Electronic Supplementary Information

Design of Binder-Free Slurry Electrodes for Lithium-Ion Batteries via Identification of Electronic and Ionic Transport Networks

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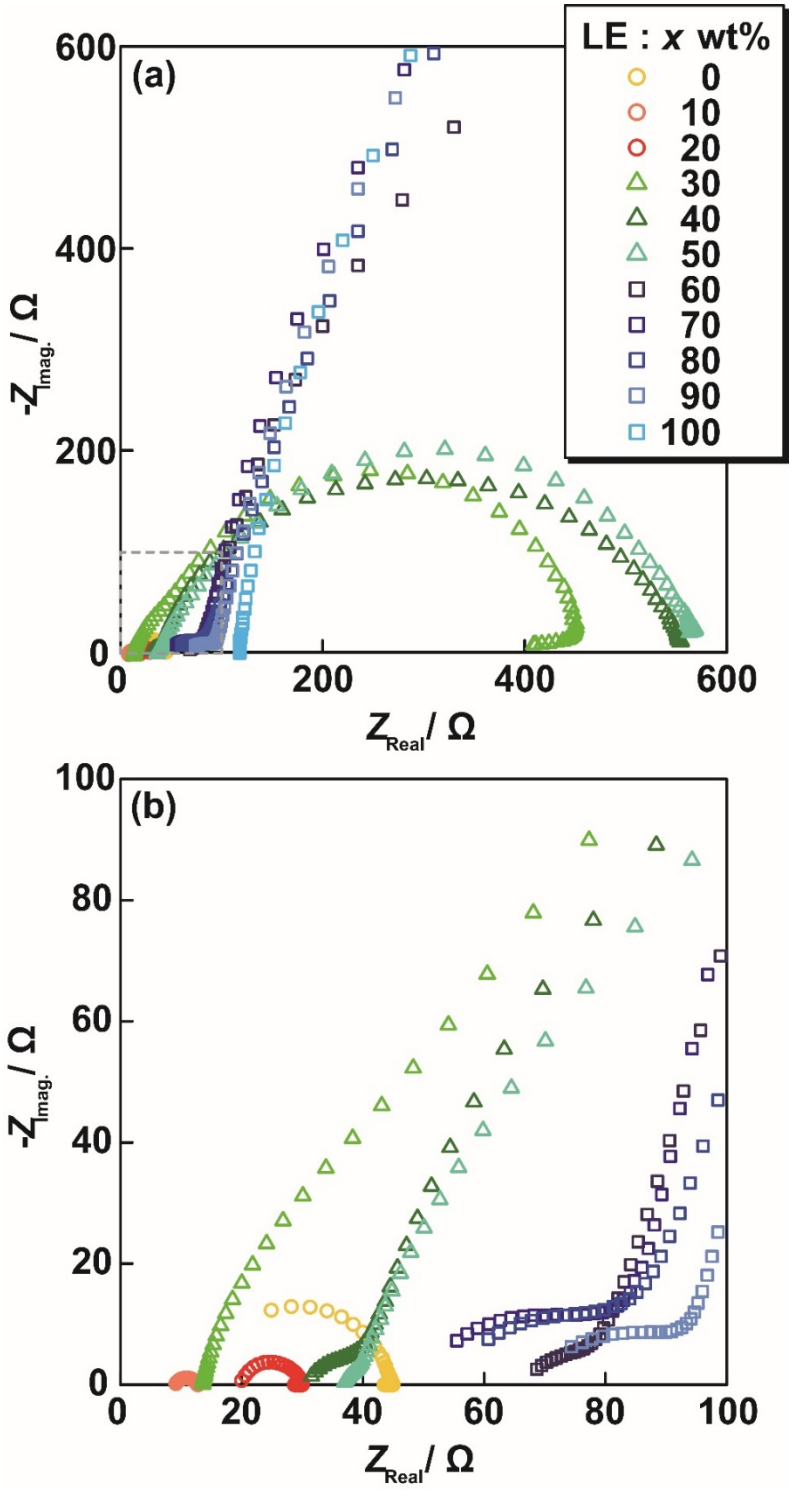

Figure S1. Nyquist plots for binder-free slurries (BFSs) for all electrode compositions, expressed as [LFP+AB+VGCF : LE = 100-*x* : *x*, where *x* = 0-100 wt%), with a fixed ratio of LFP : AB : VGCF = 83 : 12 : 5 (wt%), measured with an AC amplitude of 10 mV at 303 K.

