Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information

Nano-fibrillated Cellulose/Al(OH)$_3$/Polytetrafluoroethylene Hybrid Protective Layer Enabling Dendrite Free Zn Anodes for Rechargeable Aqueous Batteries

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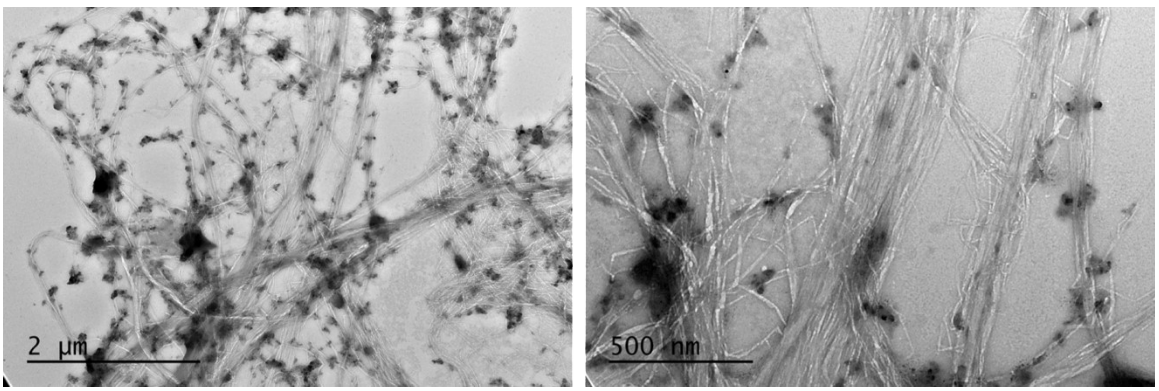

