

Supplementary data

A Non-Enzymatic Disposable Electrochemical Sensor Based on Surface-Modified Screen-Printed Electrodes CuO-IL/rGO Nanocomposite for Single-Step Determination of Glucose in Human Urine and Electrolyte Drink

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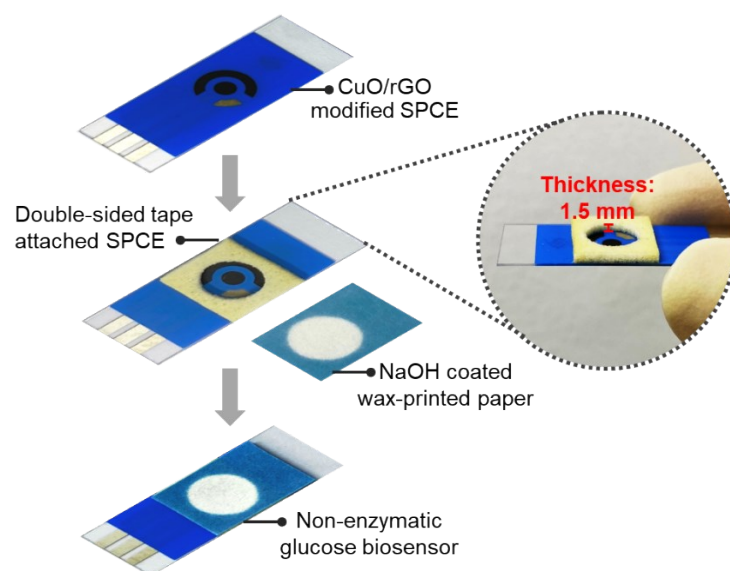


Figure S1 Assembly of a novel device design for a non-enzymatic glucose sensor.

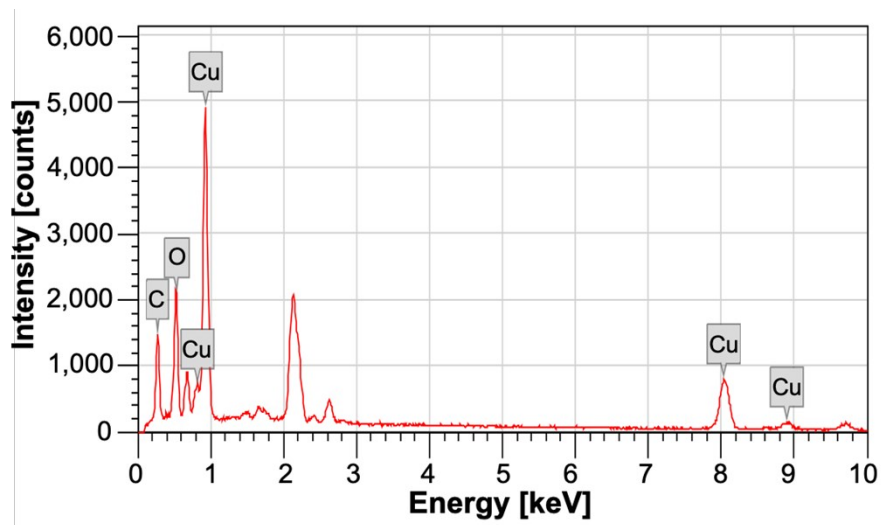


Figure S2 SEM-EDX spectrum of CuO-IL/rGO modified SPCE.

