Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supplementary information

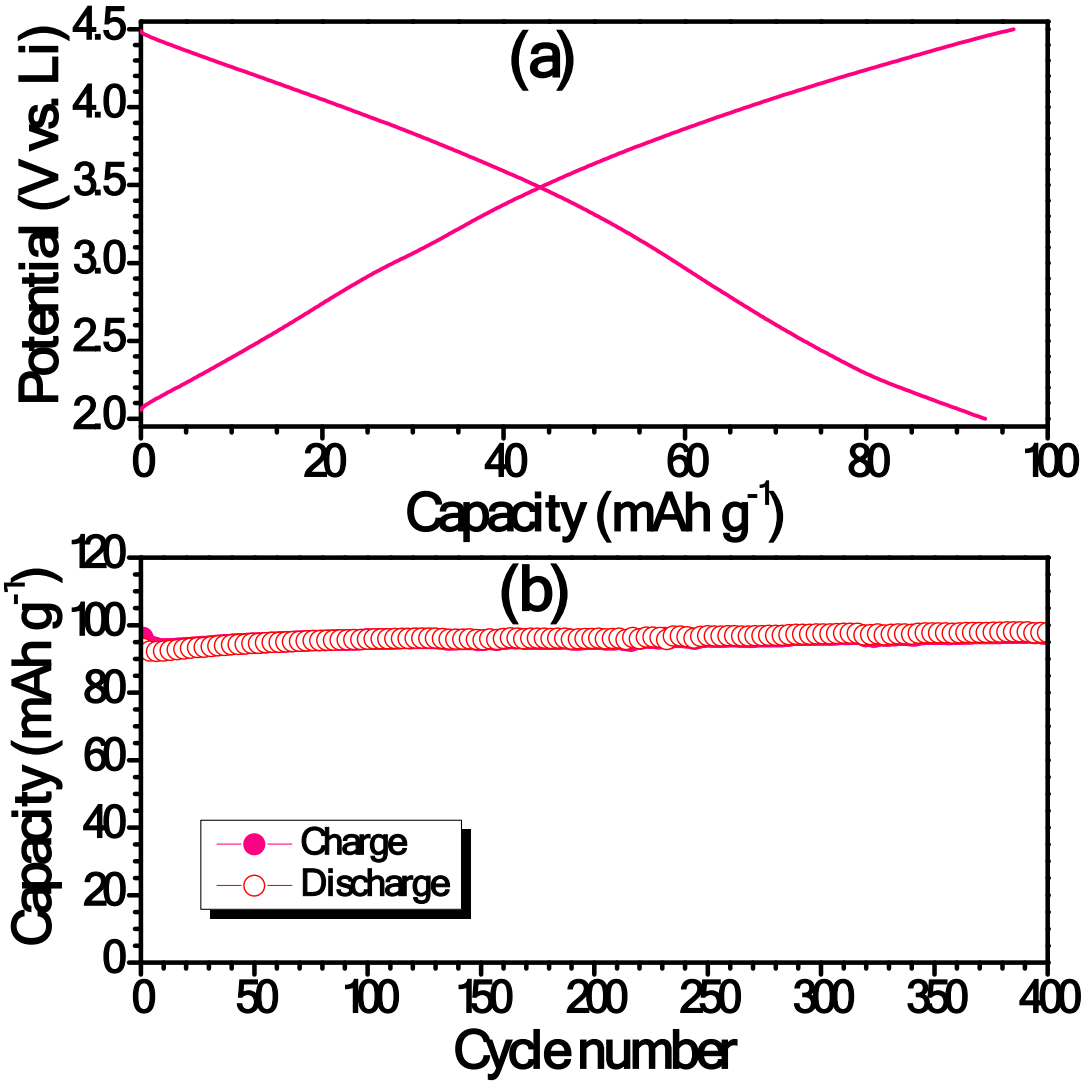

Figure S1. (a) Galvanostatic charge-discharge curves of AC (Kuraray, Japan) in half-cell configuration with Li at current density of 100 mA g^{-1}, and (b) Plot of capacity *vs.* cycle number

