

Supporting Information

Bifunctional electrolyte additive KI to improve the cycling performance of Li-O₂ batteries†

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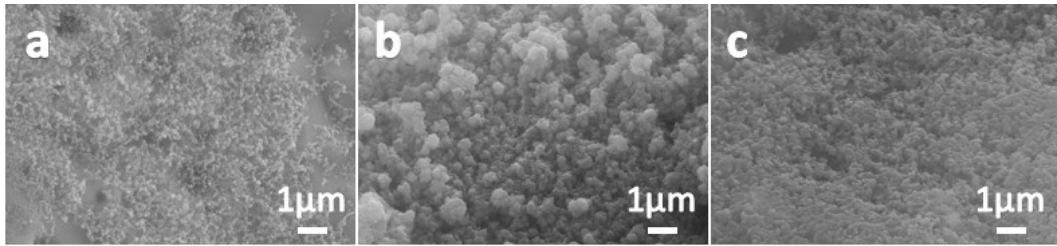


Fig. S1. SEM image of (a) pristine cathode, (b) after recharge in the base electrolyte, (c) after recharge in the electrolyte with 0.05 M LiI

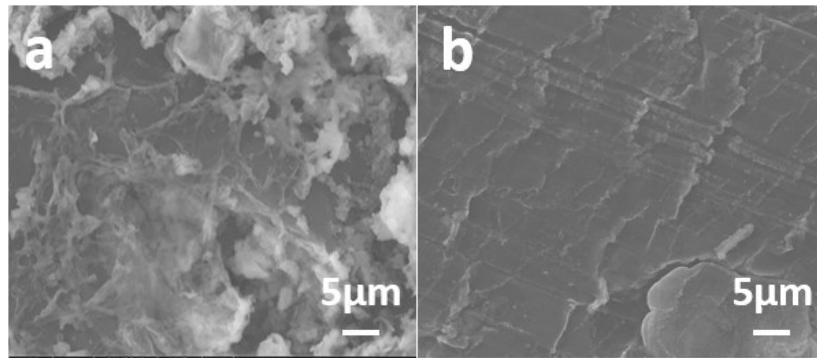


Fig. S2. SEM image of the Li anode in Li-O₂ batteries after 50th cycles in the electrolyte (a) without additive, (b) with 0.05 M KTFSI

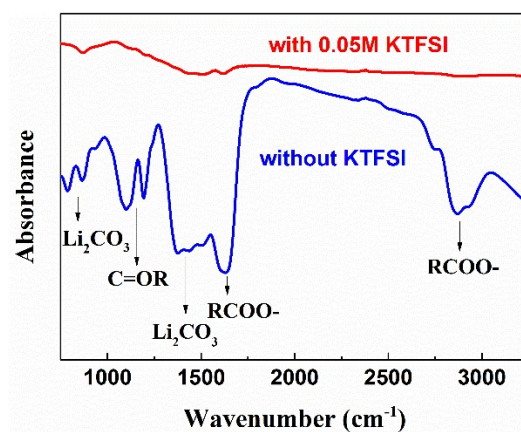


Fig. S3. FTIR spectra of Li anode in Li-O₂ batteries after 50th cycles with different electrolytes

Table S1. The percentage of the component on the Li anode calculated from the C1s

XPS spectra

Component	Without KTFSI (%)	With KTFSI (%)	With KI (%)
C-C	37.85	61.03	61.37
C=OR	21.33	14.59	15.26
COOR	24.67	9.27	7.61
CO ₃ ²⁻	16.15	15.1	15.76

