# Electronic Supplementary Information

## Design of a bipolar organic small-molecule cathode with mesoporous nanospheres structure for long lifespan and high-rate Li-storage performance

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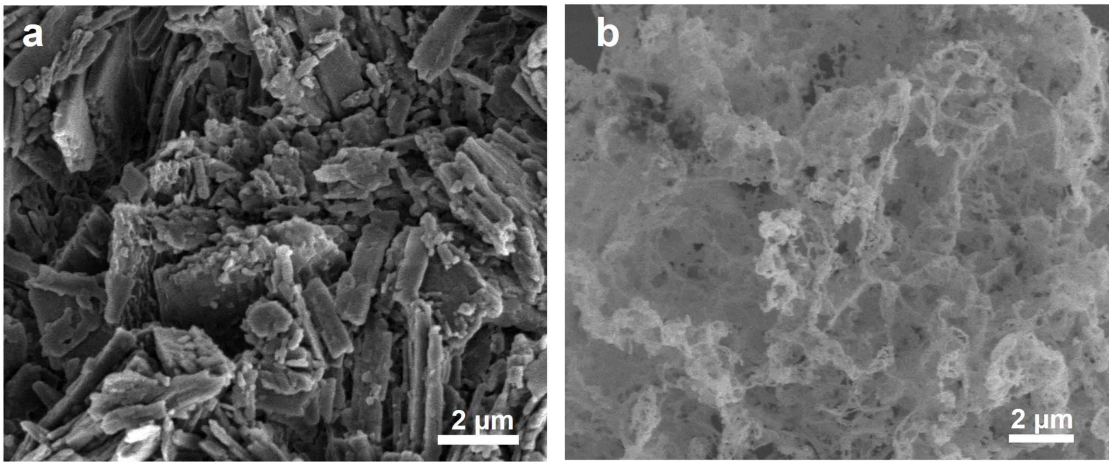


