

Supporting information

Molecular Wiring of Chlorophyll a and Cytochrome c on Carbon Black for Amplified Photocurrent Generation and ROS Profiling in Cancer Cells

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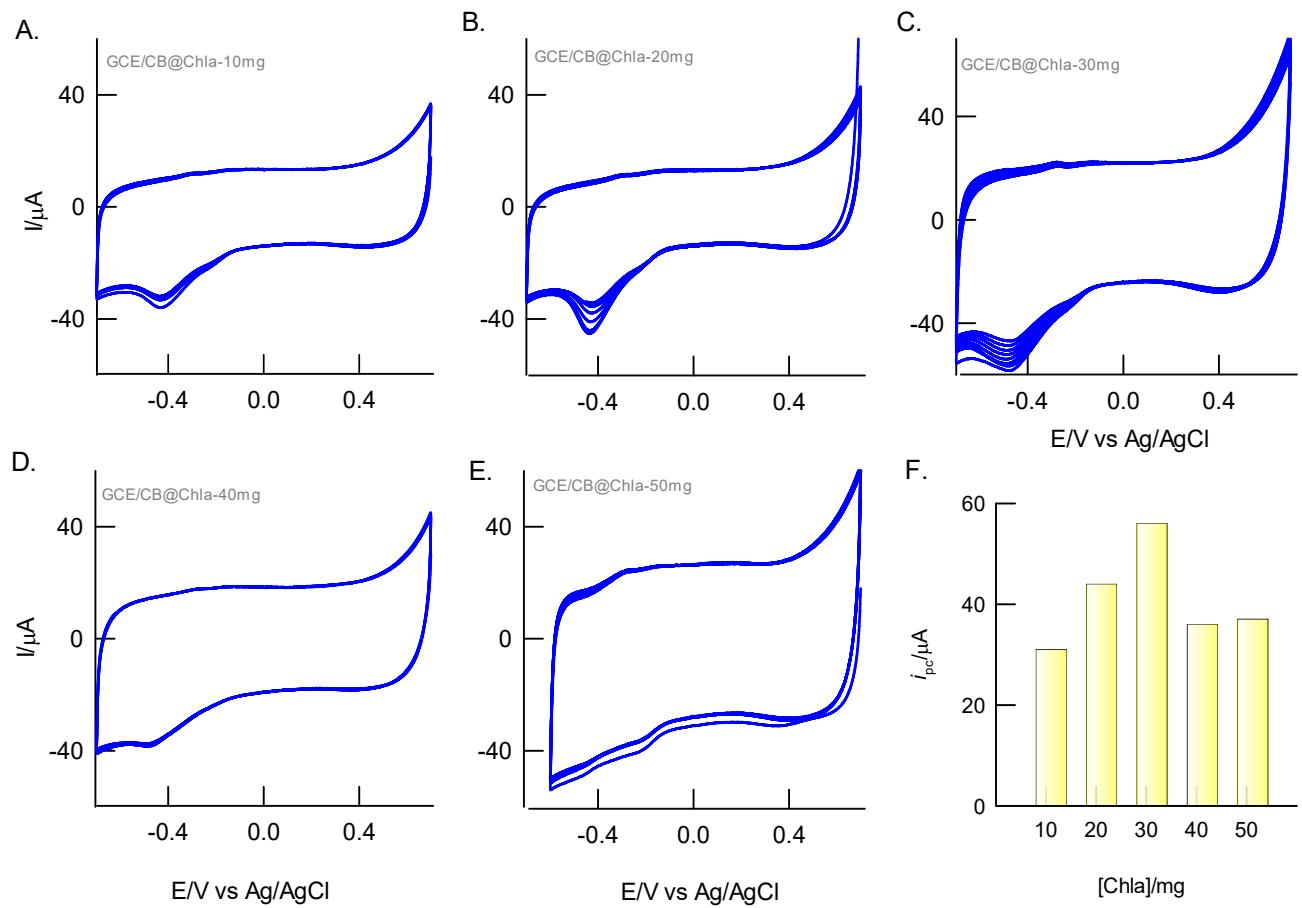


Figure S1. Effect of loading of various concentrations of Chla on GCE/CB (A) 10 (B) 20 (C) 30 (D) 40 and (E) 50mg of Chla in pH 7 PBS (N_2 purged) and (F) The plot of $|i_{\text{pc}}|$ vs [Chla]. i_{pc} – Baseline not corrected.

