

Supplementary Materials

# A Redox-Mediator-Integrated Flexible Micro-Supercapacitor with Improved Energy Storage Capability and Suppressed Self-Discharge Rate

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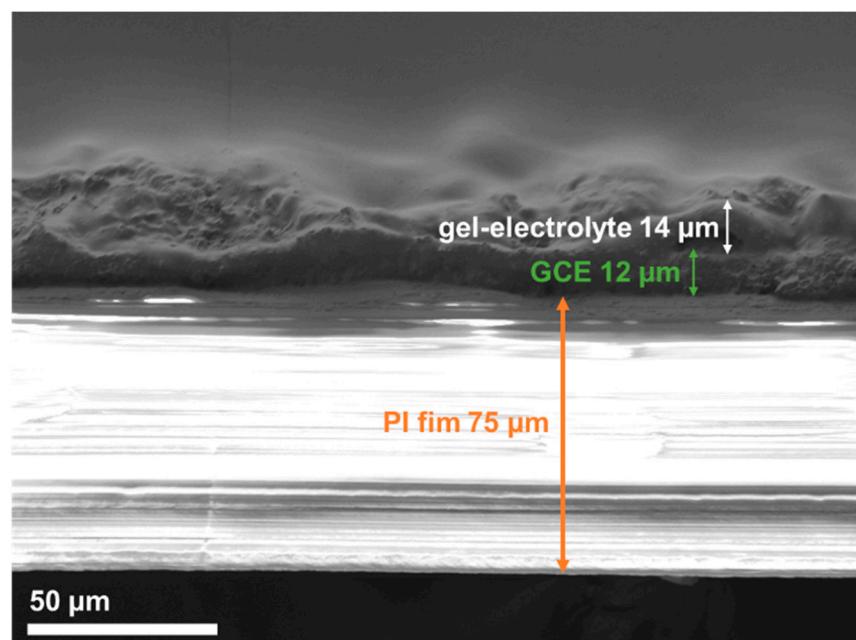
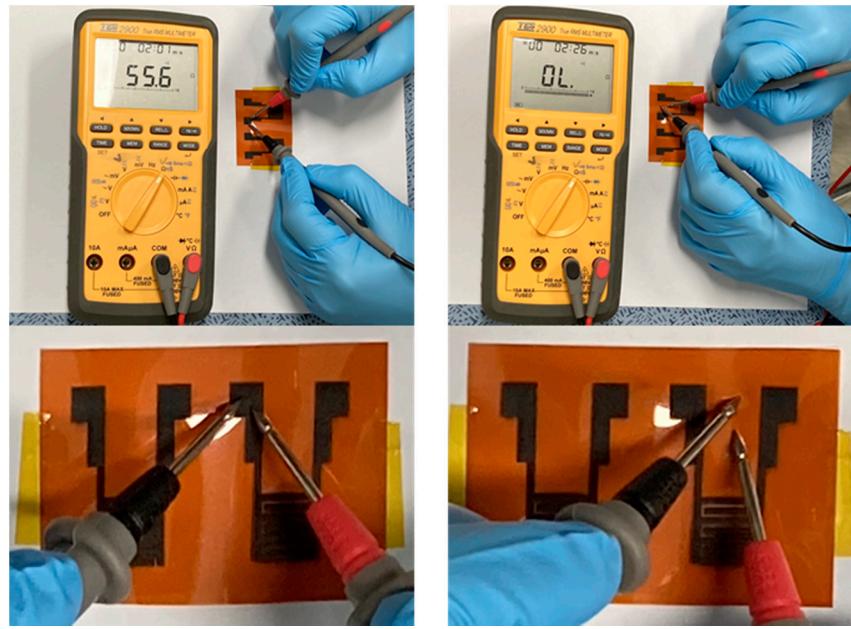
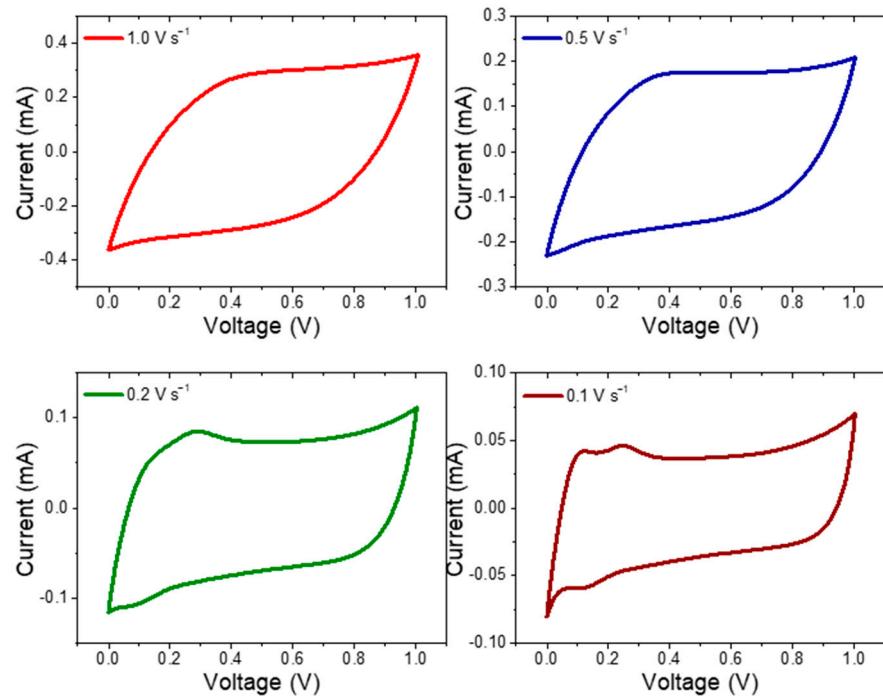


