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

Supporting Information

An endurance, temperature-resilient, and robust organic electrochemical transistor for neuromorphic circuits

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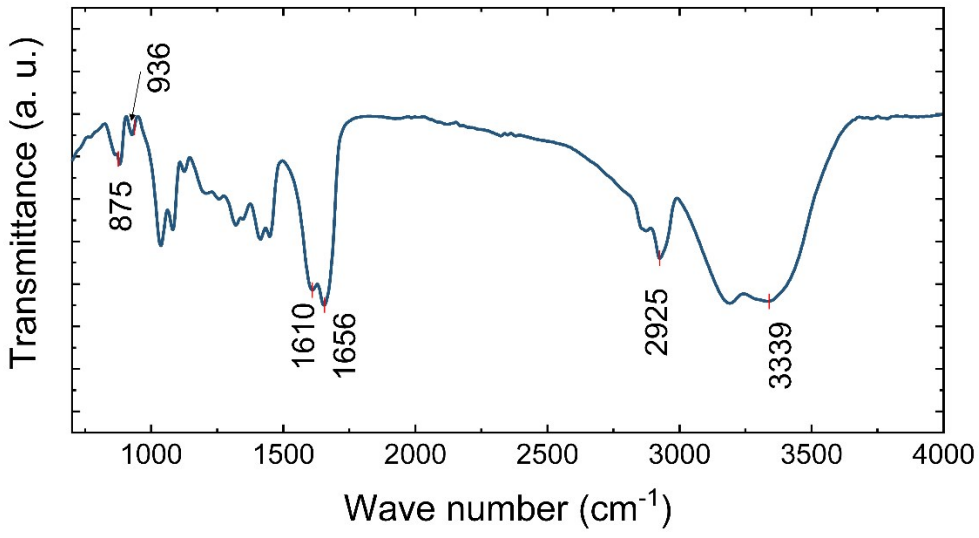

Figure S1. Fourier transform infrared spectroscopy (FTIR) spectra of the DN hydrogel

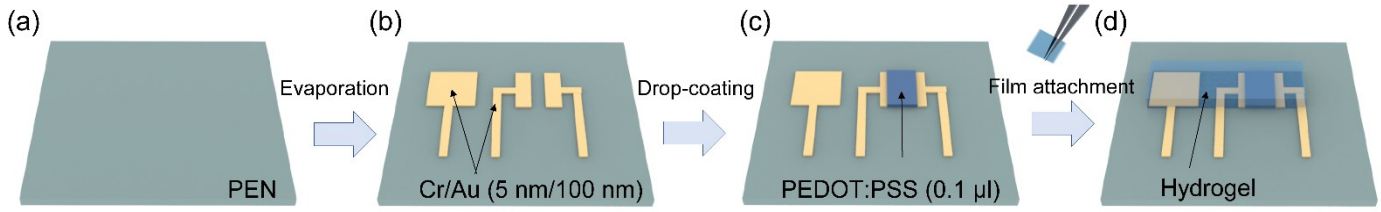

Figure S2. Schematic fabrication of the hydrogel based transistor.

