Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary information

UV Damage Sensing Nociceptive Device for Bionic Application

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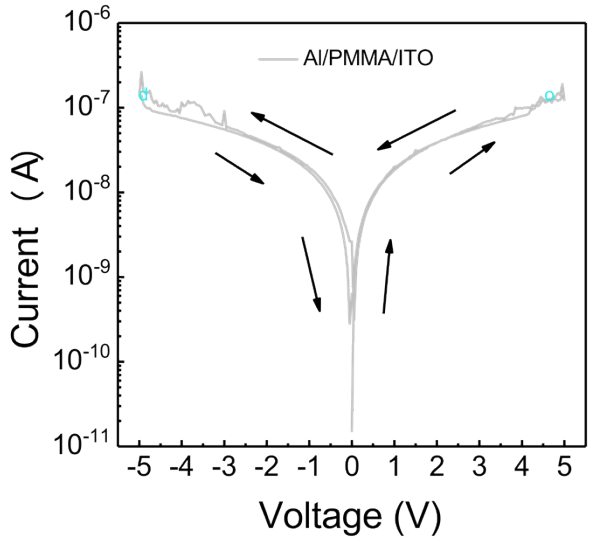

Fig. S1. *I–V* curves of Al/PMMA/ITO device.

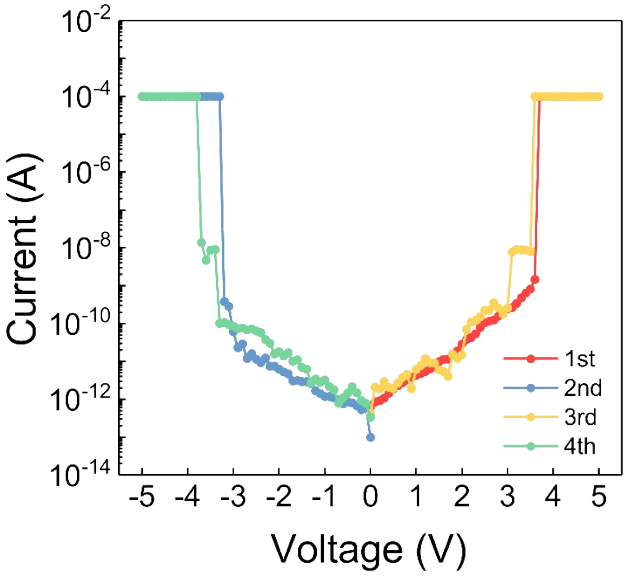

Fig. S2. *I–V* curves under compliance current (I_{CC}) of 0.1 mA

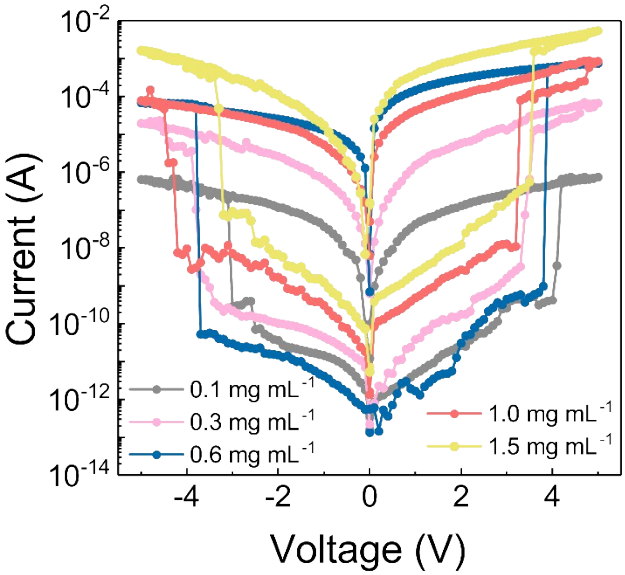

Fig. S3. *I-V* characteristic of memristor with various concentration of Azo-Au NPs.

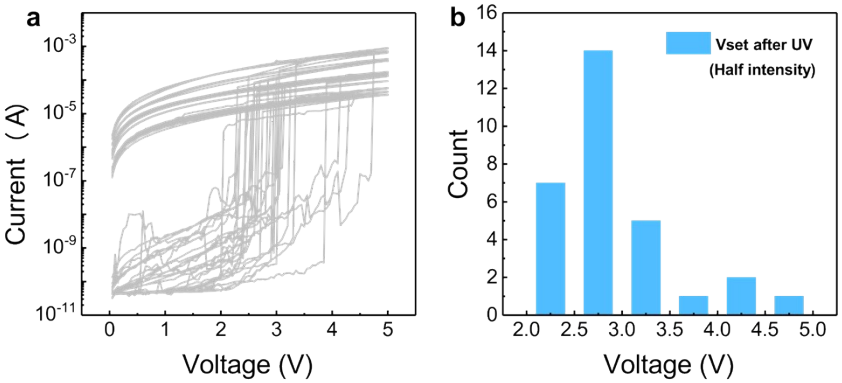

Fig. S4. Current-voltage characteristics, for 30 memristors tested (a) after UV irradiation (20 mW/cm^2) for 30 mins and (b) Distribution of SET voltage of memristors.

