

Electronic Supplementary Material (ESI)

Stable Polymer Brushes with Effectively Varied Grafting Density Synthesized from Highly Crosslinked Random Copolymer Thin Films

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1. Supporting Figure S1-S7

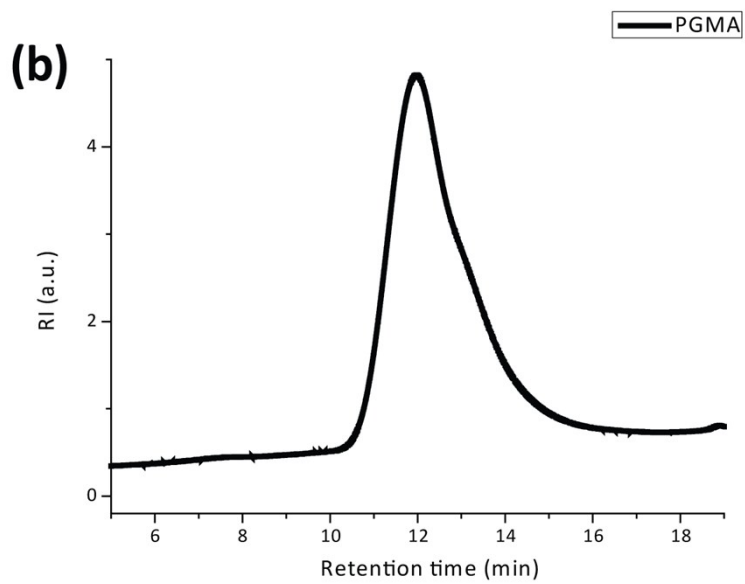
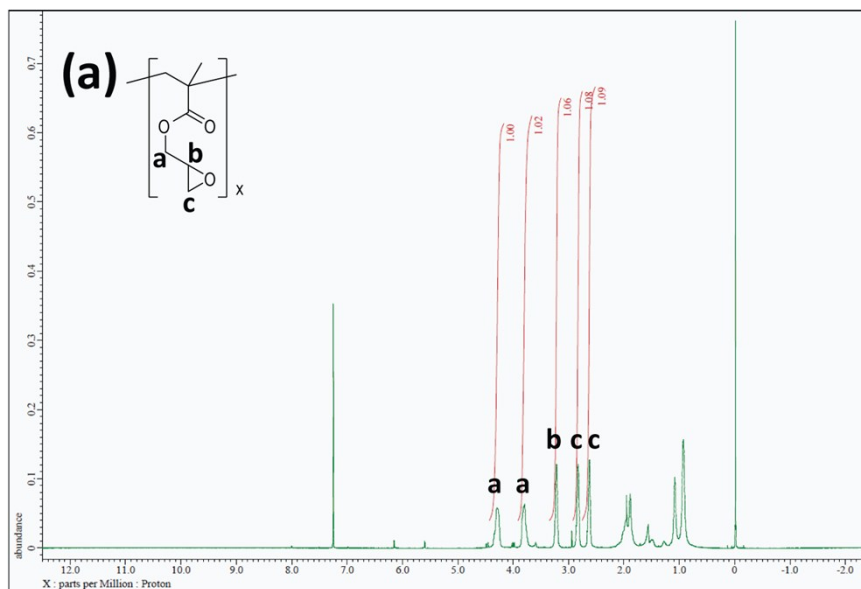
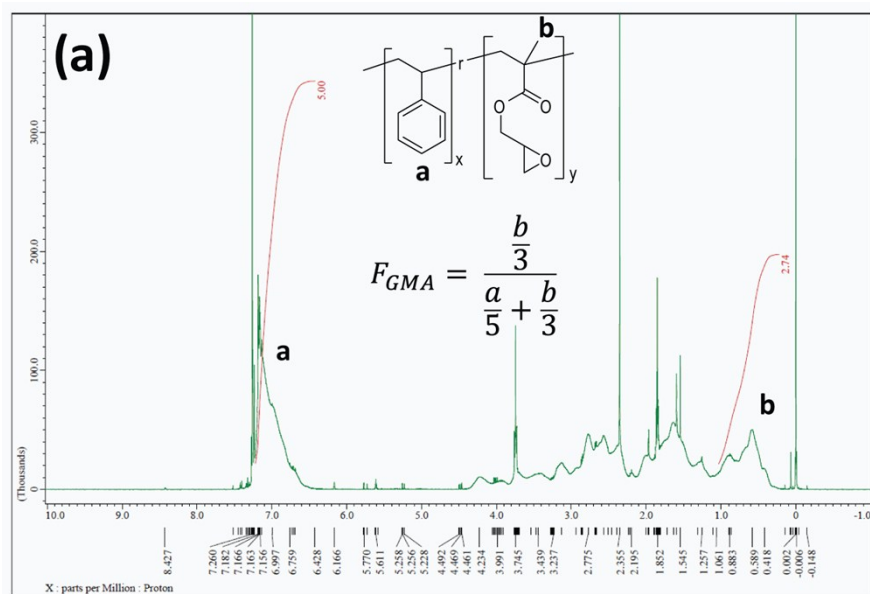