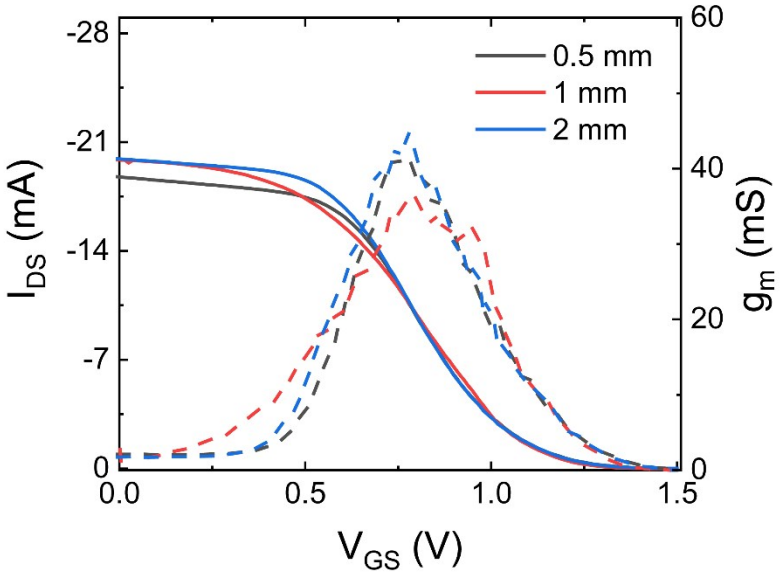

Figure S3. Transfer characteristic curves of transistors with different thickness of hydrogels.

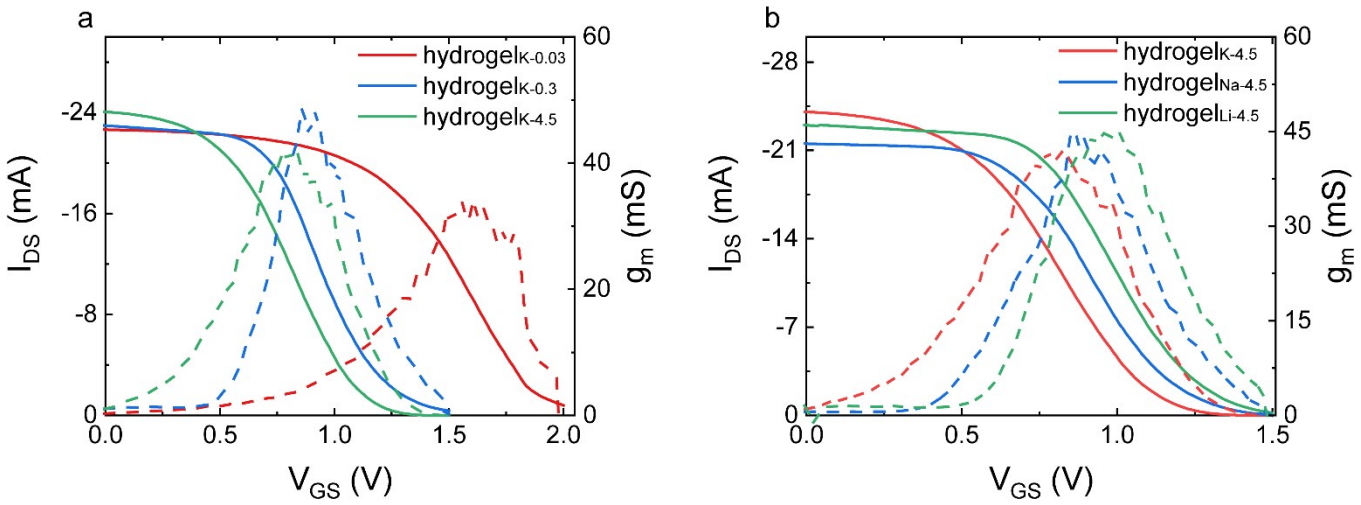

Figure S4. a) Transfer characteristic curves of transistors with different ionic concentrations. b) Transfer characteristic curves of transistors with different ionic species.

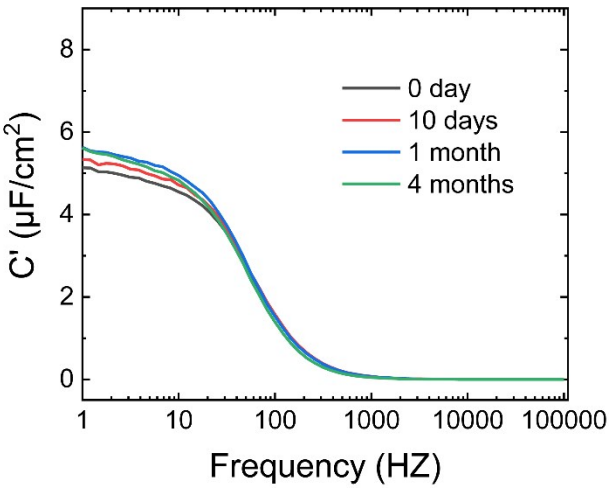

Figure S5. Frequency-dependent specific capacitances of the hydrogel electrolyte over a long time.