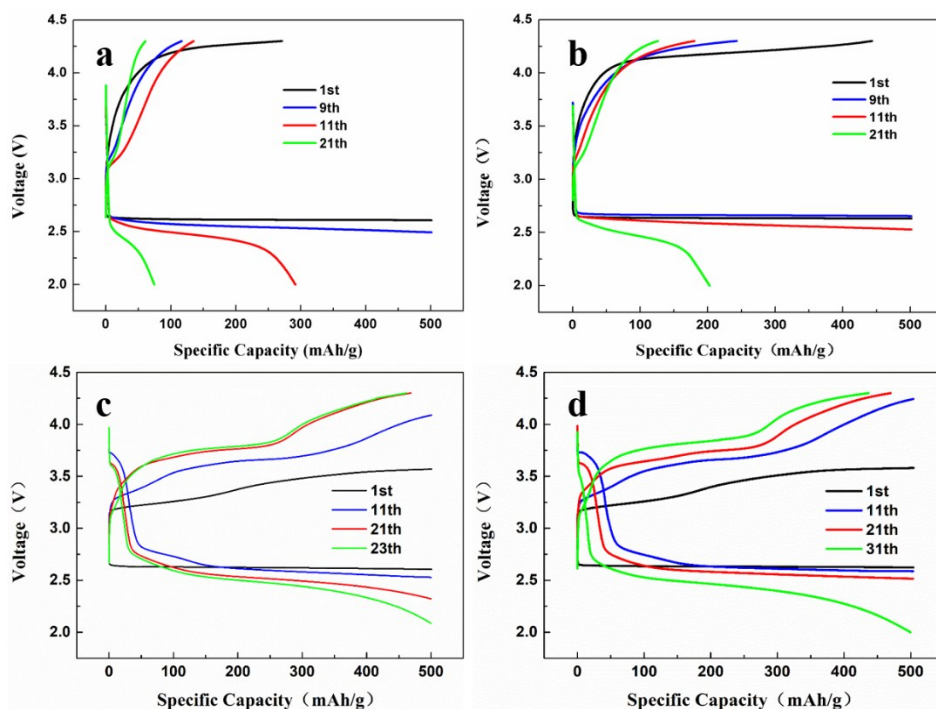


Fig. S4 The discharge and charge curves of Li-O₂ batteries during cycles (a) without additive (b) with 0.05M KTFSI (c) with 0.05 M Lil (d) with 0.05 M KI

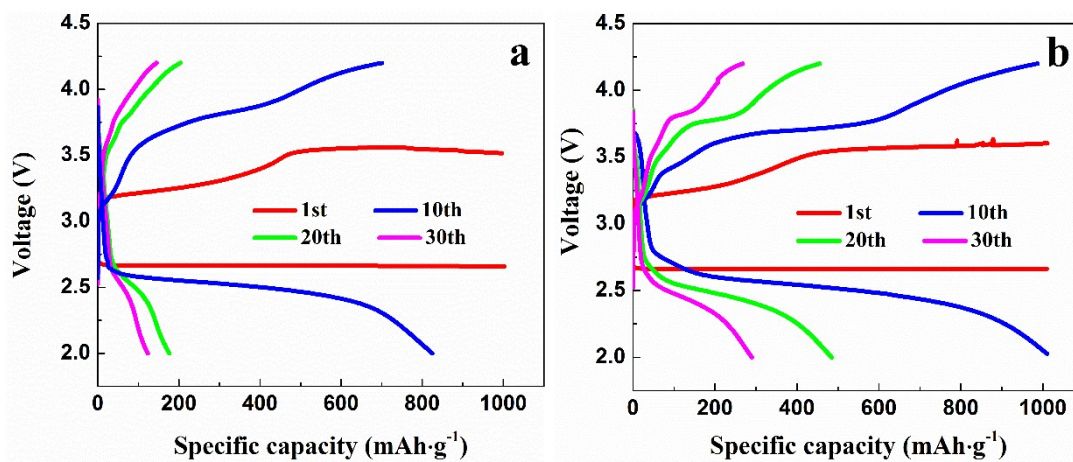


Fig. S4. Cycling performance of Li-O₂ batteries with limited capacity of 1000 mAh·g⁻¹ in the electrolyte (a) with 0.05 M Lil, (b) with 0.05 M KI