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

Support Information

Unique $Li_4Ti_5O_{12}/TiO_2$ multilayer arrays with advanced surface lithium storage capability

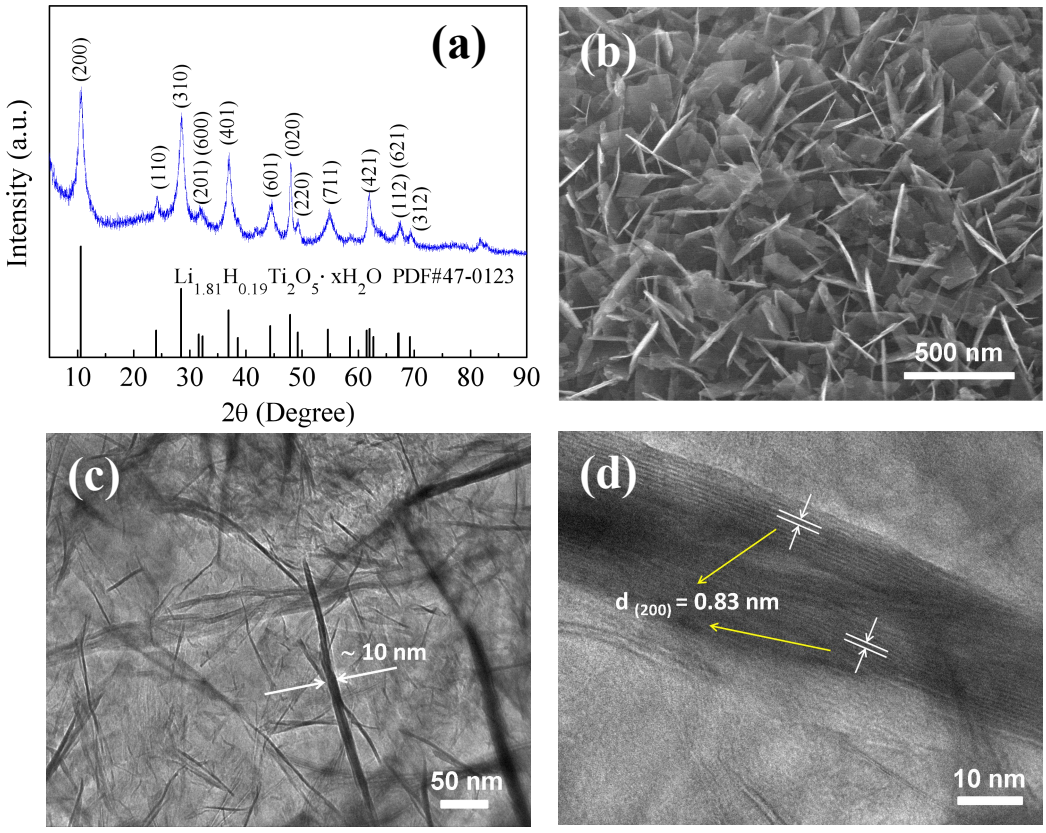

Fig. S1 XRD pattern (a), SEM image (b), TEM (c) and HRTEM image (d) of the precursor $Li_{1.81}H_{0.19}Ti_2O_5 \cdot xH_2O$ before transforming into LTO MLA product.

