

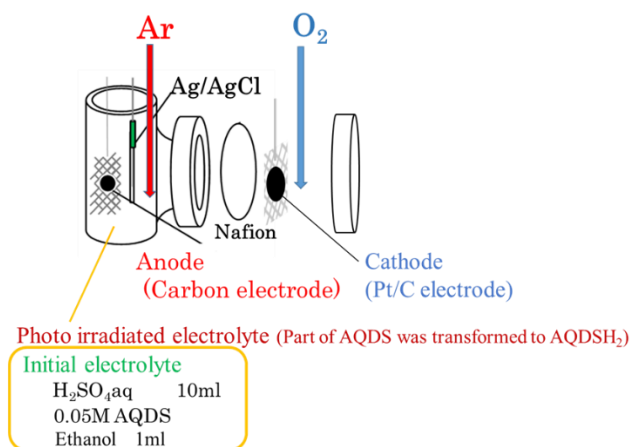
Electronic Supplementary Information

Photo-rechargeable fuel cell using photo-hydrogenation reactions of quinone molecules

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Kawasaki^{1*}*

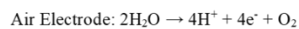
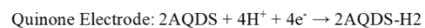
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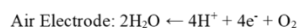
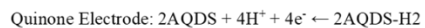


(1) Electric Charge & Electric Discharge

(A) Electric Charge

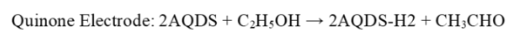


(B) Electric Discharge



(2) Photo Charge & Electric Discharge

(A) Photo Charge



(B) Electric Discharge

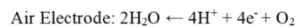


Fig. S1. A schematic picture (left) and electrode reaction (right) of our new concept photo-rechargeable fuel cell.

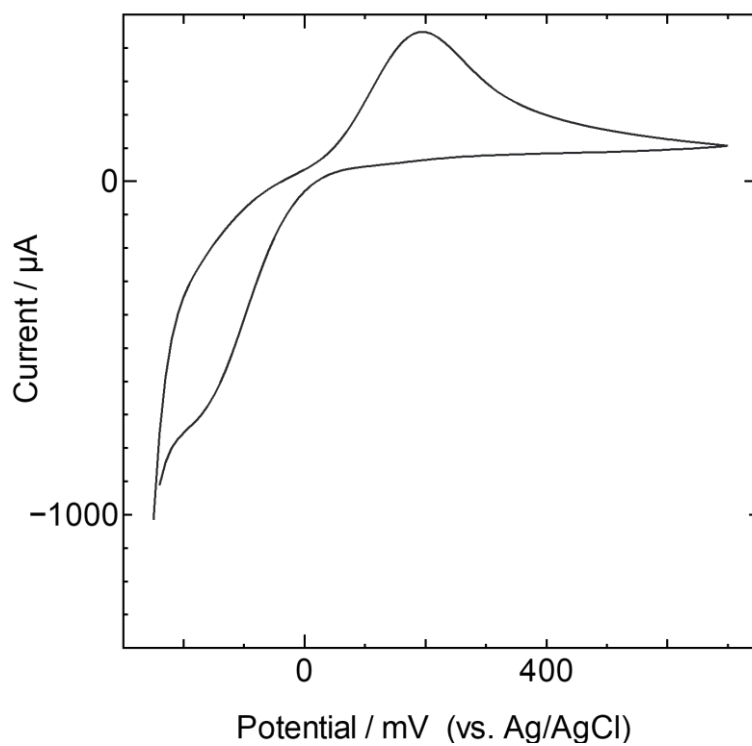


Figure S2. Cyclic voltammogram of 0.1 mol/L AQDS dissolved in H_2SO_4 aqueous solution.

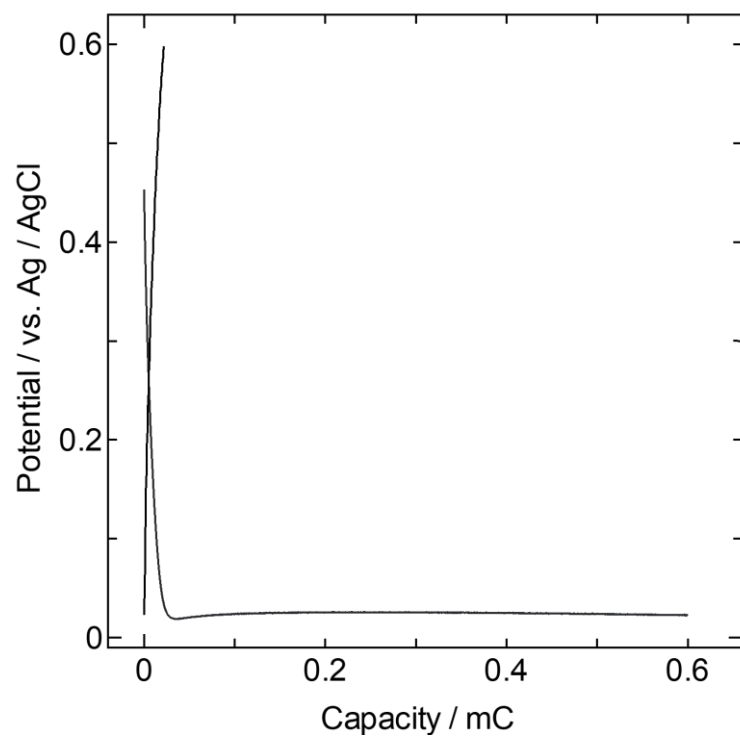


Figure S3. Electrochemical charge/discharge curves of the fuel cell without AQDS.

