Supporting Information

Single-Ion Nano-features Formed by a Li-containing Block Copolymer Synthesized via PISA

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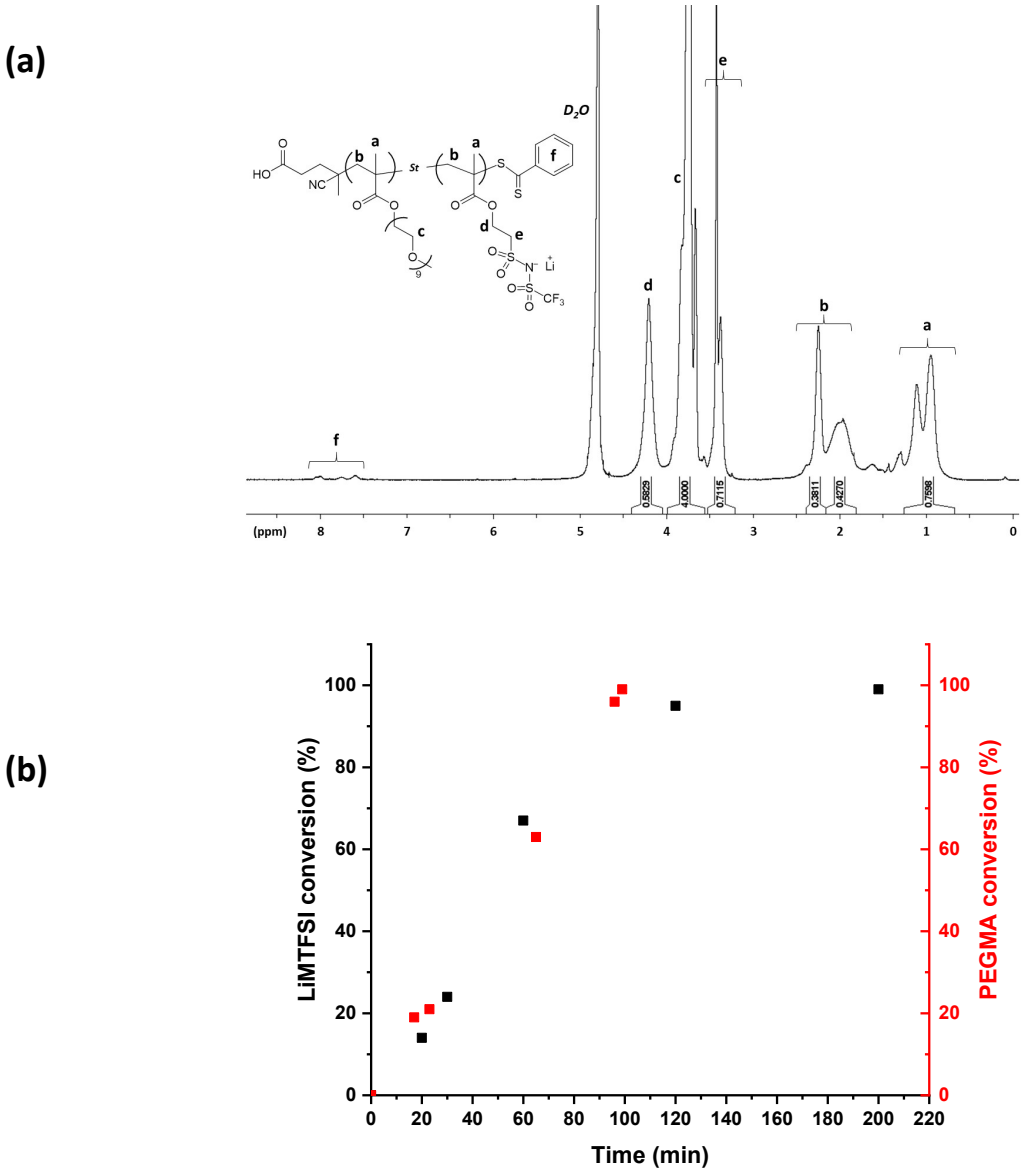


Figure S1. (a) ^{1}H NMR spectrum recorded for the copolymer of $PEGMA_{27}$-*co*-$PLiMTFSI_{31}$ (b) Evolution of the conversion of LiMTFSI (black) and the PEGMA (red) using ^{1}H NMR (D_2O, 400 MHz).