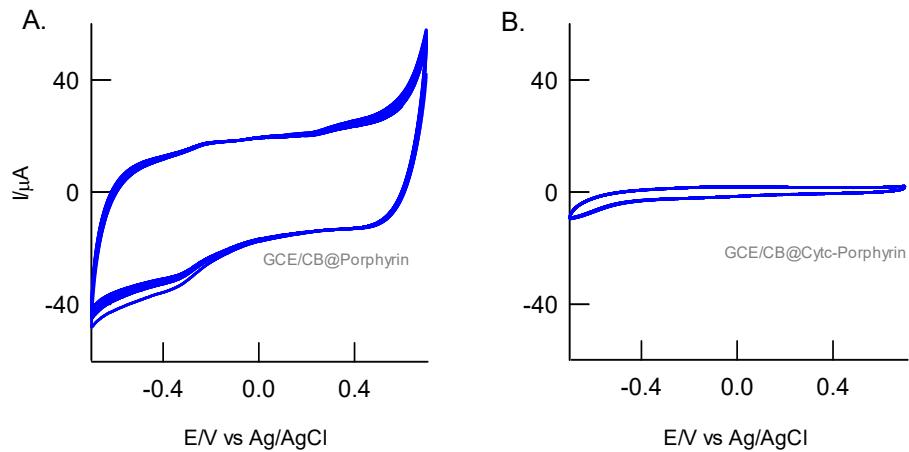


Figure S2. (A) CV response of GCE modified CB@porphyrin and (B) CB/Cytc@porphyrin in pH 7 PBS (N₂ purged).

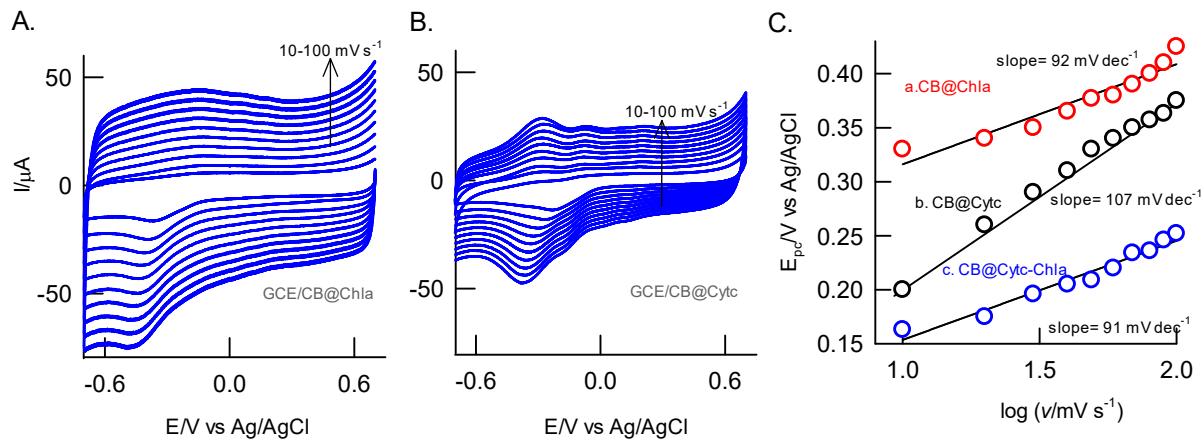


Figure S3. (A-B) The effect of scan rate ($10-100 \text{ mV s}^{-1}$) of GCE/CB@Chla and GCE/CB@Cytc-Chla in blank pH 7 PBS solution (N_2 purged) in dark conditions and (C) Plot of E_{pc} vs $\log(v)$.

