Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supporting Information for

Synthesis and conductivity of hyperbranched poly(triazolium)s with various end-capping groups

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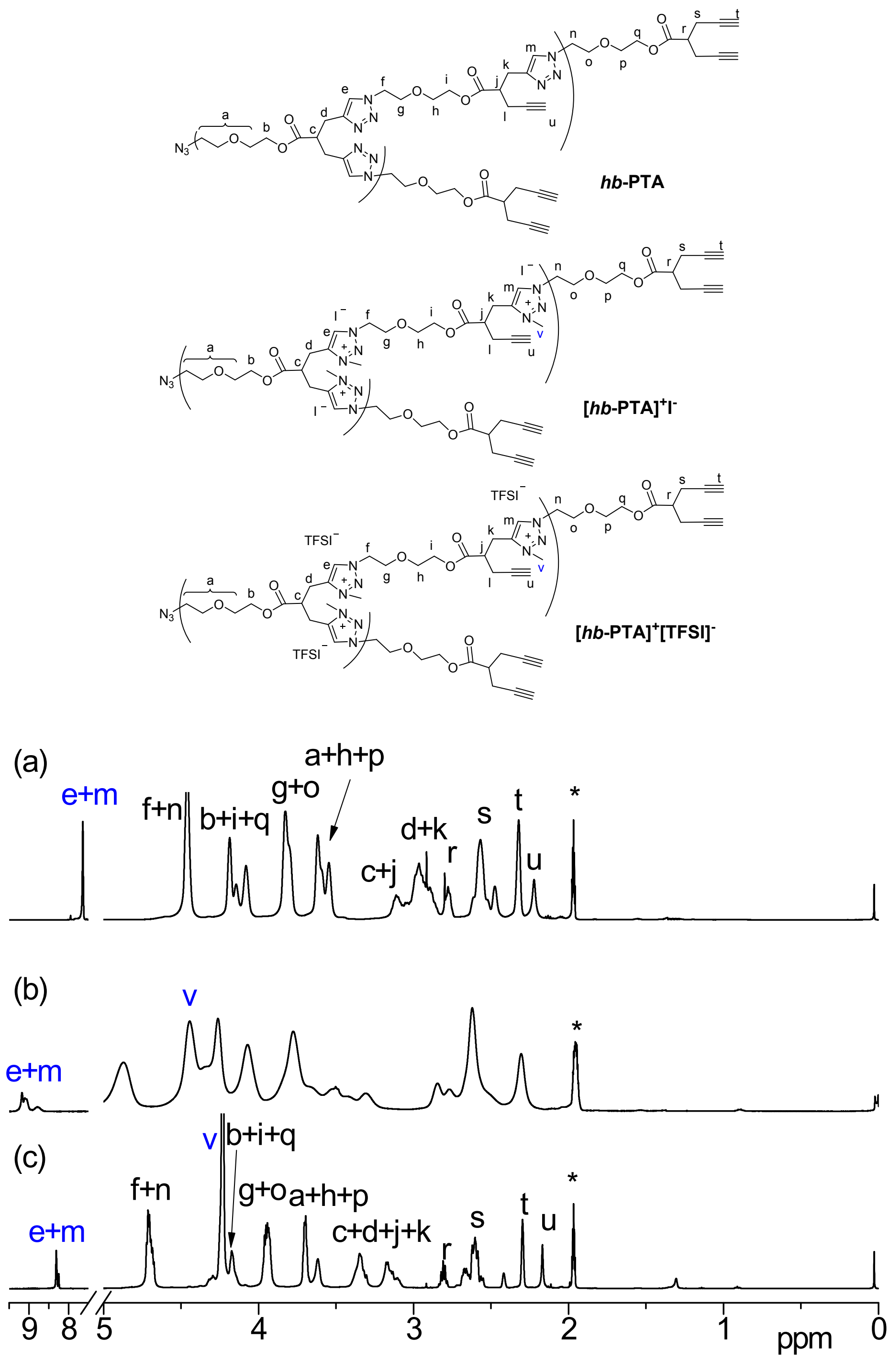

Fig. S1 ^{1}H NMR spectra of (a) ***hb*-PTA**, (b) [***hb*-PTA**]$^{+}$**I**$^{-}$, and (c) [***hb*-PTA**]$^{+}$**[TFSI]**$^{-}$ in CD_3CN.