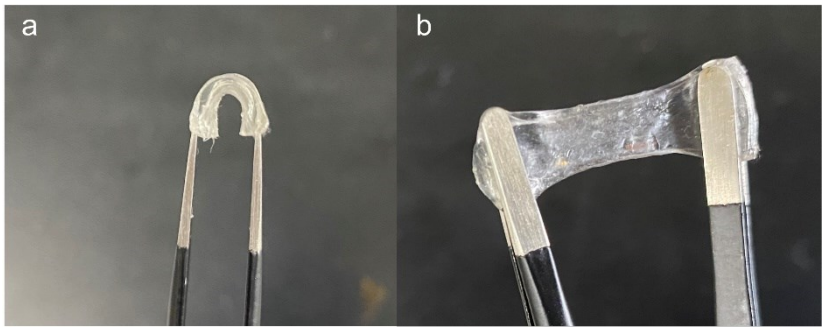

Figure S6. Photographs of the EG-treated hydrogel after 4 months. a) flexible, b) stretchable.

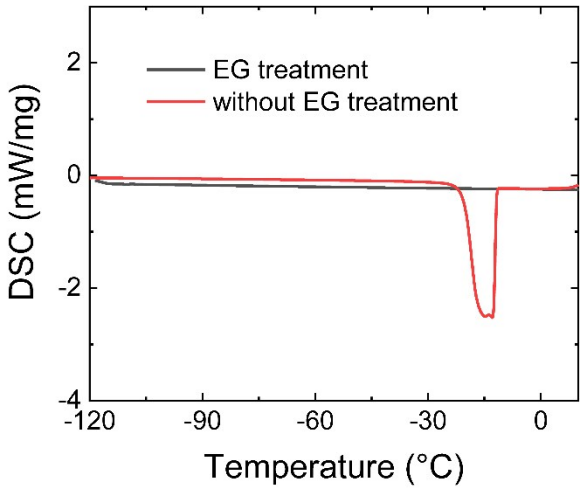

Figure S7. Differential scanning calorimetry (DSC) curves of the hydrogel without EG treatment and with EG treatment.

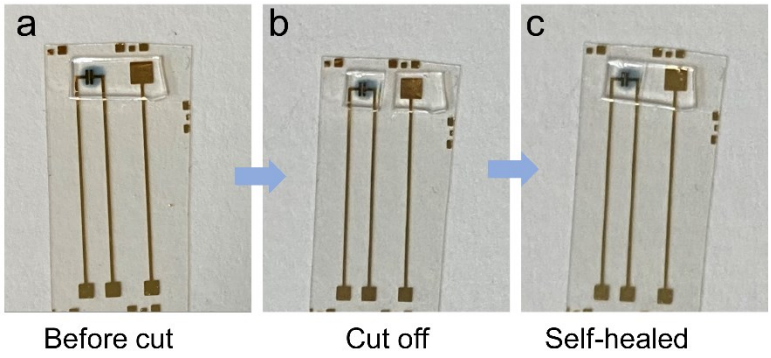

Figure S8. Digital photos of the transistor based on the undamaged, cut and self-healed hydrogel, respectively.