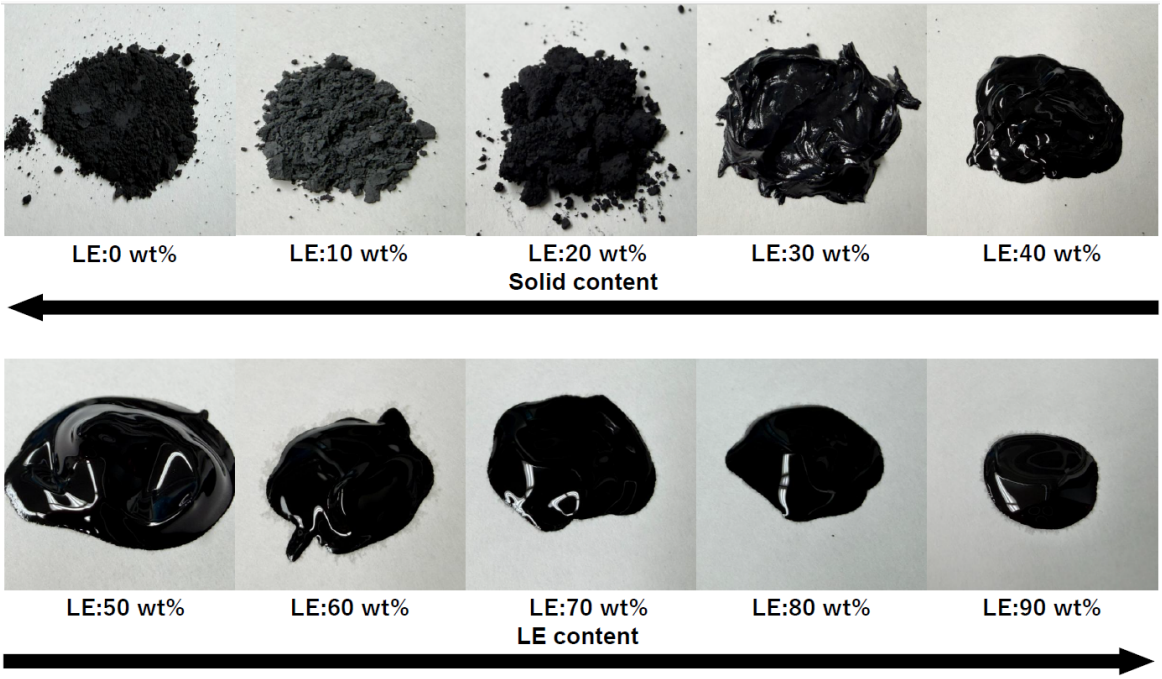

Figure S2. Morphology of binder-free slurries (BFSs) with different electrode compositions.