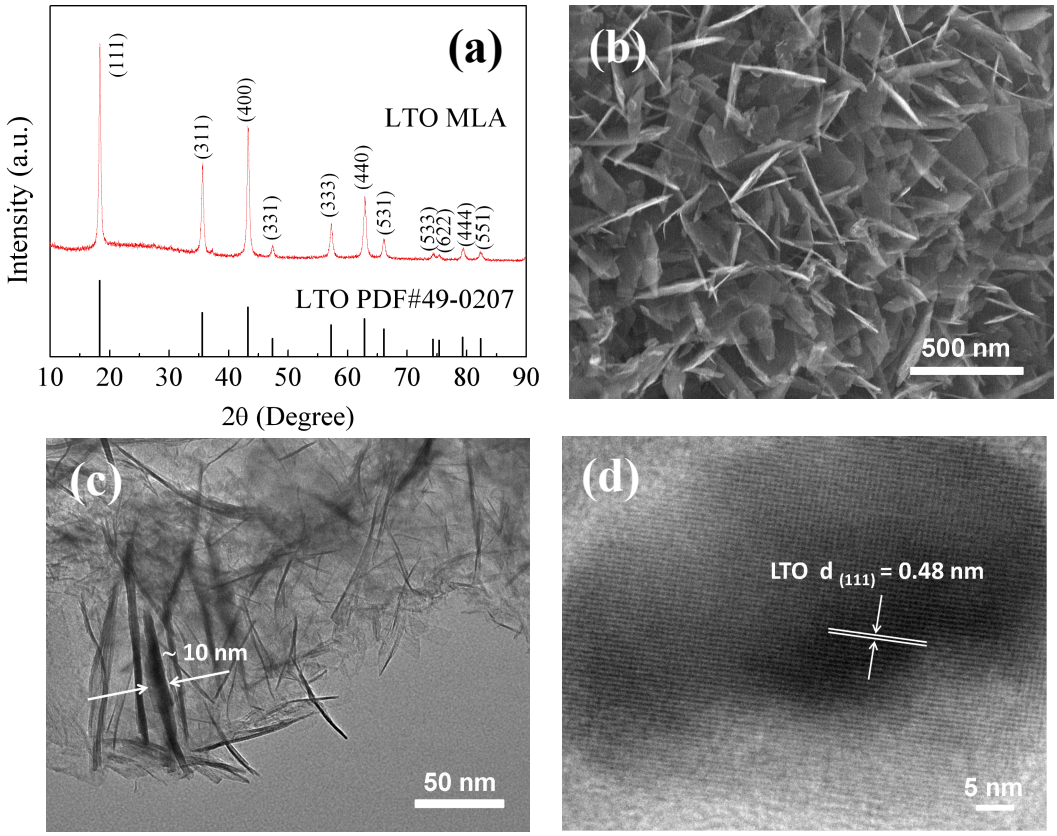

Fig. S2 XRD pattern (a), SEM image (b), TEM (c) and HRTEM image (d) of LTO MLA.

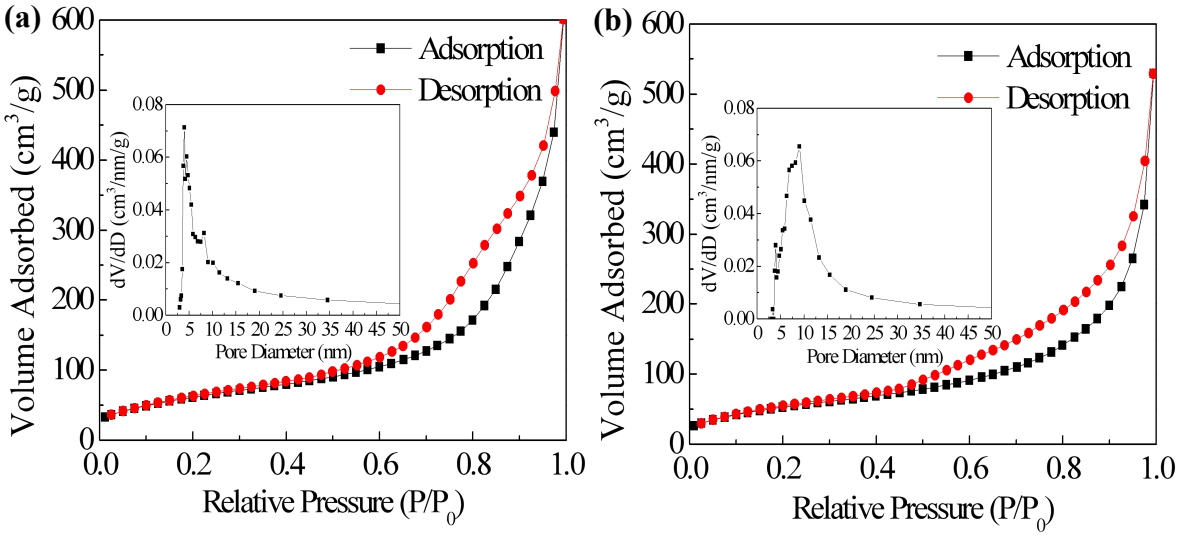

Fig. S3 The nitrogen adsorption-desorption isotherm and pore size distribution of LTO/TiO_2 (a) and pristine LTO MLA (b).

