

Electronic Supplementary Information

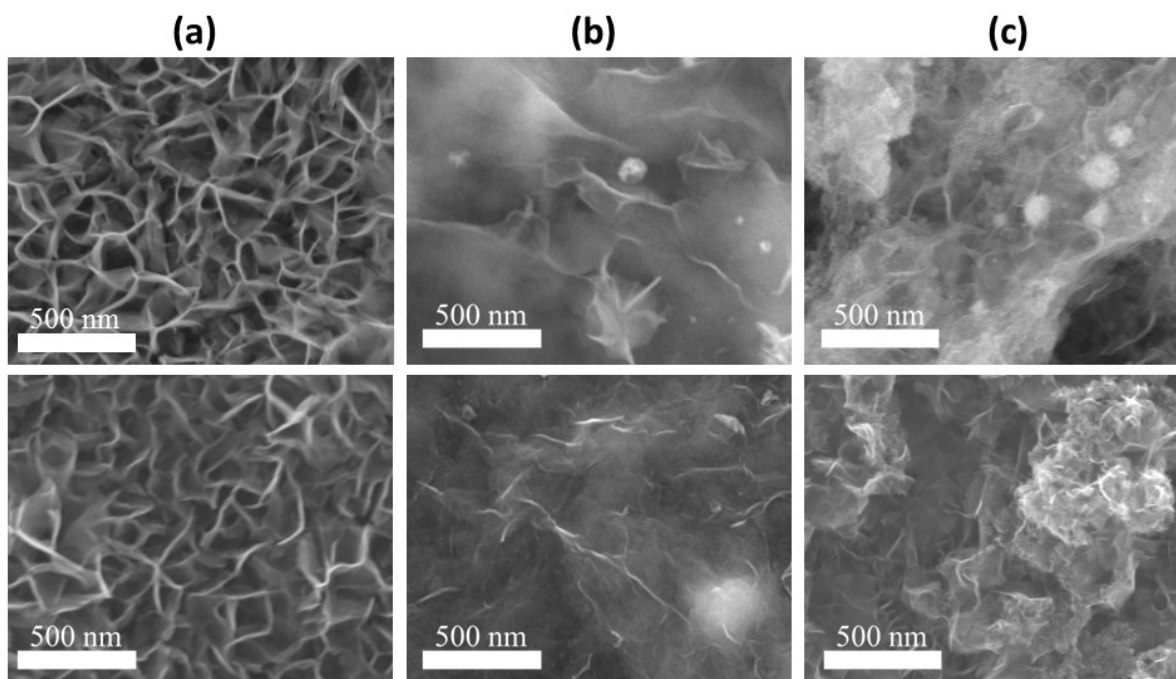


Fig. S1. SEM images of Au-Co(OH)₂/GC electrodeposited film as a function of Au concentration in 10 mM Co(NO₃)₂·6H₂O, (a) 0 mM Au, (b) 0.1 mM Au and (c) 1 mM Au at constant -1.05 V potential applied. SEM of as deposited film (first row) and after 5 cycles in OER region (second row).

