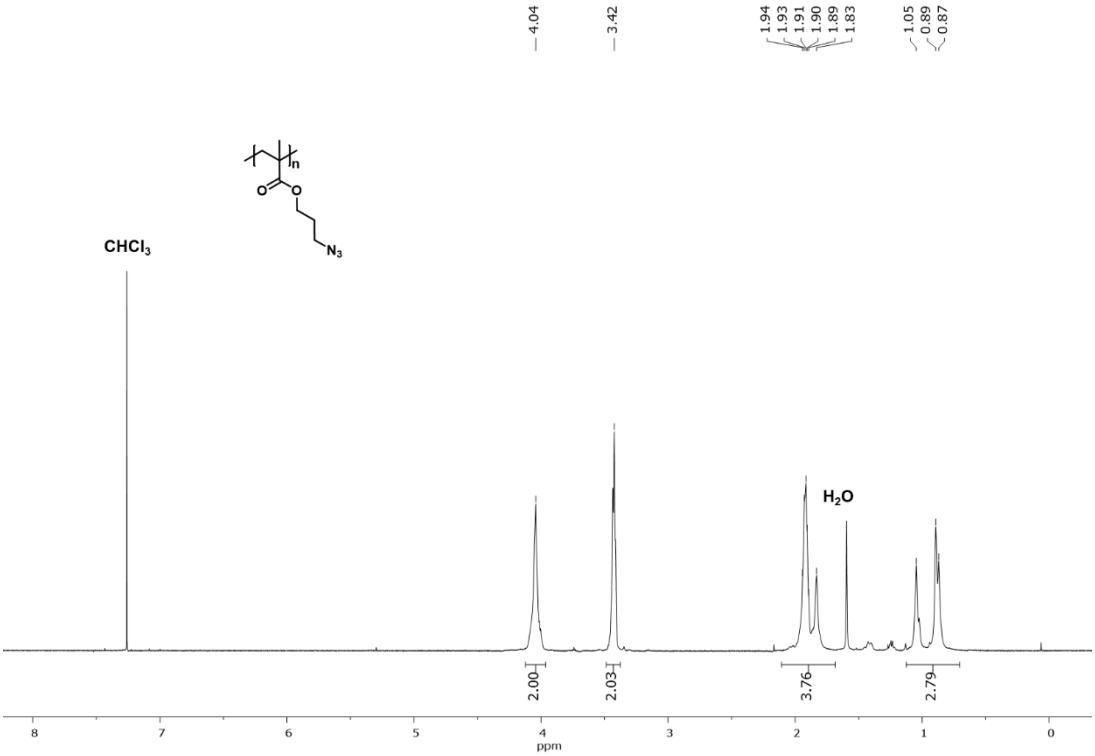

Fig. S11 ^{1}H NMR spectrum of polymer **N_3-P** in $CDCl_3$.

