## **Supporting Information**

## Photovoltaically Self-charging Cells With WO<sub>3</sub>·H<sub>2</sub>O /CNTs/PVDF Composite

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Figure S1. EDX spectra and composition of  $WO_3 \cdot H_2O/CNTs/PVDF$  (50:25:25) film.



**Figure S2.** (a) Charge and discharge *J-t* curves of PSC with Pt catalyst and 0.05 M Lil under varying irradiation durations. (b) Discharge curves zoomed in.



**Figure S3**. Electrochemical impedance spectroscopy (Nyquist plots) of PSCs with different electrolytes with a frequency loop from 1000 Hz to 0.1 Hz using a perturbation amplitude of 5 mV and -0.720 V bias on open-circuit.