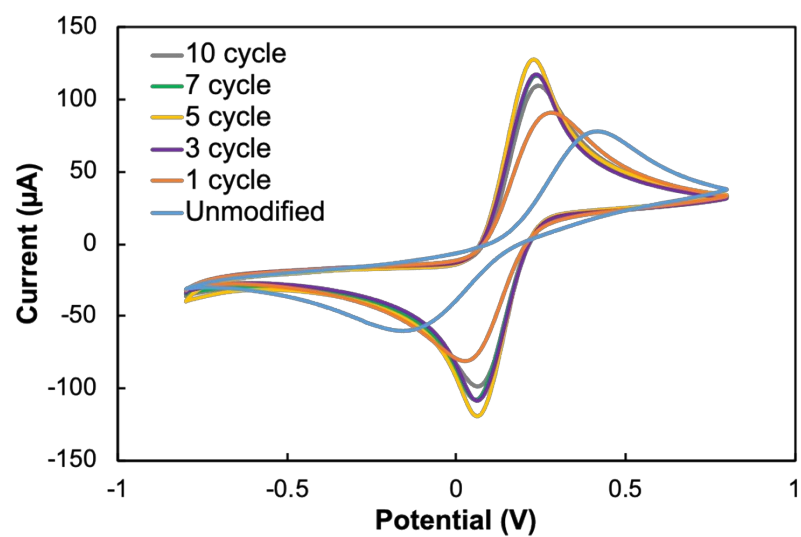


Figure S3 Cyclic voltammograms of 5.0 mM $[\text{Fe}(\text{CN})_6]^{3-/4-}$ in 0.1 M KCl using rGO modified SPCE with different reducing cycles (0-10 cycles).

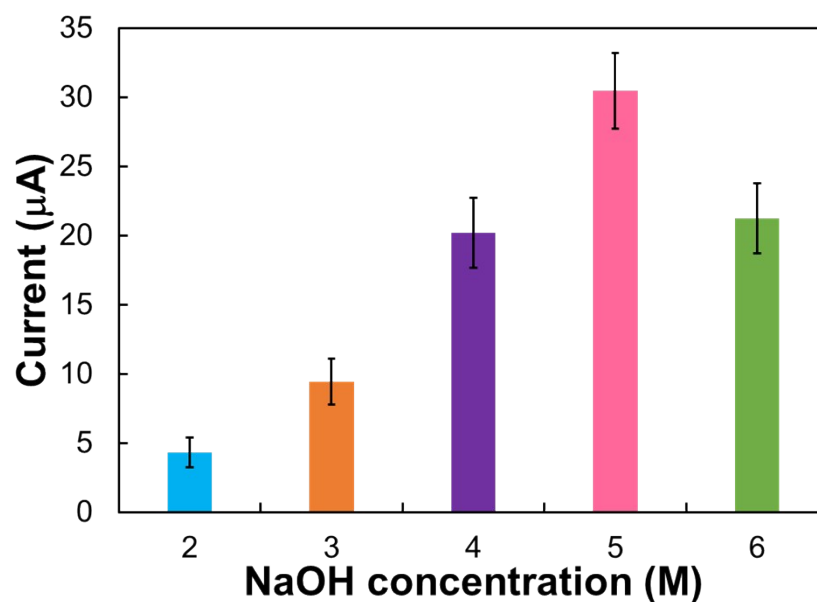


Figure S4 Anodic peak currents from cyclic voltammogram of 5.0 mM glucose in 0.1 M PBS (pH 6.0) with difference concentrations of NaOH (2.0–6.0 M) coated on the patterned wax paper as the sample loading zone, the error bar obtained by measurement using 3 individual single-use portable glucose biosensor ($n = 3$).

