Supporting Information for

Facile alkali metal hydroxide-assisted controlled and targeted synthesis of 1T

MoS₂ single crystal nanosheets for lithium ion battery anodes

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1. Experimental Methods

$$(NH_4)_2 MoS_4 + 2 LiOH \longrightarrow Li_2 MoS_4 + 2NH_3 + 2H_2O$$

$$Li_2 MoS_4 \longrightarrow MoS_3 + Li_2S$$

$$MoS_3 \longrightarrow MoS_2 + S$$

The whole reaction would be:

$$(NH_4)_2 MoS_4 + 2 LiOH \longrightarrow MoS_2 + S + Li_2S + 2NH_3 + 2H_2O$$

Fig. S1. Chemical reaction schematic of MoS₂ nanosheets

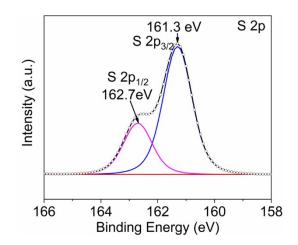


Figure S2. S 2p core-level peaks after Shirley background subtraction (red line is

background curve) of 1T MoS₂ single crystal nanosheets.

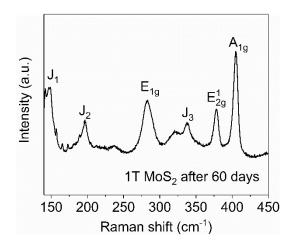


Figure S3. Raman spectra of 1T MoS₂ single crystal nanosheets after 60 days.

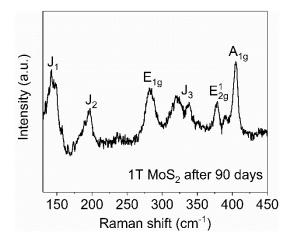


Figure S4. Raman spectra of 1T MoS₂ single crystal nanosheets after 90 days.

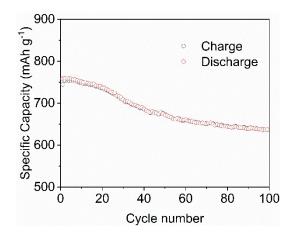


Figure S5. Cycling capacity and Coulombic efficiency profiles at 0.5 C for 2H

MoS₂ electrode.