Supplementary Information for

## Synthesis and Properties of Organic/Inorganic Hybrid Branched-Graft Copolymers and Their Applications to Solid-State Electroly tes for High-Temperature Lithium-Ion Batteries

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Fig. S1 <sup>29</sup>Si NMR spectrum of BCP21.



Fig. S2 <sup>13</sup>C NMR spectrum of BCP21.



Figure S3.  $T_g$ s of P(PEGMA) segments in branched copolymers with different POSS contents.



**(b)** 



**Fig. S4** (a) Molar conductivities of LCP21 and BCPs containing LiTFSI with various concentrations at 30 °C. (b) Walden plot of BCP21 electrolytes with varying LiTFSI concentration. (Inset image: shear viscosity with time)