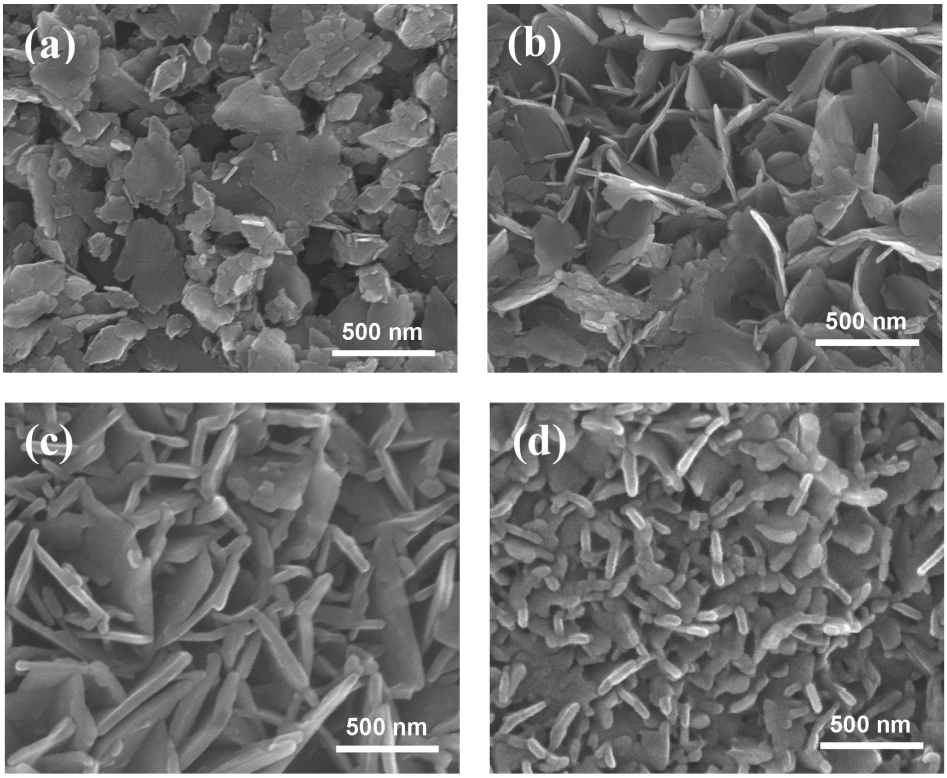

Fig. S4 SEM images of the precursors synthesized for 16 h at different temperature: (a) 70 ℃, (b) 100 ℃, (c) 160 ℃ and (d) 190 ℃.