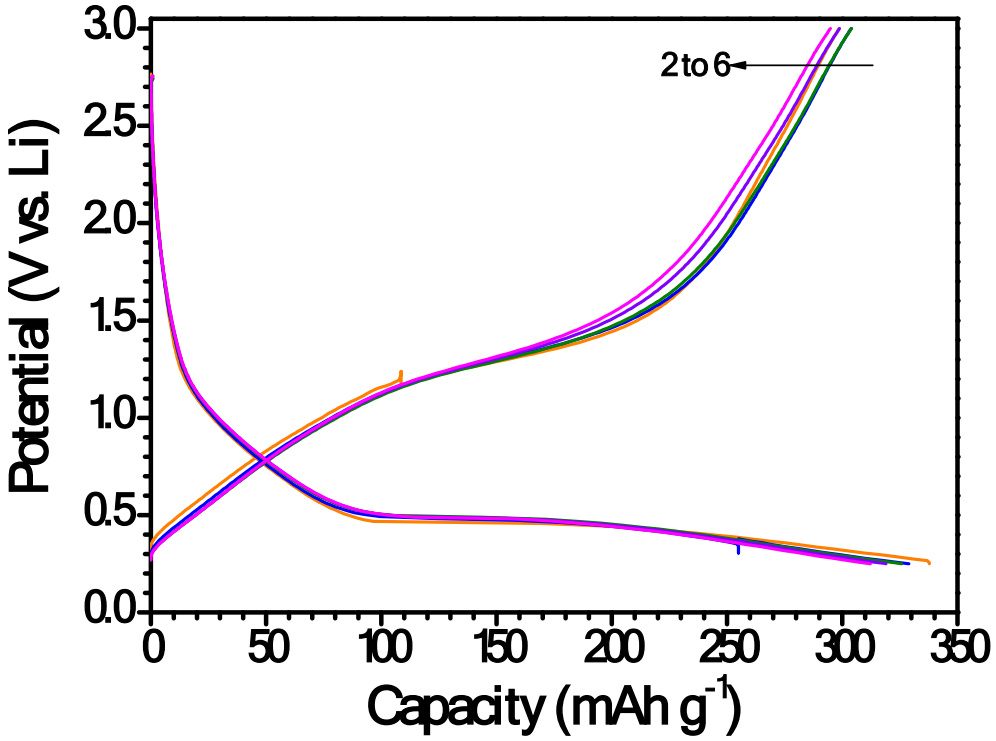

Figure S2. Typical galvanostatic charge-discharge curves of Mn_3O_4-G in half-cell configuration with Li at current density of 100 mA g^{-1}.