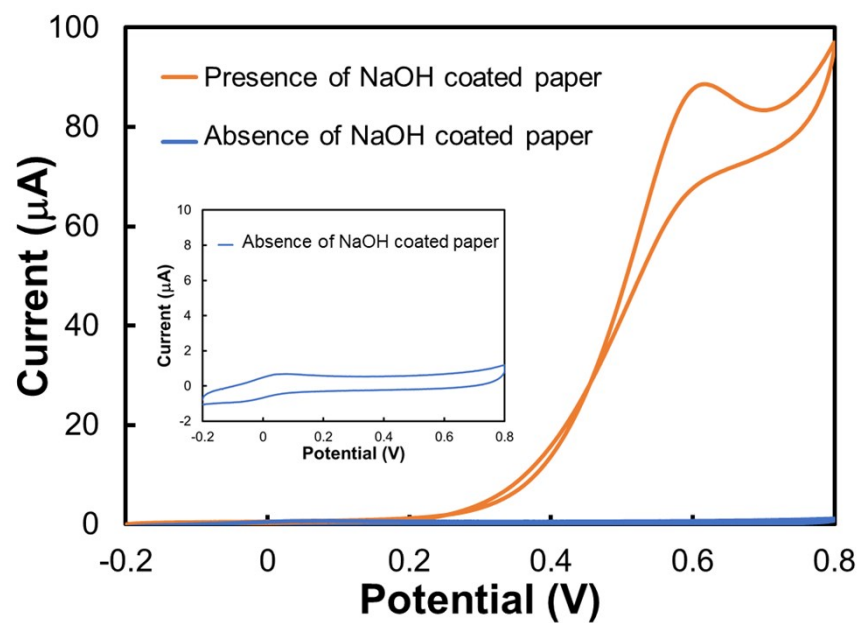


Figure S5 Cyclic voltammograms of 1.0 mM glucose in 0.1 M PBS (pH 6.0) using a novel designed device in the absence (inset) and presence of NaOH coated wax-printed paper.

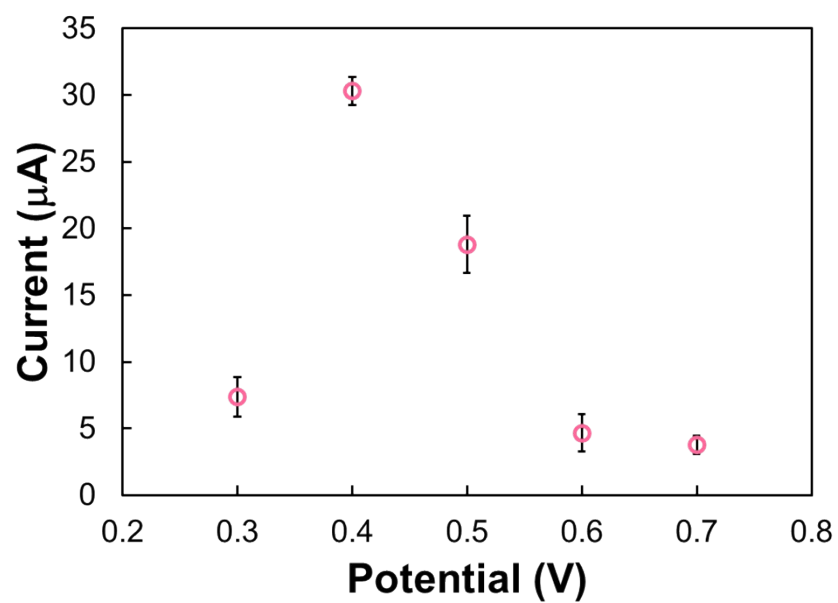


Figure S6 Signal to background ratio (S/B) of 5.0 mM glucose in 0.1 M PBS (pH 6.0) with different potentials ranging from +0.3 to +0.7 V (vs. Ag/AgCl) at 60 s ($n = 3$) via amperometry.