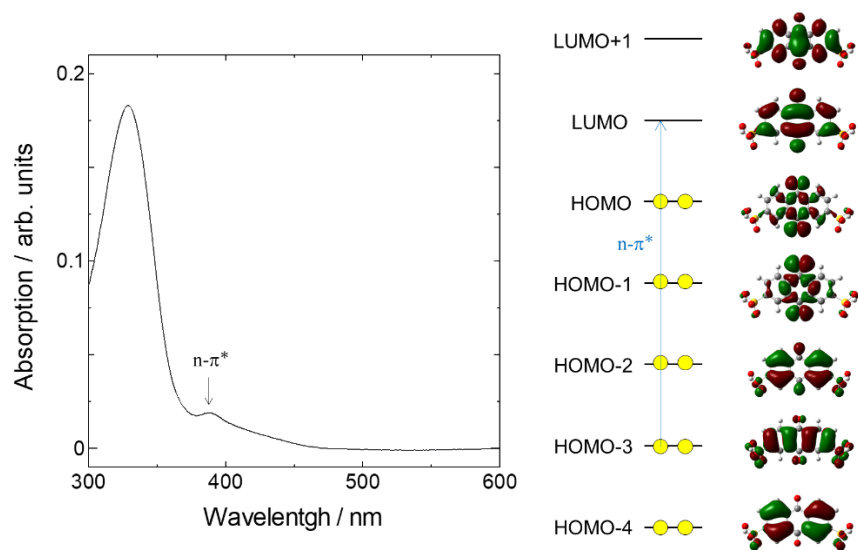


Figure S4. UV-Vis spectrum (left) and energy diagram (right) of AQDS.

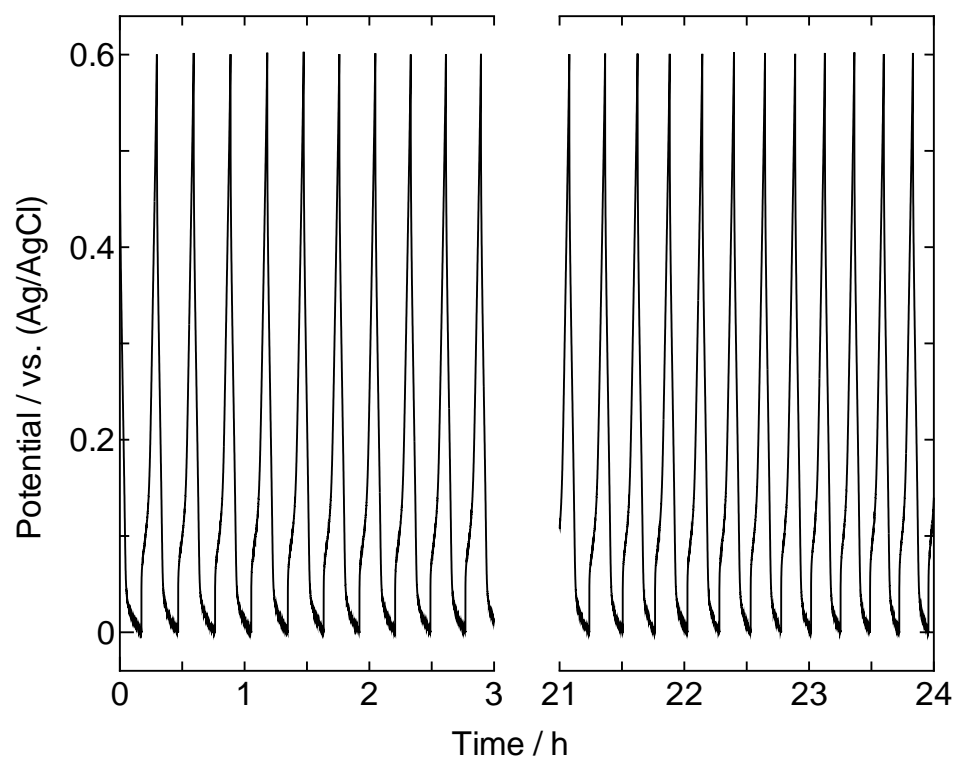


Figure S5. Cycle performance of the fuel cell by the electrochemical charge/discharge experiments (current density: $3 \mu\text{A}/\text{cm}^2$).

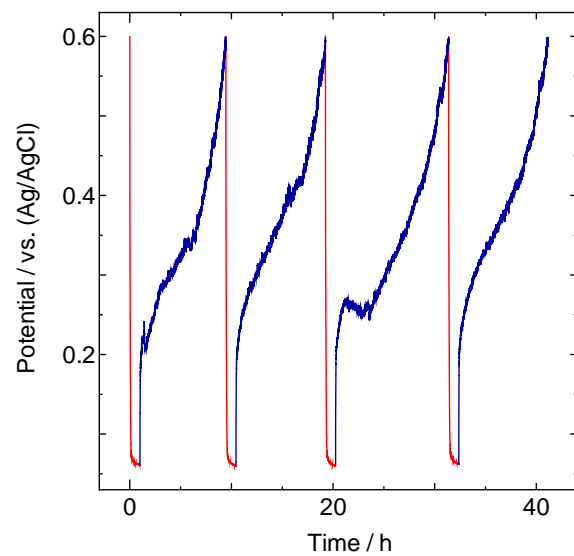


Figure S6. Cycle performance of the fuel cell by the photo-charging / electrochemical-discharge experiments (red line: photo-charging, blue line: electrochemical discharging).