Fig. S1. TEM images of distributed Al(OH)$_3$ nanoparticles within NFC

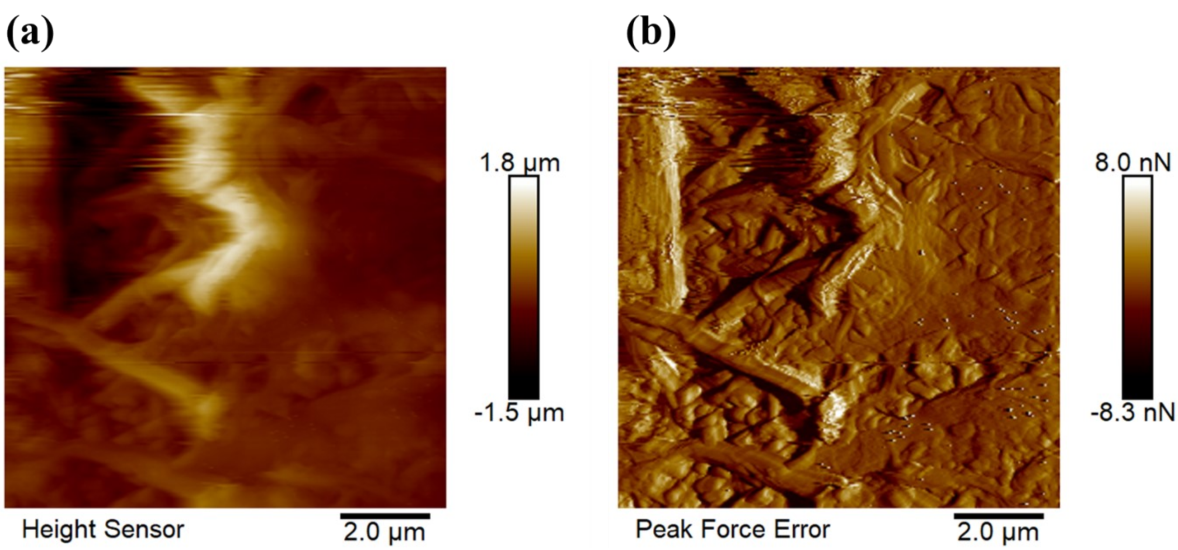

Fig. S2. AFM images of NFC/Al(OH)$_3$/ PTFE protective layer's surface

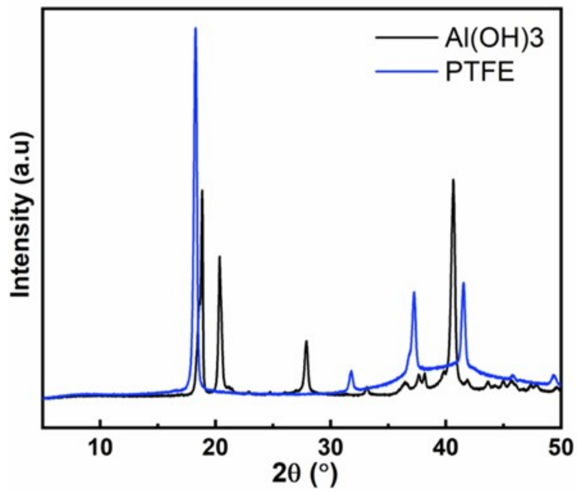

Fig. S3. XRD pattern of separately prepared $Al(OH)_3$ nanoparticles and PTFE

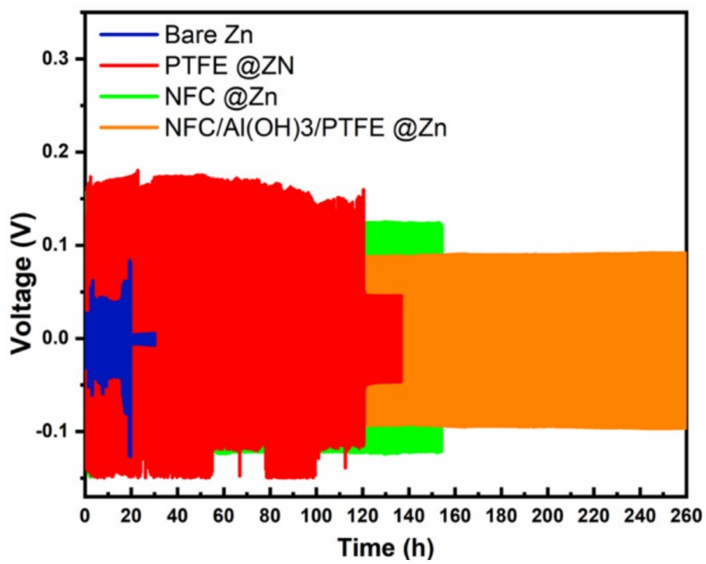

Fig. S4. Cycling performance of symmetric cells with bare Zn, PTFE @Zn, NFC @Zn, and NFC/$Al(OH)_3$/PTFE @Zn at 2.5 $mAcm^{-2}$

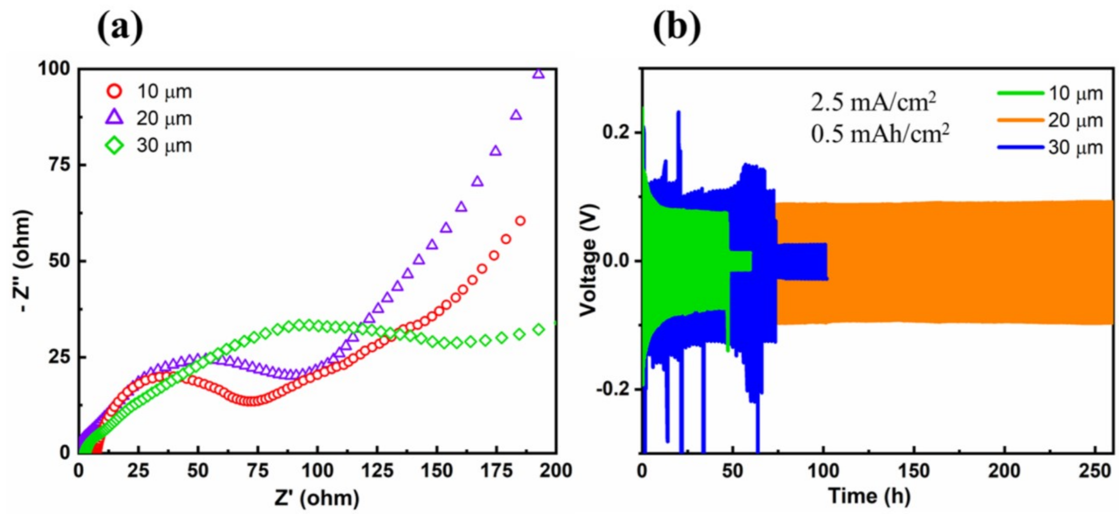

Fig. S5. (a) EIS spectra of symmetric batteries at different protective layer thicknesses. (b) the cycling stability of symmetric batteries at varying protective layer thicknesses with at a current density of 2.5 mA/cm^2.