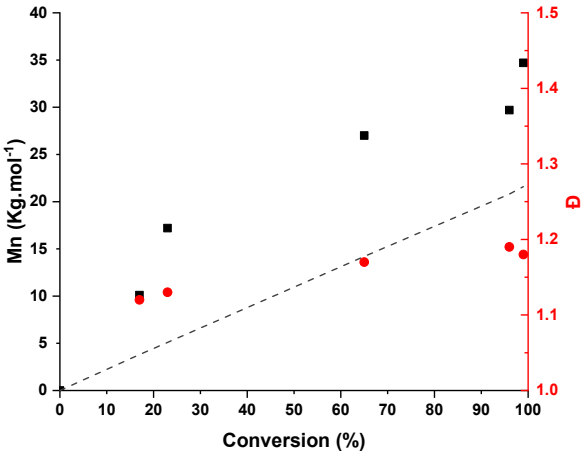
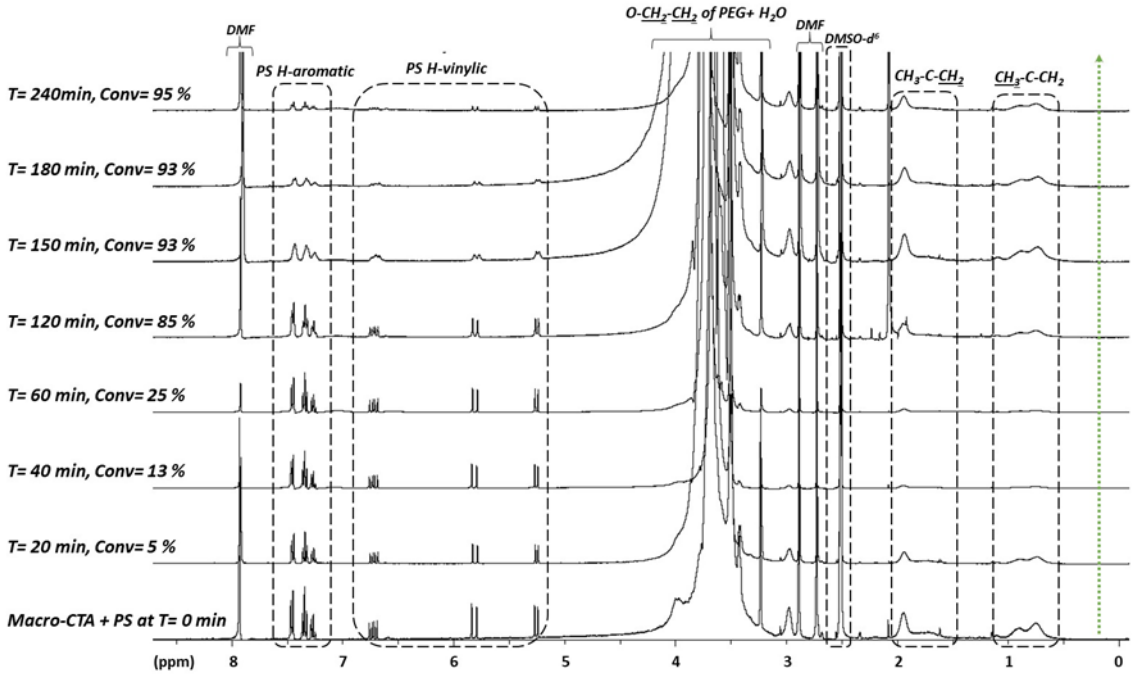


Figure S2. Evolution of number-average molecular weight and dispersity of the $PEGMA_{27}$-*co*-$PLiMTFSI_{31}$. The $M_{n,th}$ was calculated according to the Equation 1.