Figure S1. (a) ^1H -NMR spectrum and (b) SEC chromatogram of PGMA



— PSG0.48

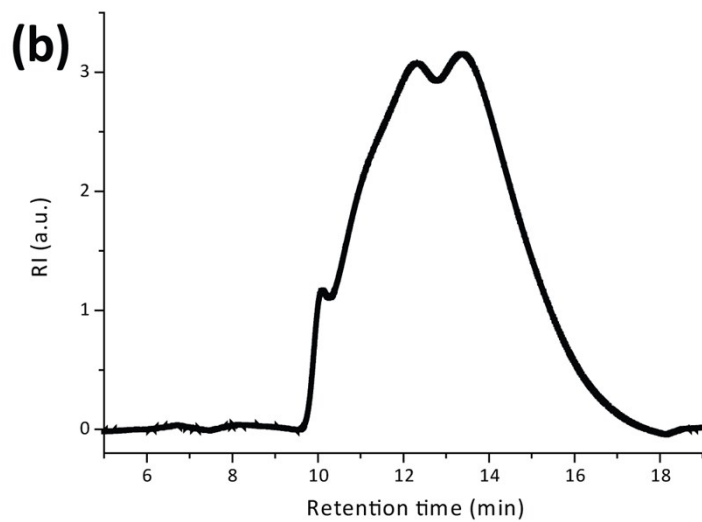


Figure S2. (a) $^1\text{H-NMR}$ spectrum and (b) SEC chromatogram of PSG0.48