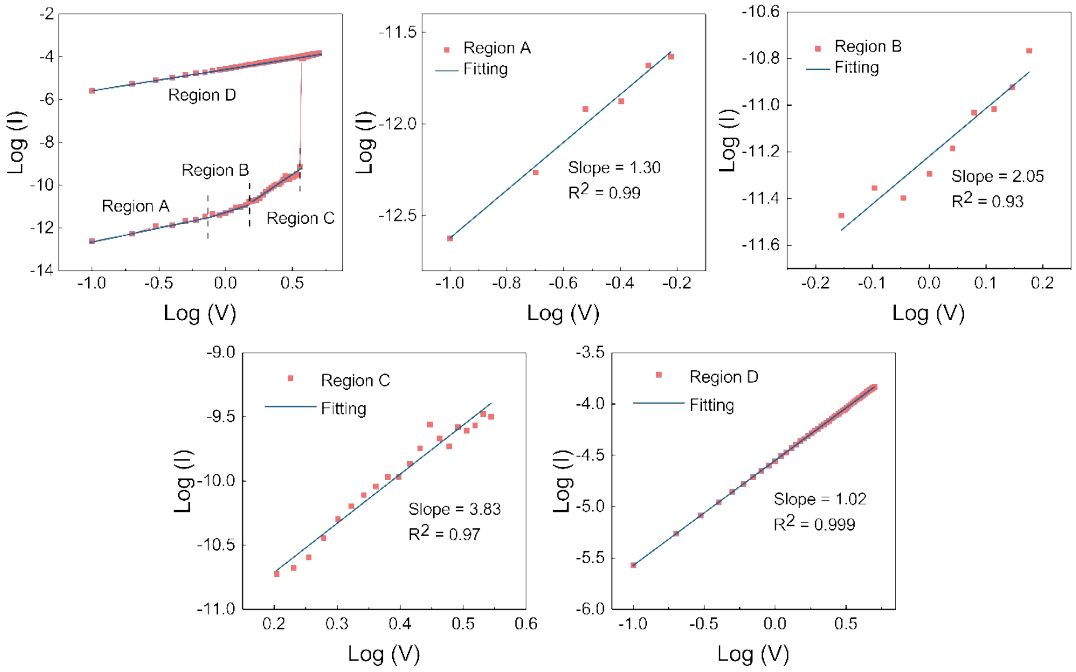

Fig. S5. Fitted *I*–*V* characteristics in a log-log scale before UV irradiation.

