Electronic Supplementary Information

An optimized $LiNO_3$/DMSO electrolyte for high-performance rechargeable Li-O_2 batteries

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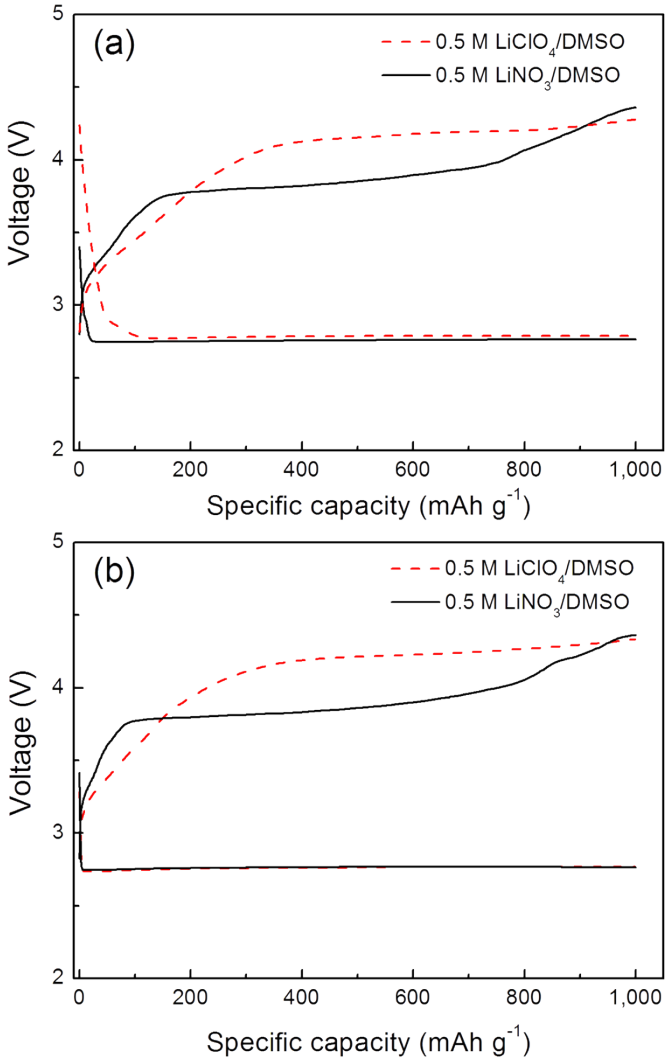

Fig. S1 Charge/discharge voltage curves of Li-O_2 batteries with (a) Super-P carbon black and (b) Vulcan XC-72 carbon as the cathode catalysts in two DMSO based electrolytes.