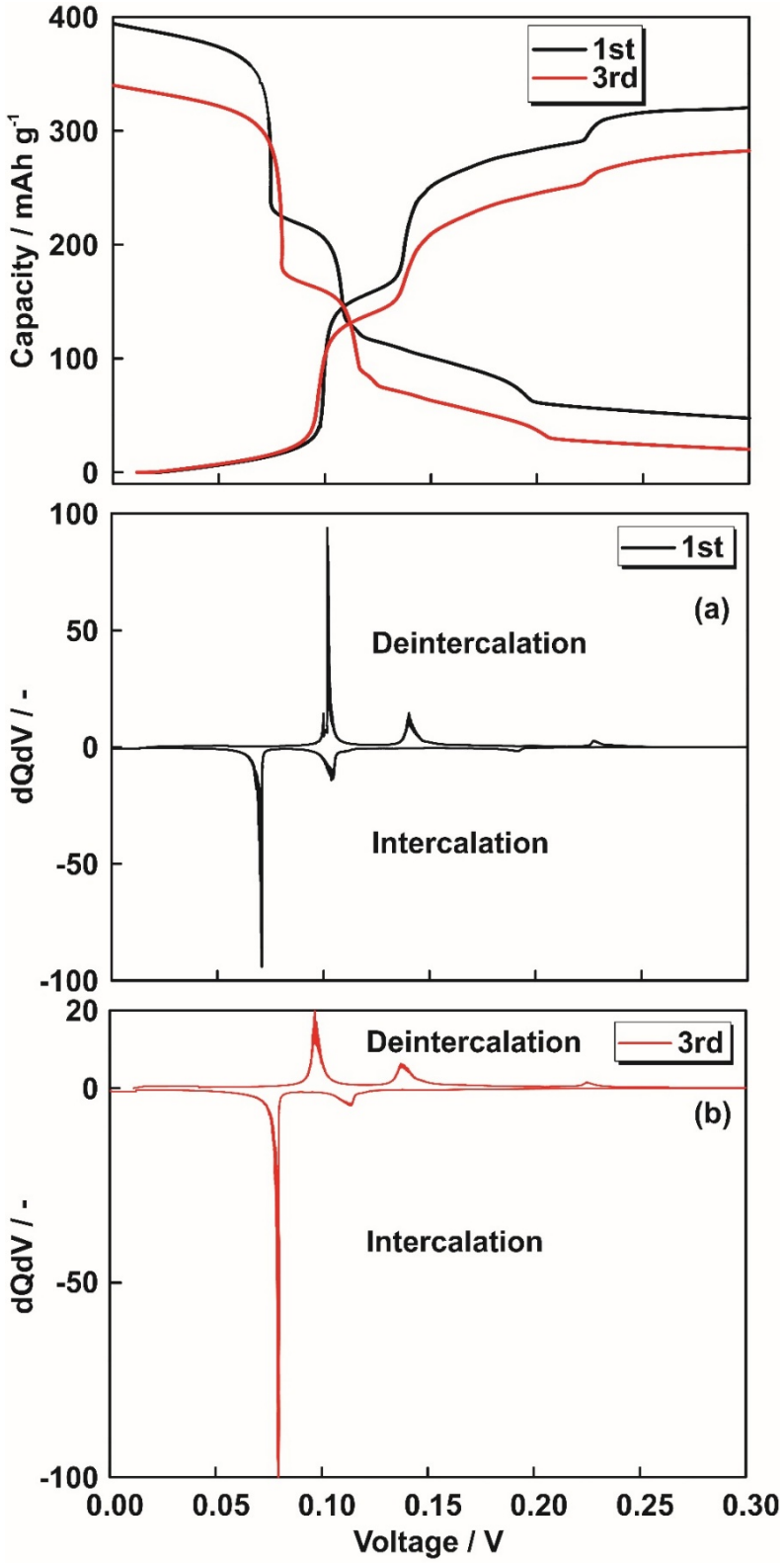

Fig. S3 V-dQ/dV curves of negative binder-free half-cells at 303 K: (a) 1st cycle using a carbon-coated Cu current collector, (b) 3rd cycle using a carbon-coated Cu current collector, (c) 1st cycle using a bare Cu current collector and (d) 3rd cycle using a bare Cu current collector.