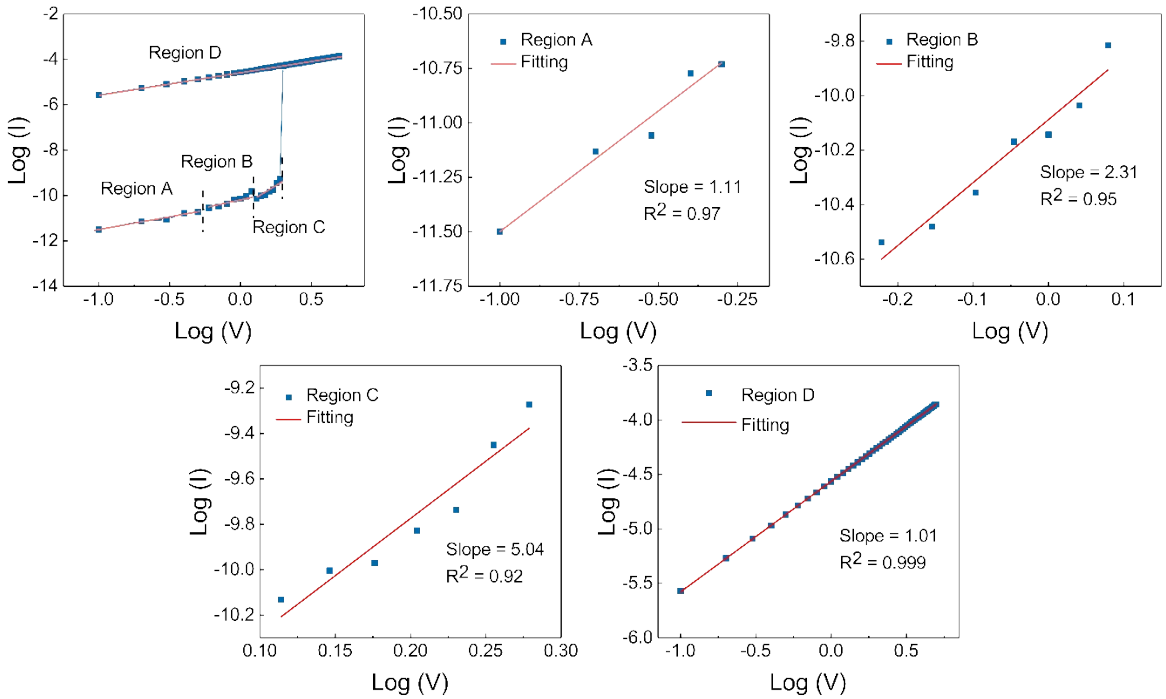

Fig. S6. Fitted *I–V* characteristics in a log-log scale after UV irradiation.

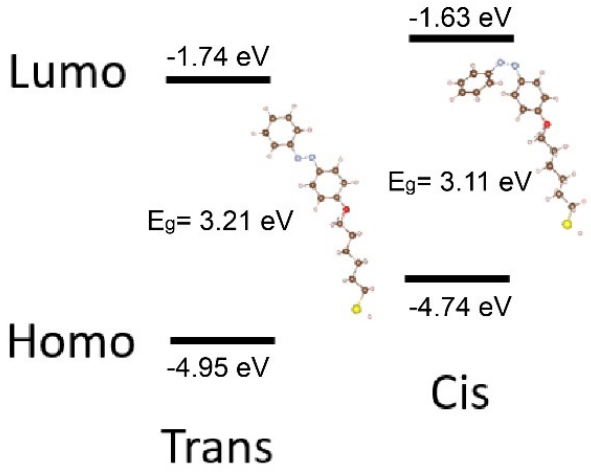

Fig. S7. The calculated highest occupied molecular orbital (HOMO) and lowest unoccupied molecular orbital (LUMO) of Azo ligand