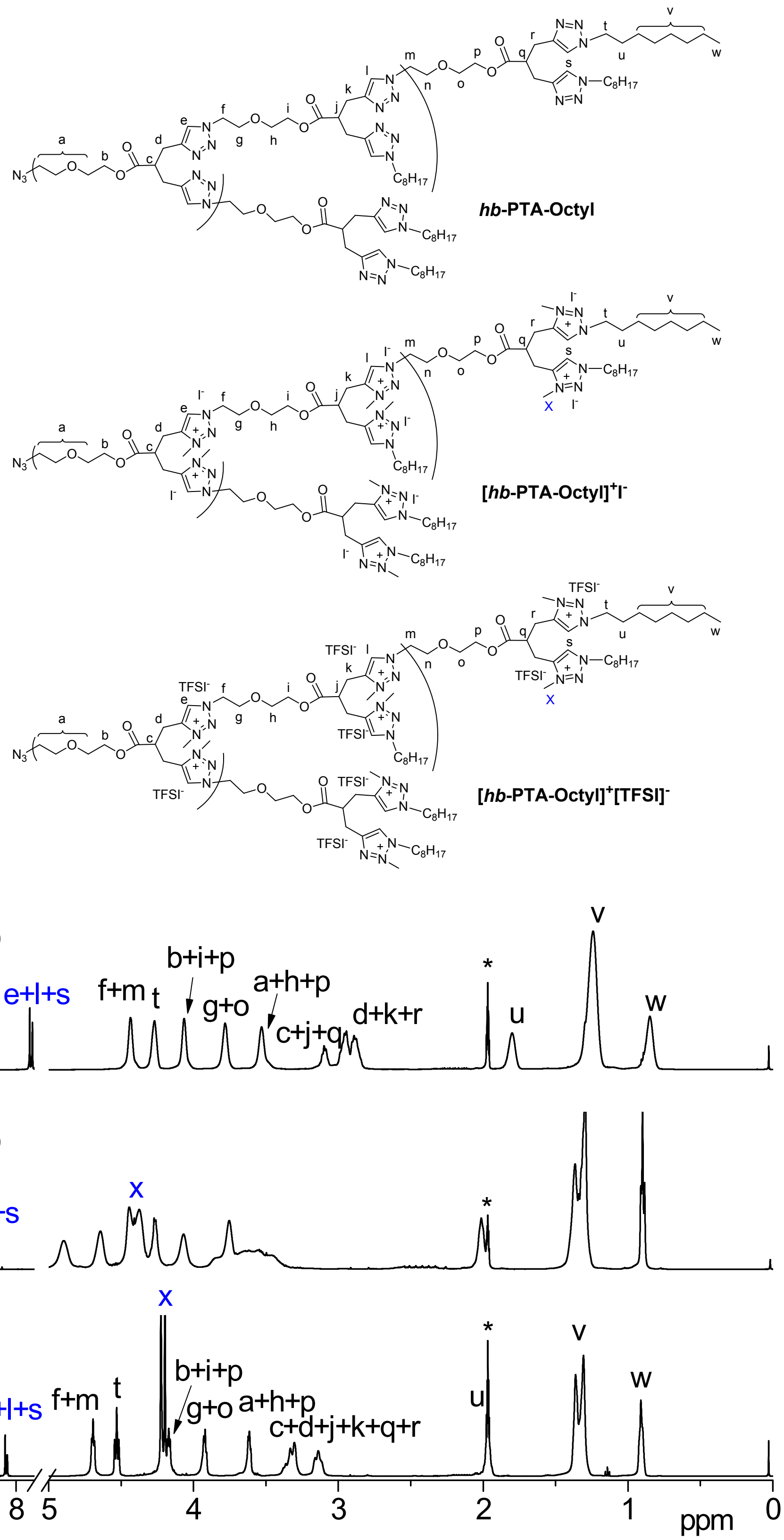

Fig. S2 ^{1}H NMR spectra of (a) ***hb*-PTA-Octyl**, (b) **[*hb*-PTA-Octyl]$^{+}$I^{-}**, and (c) **[*hb*-PTA-Octyl]$^{+}$[TFSI]$^{-}$** in CD_3CN.