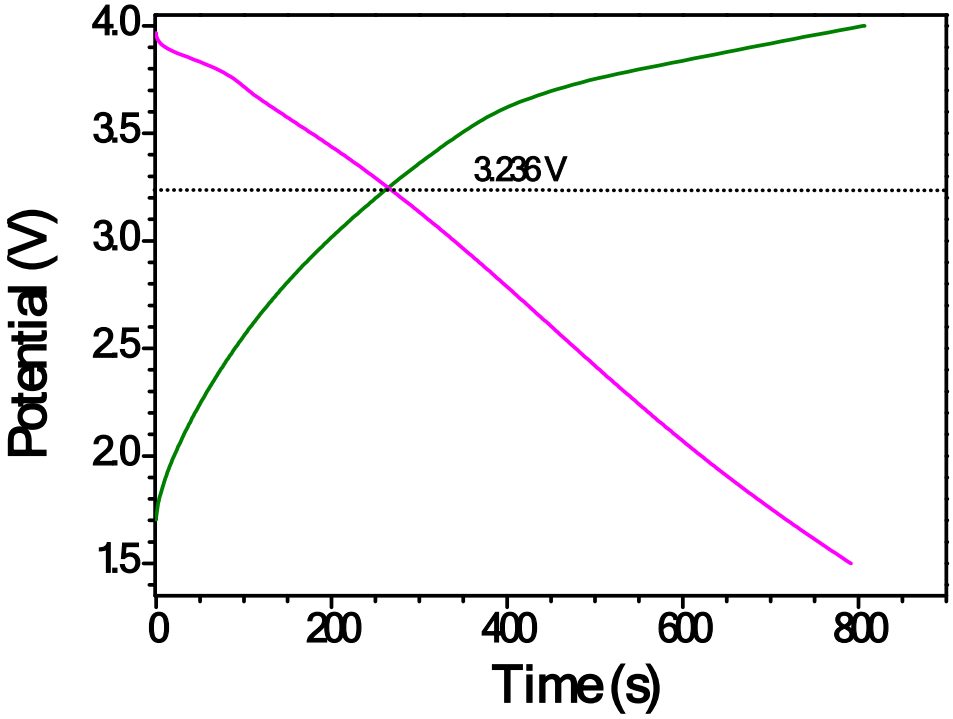

Figure S3. Typical charge-discharge curves of AC/Mn_3O_4-G based LIC at current density of 0.2 A g^{-1}

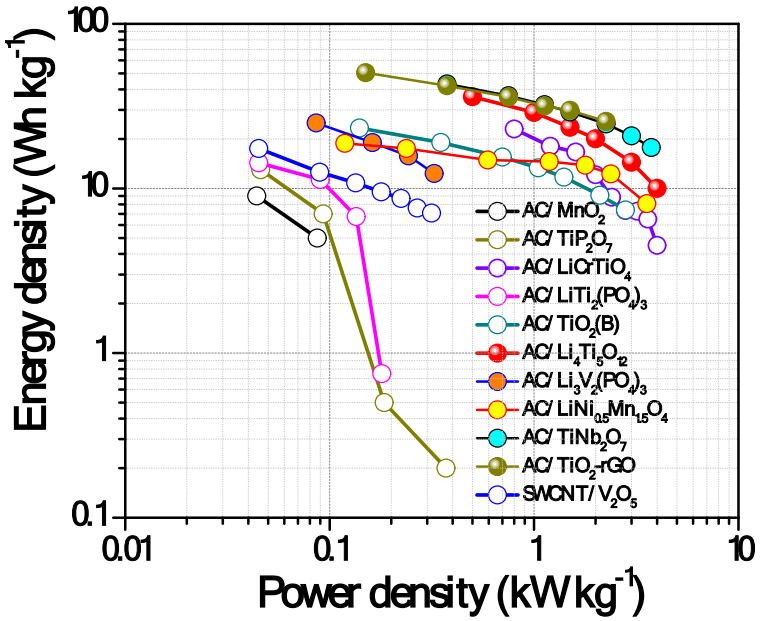

Figure S4. Ragone plot of various insertion type material investigated for LIC perspective. The given values are based on the total mass of the active material.

