Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A

Supporting Information

Is $Li_4Ti_5O_{12}$ a solid-electrolyte-interphase-free electrode material in Li-ion batteries? Reactivity between $Li_4Ti_5O_{12}$ electrode and electrolyte

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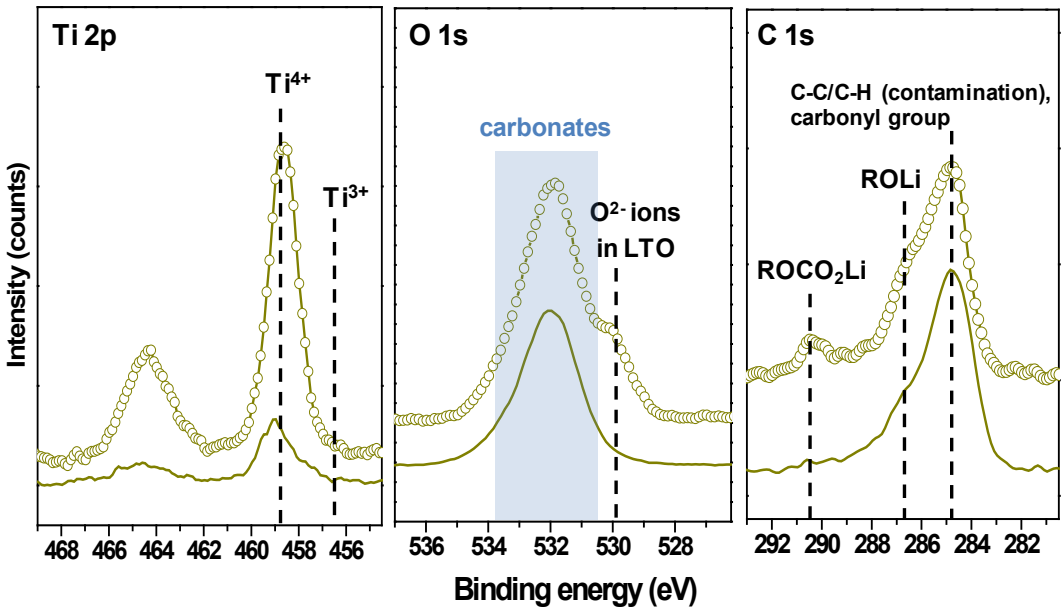

Fig. S1 Ti 2p, O 1s and C 1s XPS spectra of the carbon-free $Li_4Ti_5O_{12}$ electrode after 50 cycles: before and after mechanical scratching corresponding to solid and empty circles, respectively.