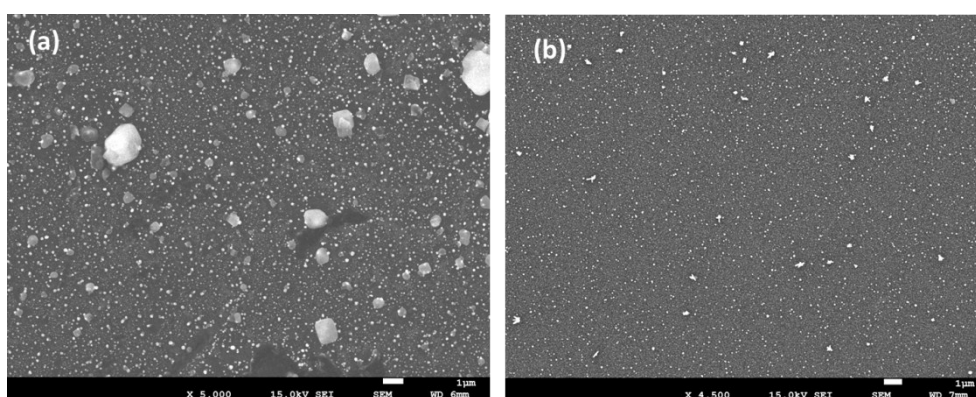


Fig. S2. SEM images of Au electrodeposited on GC from 0.5 mM KAuBr₄ for 150 s at -1.05 V before (a) and after (b) OER.

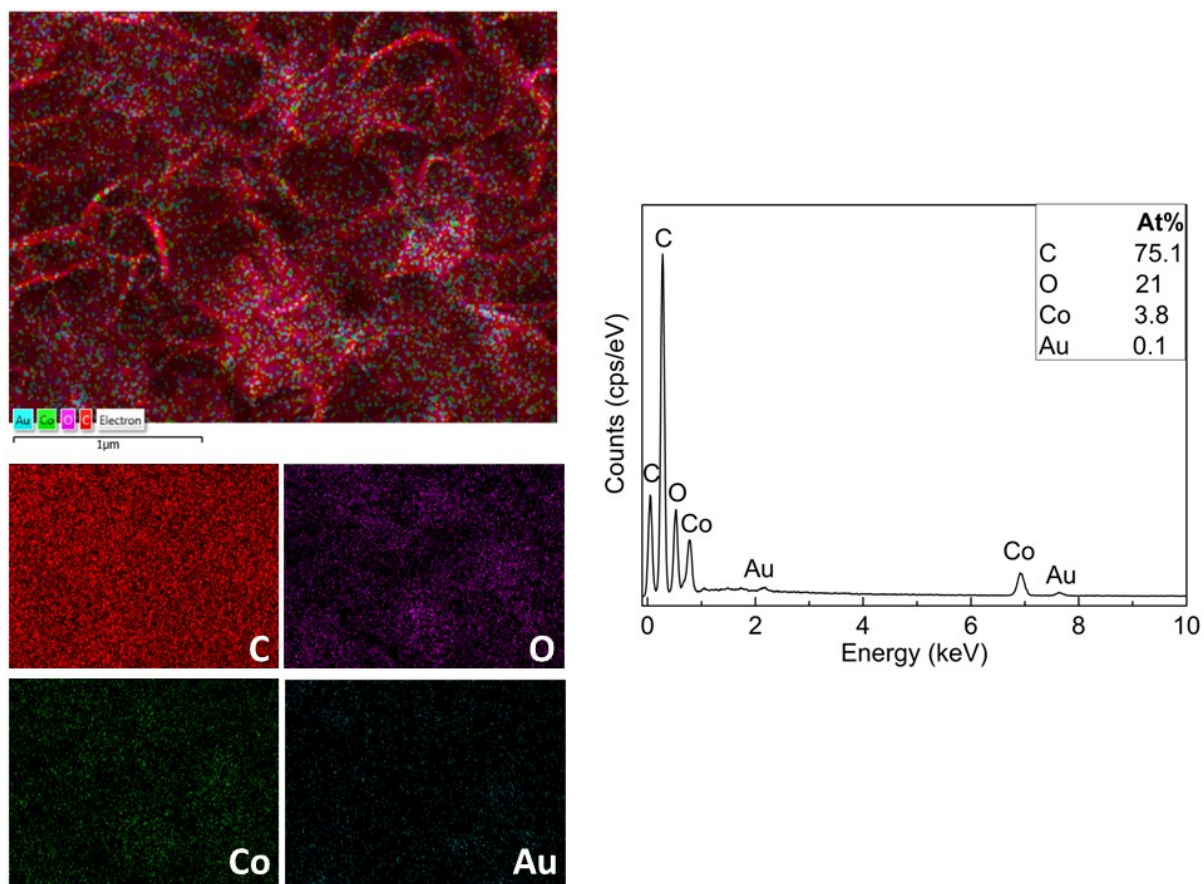


Fig. S3. SEM-EDS mapping of Au/Co(OH)₂ electrodeposited from 0.1 mM KAuBr₄ - 10 mM Co(NO₃)₂·6H₂O solution on GC electrode for 150 sec at -1.05 V.