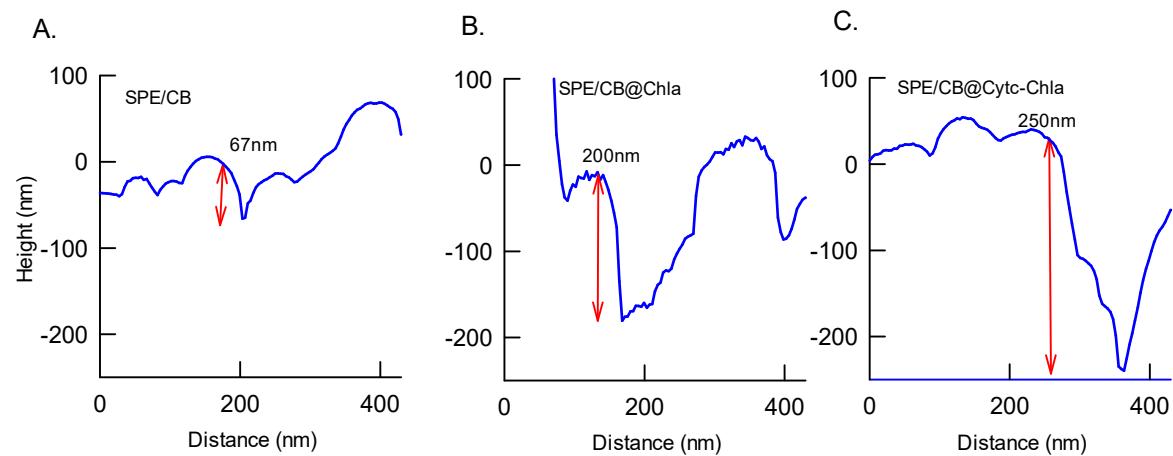


Figure S4. AFM height calculation of (A) CB, (B) CB@Chla and (C) CB@Cytc-Chla.

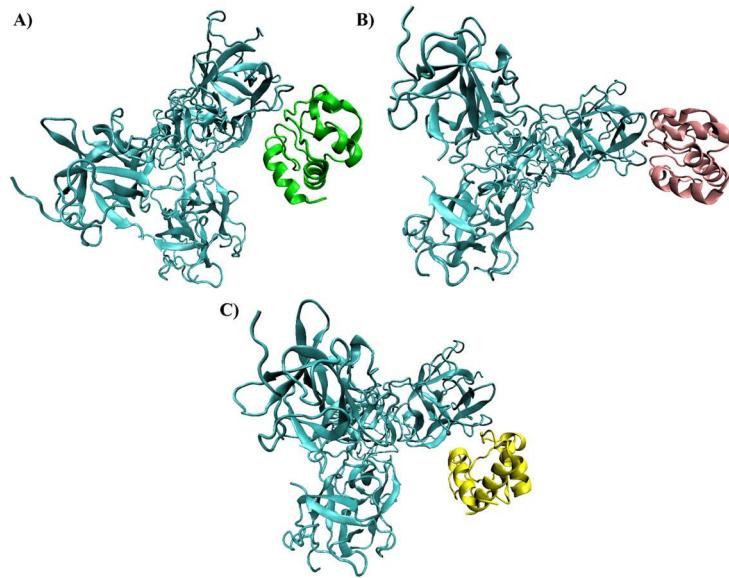


Figure S5. The selected top 3 docking conformations of Chla and cytochrome *c*. A) dock1 B) dock2 and C) dock3.

