

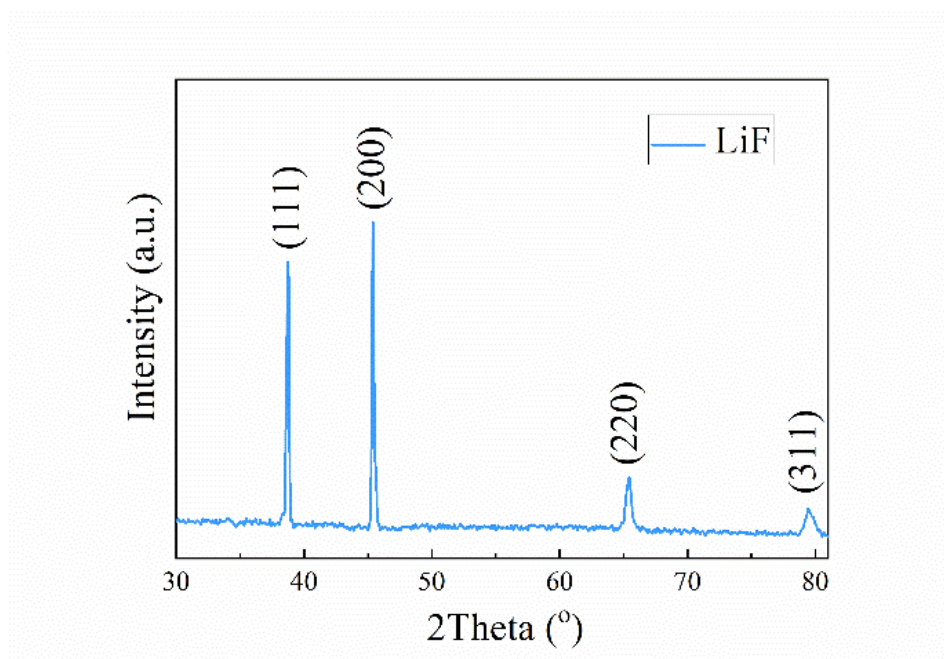
Supporting information

**Prefabrication of lithium fluoride interfacial layer to Enable Dendrite-Free Lithium Deposition**

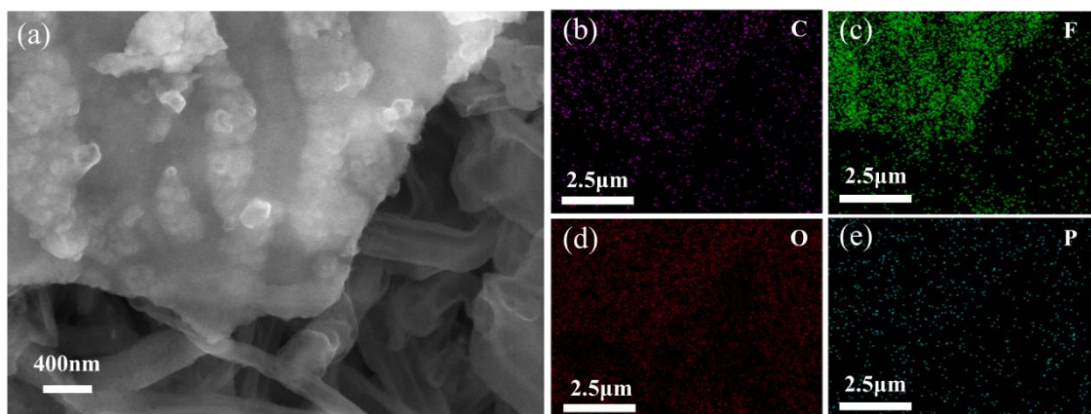
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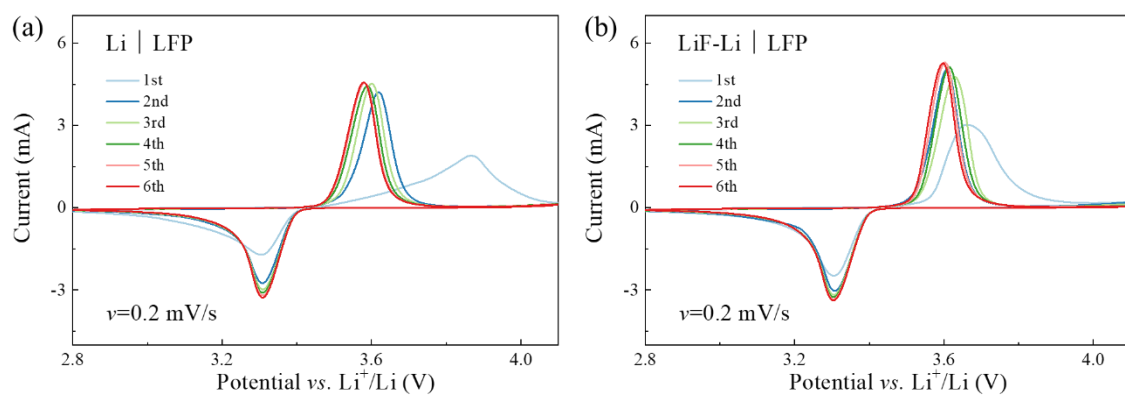
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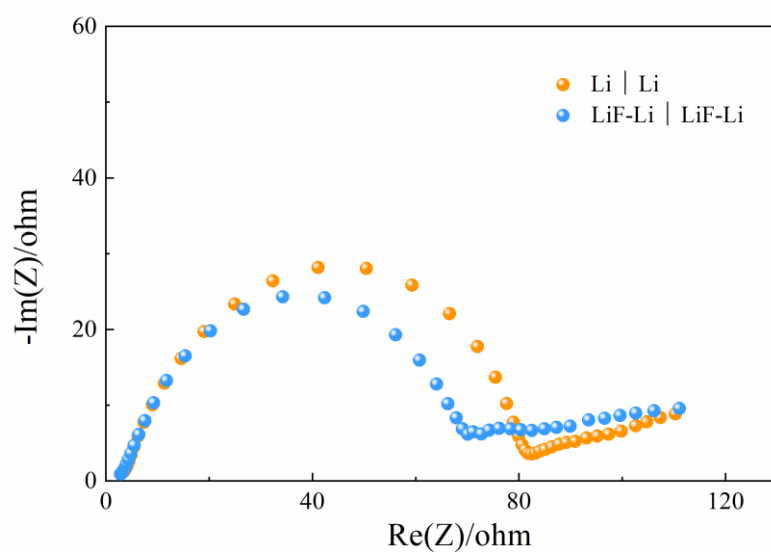
**Figure S1.** The XRD pattern of LiF-coated Li metal



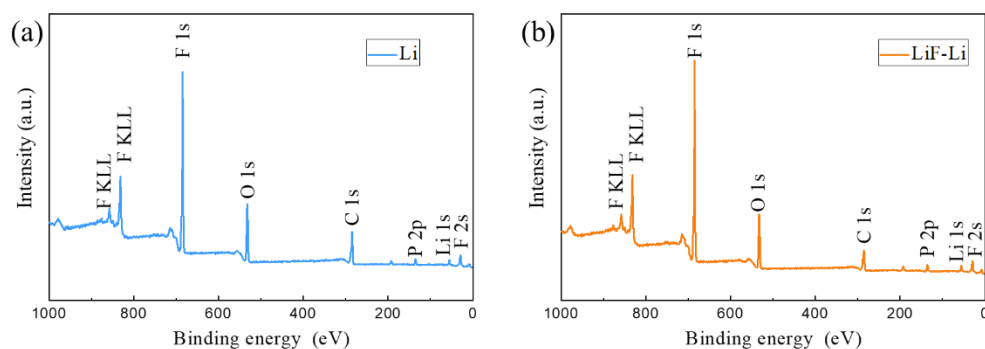
**Figure S2.** The (a)SEM image and (b–e) EDS mapping images of LiF-Cu electrode



**Figure S3.** The CV curves of (a) Li | LFP cells, (b) LiF-Li | LFP cells during the first six charge-discharge cycles



**Figure S4.** Electrochemical impedance spectra (EIS) of Li|Li cells after the 1st cycle.



**Figure S5.** The XPS survey spectra of lithium metal anode surface after 100 cycles at 1C from (a) Li | LFP cell and (b) LiF-Li | LFP cell

**Table S1.** Atomic percent of lithium metal anode surface after 100 cycles at 1C from Li | LFP cell and LiF-Li | LFP cell.

Name	Li   LFP %	LiF-Li   LFP %
F 1s	29.95	33.9
C 1s	21.29	16.52
P 2p	2.39	2.85
Li 1s	31.91	32.87
O 1s	14.16	13.87