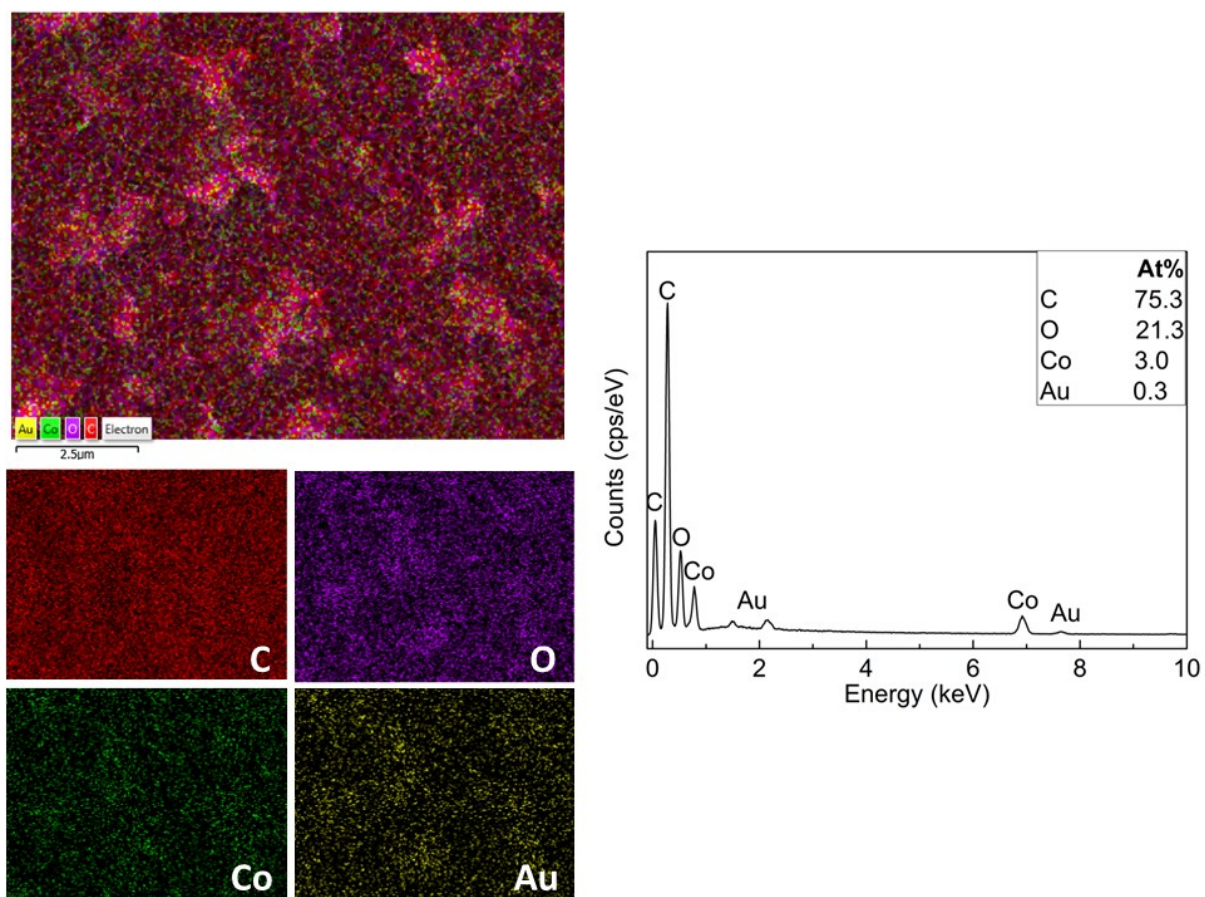


Fig. S4: SEM-EDS mapping of Au/Co(OH)₂ electrodeposited from 0.5 mM KAuBr₄ - 10 mM Co(NO₃)₂·6H₂O solution on a GC electrode for 150 sec at -1.05 V.