**Figure S1.** SEM images of (a) PPD and (b) FCA.

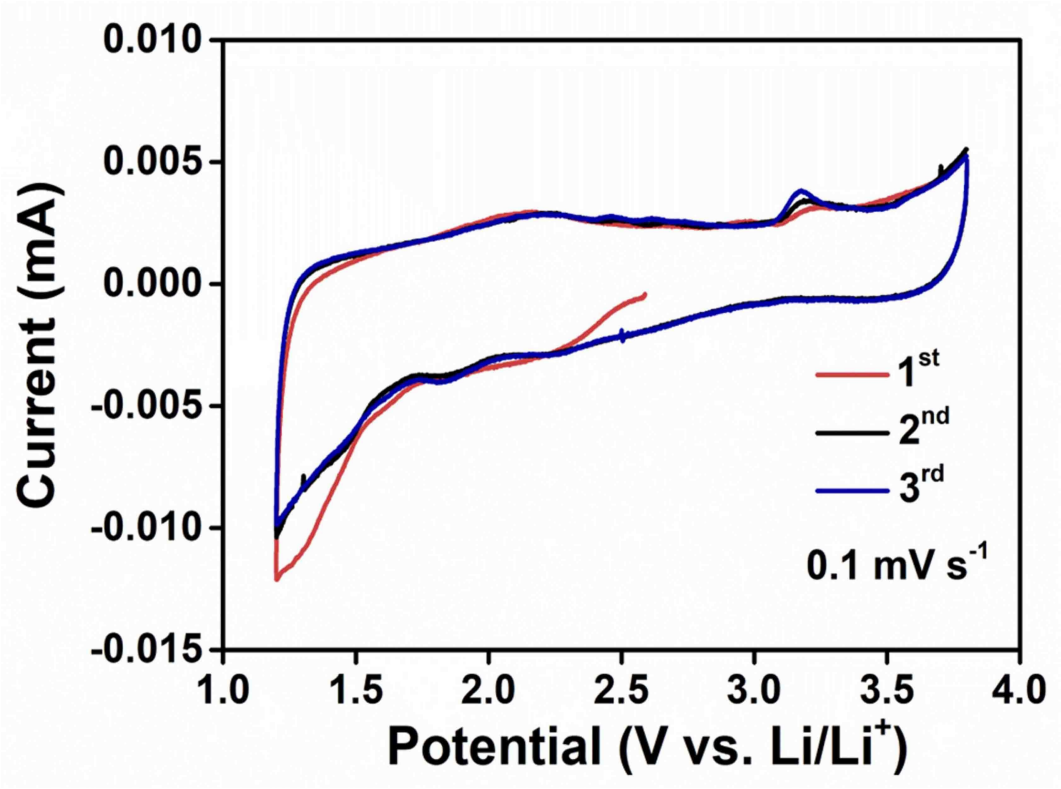


**Figure S2.** CV curves of the initial three cycles of the FCPD cathode at 0.1 mV $s^{-1}$.

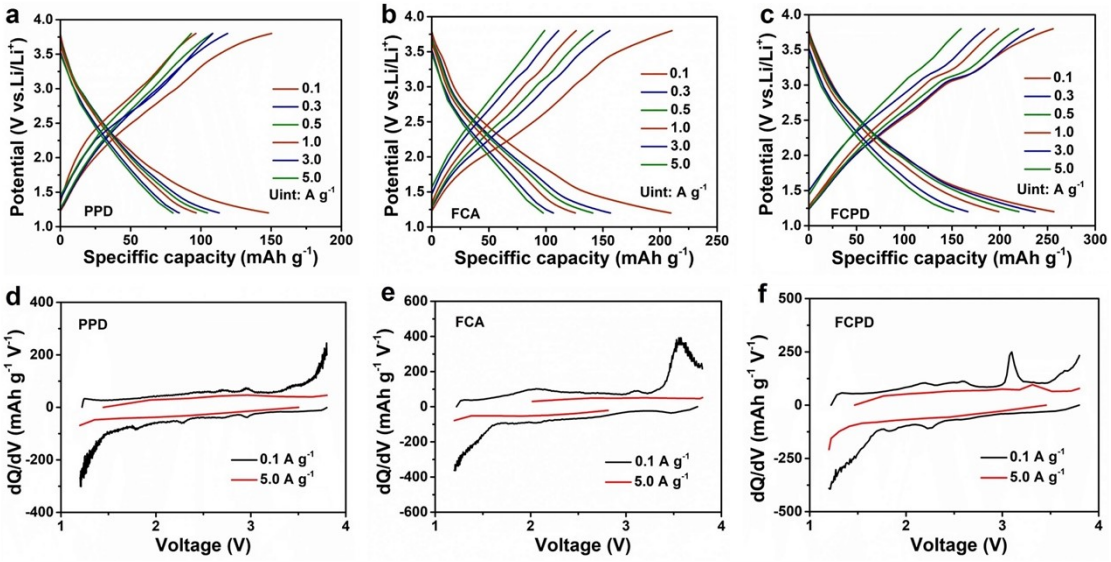


**Figure S3.** Charge/discharge profiles of PPD, FCA, and FCPD at different current densities, and corresponding dQ/dV profiles at 0.1 and 5.0 A $g^{-1}$.

