Supporting Information

Lithium Sulfonate/Carboxylate Anchored Polyvinyl Alcohol Separator for Lithium Sulfur Batteries

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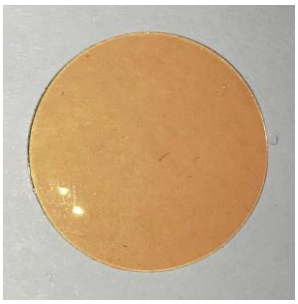

Figure S1. The photograph of prepared P-S/C-Li.

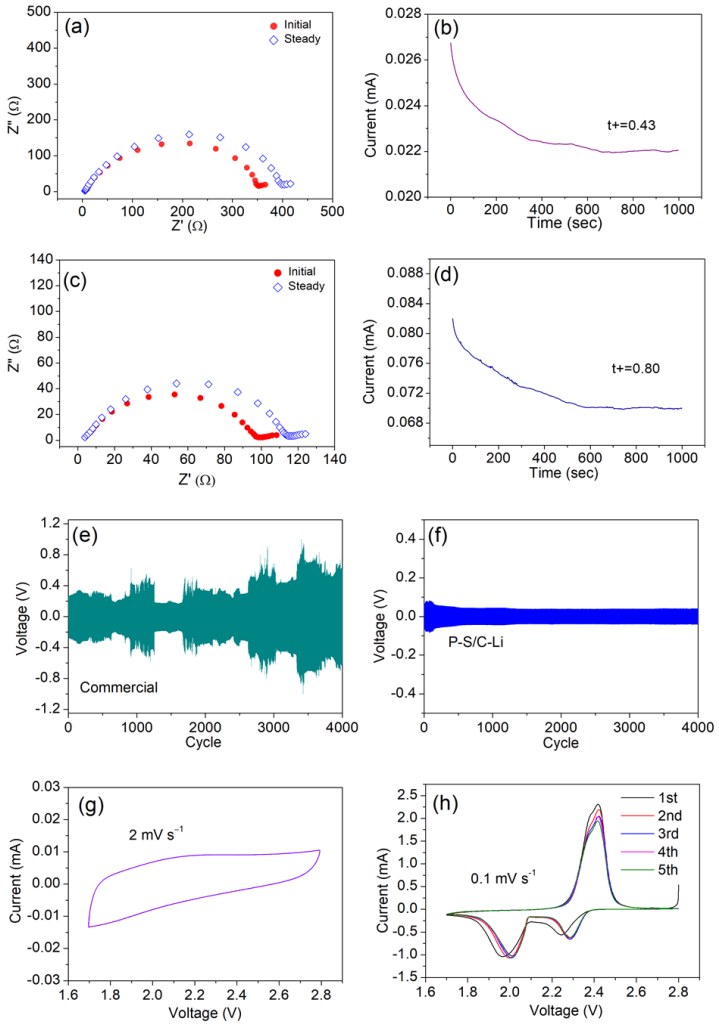

Figure S2. EIS at initial and steady states, responsive currents and the plate/strip voltage of Li//Li cell comprising commercial separator (a, b, e) and P-S/C-Li (c, d, f), respectively. The cyclic voltammograms of Li//stainless steel at 2 mV s^{-1} (g) and Li//S@C at 0.1 mV s^{-1} (h) applying P-S/C-Li.