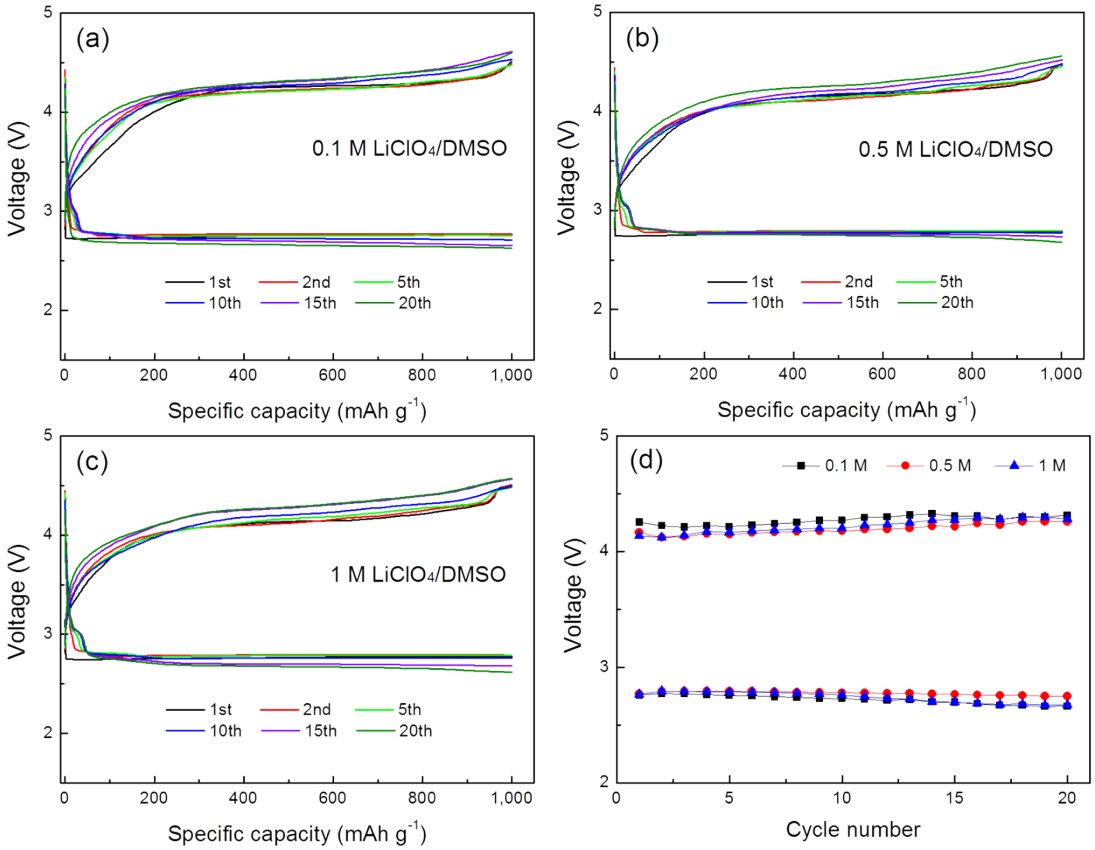

Fig. S2 (a – c) Charge/discharge curves of Li-O_2 batteries in DMSO-based electrolyte with different concentration of $LiClO_4$. (d) The mean voltages of charge and discharge *vs.* cycle number.

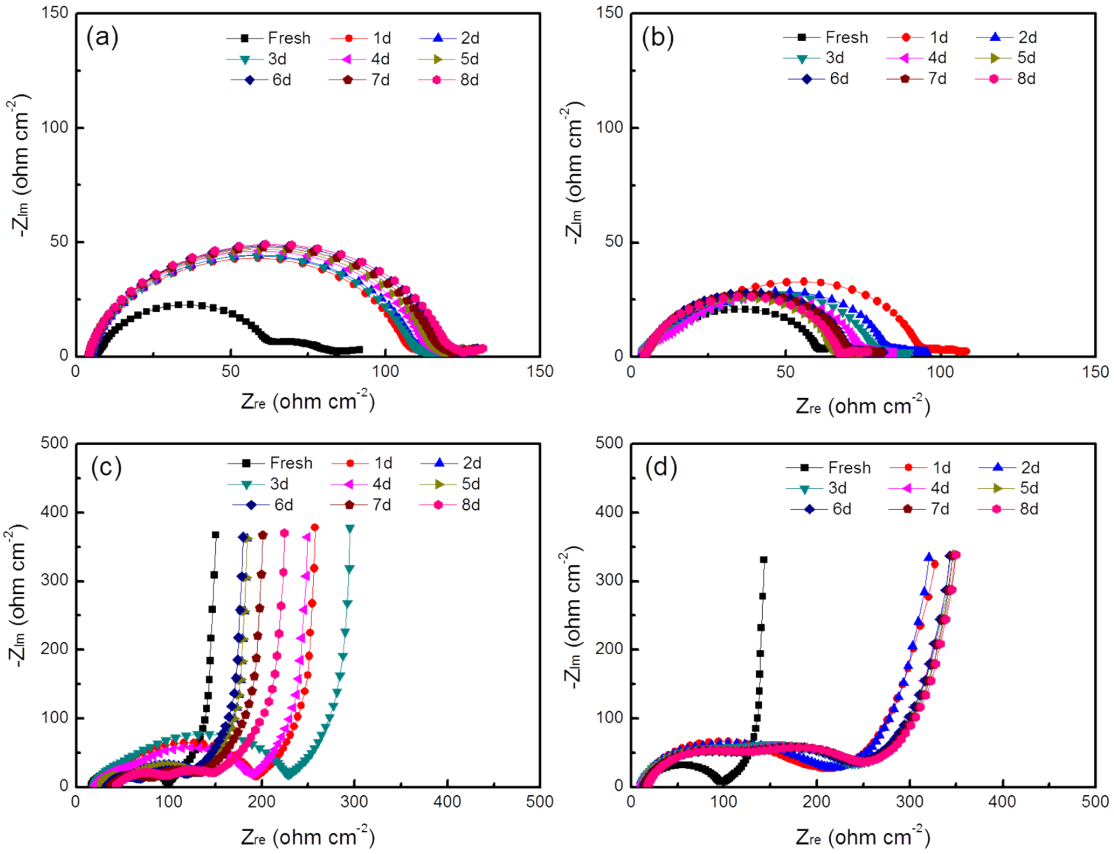

Fig. S3 EIS spectra of symmetric Li/Li cells store for 8 days in (a) $LiClO_4$/DMSO electrolyte, (b) $LiNO_3$/DMSO based electrolyte at open circuit voltage. EIS spectra of Li-O_2 cells store for 8 days in (c) $LiClO_4$/DMSO electrolyte, (d) $LiNO_3$/DMSO based electrolyte at open circuit voltage.