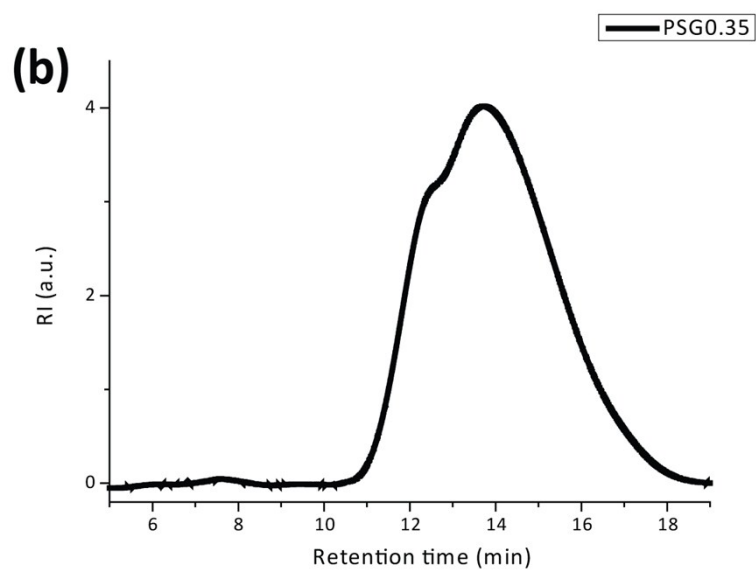
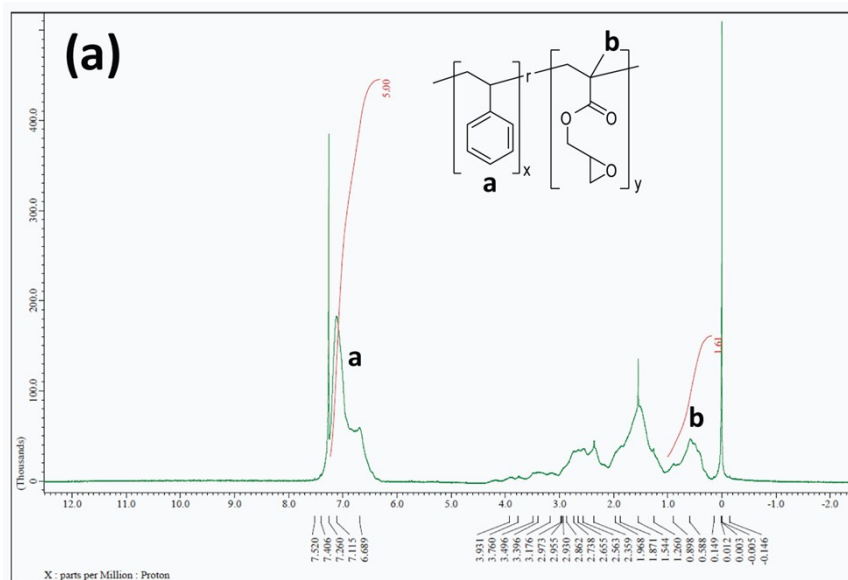


Figure S3. (a) ^1H -NMR spectrum and (b) SEC chromatogram of PSG0.35

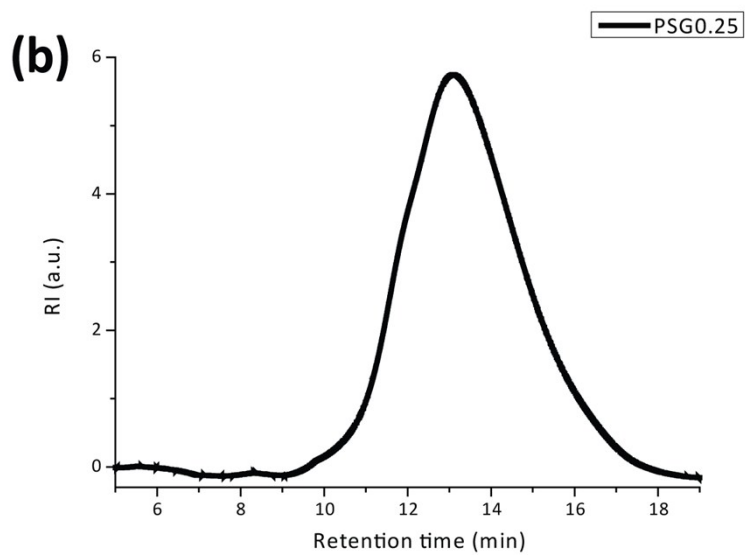
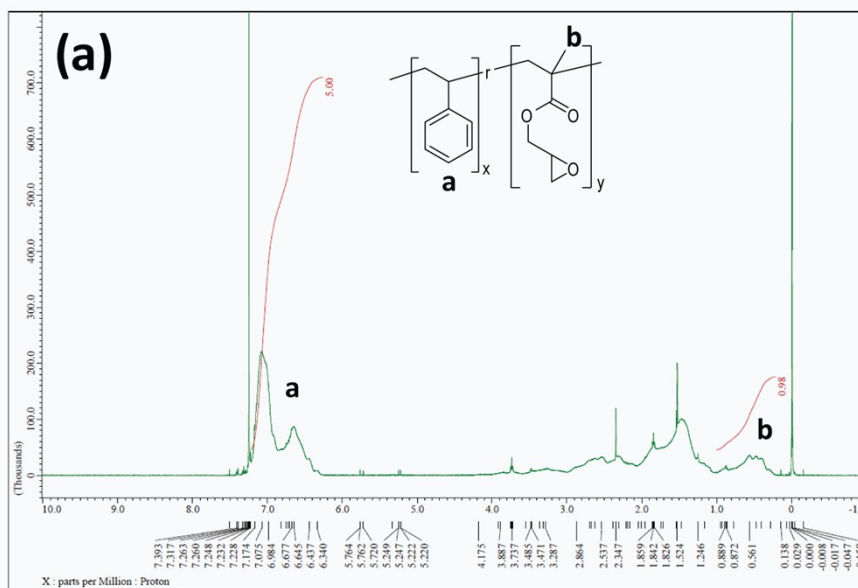