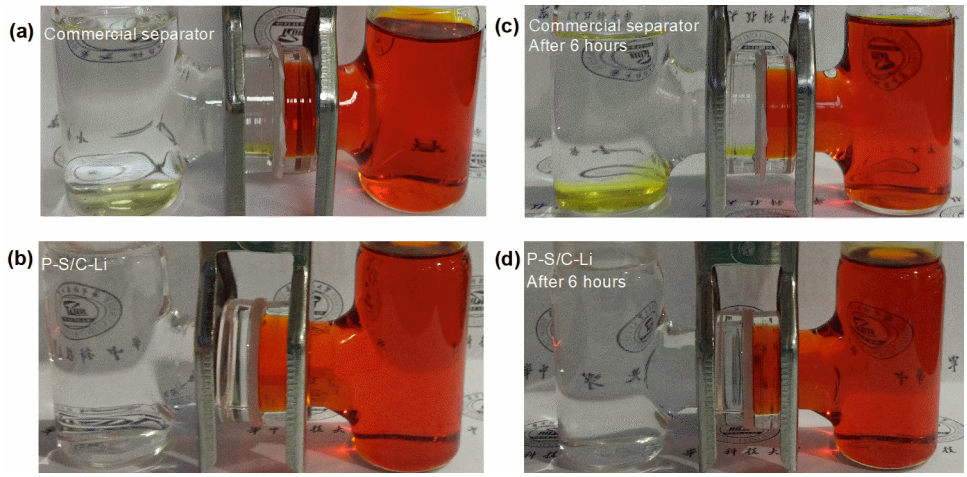

Figure S3. The verification of polysulfide immobilization. Freshly assembled: commercial (a) and P-S/C-Li (b). After 6h: commercial (c) and P-S/C-Li (d).

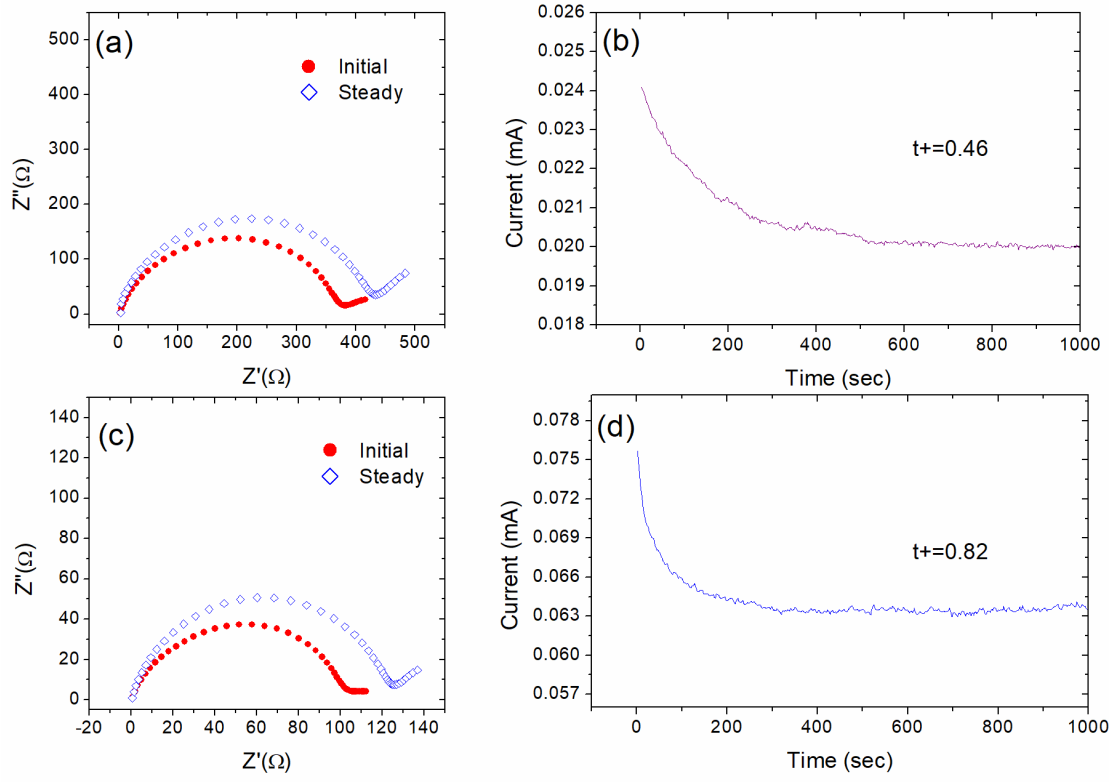

Figure S4. Lithium transference number measurements in 1 M LiTFSI + 0.2 M Li_2S_8 DOL/DME (1:1, v/v) electrolyte. EIS in initial and steady status and current plots for commercial (a, b) and P-S/C-Li (c, d) separators, respectively.