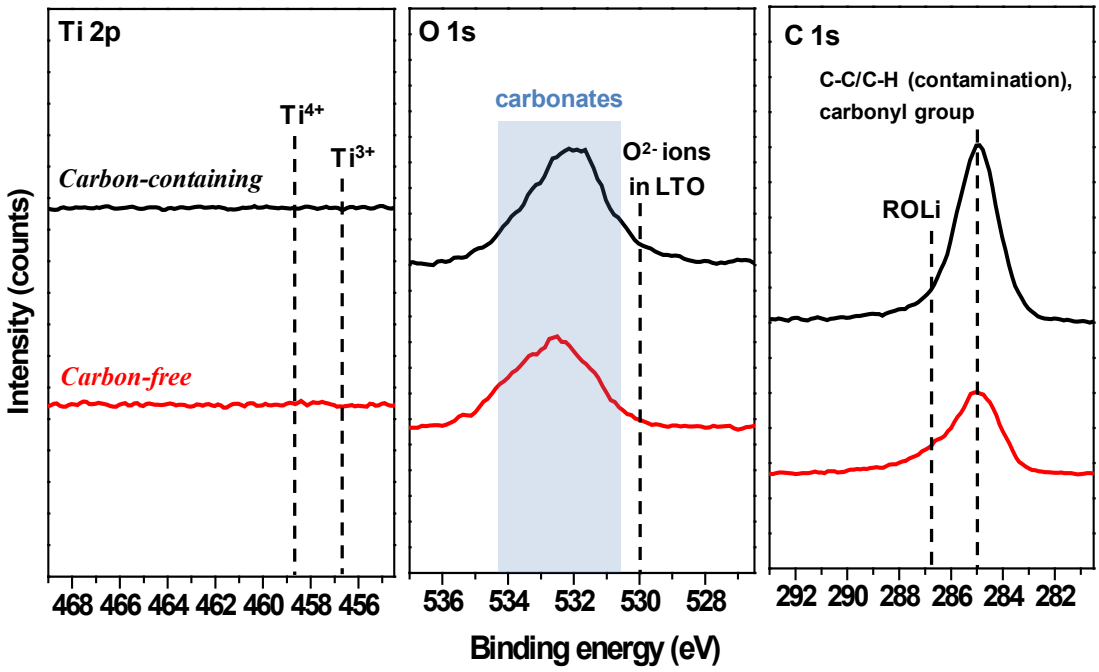

Fig. S2 Ti 2p, O 1s and C 1s XPS spectra of the carbon-free $Li_4Ti_5O_{12}$ electrode (red) and the carbon-containing electrode (black) after 280 cycles at 60°C.

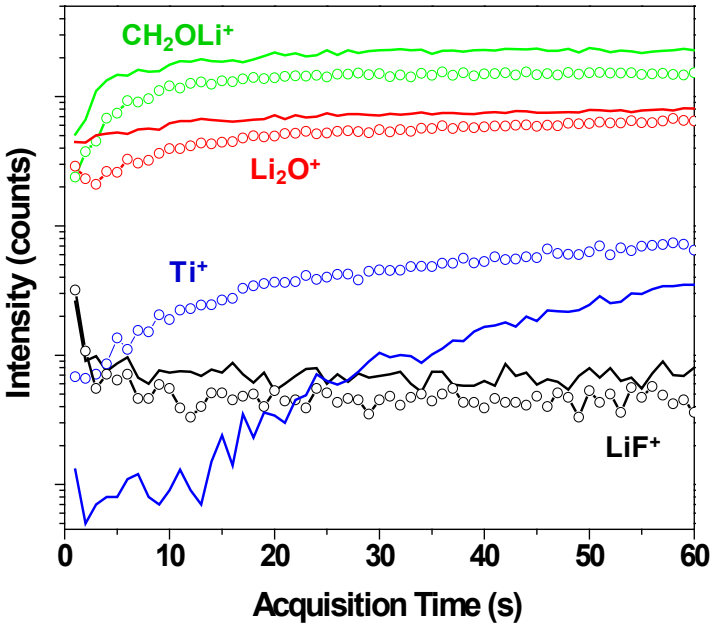

Fig. S3 SIMS depth profiles of $Li_4Ti_5O_{12}$ electrodes after 280 cycles at 60°C. Empty circles correspond to the carbon-free electrode and solid line for the carbon-containing electrode.