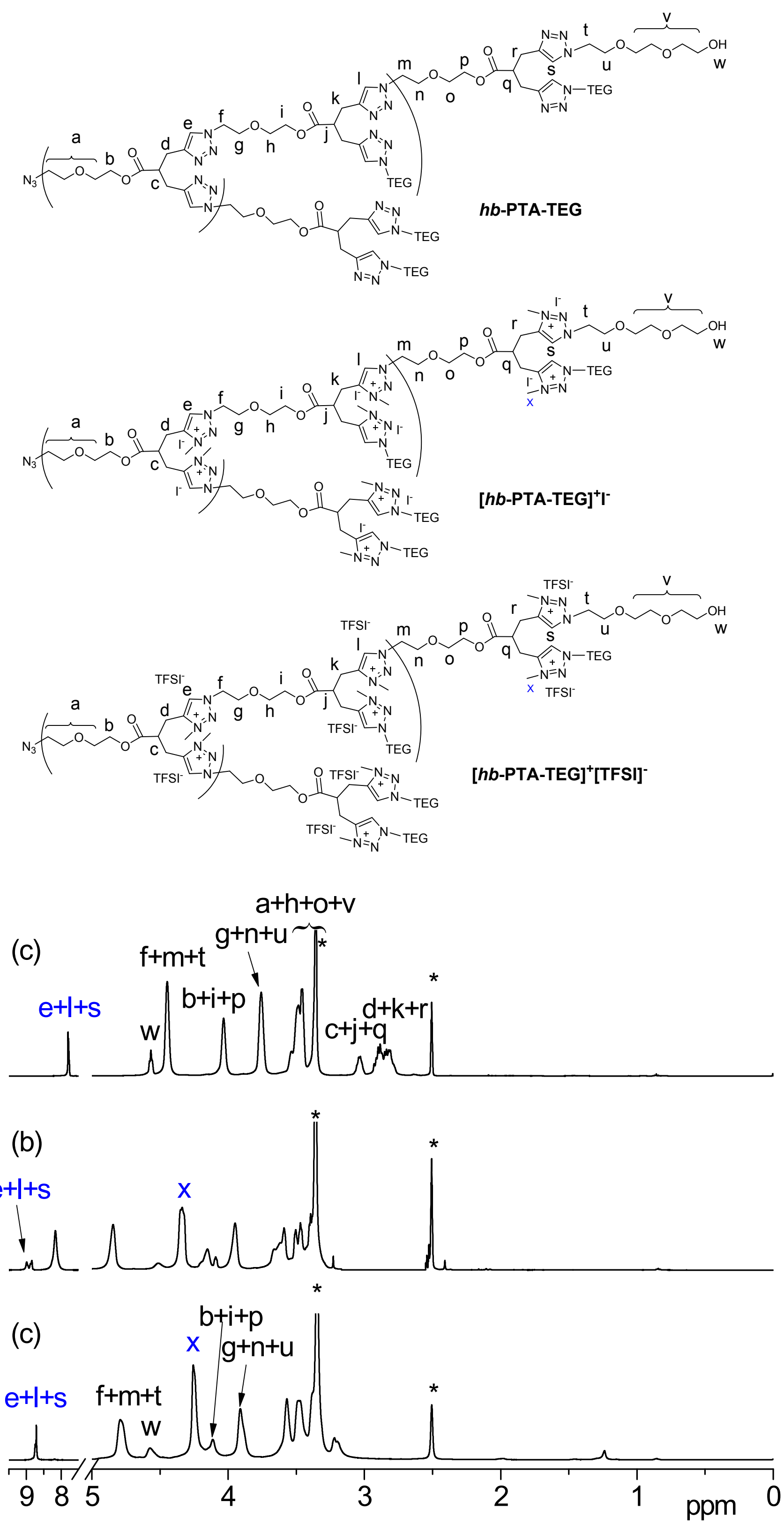

Fig. S3 ^{1}H NMR spectra of (a) ***hb*-PTA-TEG**, (b) **[*hb*-PTA-TEG]$^+$I$^-$**, and (c) **[*hb*-PTA-TEG]$^+$[TFSI]$^-$** in DMSO-d_6.