Figure S4. (a) $^1\text{H-NMR}$ spectrum and (b) SEC chromatogram of PSG0.25

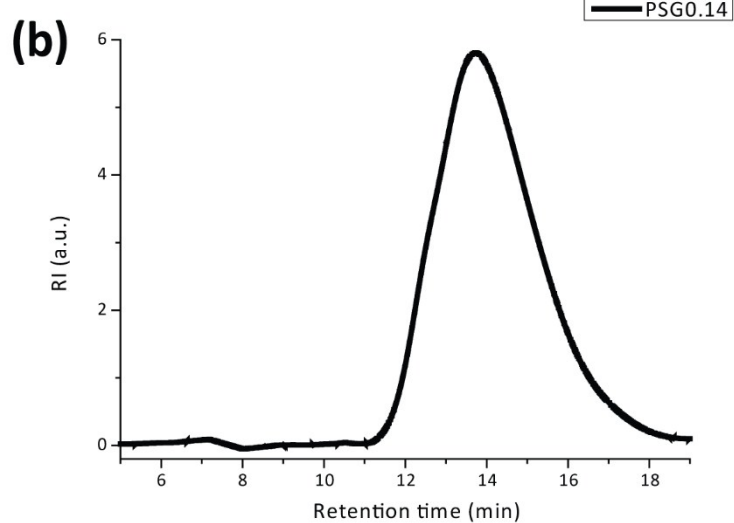
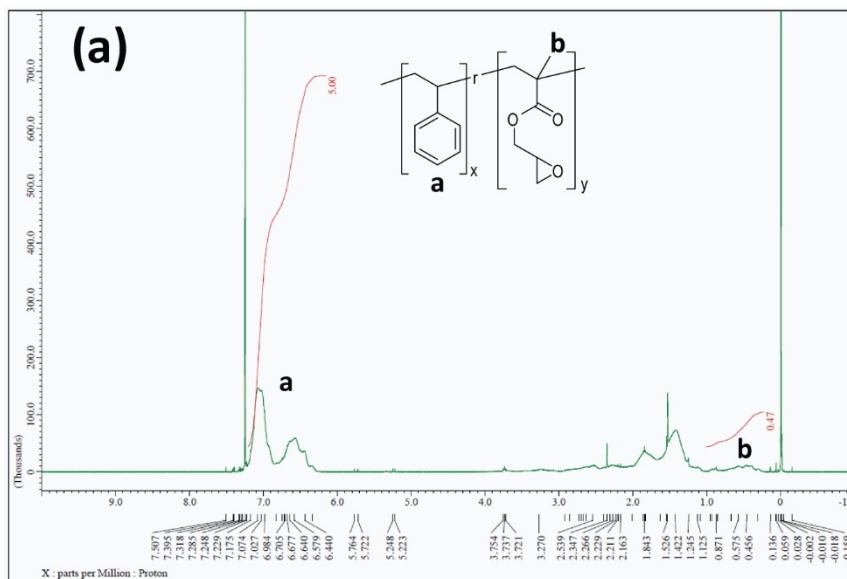