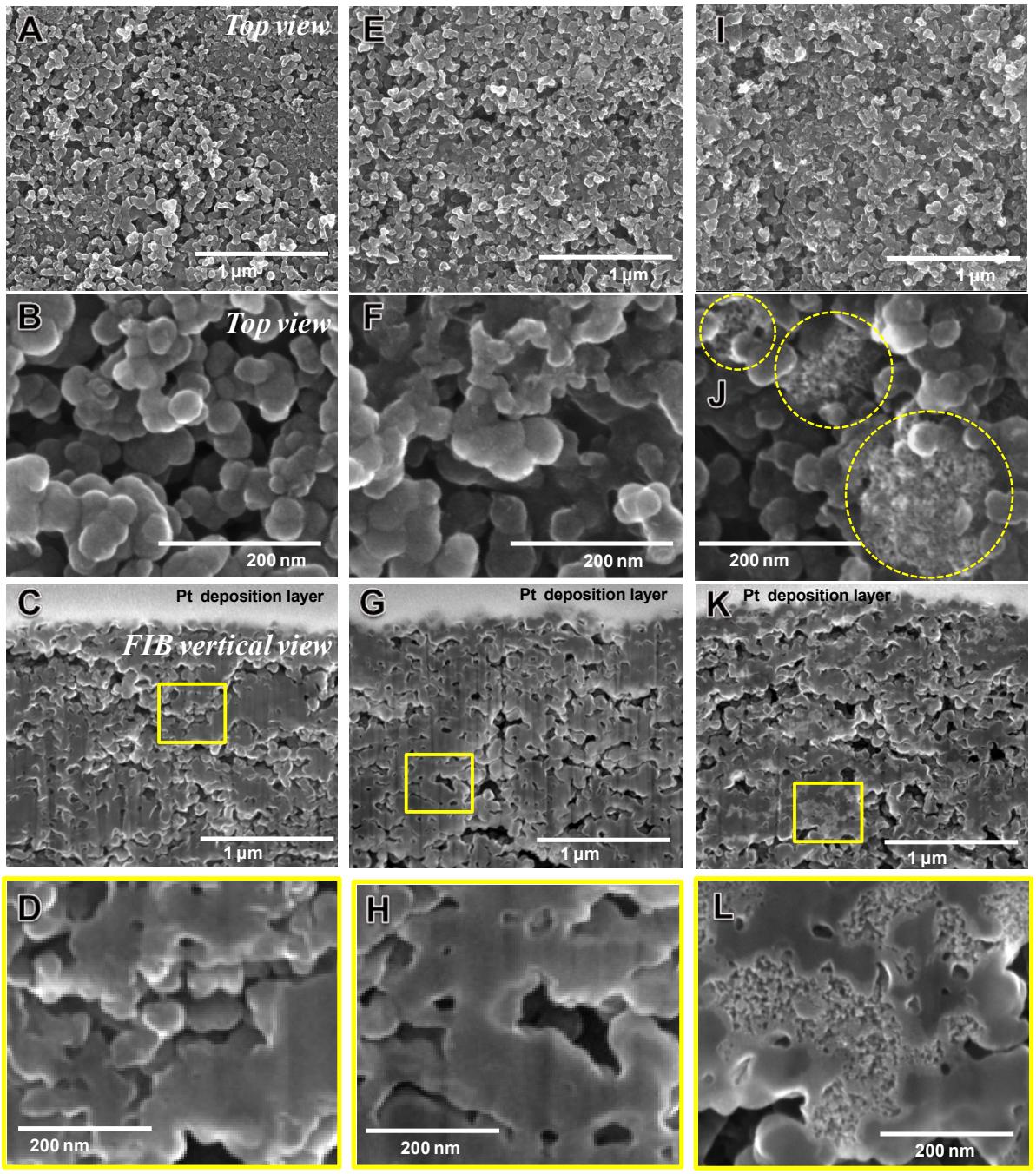

Fig. S4 SEM (top-view) and FIB cross-section images of the carbon electrodes without $Li_4Ti_5O_{12}$ (A-D) before and after the 1.55 V potentiostatic aging at (E-H) room and (I-L) high temperature.

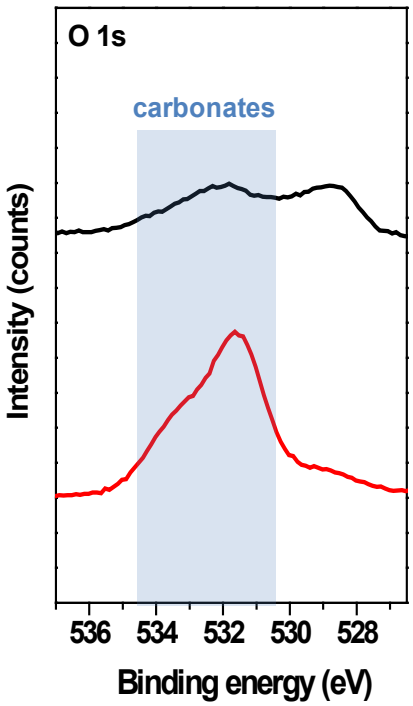

Fig. S5 O 1s XPS spectra of the carbon electrodes without $Li_4Ti_5O_{12}$ after 1.55 V potentiostatic aging at room (black line) and high (red line) temperature.