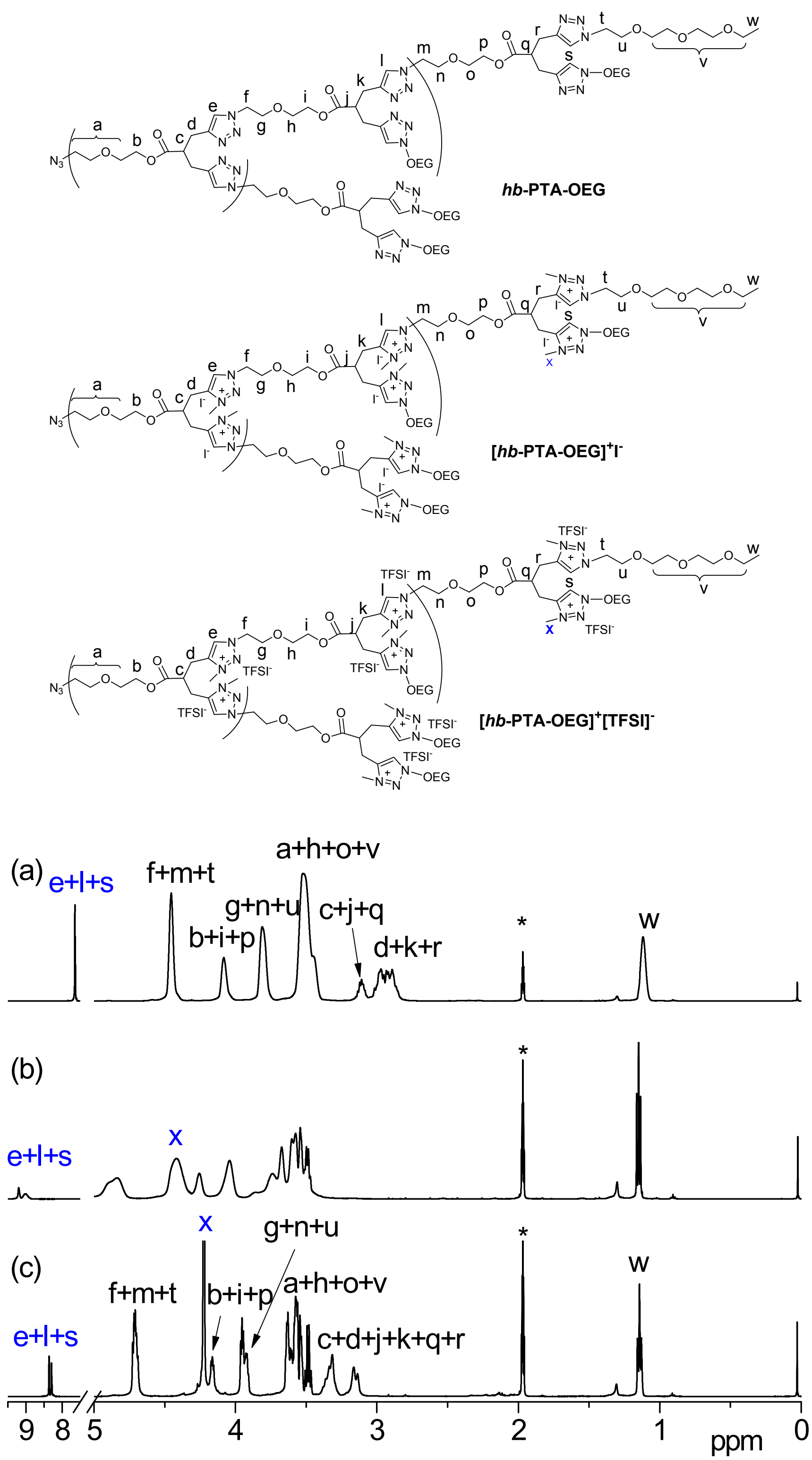

Fig. S4 ¹H NMR spectra of (a) ***hb*-PTA-OEG**, (b) [***hb*-PTA-OEG**]$^{+}$**I**$^{-}$, and (c) [***hb*-PTA-OEG**]$^{+}$**[TFSI]**$^{-}$ in CD_3CN.