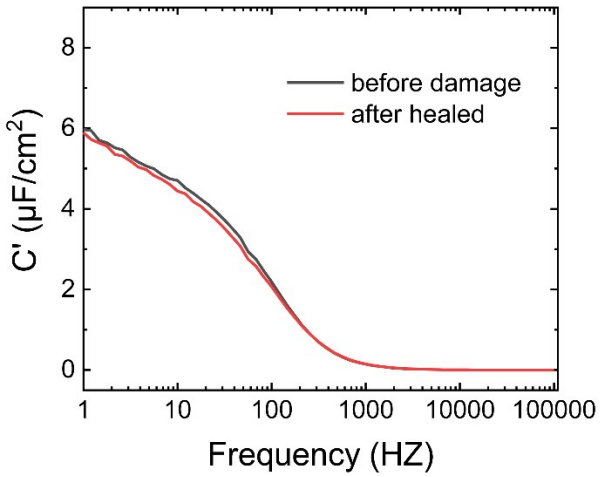

Figure S9. Frequency-dependent specific capacitances of the hydrogel electrolyte in the states before damage and after the healing process.

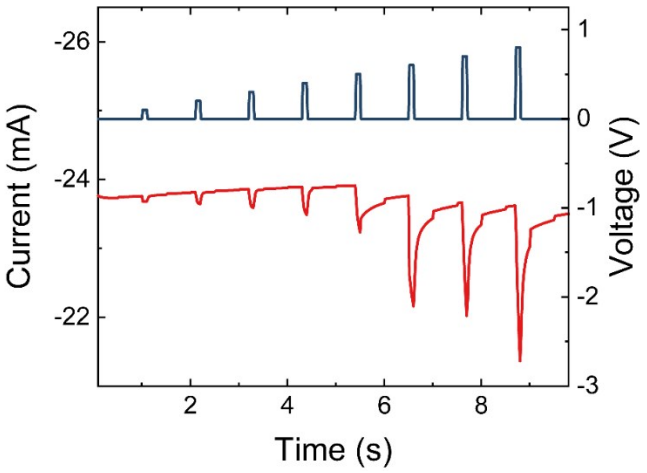

Figure S10. Drain current triggered by presynaptic stimulus trains of different presynaptic spikes.

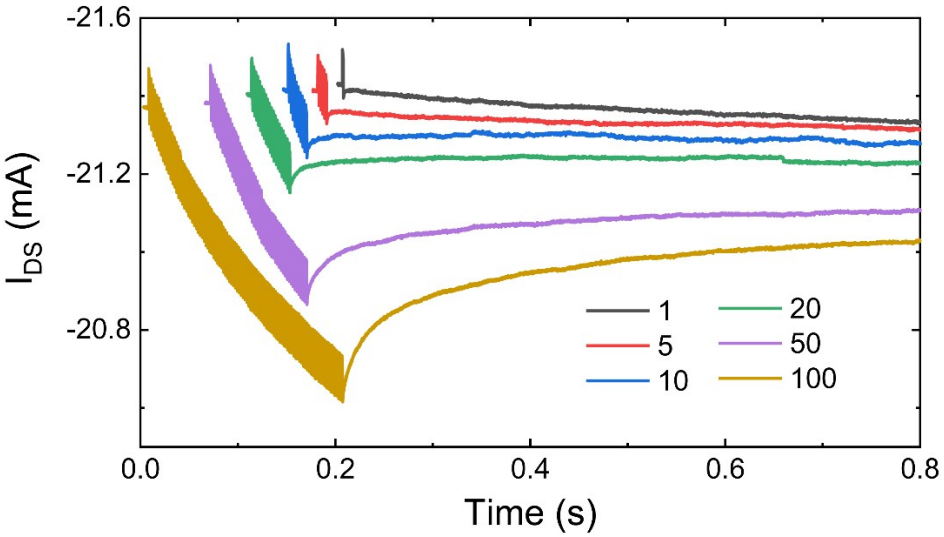

Figure S11. Drain current triggered by different numbers of presynaptic pulses (V_{GS} = 0.8 V, t_p = 1 ms, Δt = 1 ms, V_{DS} = -0.6 V).