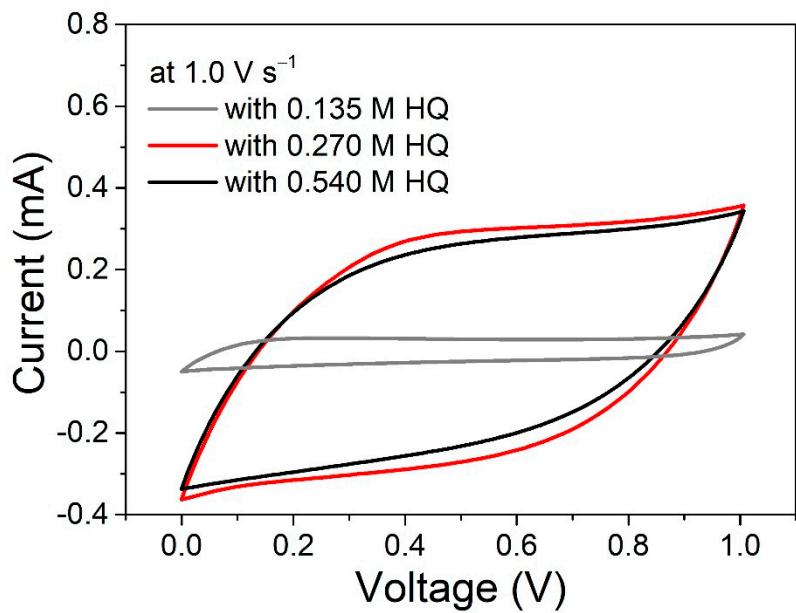
Figure S1. Cross-section SEM images of the fabricated MSCs.



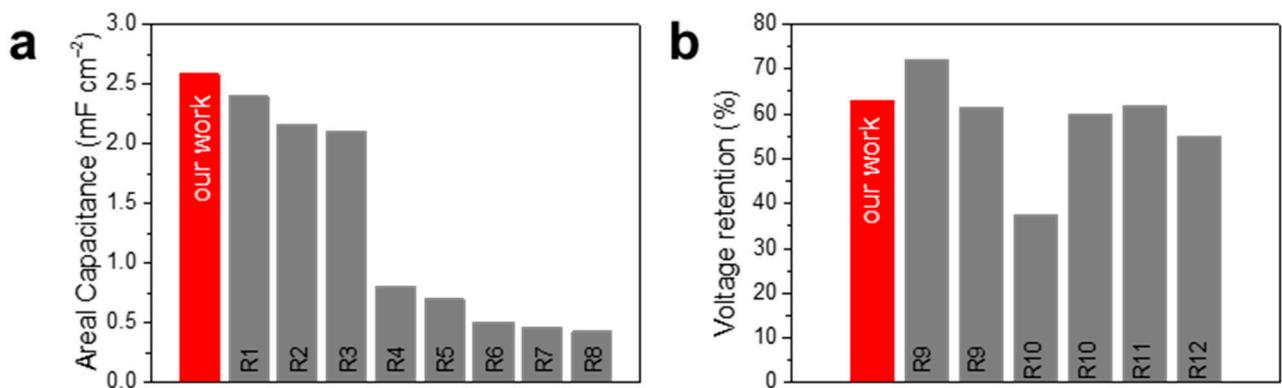
**Figure S2.** Photograph images of the measured two-probe electrical resistance: (left) the GCEs region and (right) the pure PI film for the patterned MSCs.