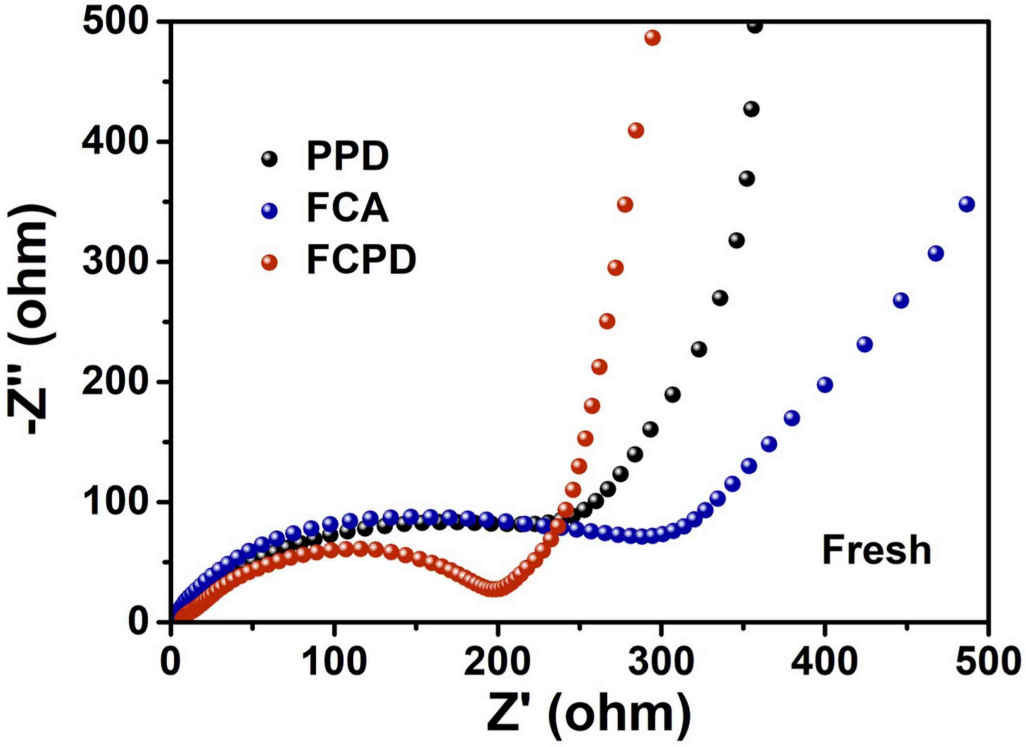


**Figure S4.** EIS plots of PPD, FCA, and FCPD cathodes.

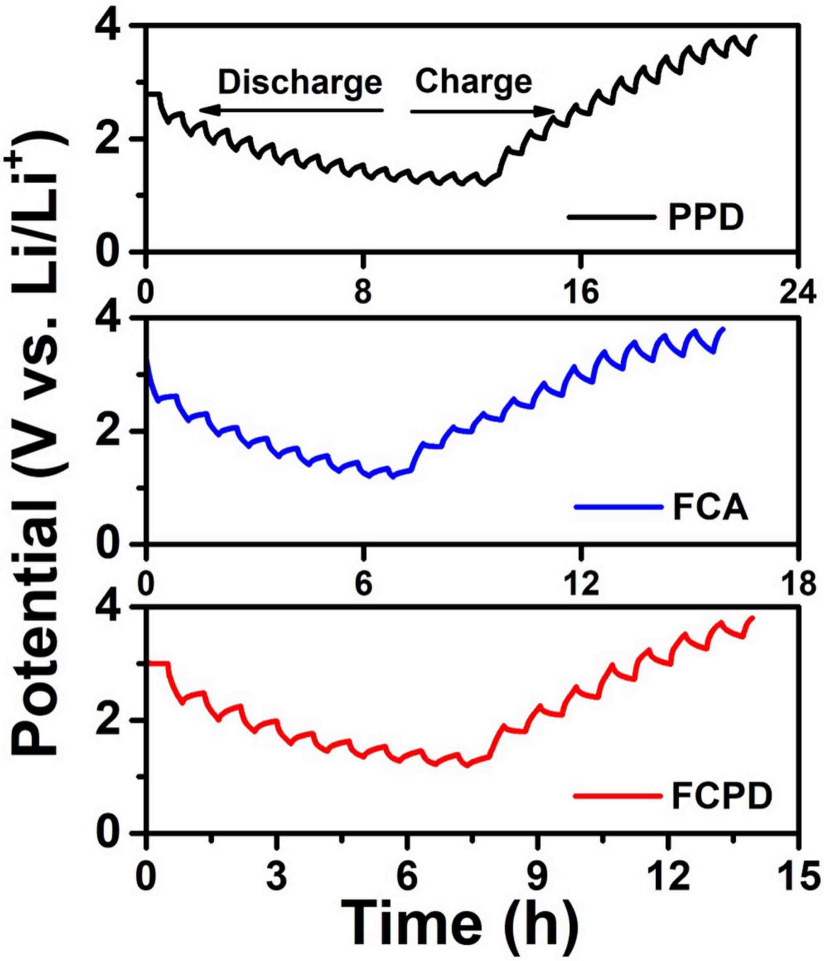


**Figure S5.** The GITT curves of PPD, FCA, and FCPD cathodes during the charging/discharging processes.

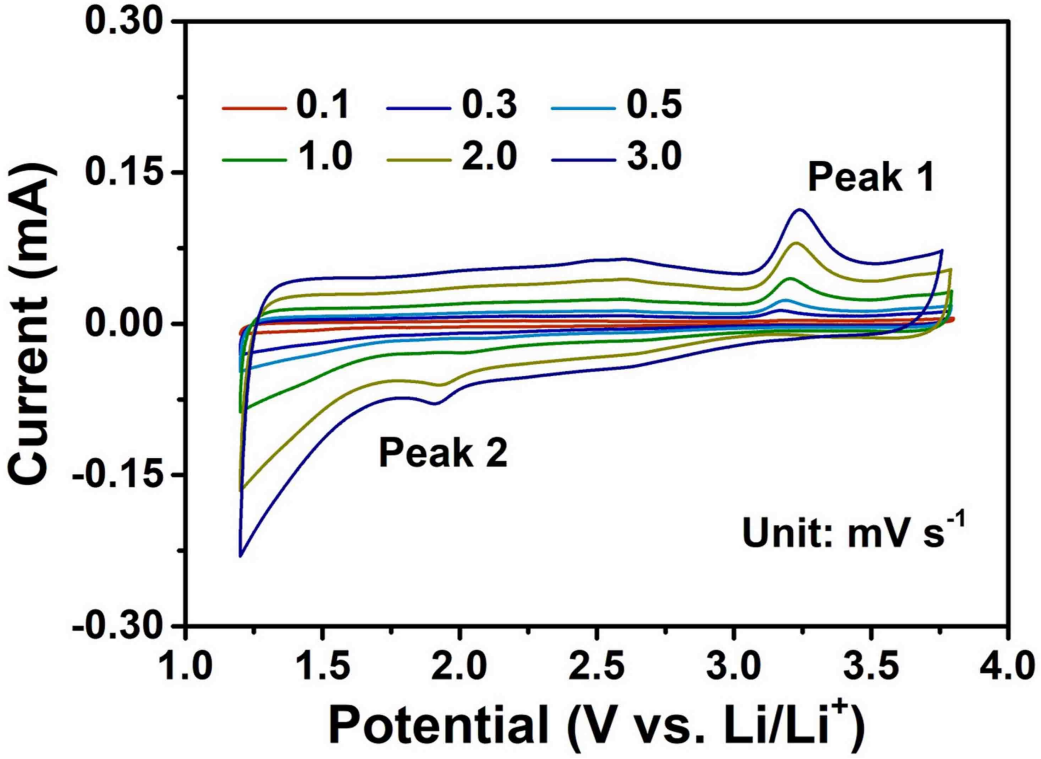


**Figure S6.** CV curves of the FCPD cathode at various scan rates.

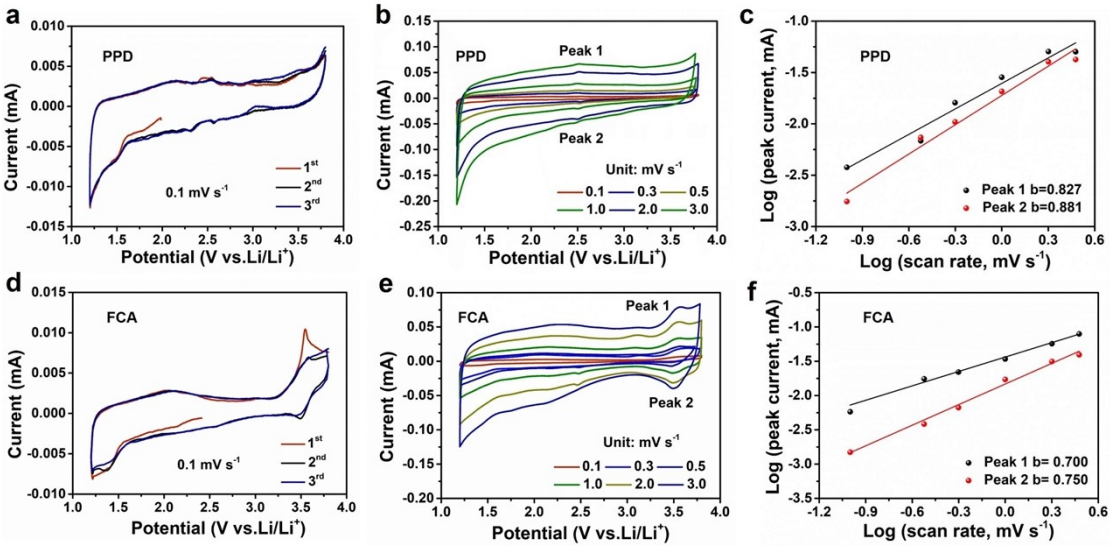


**Figure S7.** CV curves at 0.1 mV $s^{-1}$, CV curves at various scan rates ranging from 0.1 to 3.0 mV $s^{-1}$, and corresponding relationship between log (i) and log (v) of PPD and FCA cathode.

**Table S1.** Comparison of the rate behaviors of the FCPD electrode with other organic electrodes.

| Samples | Capacity (mAh $g^{-1}$) @ Rate (mA $g^{-1}$) | Ref. |
|---|---|---|
| PQANP-3 | ~175 @ 100, ~120 @ 5000 | 1 |
| P(PTO-TT) | ~175 @ 100, ~90 @ 5000 | 2 |
| E-TP-COF | ~110 @ 200, ~30 @ 2000 | 3 |
| TCTA | ~95 @ 100, ~70 @ 5000 | 4 |
| BQbTPL | ~150 @ 100, ~95.8 @ 1000 | 5 |
| DPTTO | ~143 @ 100, ~63 @ 2000 | 6 |
| FCPD | ~250 @ 100, ~151 @ 5000 | **This work** |

## REFERENCES


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