Supporting Information

**High-capacity TiO$_2$/C negative electrode for sodium secondary battery with ionic liquid electrolyte**

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Figure S1. A TEM image of TiO$_2$/C nanopowder.
Figure S2. Charge-discharge curves of TiO$_2$/C electrodes at current rate of 20 mA g$^{-1}$ at 363 K. Cut-off voltage: (a) 0.01-2.5 V, (b) 0.25-2.5 V and (c) 0.4-2.5 V.
Figure S3. Charge-discharge curves of TiO$_2$/C electrode in Na[FSA]-[C$_3$C$_1$pyrr][FSA] at 363 K and 298 K, and in 1M-NaPF$_6$/EC-DMC at 298 K. Current rate: 10 mA g$^{-1}$. 
Figure S4. Charge-discharge curves of TiO$_2$ electrode at 363 K: (a) at current rate of 20 mA g$^{-1}$ and (b) at current rates of 20-200 mA g$^{-1}$. 
Figure S5. Nyquist plots of TiO$_2$ and TiO$_2$/C electrodes before and after charge-discharge testing. (Electrochemical impedance measurements were performed in the frequency range of 200 kHz to 100 mHz with an AC voltage signal of 10 mV)
Figure S6. Cycling performance of TiO$_2$ electrode at current rate of 200 mA g$^{-1}$ at 363 K.