Supporting information

High-Performance Dual-Ion Zn Batteries Enabled by Polyzwitterionic Hydrogel Electrolyte with Regulated Anion/Cation Transport and Suppressed Zn Dendrite Growth

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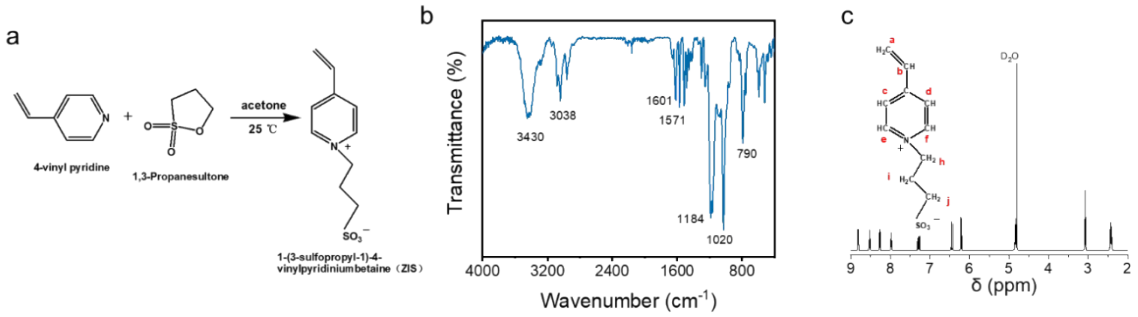

Fig. S1. (a) Synthesis schematic diagram of ZIS. (b) FTIR and (c) ^{1}H NMR spectra of ZIS.

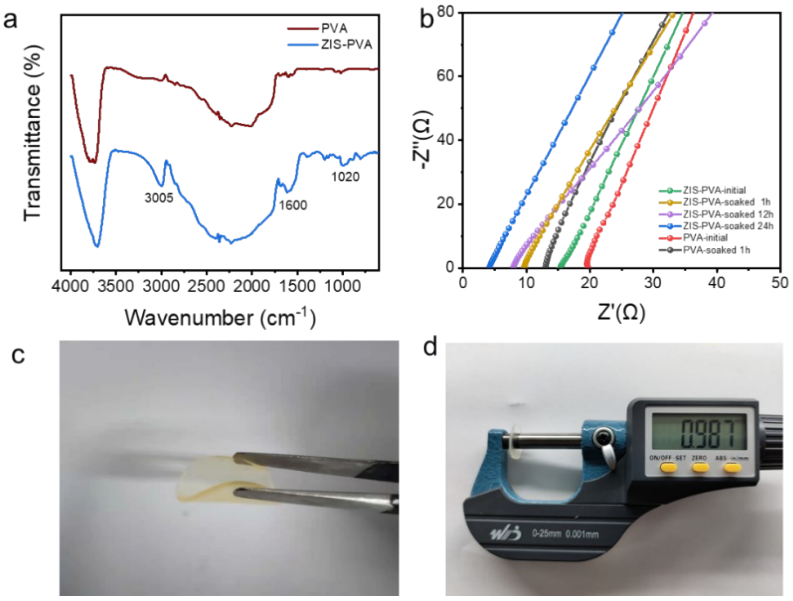

Fig. S2. (a) FTIR spectra of ZIS-PVA and PVA hydrogel. (b) EIS spectras of ZIS-PVA and PVA hydrogel with different soaking time. (c) Digital photos of the ZIS-PVA gel electrolyte used in cell testing. (d) Thickness of the ZIS-PVA hydrogel electrolyte (~1mm).

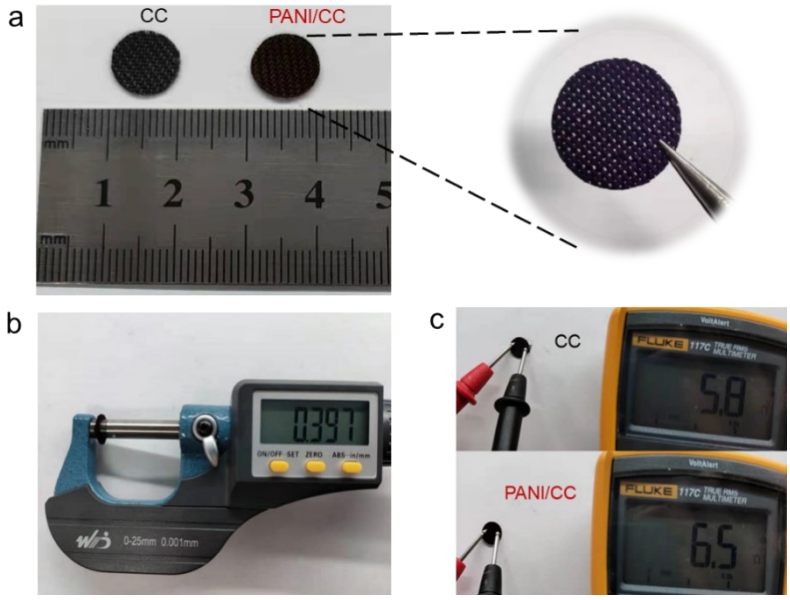

Fig. S3. (a) Optic images of pure CC and PANI/CC. (b) The thickness of PANI/CC cathode was about 0.4 mm. (c) The surface resistance comparison of pure CC and PANI/CC.