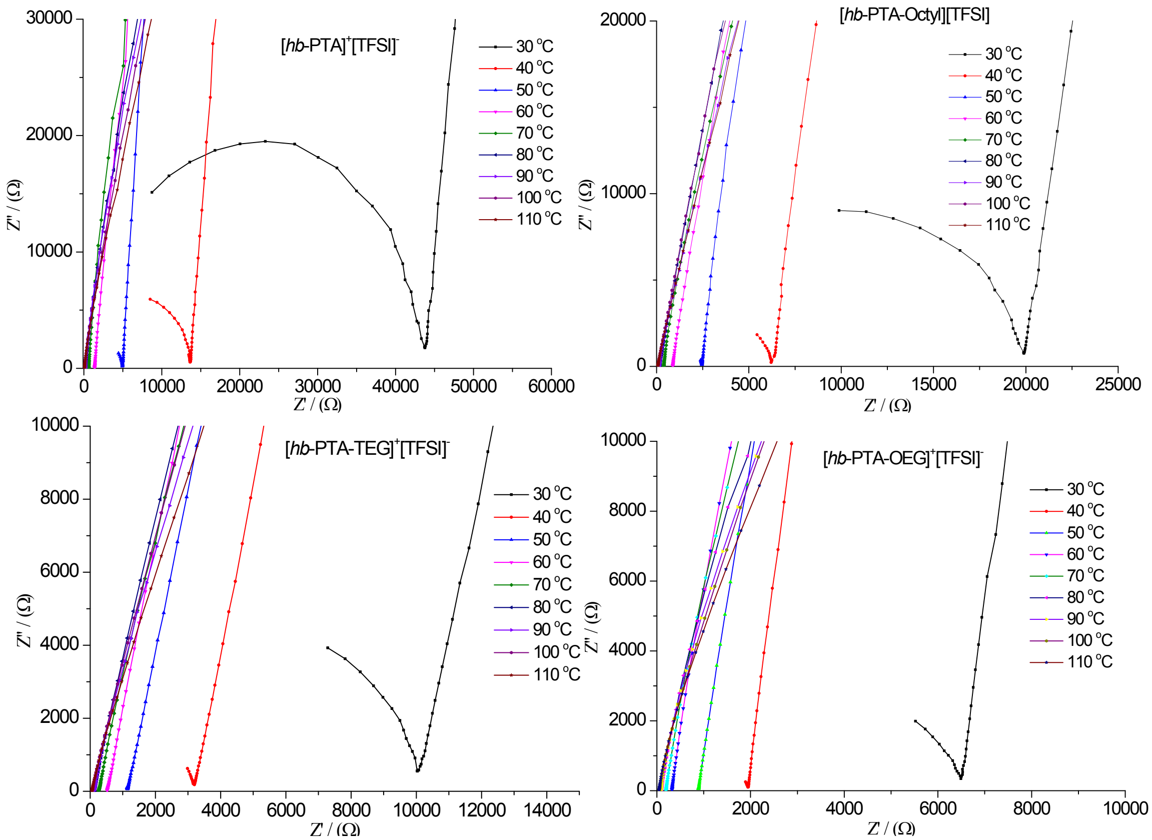

Fig. S5 Nyquist plots of [***hb*-PTA**]$^+$[**TFSI**]$^-$, [***hb*-PTA-Octyl**]$^+$[**TFSI**]$^-$, [***hb*-PTA-TEG**]$^+$[**TFSI**]$^-$, and [***hb*-PTA-OEG**]$^+$[**TFSI**]$^-$ at various temperatures.

Table S1 Ionic conductivity of [***hb*-PTA**]$^+$[**TFSI**]$^-$, [***hb*-PTA-Octyl**]$^+$[**TFSI**]$^-$, [***hb*-PTA-TEG**]$^+$[**TFSI**]$^-$, and [***hb*-PTA-OEG**]$^+$[**TFSI**]$^-$ at various temperatures

T (°C)	[***hb*-PTA**]$^+$[**TFSI**]$^-$ (S cm^{-1})	[***hb*-PTA-Octyl**]$^+$[**TFSI**]$^-$ (S cm^{-1})	[***hb*-PTA-TEG**]$^+$[**TFSI**]$^-$ (S cm^{-1})	[***hb*-PTA-OEG**]$^+$[**TFSI**]$^-$ (S cm^{-1})
30	1.13×10^{-6}	2.51×10^{-6}	4.98×10^{-6}	7.70×10^{-6}
40	3.67×10^{-6}	8.09×10^{-6}	1.58×10^{-5}	2.57×10^{-5}
50	1.01×10^{-5}	2.03×10^{-5}	4.37×10^{-5}	6.62×10^{-5}
60	3.58×10^{-5}	6.01×10^{-5}	9.54×10^{-5}	1.54×10^{-4}
70	8.04×10^{-5}	1.29×10^{-4}	1.92×10^{-4}	2.62×10^{-4}
80	2.02×10^{-4}	2.67×10^{-4}	3.70×10^{-4}	4.76×10^{-4}
90	3.09×10^{-4}	3.88×10^{-4}	5.15×10^{-4}	6.33×10^{-4}
100	4.63×10^{-4}	5.49×10^{-4}	7.35×10^{-4}	8.33×10^{-4}
110	5.81×10^{-4}	6.94×10^{-4}	8.93×10^{-4}	1.02×10^{-3}