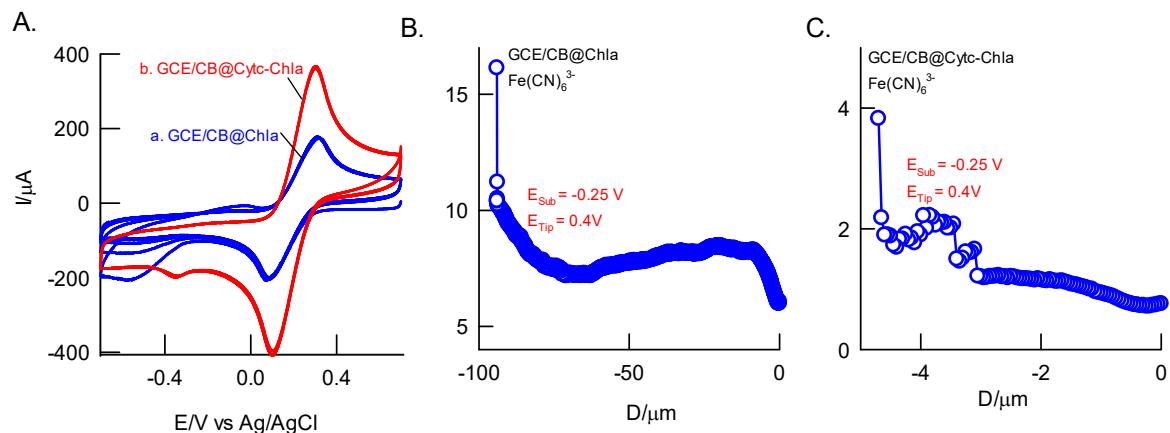


Figure S6 (A) CV response of (a) GCE/CB@Chla and (b) GCE/CB@Cytc-Chla using 5mM $\text{Fe}(\text{CN})_6^{3-}$ containing N_2 purged 0.1M KCl solution and (B-C) Approach curves response of GCE/CB@Chla and GCE/CB@Cytc-Chla in 5mM $\text{Fe}(\text{CN})_6^{3-}$ containing N_2 purged 0.1M KCl solution.

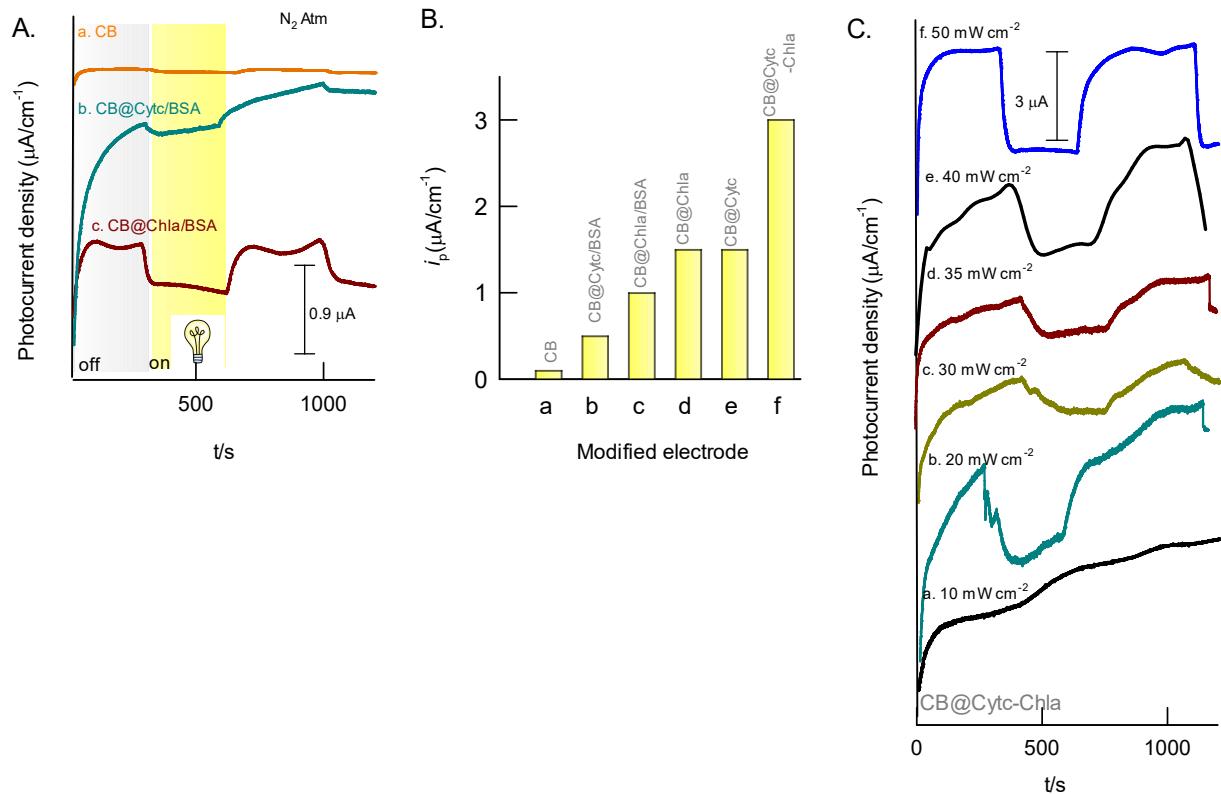


Figure S7. Photocurrent response was recorded in amp-it at -0.25V vs Ag/AgCl: (A) CB (a), CB/Cytc/BSA (b) and CB@Chla/BSA (c) modified electrodes in pH 7 PBS N_2 atm. (B) i_p of modified electrodes and (C) CB@Cytc-Chla in different light intensities ($10-50 \text{ mW cm}^{-2}$).