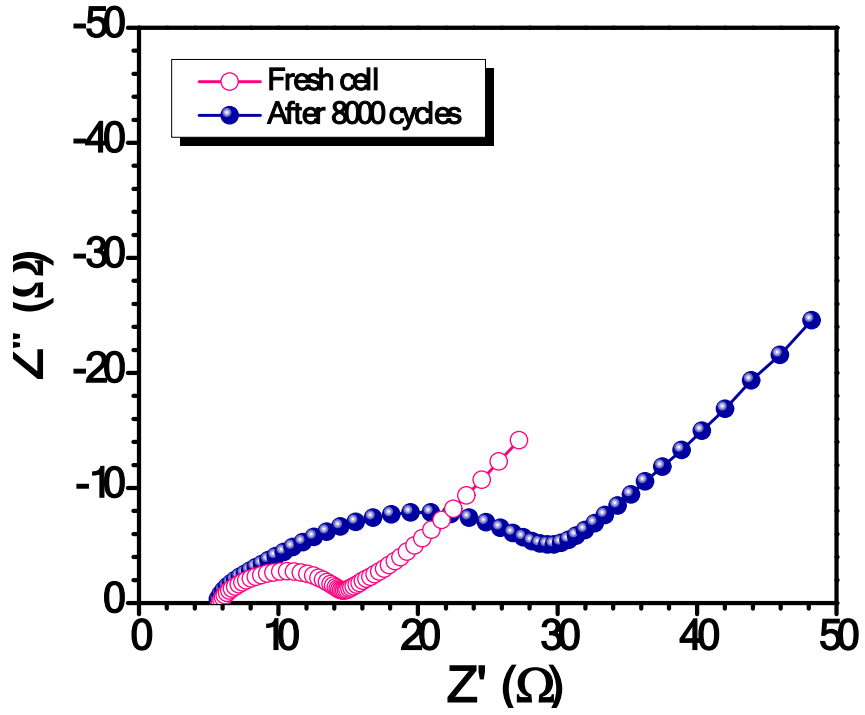

Figure S5. Electrochemical impedance spectra of AC/Mn_3O_4-G based LIC

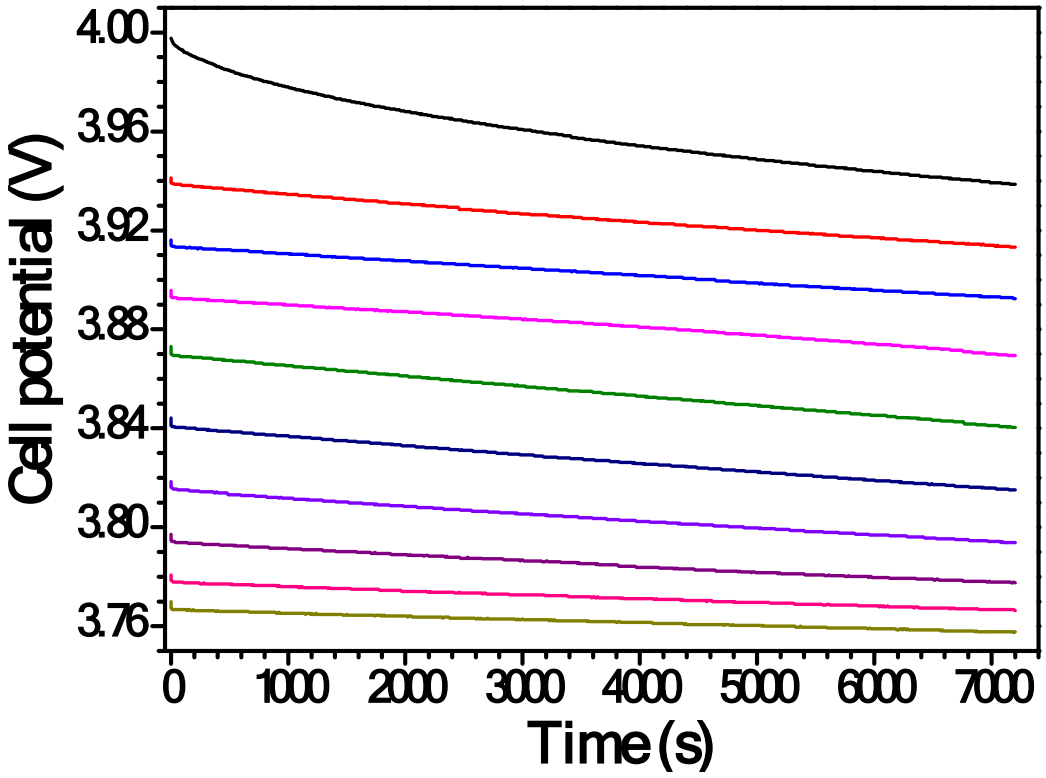

Figure S6. Plot of cell potential *vs.* relaxation time for AC/Mn_3O_4-G based LIC towards self-discharge measurements.

