

Supporting Information

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Risk-Perceptual and Feedback-Controlled Response
System Based on NO₂-Detecting Artificial Sensory
Synapse

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Supporting Information for

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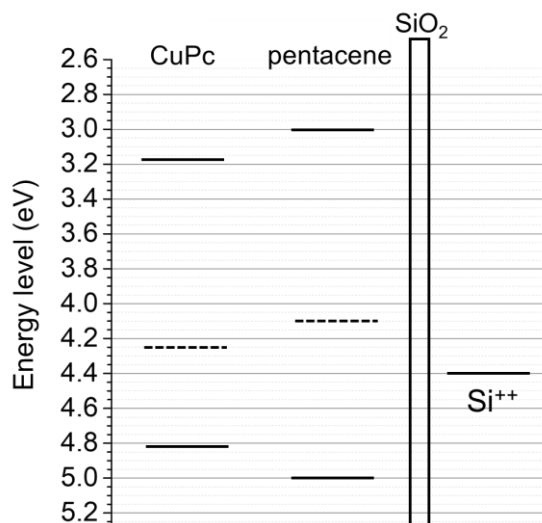


Figure S1. Energy band diagram of CuPc and pentacene organic heterostructure.

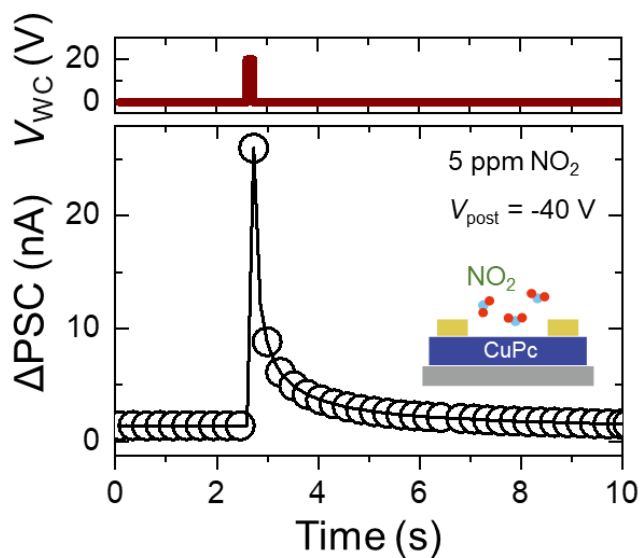


Figure S2. PSC response of the device with a single CuPc layer when a positive electrical pulse is applied to the WC terminal with a C_{NO_2} value of 5 ppm.

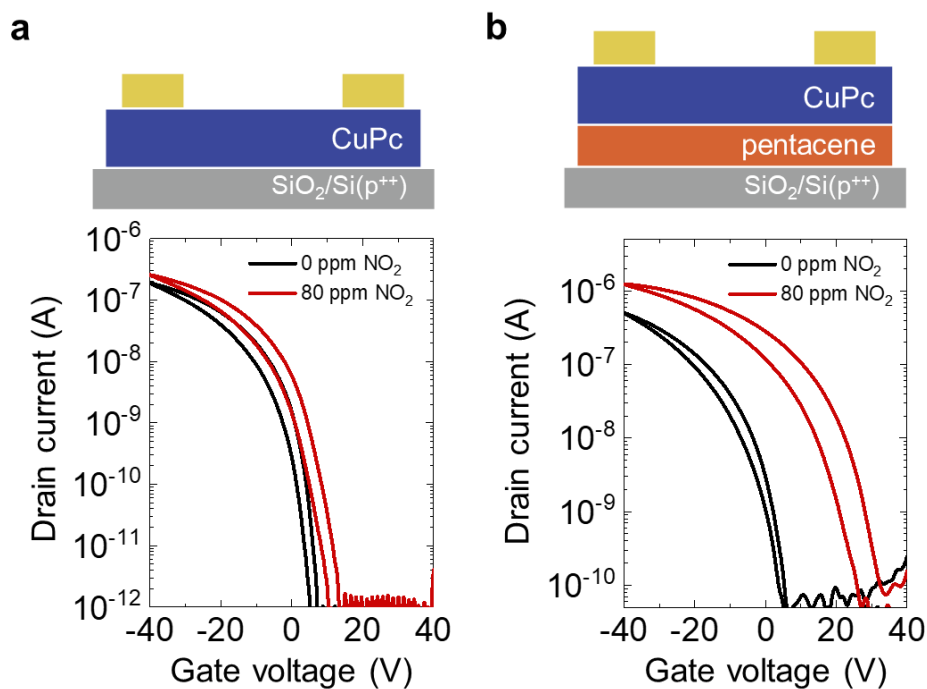


Figure S3. Transistor characteristics of (a) CuPc single-layer and (b) CuPc/pentacene heterostructure transistors.

