Supporting Information for:

## Hybrid ionogel electrolytes for high temperature lithium batteries

Jin Hong Lee,<sup>a,b</sup><sup>‡</sup> Albert S. Lee,<sup>a</sup><sup>‡</sup> Jong-Chan Lee,<sup>b</sup> Soon Man Hong,<sup>a,c</sup> Seung Sang Hwang<sup>a,c</sup> and Chong Min Koo<sup>\*a,c</sup>

<sup>a</sup>Center for Materials Architecturing, Korea Institute of Science and Technology, Hwarangno 14-gil 5, Seong-Buk Gu, Seoul 136-791

<sup>b</sup>Department of Chemical and Biological Engineering, and Institute of Chemical Process, Seoul National University, 599 Gwanak-ro, Gwanak-gu, Seoul 151-744, Republic of Korea

<sup>c</sup>Nanomaterials Science and Engineering, University of Science and Technology, 217 Gajungro, 176 Gajung-dong, Yuseong-Gu, Daejeon 305-333, Republic of Korea

‡These authors contributed equally to this work.



## Fig S1. <sup>1</sup>H NMR of BMPTFSI in CDCl<sub>3</sub>



Fig S2. Interfacial Resistance as a function of time



Fig S3. Cyclic Voltammogram for a symmetrical Li/HI-2/Li cell



Fig S4. Chemical structure of a well-studied organic crosslinker, ETPTA



Fig S5. Representative discharge profiles for reference LiFePO<sub>4</sub>/1M LiTFSI BMPTFSI/Li Cells at 0.1C charge-0.1C discharge conditions (90°C)