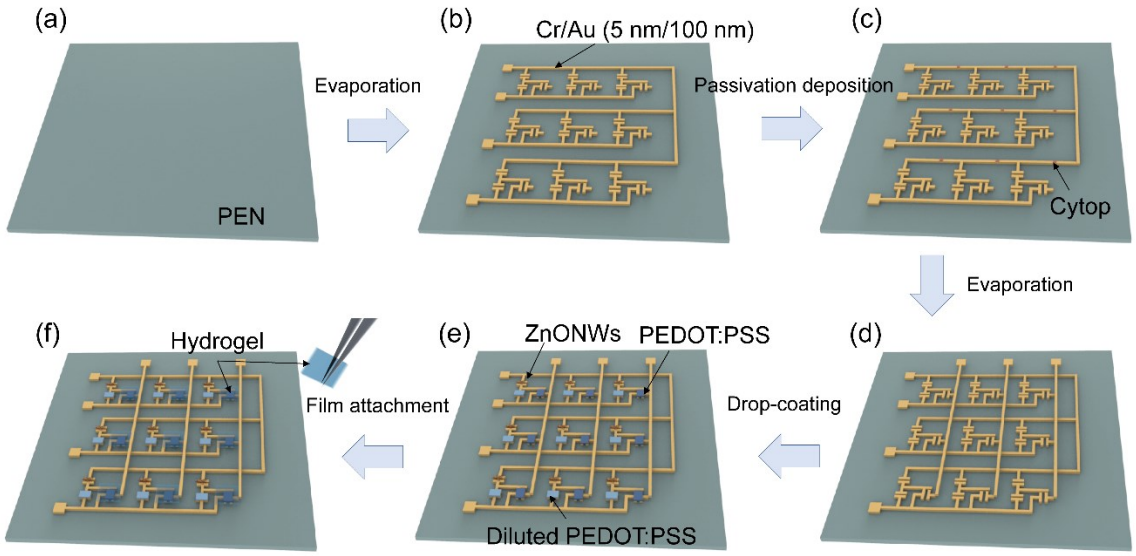

Figure S12. Schematic fabrication of the optoelectronic neuromorphic circuit.

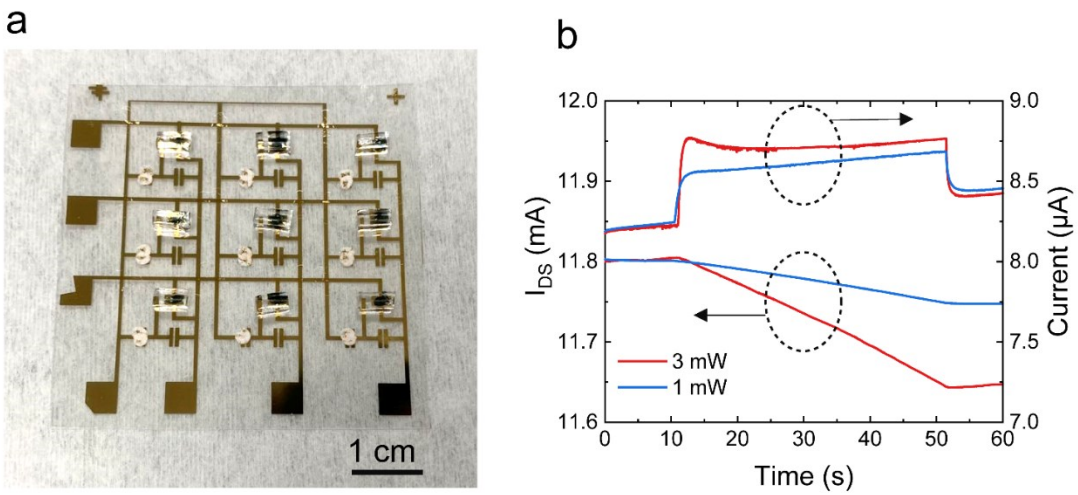

Figure S13. a) Photograph of the optoelectronic neuromorphic circuit. b) Drain current triggered by UV light at different intensities.