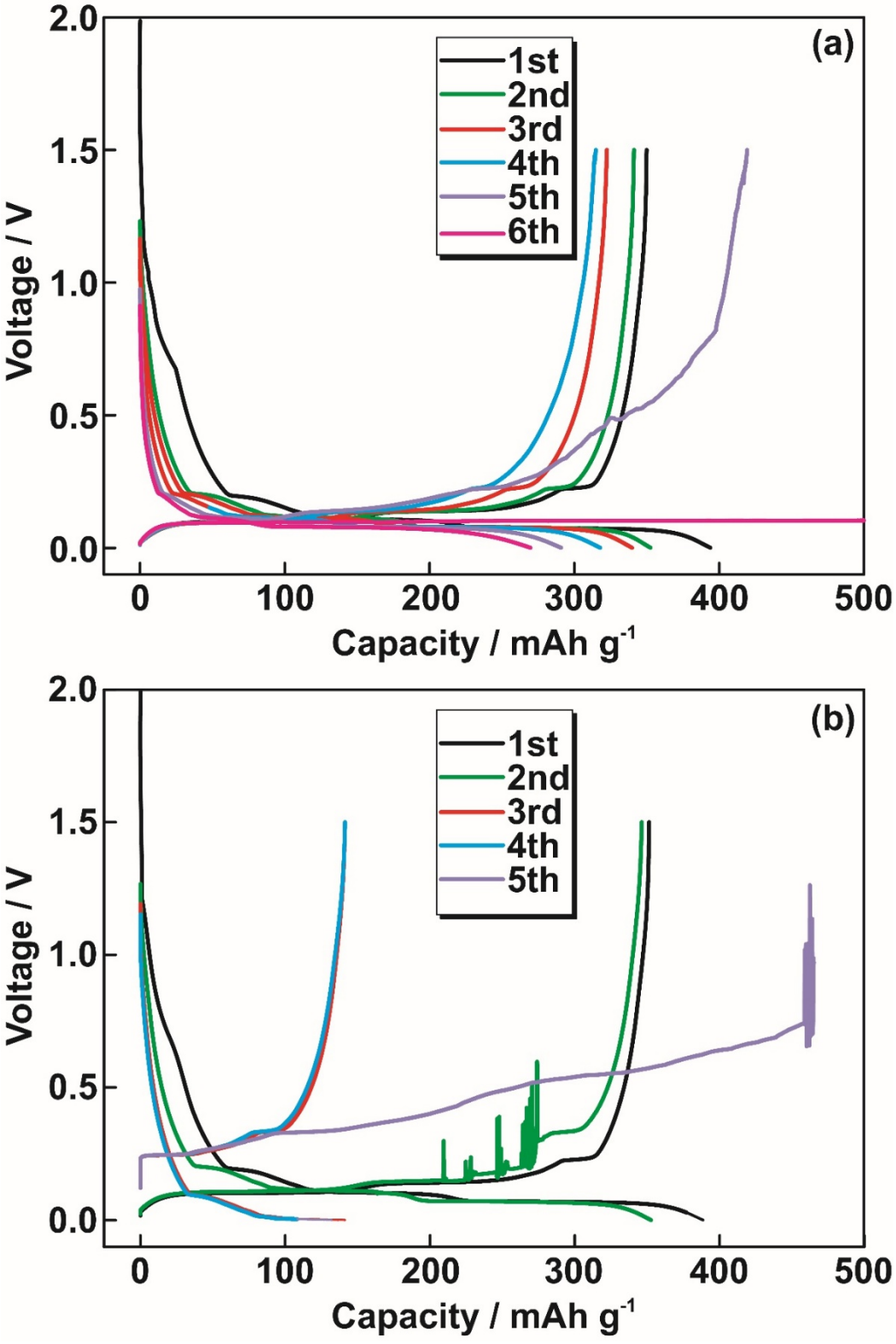

Fig. S4. Charge-discharge profiles of the [negative binder-free electrode | GPE | Li metal] half-cell at 303 K for all cycles using (a) a carbon-coated Cu current collector and (b) a bare Cu current collector.

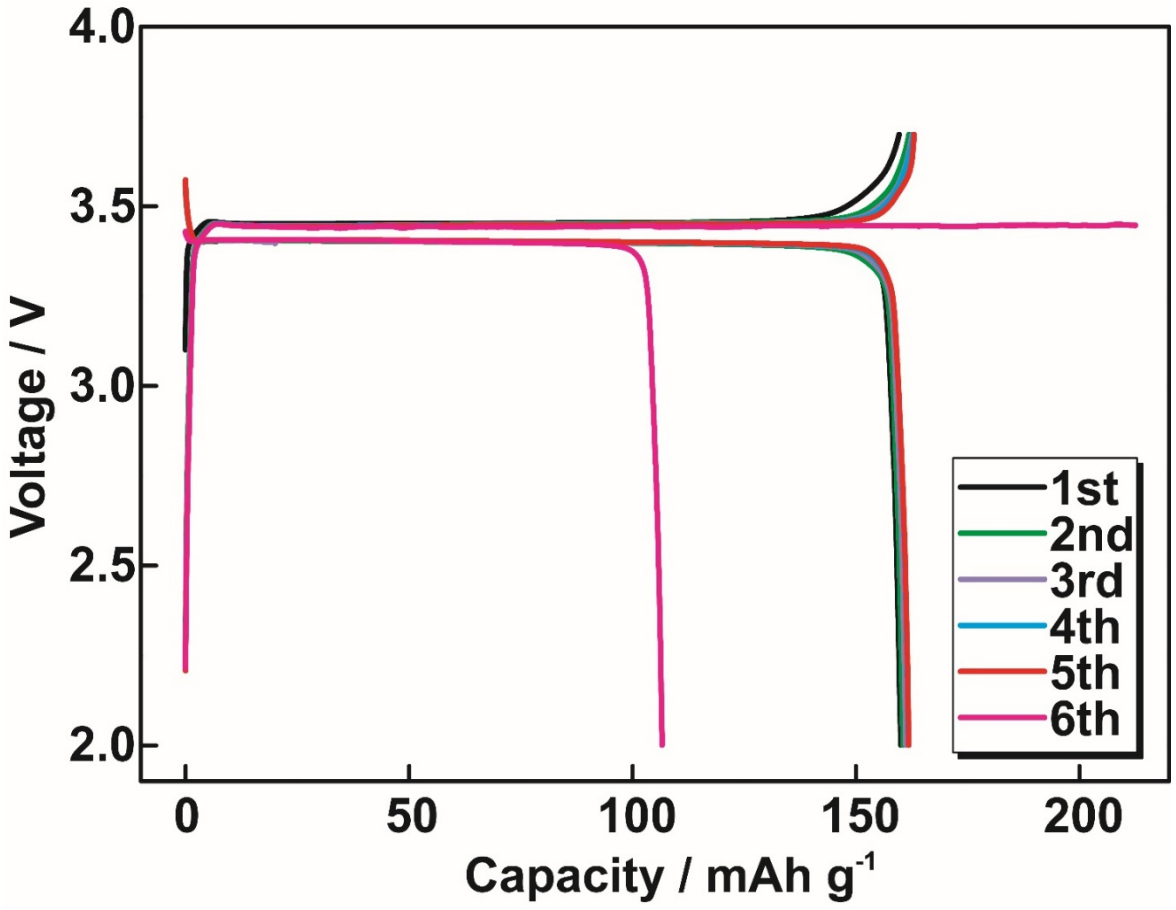

Fig. S5. Charge-discharge profiles of the [positive binder-free electrode | GPE | Li metal] half-cell at 303 K for all cycles using a carbon-coated Al current collector.