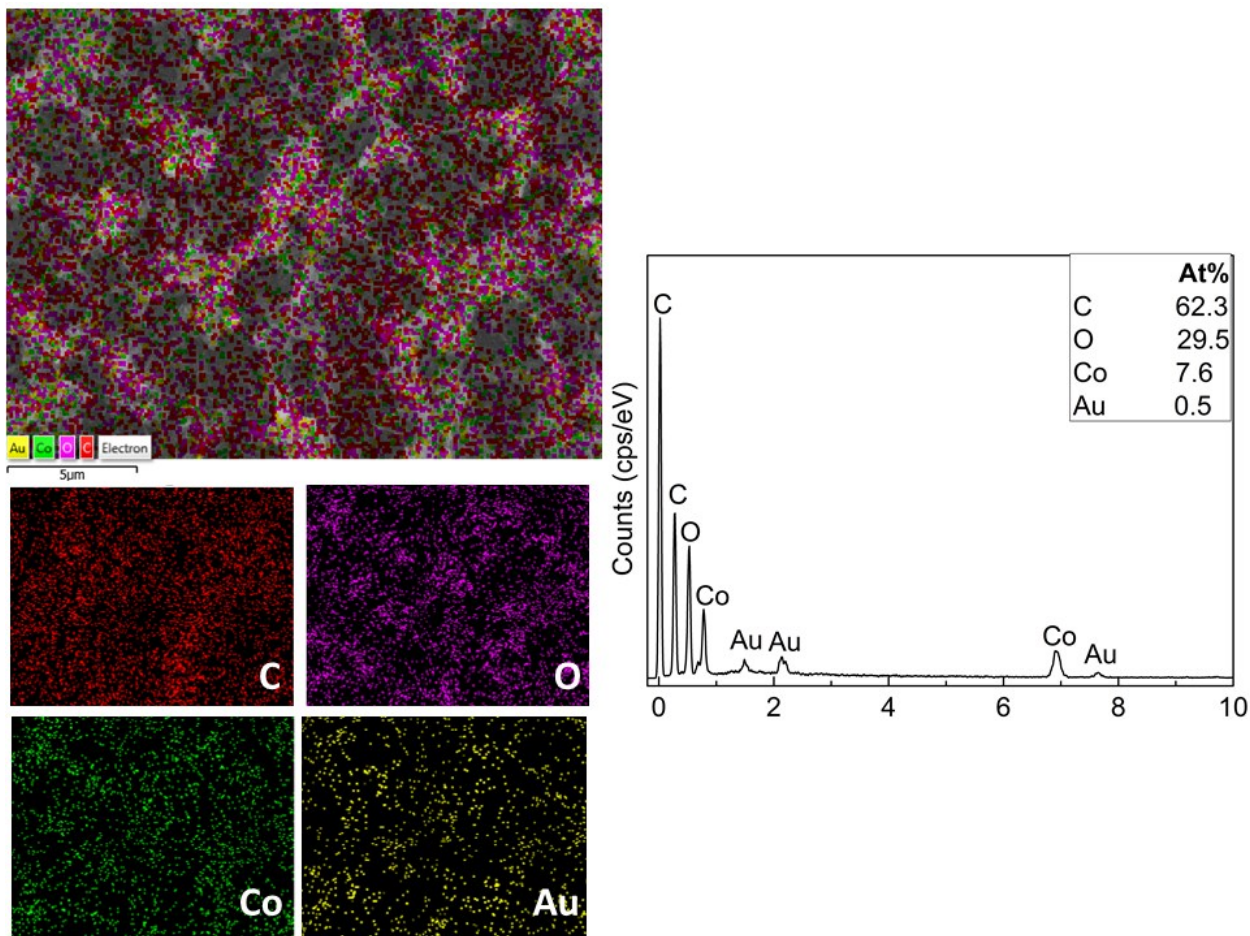


Fig. S5: SEM-EDS mapping of Au/Co(OH)₂ electrodeposited from 1 mM AuBr₄ - 10 mM Co(NO₃)₂·6H₂O solution on a GC electrode for 150 sec at -1.05 V.

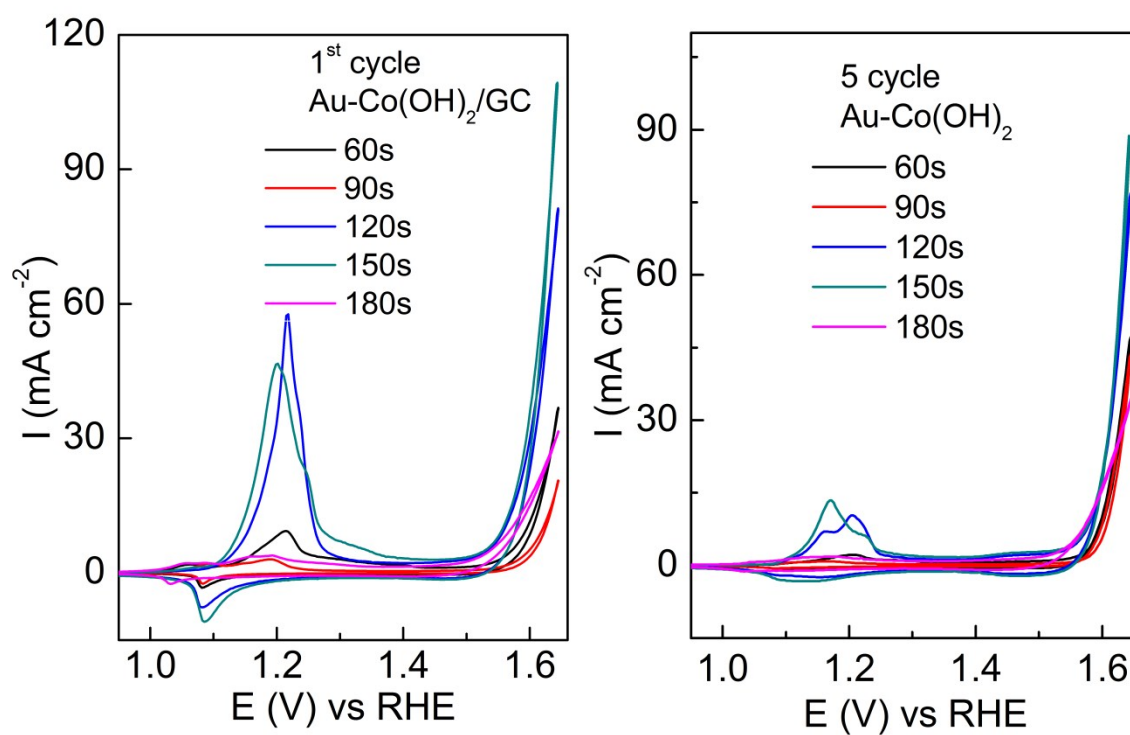


Fig. S6: Cyclic voltammograms recorded at Au-Co(OH)₂ electrodeposited on GC in 0.1 M NaOH recorded at 20 mV s⁻¹ showing the first cycle (left panel) and the fifth cycle (right panel) of time dependent OER performance.