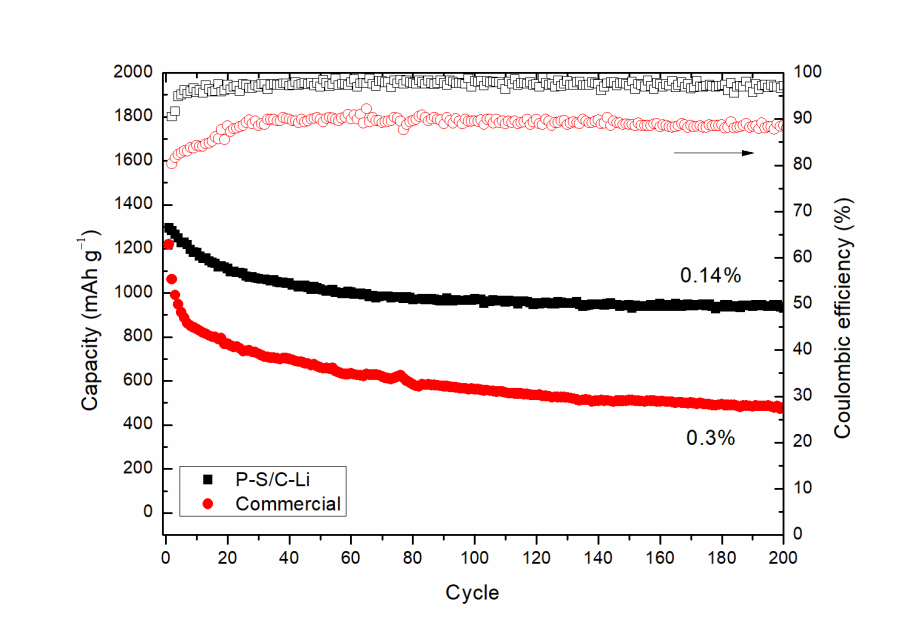

Figure S5. The galvanostatic charge/discharge performances at 0.5 A g^{-1} for 200 cycles applying S@C cathode.

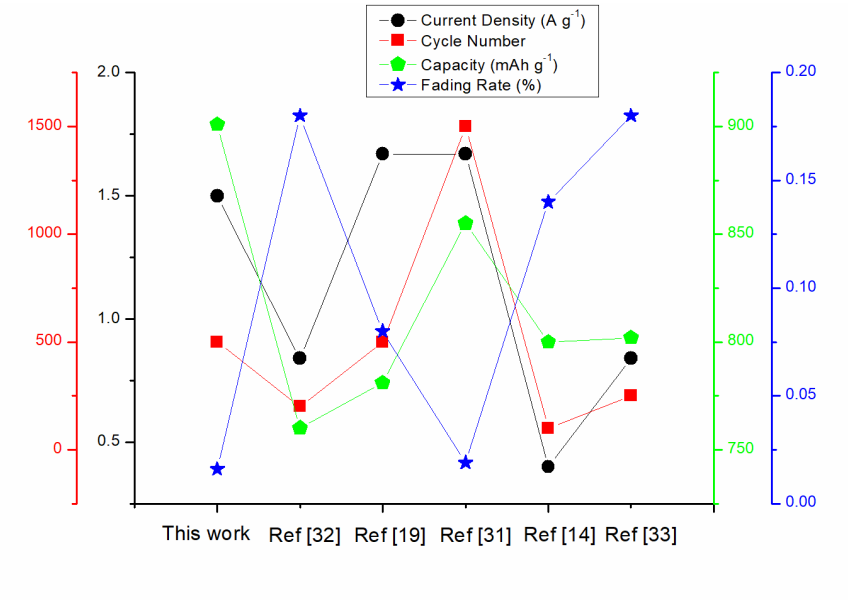

Figure S6. The LSB performances applying various functional separator in literatures.