Figure S5. (a) $^1\text{H-NMR}$ spectrum and (b) SEC chromatogram of PSG0.14

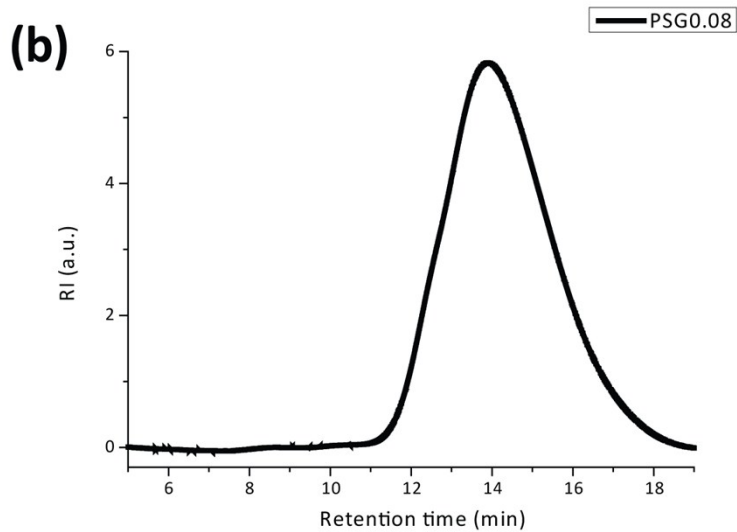
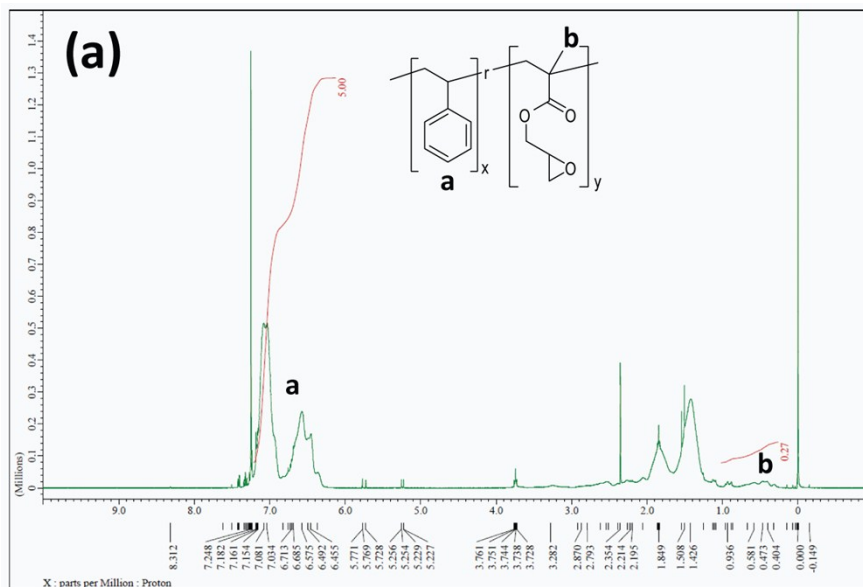
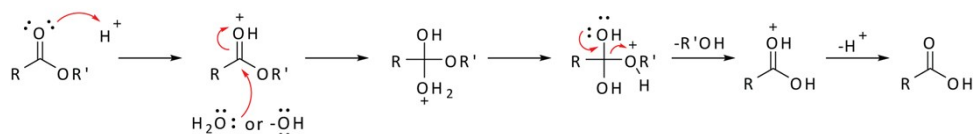