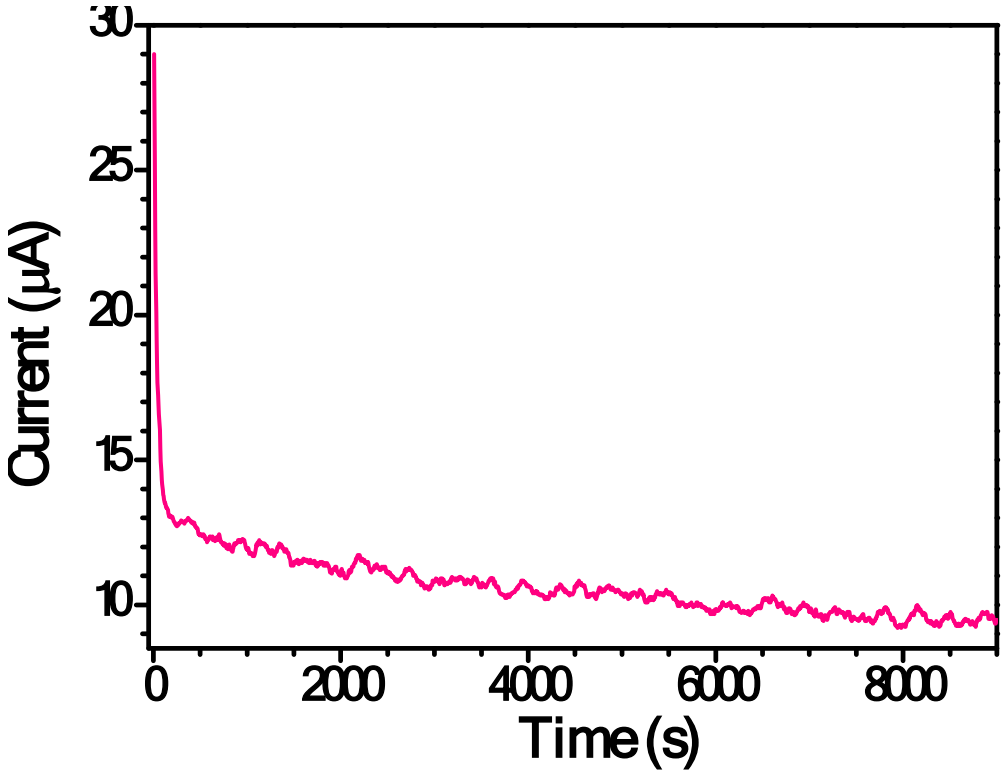

Figure S7. Plot of leakage current vs. time when the AC/Mn_3O_4-G based LIC is at 4 V.

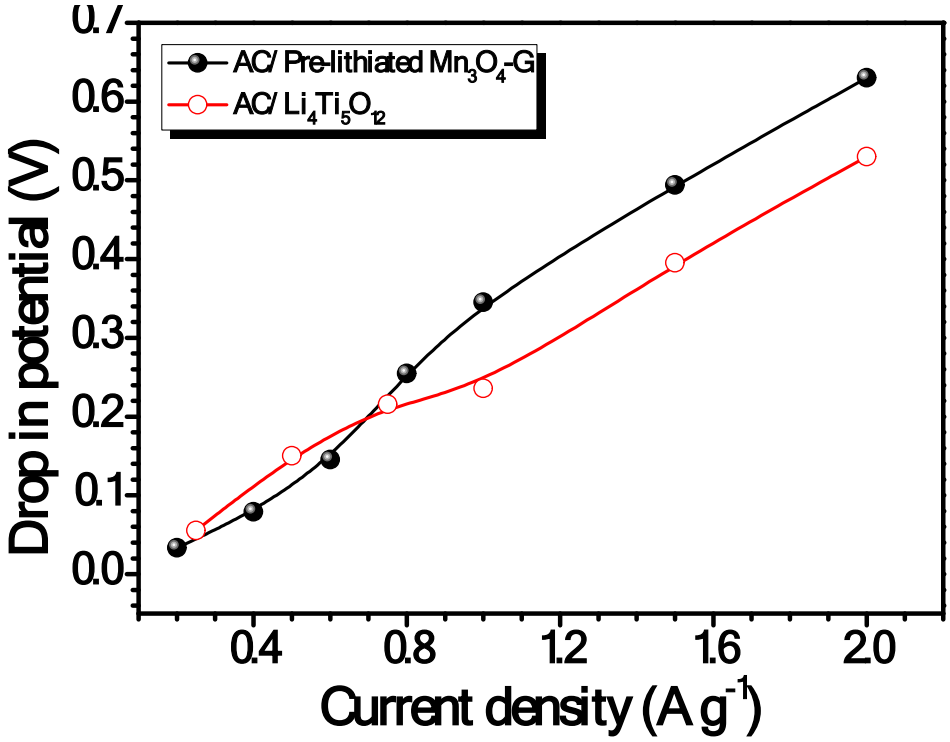

Figure S8. Comparison of IR drop observed in this system with intercalation anode based LIC ($AC/Li_4Ti_5O_{12}$, Ref. 18)