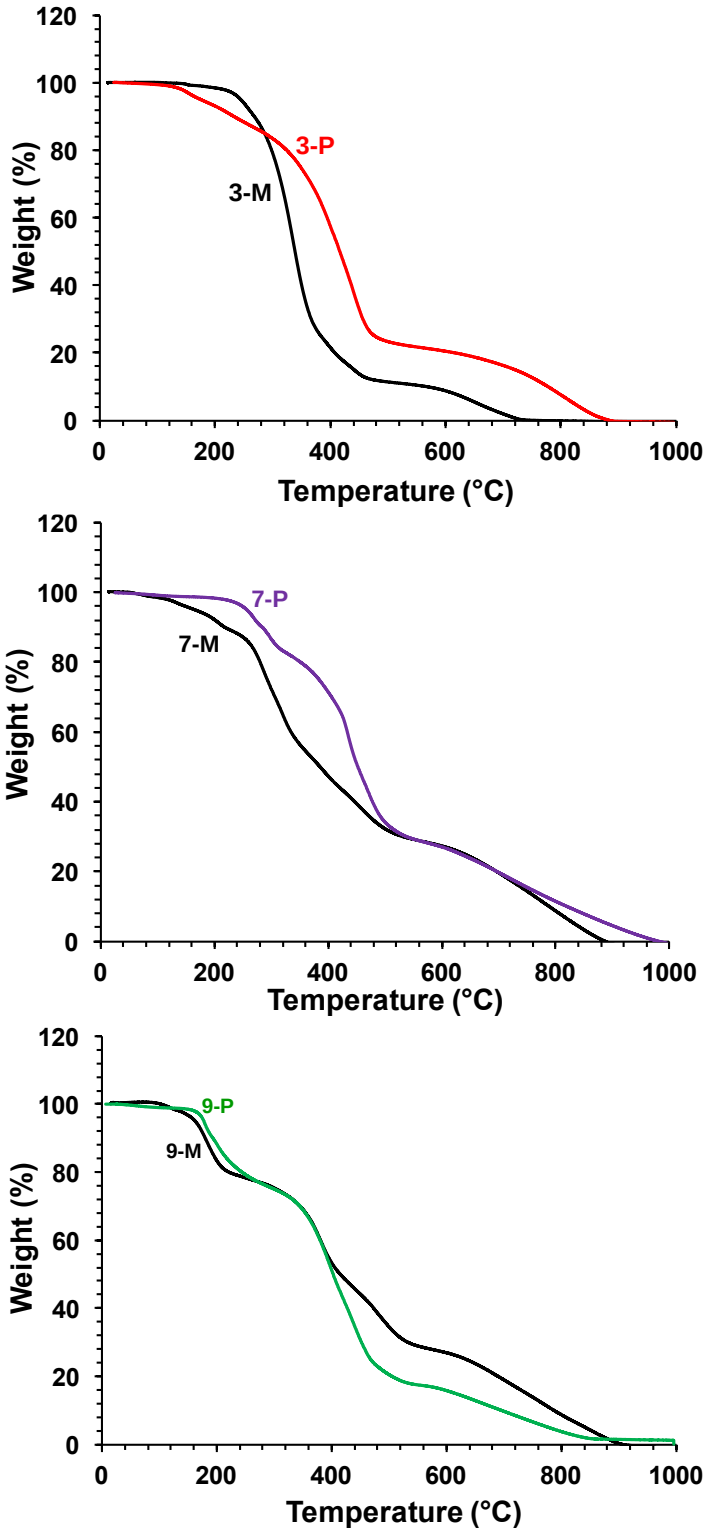

Fig. S12 TGA data for radical monomers **3-M**, **7-M**, and **9-M** and radical polymers **3-P**, **7-P**, and **9-P** collected under an atmosphere of N_2.

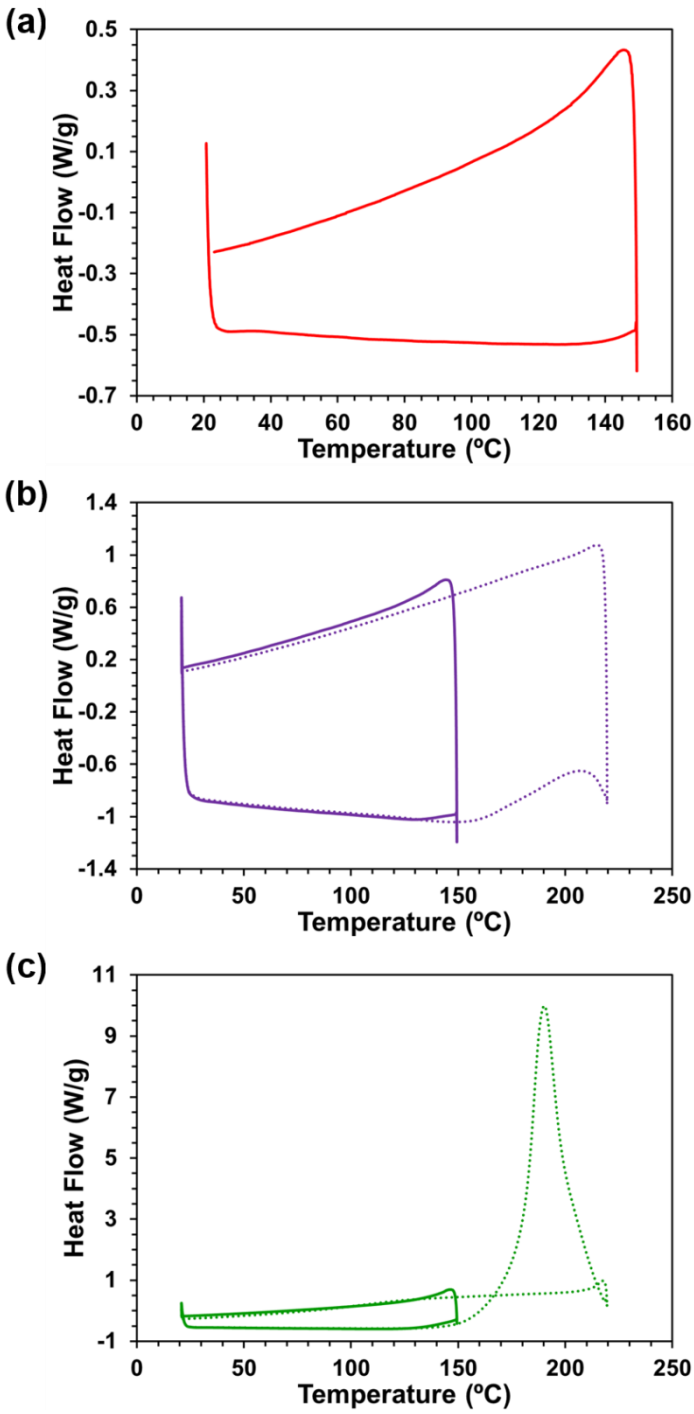

Fig. S13 DSC data for polymers (a) **3-P**, (b) **7-P**, and (c) **9-P** collected between 20 and 150 ºC at a scan rate of 10 ºC min^{-1}. Dotted lines in (b) and (c) show data collected for the same sample (3rd cycle) with heating and cooling cycle between 20 and 220 ºC at a scan rate of 10 ºC min^{-1}.