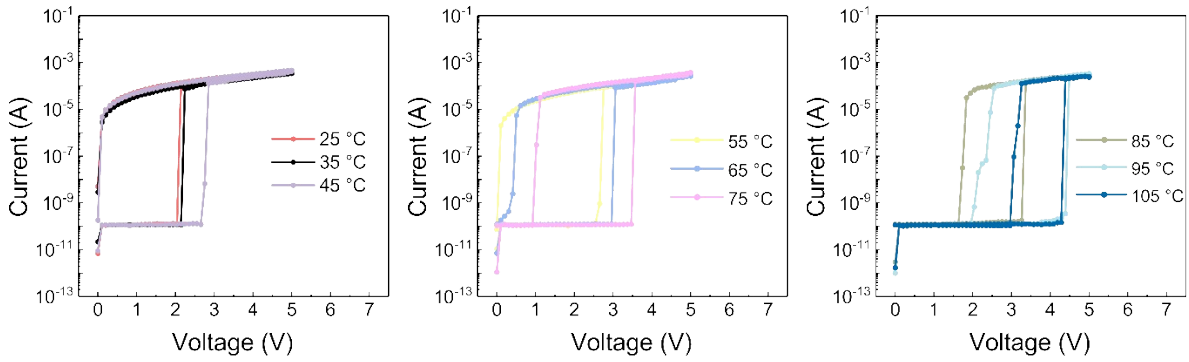

Fig. S8. The typical *I*–*V* curves from 25 ℃ to 105 ℃

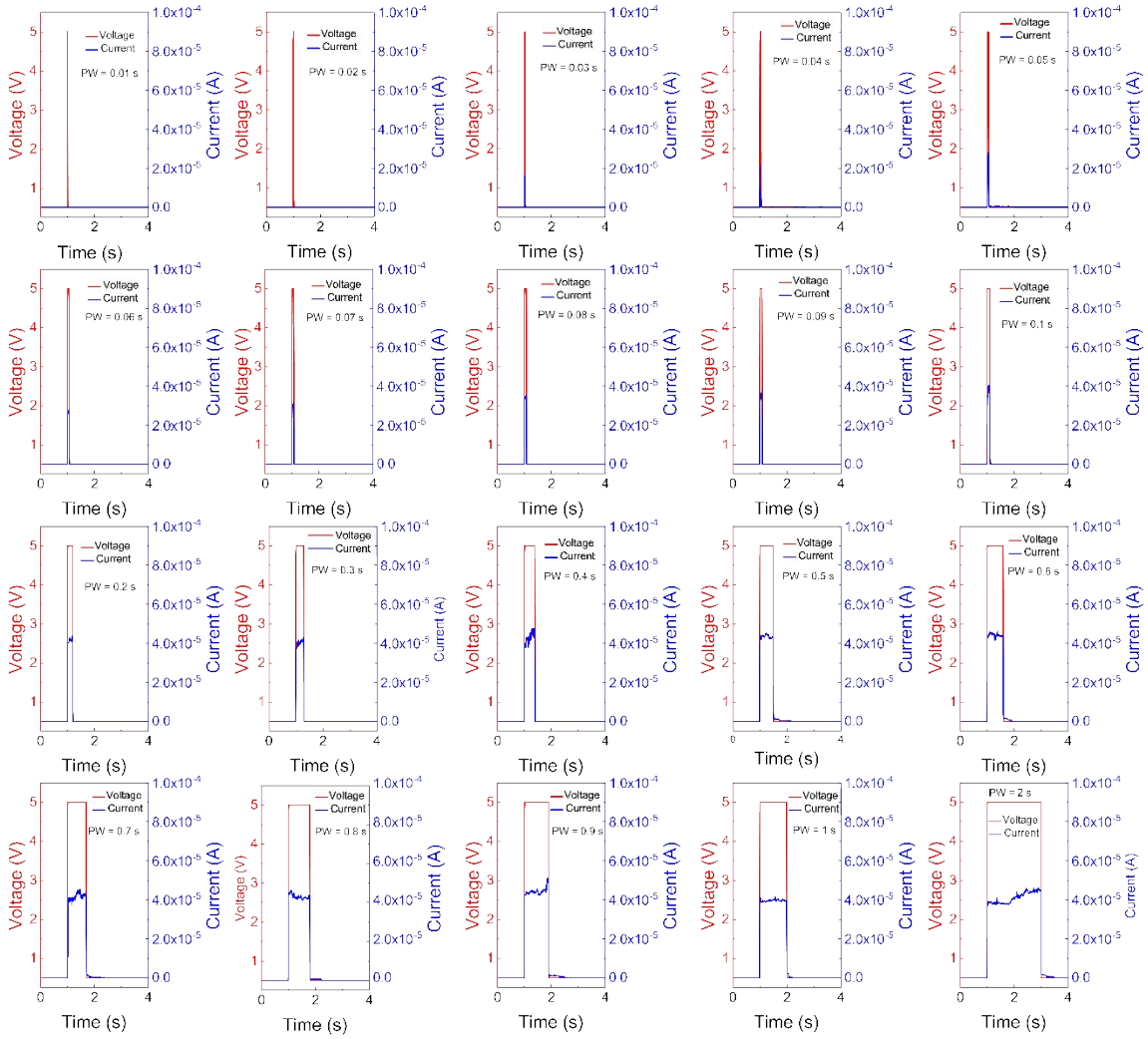

Fig. S9. The output current of the nociceptor under electrical pulses with a different pulse width (from 0.01s to 2s).

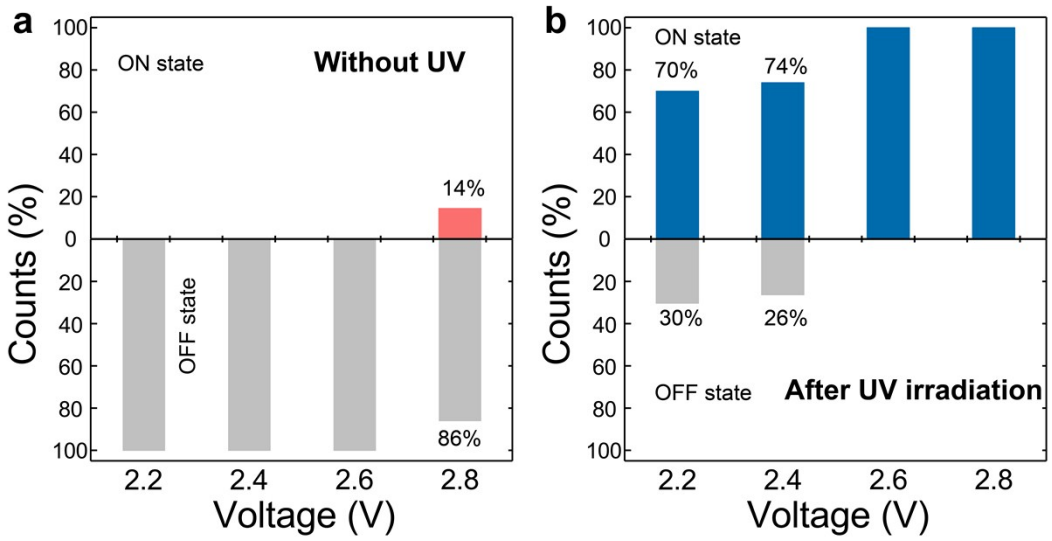

Fig.S10. Histogram of the ON and OFF states for 100 memristors tested (a) in dark and (b) after UV irradiation. (Voltage from 2.2 V to 2.8V)