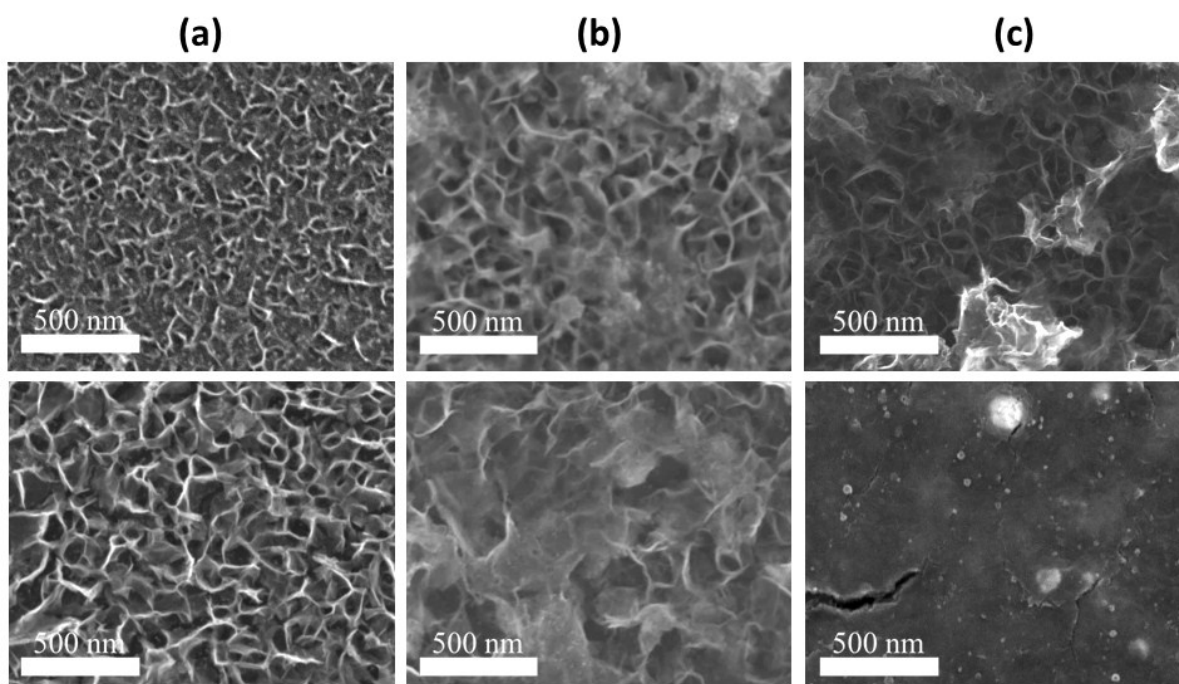


Fig. S7. SEM images of Au-Co(OH)₂/GC electrodeposited film as a function of time where (a) 60 s, (b) 150 s and (c) 180 s at constant -1.05 V potential applied. SEM of as deposited film (first row) and after 5 cycles in OER region (second row).

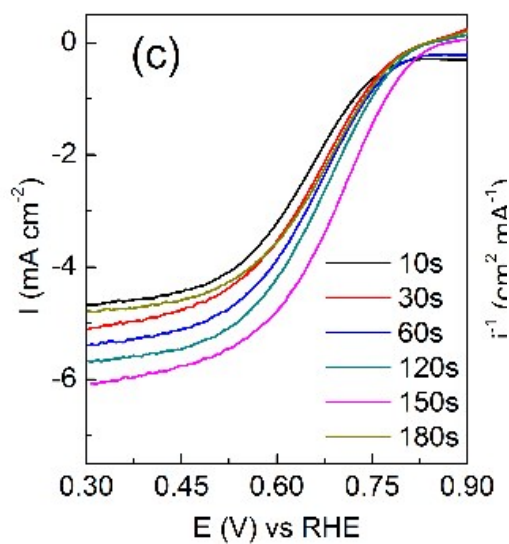


Fig. S8. ORR polarization curves recorded at 20 mV s⁻¹ in 0.1 M NaOH at 1500 rpm for Au/Co(OH)₂ electrodeposited from a solution of 1 mM KAuBr₄ and 10 mM Co(NO₃)₂·6H₂O at -1.05 V for different times.