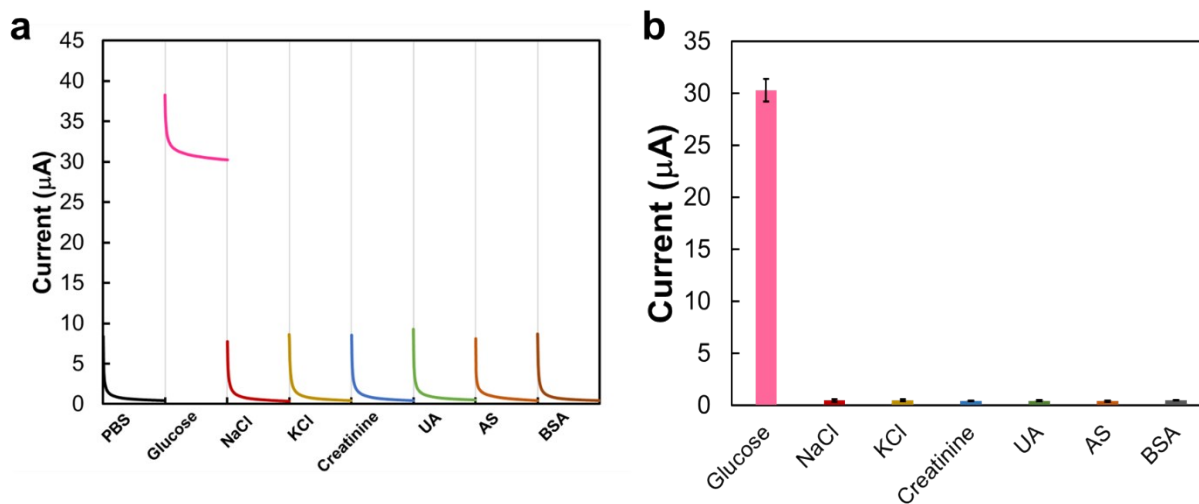


Figure S7 a) Amperometric current responses towards 5.0 mM glucose in 0.1 M PBS (pH 6.0) on the portable CuO-IL/rGO modified SPCE in the absence and presence of several interferences b) the average current responses from Fig. S7a by measurements using 3 individual single-use devices ($n = 3$).

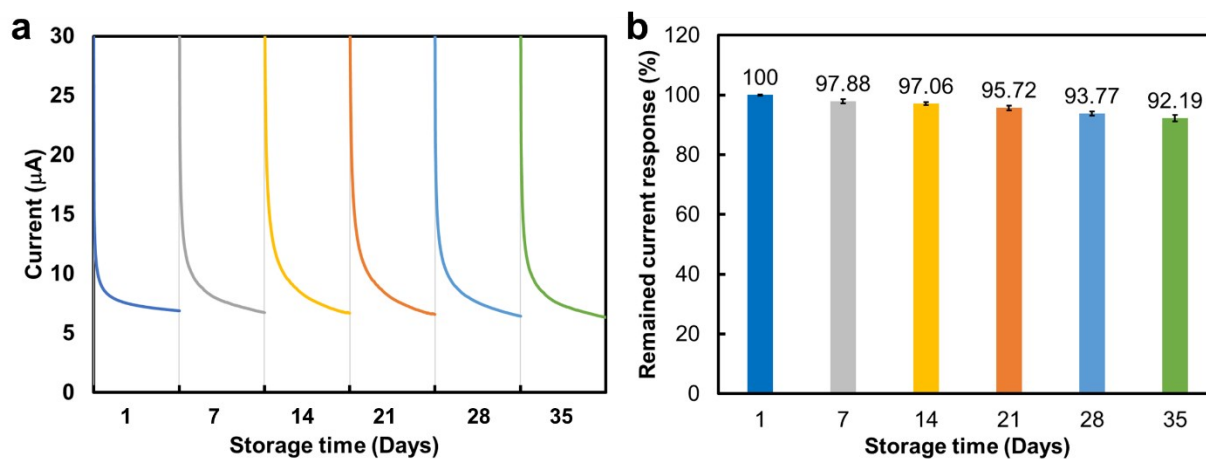


Figure S8 a) Amperometric current responses towards 1.0 mM glucose in 0.1 M PBS (pH 6.0) on the portable CuO-IL/rGO modified SPCE after storage in the sealed system at dry environmental for 7, 14, 21, 28 and 35 days b) the remained current responses from Fig. S8a by measurements using 3 individual single-use devices ($n = 3$).