Figure S6. (a) $^1\text{H-NMR}$ spectrum and (b) SEC chromatogram of PSG0.08

1. Ester of GMA and BiBB: acid-catalyzed hydrolysis



2. Ether of crosslinked P(S-r-GMA): protonation and S_N2 reaction

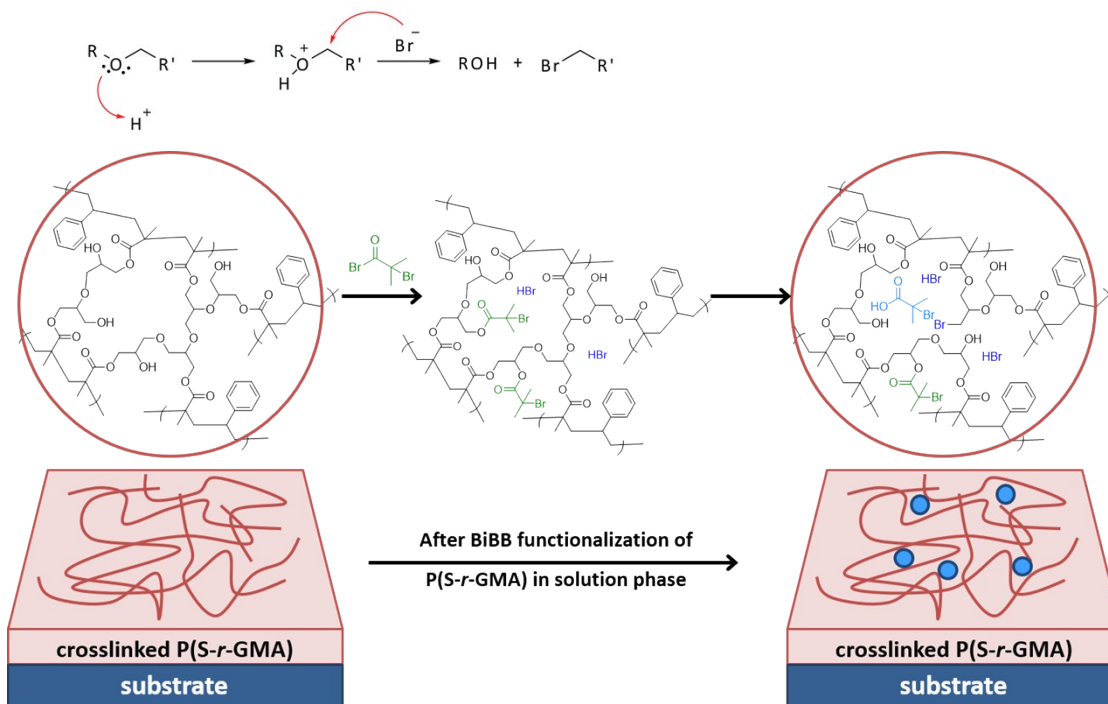


Figure S7. The possible mechanisms of hydrolysis and cleavage of ester group and ether group in solution phase functionalization.

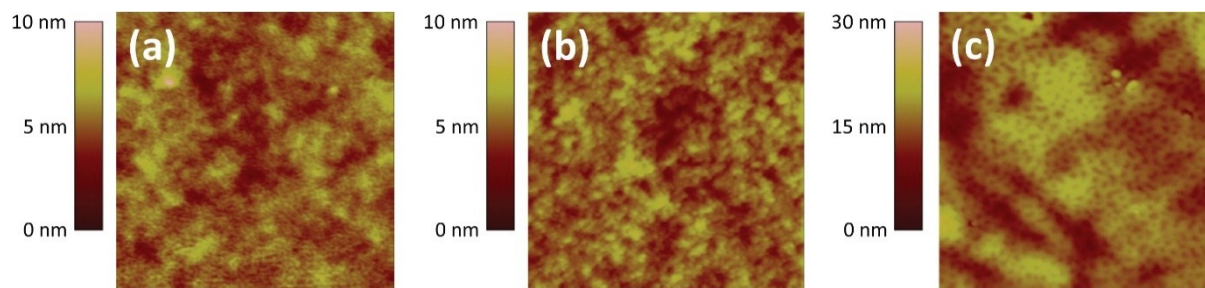


Figure S8. AFM height images with color bar of as-prepared P(S-*b*-MMA) block copolymer brushes of (a) **27K-40K**, (b) **46-56K**, and (c) **101K-137K**. The size of images is $1.5 \mu\text{m} \times 1.5 \mu\text{m}$.