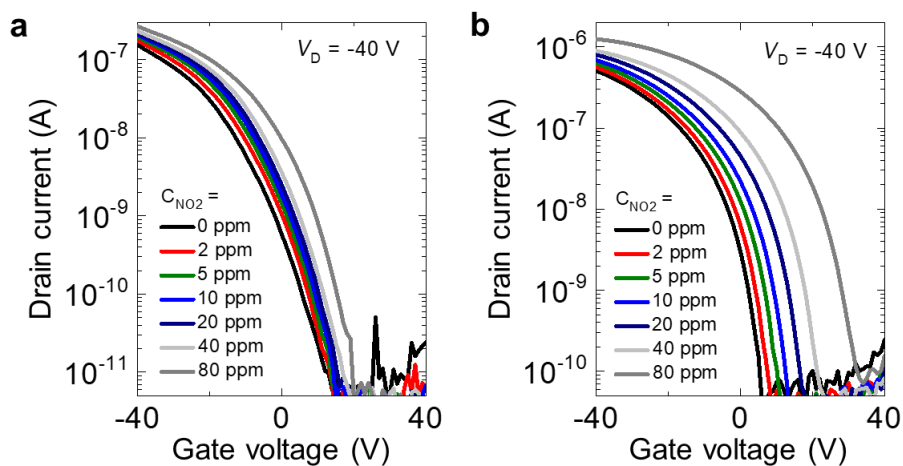


Figure S4. Transistor characteristics of (a) CuPc single-layer and (b) CuPc/pentacene heterostructure transistors with different NO₂ concentrations.

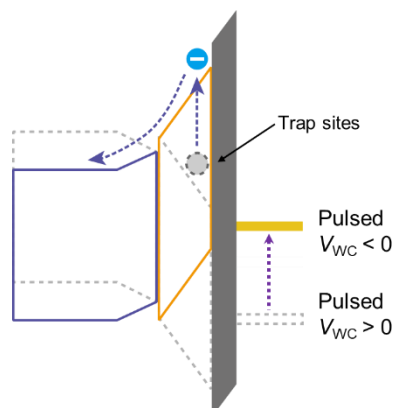


Figure S5. Energy band diagram of CuPc/pentacene heterostructure under a negative electrical pulse.

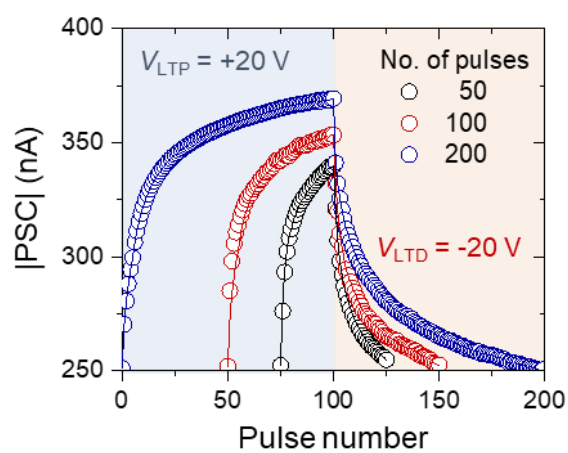


Figure S6. LTP/D characteristics when consecutive pulses are applied, optimized by the pulse number.