(a)



(b)

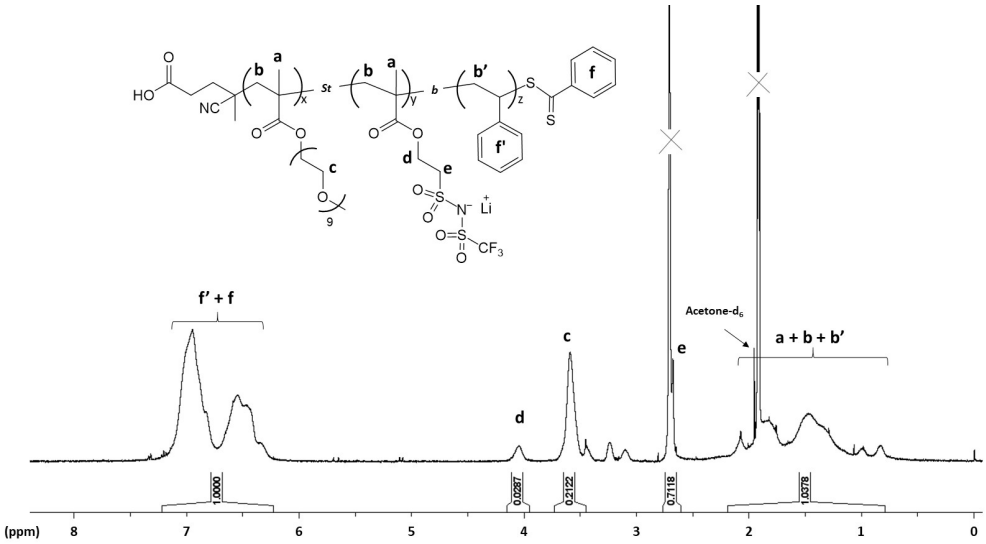


Figure S3. (a) ^{1}H NMR spectra recorded for the block copolymerization of P(PEGMA$_{27}$-*co*-LiMTFSI$_{31}$)-*b*-PS$_{365}$ as a function of time recorded in DMSO-d_6 (b) ^{1}H NMR spectrum recorded for the purified P(PEGMA$_{27}$-*co*-LiMTFSI$_{31}$)-*b*-PS$_{365}$ recorded in Acetone-d_6.

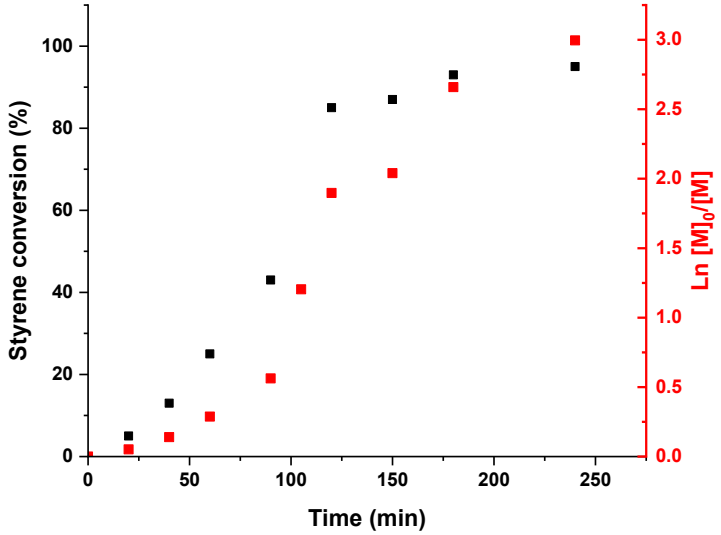
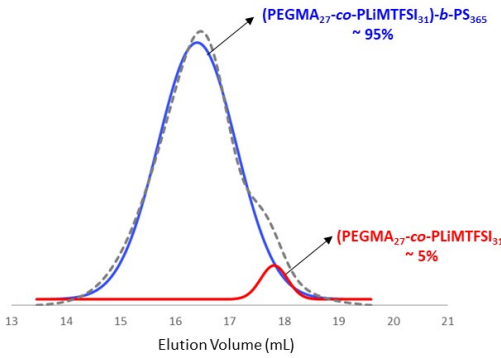


Figure S4. Styrene conversion vs time calculated using ^{1}H NMR (DMSO-d_6).