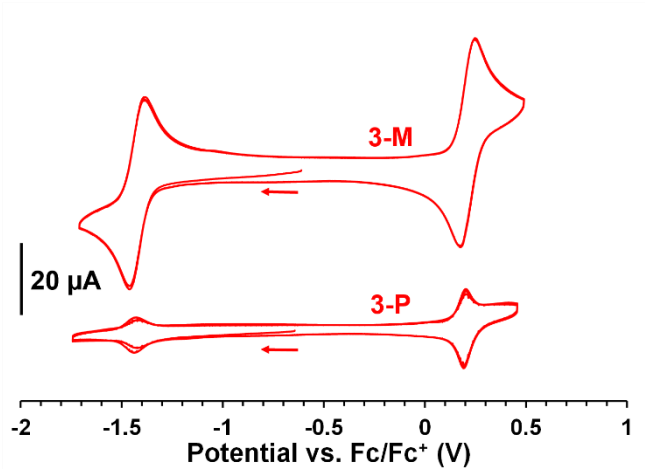

Fig. S14 Cyclic voltammograms of model radical **3-M** and polymer **3-P c**ollected upon cycling. Experiments were conducted at a scan rate of 250 mV s^{-1} in degassed mixtures of 3:1 v/v CH_2Cl_2/CH_3CN containing approximately 1 mM of analyte and 0.1 M [nBu$_4$N][PF_6] as the supporting electrolyte.

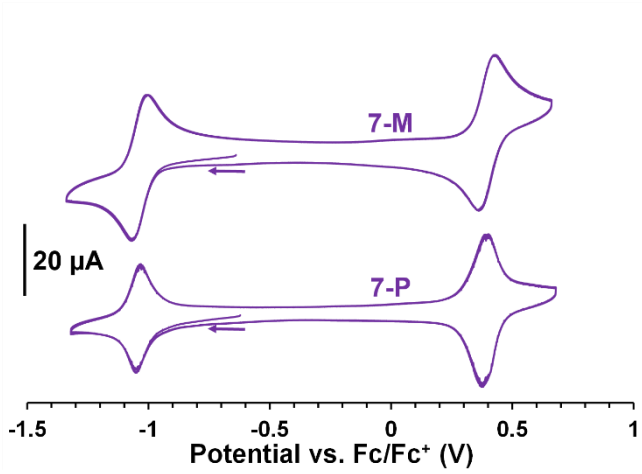

Fig. S15 Cyclic voltammograms of model radical **7-M** and polymer **7-P c**ollected upon cycling. Experiments were conducted at a scan rate of 250 mV s^{-1} in degassed mixtures of 3:1 v/v CH_2Cl_2/CH_3CN containing approximately 1 mM of analyte and 0.1 M [nBu$_4$N][PF_6] as the supporting electrolyte.

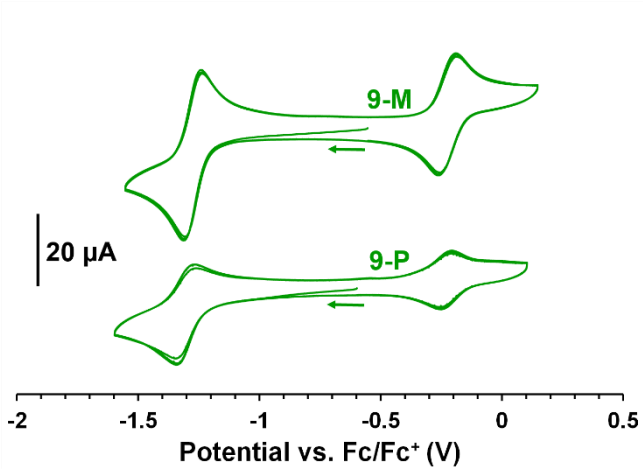

Fig. S16 Cyclic voltammograms of model radical **9-M** and polymer **9-P** collected upon cycling. Experiments were conducted at a scan rate of 250 mV s^{-1} in degassed mixtures of 3:1 v/v CH_2Cl_2/CH_3CN containing approximately 1 mM of analyte and 0.1 M [*n*Bu_4N][PF_6] as the supporting electrolyte.