

Supporting Information

Table 1

Detailed specifications, manufacturer, brand name of all instruments or machines.

Brand name	Specification	Manufacturer
Electronic balance	MS105DU	Mettler Toledo Instruments
Digital display intelligent temperature control magnetic stirrer	SZCL-2	Shengbo Instrument Equipment
High speed centrifuge	TG20K	Changsha Dongwang Experimental Instrument
Vacuum drying oven	DZF-6050	Shanghai Yiheng Scientific Instrument
Planetary high energy ball mill	MSK-SFM-1S	Kejing Material Technology
Box-type furnace	KSL-1200X	Kejing Material Technology
Tubular furnace	OTF-1200X	Kejing Material Technology
Automatic coating dryer	MSK-AFA-ES200	Shenzhen Kejing Zhida Technology
Small roller press	TG20K	Kejing Material Technology
Button battery slicer	MSK-T10	Shenzhen Kejing Zhida Technology
Vacuum glove box	Super	Michelona (China)
Button type battery sealing machine	MSK-110	Shenzhen Kejing Zhida Technology
Electrochemical workstation	CHI660E	Shanghai Chenhua Instrument
High performance battery test system	CT-4008T-5V6A	Newwell Electronics
X-ray diffractometer	SmartlabE	Rigaku, Japan
Scanning electron microscope	Sigma 300	Zeiss, Germany
Transmission electron microscope	JEM-2100F	Electronics, Japan
Energy dispersion spectrum	XFlash6I30	Bruker, Germany
X-ray photoelectron spectroscopy	Nexsa	Thermo Fisher, USA