Fitting Results

Peak Index	Peak Type	Area Intg	Area IntgP	Center Grvty	Max Height	FWHM
1	Gaussian	281,48197	95,60276	16,4059	157,51276	1,67885
2	Gaussian	12,94674	4,39724	17,81964	21,05856	0,57756

Figure S5. Deconvolution of SEC trace of P(PEGMA$_{27}$-*co*-LiMTFSI$_{31}$)-*b*-PS$_{365}$ (shown in Figure 2) and the corresponding peak analysis.

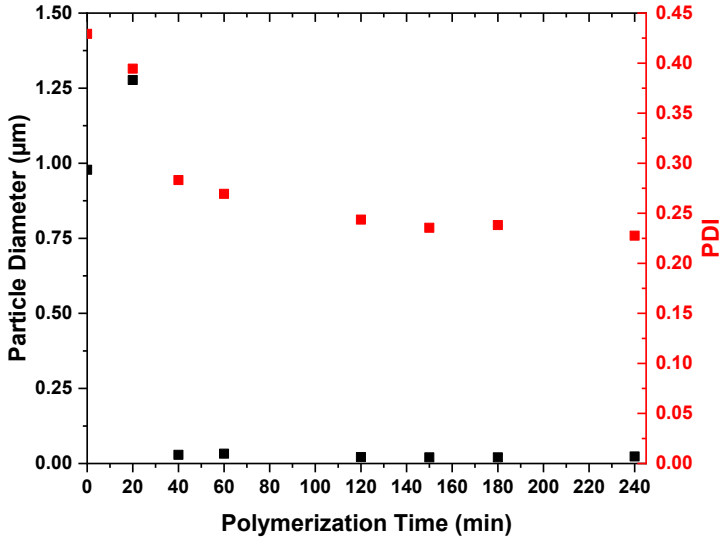


Figure S6. Evolution of the intensity-average particle diameter and polydispersities (PDI) with time as judged by dynamic light scattering for P(PEGMA$_{27}$-*co*-LiMTFSI$_{31}$)-*b*- PS$_z$.

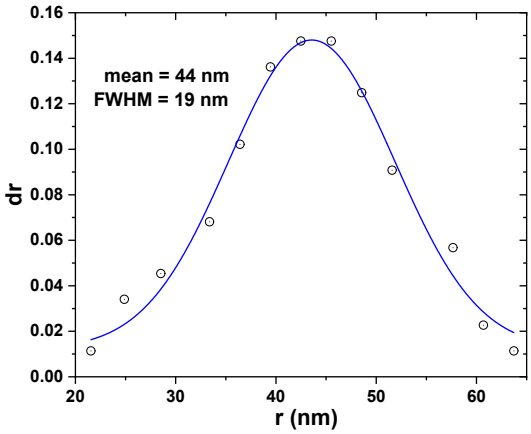


Figure S7. The nearest-neighbour distance distribution (NNDD) function obtained from the centre of mass of each P(PEGMA$_{27}$-*co*-LiMTFSI$_{31}$) nanodomain (full circles) is consistent with a short-range ordered structure having a mean nearest-neighbour distance of ~44 nm since the Gaussian distribution used to fit the data is width (FWHM ~19 nm).

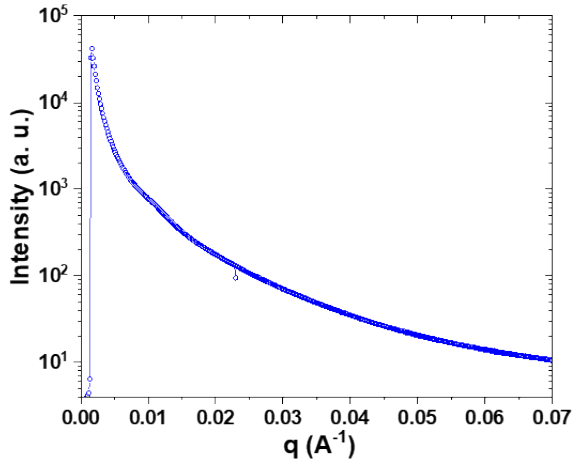


Figure S8. Featureless GISAXS pattern line-cut at the Yoneda peak position obtained for a solvent-annealed (3h, $CHCl_3$) PS-*b*-P2VP-*b*-PEO film blended with 50 wt.% of P(PEGMA$_{27}$-*co*-LiMTFSI$_{31}$)-*b*- PS$_{365}$.