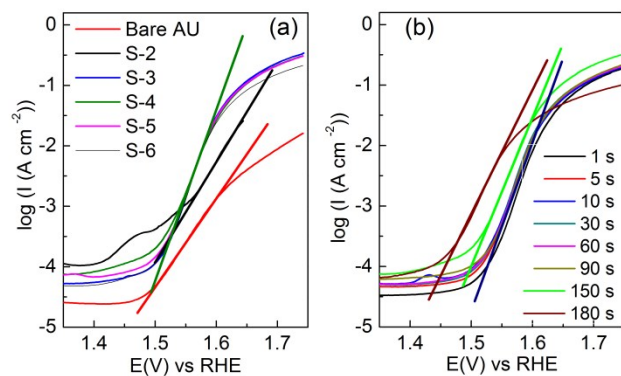


Fig. S9. Tafel plot recorded for the various samples (a) electrodeposited at -1.05 V for 150s and (b) at -1.05 V for S-4 at varying deposition periods. The cyclic voltammetric experiments used to obtain the data was recorded at a sweep rate of 1 mV s^{-1} in 0.1 M NaOH.

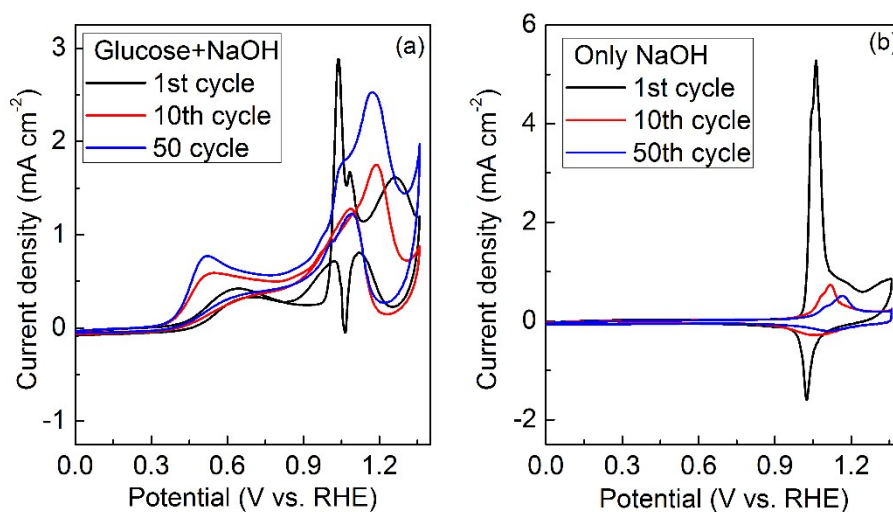


Fig S10. CV response for Au-Co(OH)₂/GC for (a) 8 mM glucose + 0.5 M NaOH and (b) 0.5 M NaOH electrolytes.

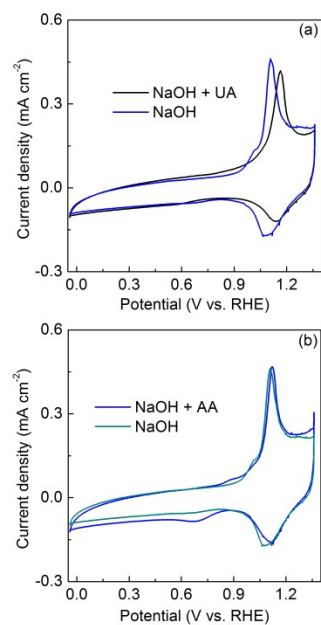


Fig. S11. CVs recorded at sample Au/Co(OH)₂/GC at 50 mV s⁻¹ in 0.5 M NaOH containing (a) 0.33 mM UA and (b) 0.125 mM AA.