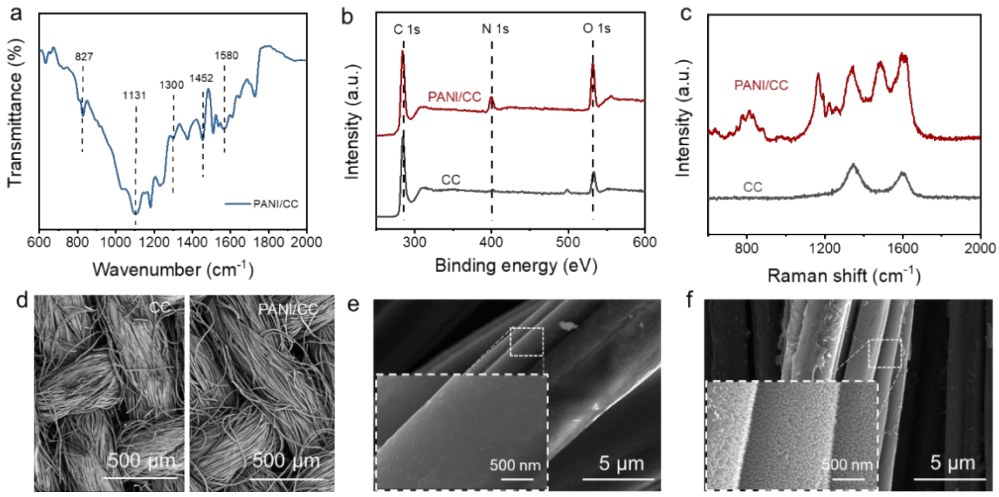

Fig. S4. (a) FTIR, (b) XPS and (c) Raman spectroscopy of pure CC and PANI/CC. (d) SEM images of fiber braided constructions of pure CC and PANI/CC. SEM images showing details on fiber surfaces of (e) pure CC and (f) PANI/CC with larger magnification.

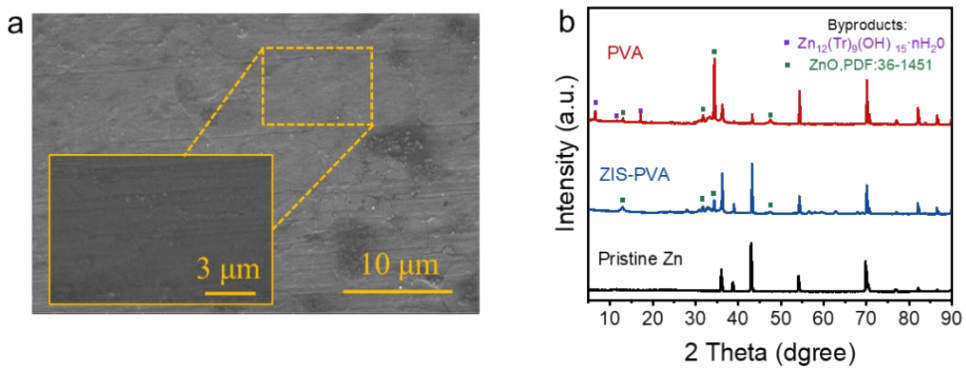

Fig. S5. (a) SEM images of pure Zn foil. (b) XRD patterns of pristine Zn foil and Zn anodes in the Zn/Zn symmetric cells with different electrolytes after 30 cycles at 2.0 mAh cm^{-2}.

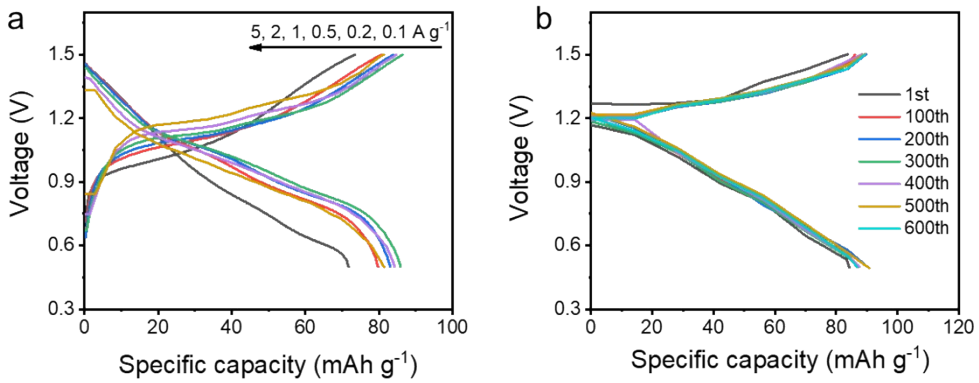

Fig. S6. (a) Discharge-charge curves of Zn/ PVA/PANI cell at different current densities in the range of 0.5 to 1.5 V versus Zn^{2+}/Zn. (b) Voltage/capacity plots of Zn/ PVA/PANI cell at different cycles.

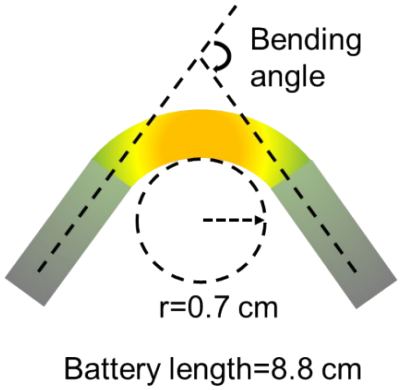

Fig. S7. Flexibility evaluation of Zn/ZIS-PVA/PANI pouch cells.