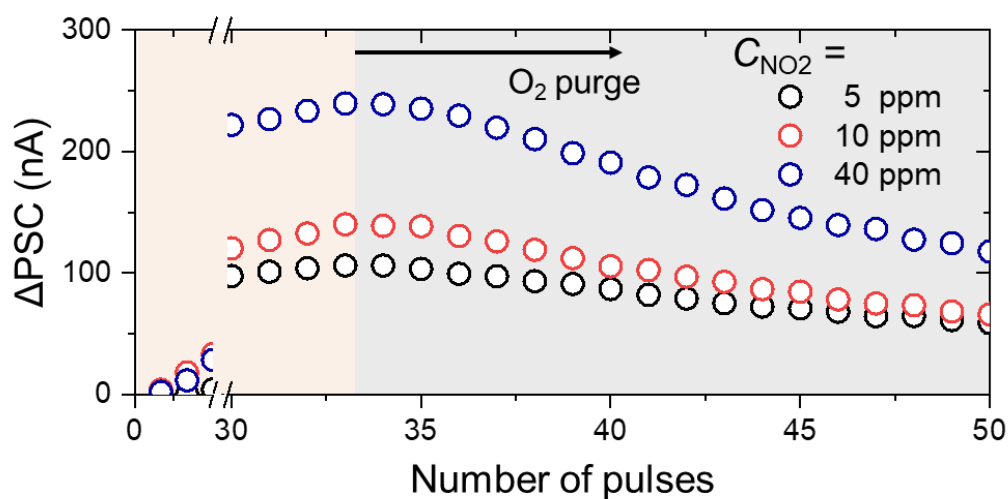


Figure S7. ΔPSC response to air-purge depending on the initial current level of ΔPSC .

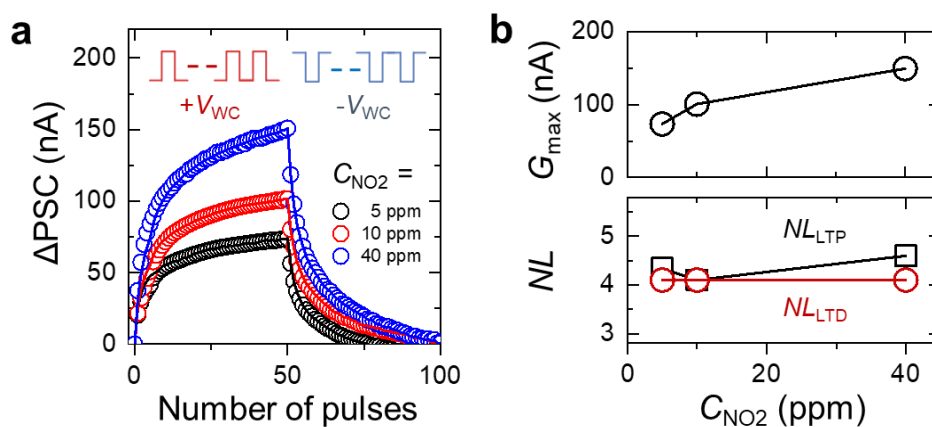


Figure S8. (a) LTP/D characteristics of the artificial sensory synapse under different NO_2 environments. (b) G_{max} and nonlinearity values extracted from (a).

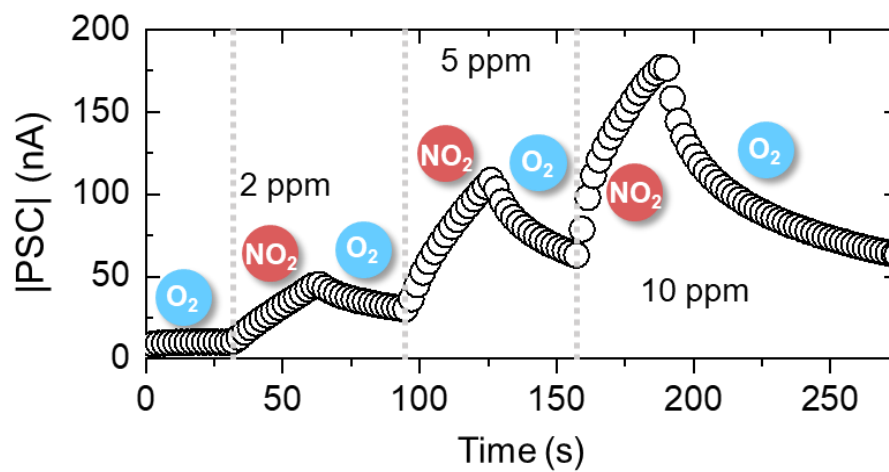


Figure S9. Δ PSC responses of the device to minute C_{NO_2} difference.