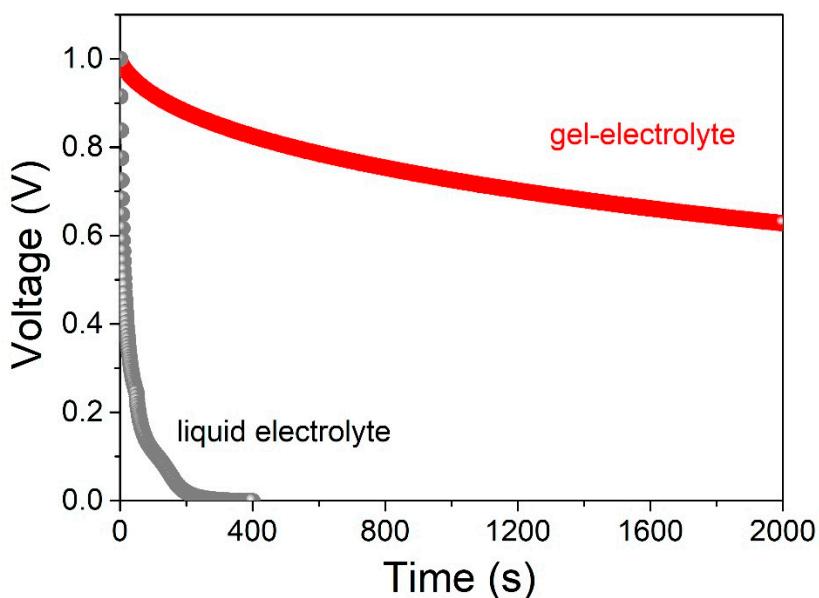
**Figure S3.** CV curves of HQ-MSCs with different scan rates from  $0.1 \text{ V s}^{-1}$  and to  $1.0 \text{ V s}^{-1}$ .



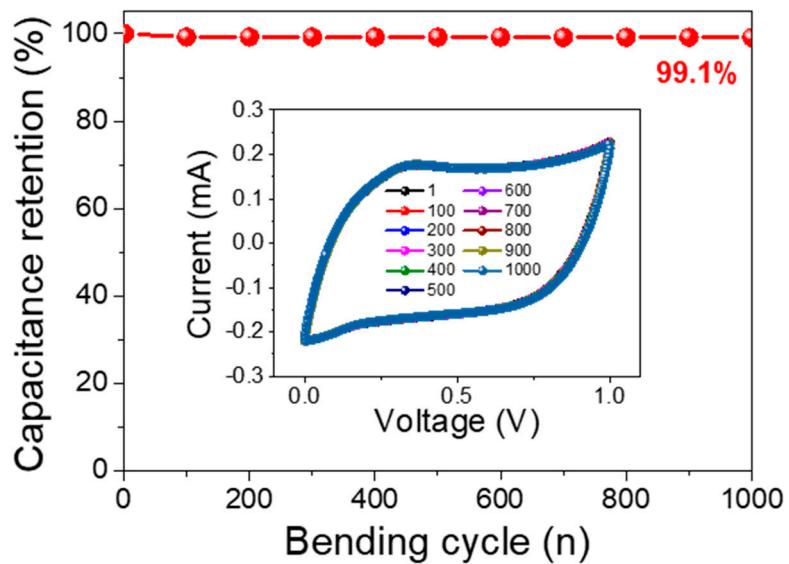
**Figure S4.** CV curves of HQ-MSCs with different HQ concentrations of 0.135 M, 0.270 M, and 0.540 M at a scan rate of  $1.0 \text{ V s}^{-1}$ , respectively.



**Figure S5.** Comparison of the areal capacitance and self-discharge rate of the fabricated MSCs compared to other previously reported literatures.



**Figure S6.** Comparison of self-discharging test of MSCs under gel electrolyte and aqueous electrolyte with HQ after fully charged state.



**Figure S7.** Capacitance retention of HQ-MSCs for 1000 bending cycles (inset indicates the CV curves of HQ-MSCs).

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