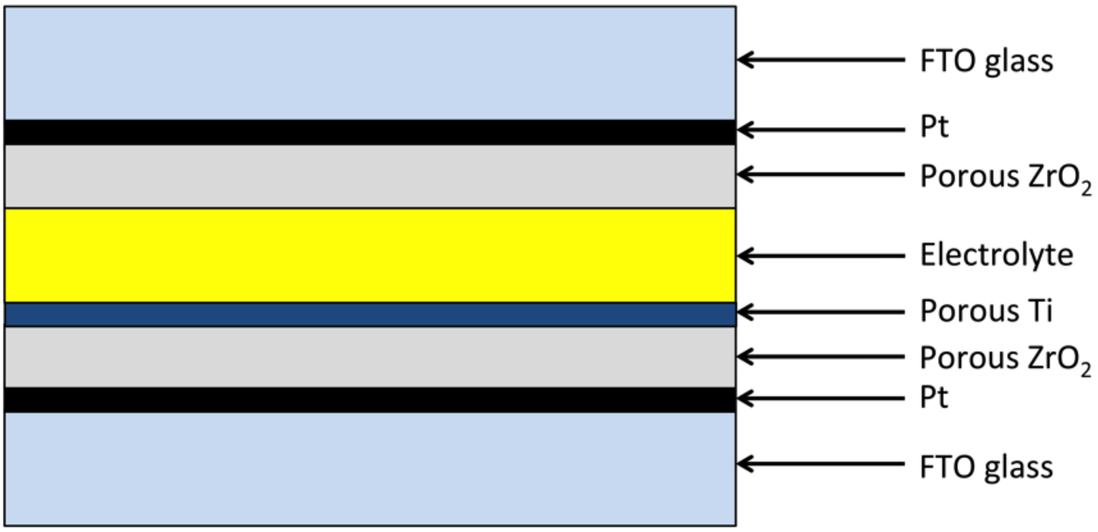
Electronic Supplementary Material (ESI) for Energy & Environmental Science

Supplementary information

Supplementary information

(a)



(b)

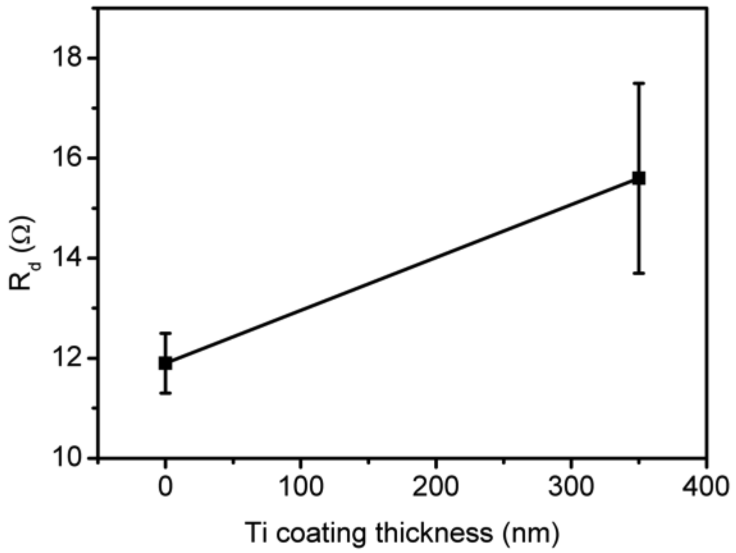


Figure S1 (a) Device setup for the EIS measurement of the triiodid/iodide diffusion resistance (R_d) through the porous Ti and ZrO_2 layers. The device has an active geometrical area of 0.16 cm^2. The Pt catalytic layer was produced via thermal decomposition of H_2PtCl_6. The ZrO_2 layer is identical to that used in mBC-DSCs. R_d were measured for devices without and with a sputter coated 350 nm Ti layer. EIS results obtained from data fitting are plotted in **(b)**.

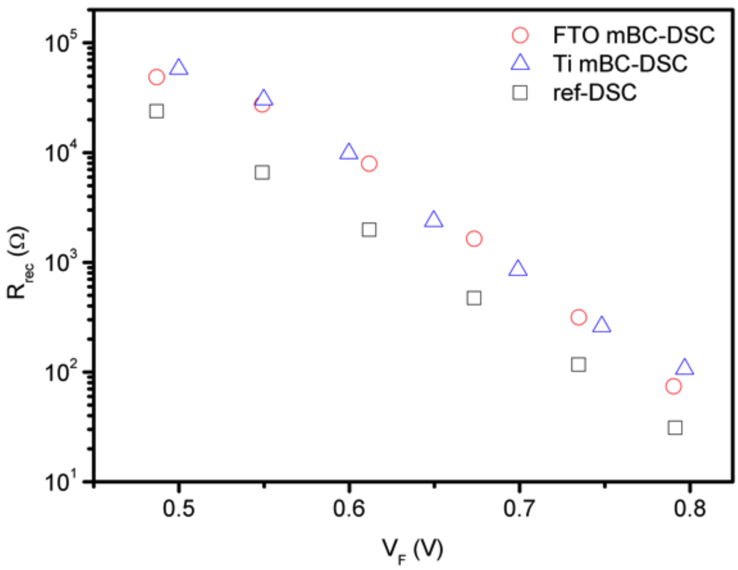


Figure S2 Recombination resistance R_{rec} for FTO mBC-DSCs, Ti mBC-DSCs and ref-DSCs retrieved by fitting EIS results to the classic transmission line model. V_F refers to 'Fermi level voltage', which is calculated by subtracting the Ohmic drop from the applied bias potential across the devices. [18] The plots of R_{rec} for all three types of devices show exponential dependency on the V_F, in accordance with the trend reported in literature. [17, 20, 21] Reduced recombination is shown for the mBC-DSCs compared to the ref-DSCs.