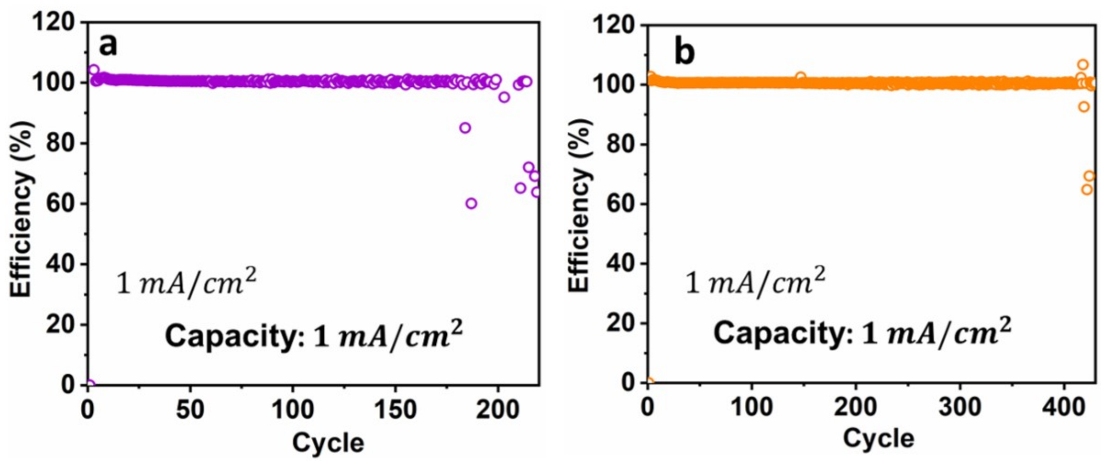

Fig. S6. Performance of Cu//Zn asymmetric cells tested at 1 mA/cm^2. a) coulombic efficiencies of the Cu//bare Zn asymmetric cells and b) Cu//NFC/$Al(OH)_3$/PTFE @Zn.

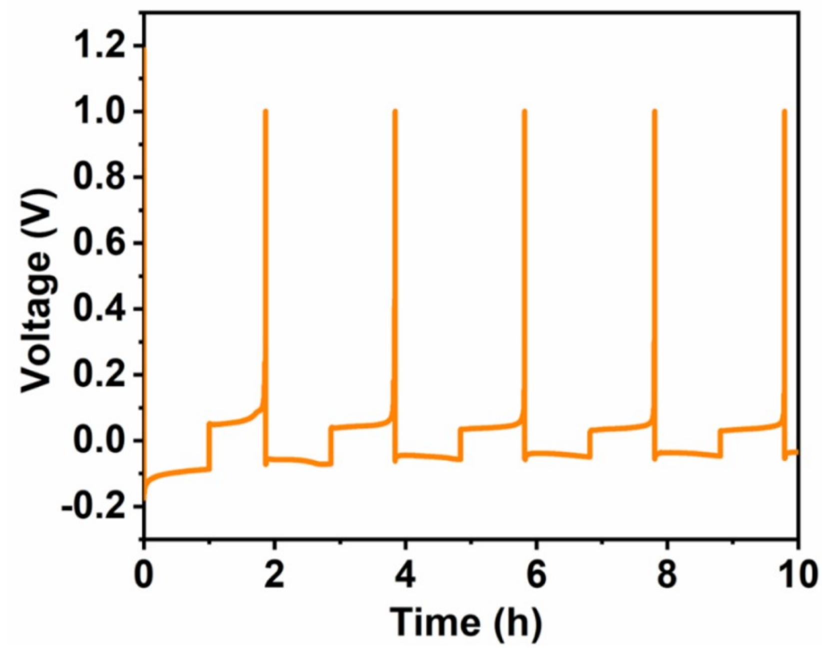

Fig. S7. Voltage profile of the Cu//NFC/Al(OH)$_3$/PTFE @Zn asymmetric batteries at 1mA/cm^2 for the areal specific capacity of 1 mAh/cm^2.

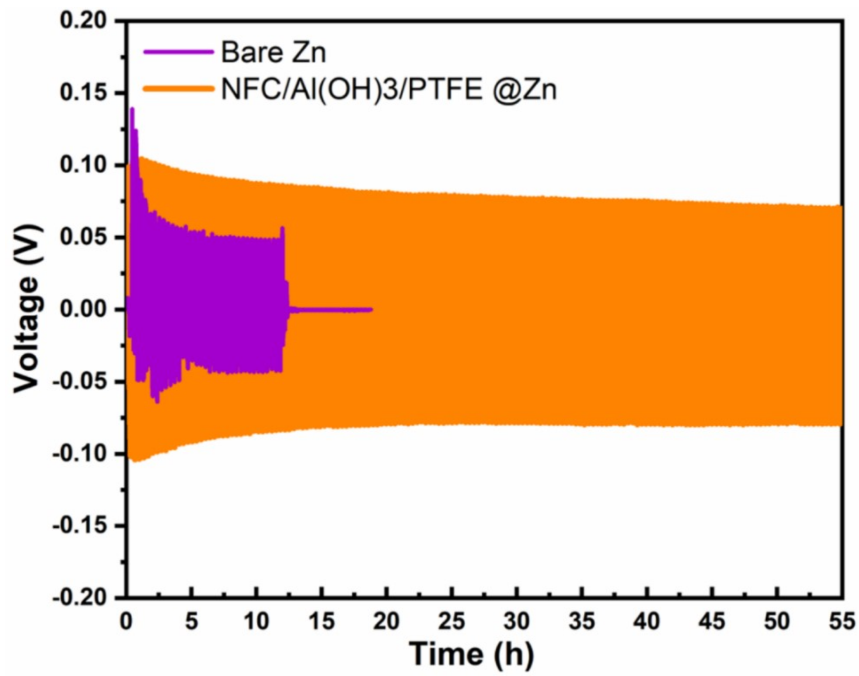

Fig. S8. Cycling stability of symmetric bare Zn and NFC/Al(OH)$_3$/PTFE@Zn batteries at 50°C and a current density of 2.5 mA/cm^2, 0.5 mAh/cm^2.