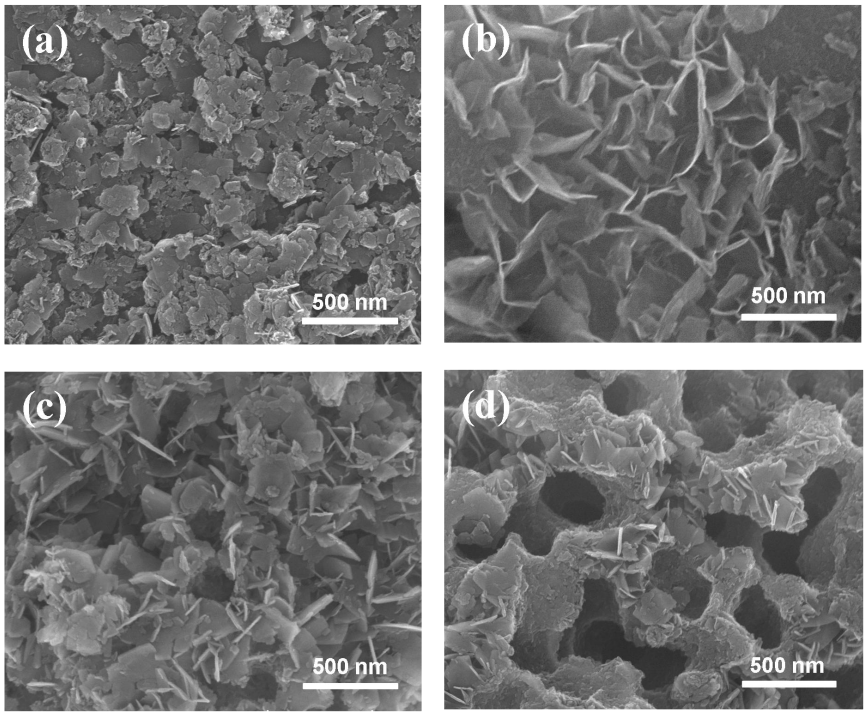

Fig. S5 SEM images of the precursors synthesized for 16 h at different concentrations: (a) 0.01 M, (b) 0.05 M, (c) 0.16 M, (d) 0.32 M.

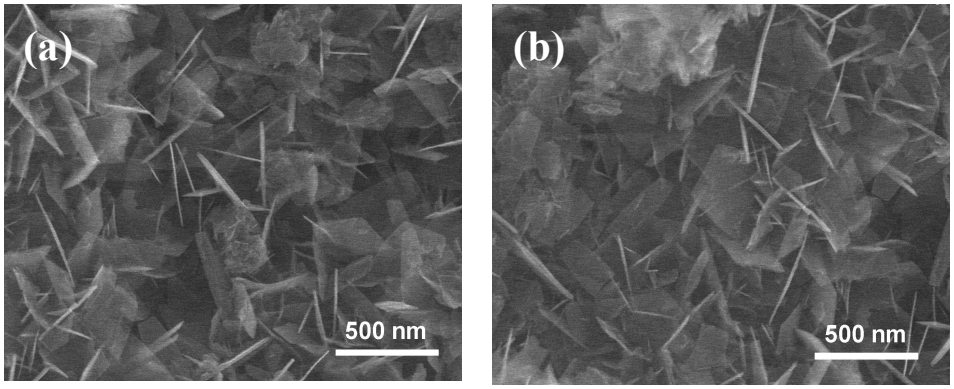

Fig. S6 SEM images of the samples obtained from different ratios of Li:Ti. (a) 3.8:5, (b) 3.5:5.

Table S1 Comparison of cycling and rate performances for samples driven from precursors of different hydrothermal times at varied current rates from 1 to 30 C.

LTO/TiO_2 MLA with different reaction time (h)	Specific Capacity (mAh/g)					Retention (%)			
	1 C	2 C	5 C	10 C	30 C	2 C	5 C	10 C	30 C
0	165.8	144.2	115.3	93.3	69.2	87.0	69.5	56.3	41.7
4	169.2	148.5	120.4	97.5	75.6	87.8	71.2	57.6	44.7
8	172.3	151.6	123.7	100.8	78.3	88.0	71.8	58.5	45.4
12	180.5	166.7	148.1	131.4	117.5	92.4	82.0	72.8	65.1
16	186.1	179.4	167.2	156.3	147.6	96.4	89.8	84.0	79.3
20	183.2	173.4	158.6	144.1	133.4	94.7	86.6	78.7	72.8

Table S2 Comparison of cycling and rate performances for samples driven from precursors of different ratios of the Li:Ti at varied current rates from 1 to 30 C.

LTO/TiO_2 MLA with different molar ratio of Li : Ti	Specific Capacity (mAh/g)					Retention (%)			
	1 C	2 C	5 C	10 C	30 C	2 C	5 C	10 C	30 C
4.5 : 5	163.3	147.2	131.5	114.6	92.1	90.1	80.5	70.2	56.4
4.0 : 5	186.1	179.5	167.2	156.3	147.6	96.5	89.8	84.0	79.3
3.8 : 5	184.5	175.3	161.3	148.2	138.5	95.0	87.4	80.3	75.1
3.5 : 5	181.2	169.5	153.7	137.3	123.8	93.5	84.8	75.6	68.3