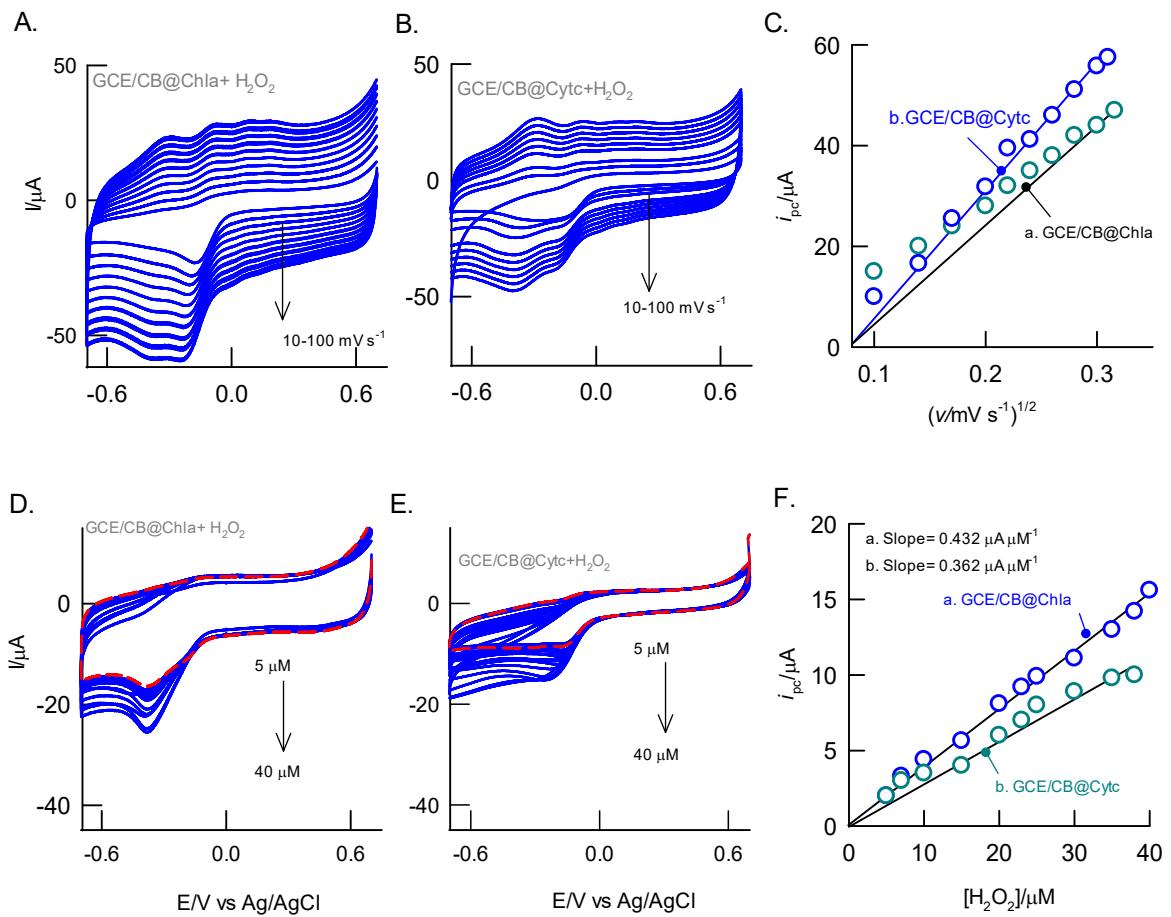


Figure S8. (A-B) Effect of scan rate of GCE/CB@Chla and GCE/CB/Cytc in the presence of 20 μM of H_2O_2 in pH 7 PBS (N_2 purged). (C) plot of cathodic peak current i_{pc} vs square root of v . (D-E) Effect of concentration (5-40) μM of H_2O_2 of GCE/CB@Chla and GCE/CB/Cytc in pH 7 PBS (N_2 purged) and (F) plot of $|i_{pc}|$ vs $[\text{H}_2\text{O}_2]/(\mu\text{M})$ (baseline corrected).