**Supporting Information for**

**Improved electrode reversibility of nanosized Li1.15Nb0.15Mn0.7O2**

**through Li3PO4 integration**

Yanjia ZHANG,a, § Benoît D. L. CAMPÉON,b and Naoaki YABUUCHIa, b, §§\*

aDepartment of Chemistry and Life Science, Yokohama National University, 79-5 Tokiwadai, Hodogaya-ku, Yokohama, Kanagawa 240-8501, Japan

bAdvanced Chemical Energy Research Center, Institute of Advanced Sciences, Yokohama National University, 79-5 Tokiwadai, Hodogaya-ku, Yokohama, Kanagawa 240-8501, Japan

§ECSJ Student Member

§§ECSJ Active Member

\*corresponding author, e-mail: [yabuuchi-naoaki-pw@ynu.ac.jp](mailto:yabuuchi-naoaki-pw@ynu.ac.jp)

**Supporting Information**



**Supporting Figure S1**. STEM images of Li1.15Nb0.15Mn0.7O2 and Li1.2P0.06Nb0.13Mn0.61O2. FFT analysis of STEM images is also shown. Diffraction spots and rings in FFT images correspond to reflections from {111}, {200}, and {202} for the rocksalt phase.



**Supporting Figure S2**. Elemental mappings of Li1.15Nb0.15Mn0.7O2 and Li1.2P0.06Nb0.13Mn0.61O2 obtained by STEM/EDX analysis.



**Supporting Figure S3**. XRD results of Li1.2P0.06Nb0.13Mn0.61O2 before and after heat treatment at different temperatures. Li1.2P0.06Nb0.13Mn0.61O2 changes into different phases when heat treatment at 700 ℃ for 2 h (denoted as HT-700), indicating the metastable character of Li1.2P0.06Nb0.13Mn0.61O2.



**Supporting Figure S4**. Extended cycle test at a rate of 200 mA g–1 in in the voltage range of 1.5 – 4.3 V.



**Supporting Figure S5**. Electrode performance of Li1.2P0.06Nb0.13Mn0.61O2 before and after heat treatment.



**Supporting Figure S6**. Cyclability of Li1.2P0.06Nb0.13Mn0.61O2 before and after heat treatment.



**Supporting Figure S7**. *In-situ* XRD patterns of Li1.2–*y*P0.06Nb0.13Mn0.61O2 at a rate of 10 mA g–1.



**Supporting Figure S8**. Reproduced DSC curves of the fully charged Li1.15–*y*Nb0.15Mn0.7O2 and Li1.2−*y*P0.06Nb0.13Mn0.61O2 with electrolyte solution.