Supporting Information

High-Pressure Syntheses, Structures, and Ionic Conductivities of Perovskite-type $LaScO_3$-Based Lithium Ionic Conductors

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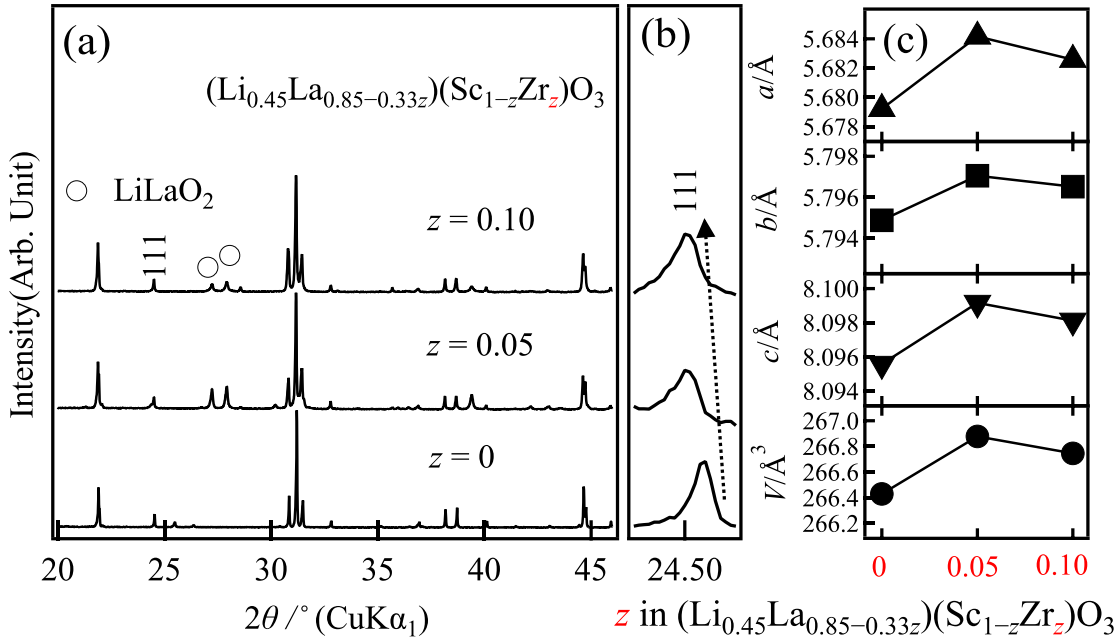

Figure S1. (**a**) X-ray diffraction patterns, (**b**) observed shifts of the selected reflections, and (**c**) variation in the lattice parameters with the composition of $(Li_{0.45}La_{0.85-0.33z})(Sc_{1-z}Zr_z)O_3$ (y = 0 and 0.1).

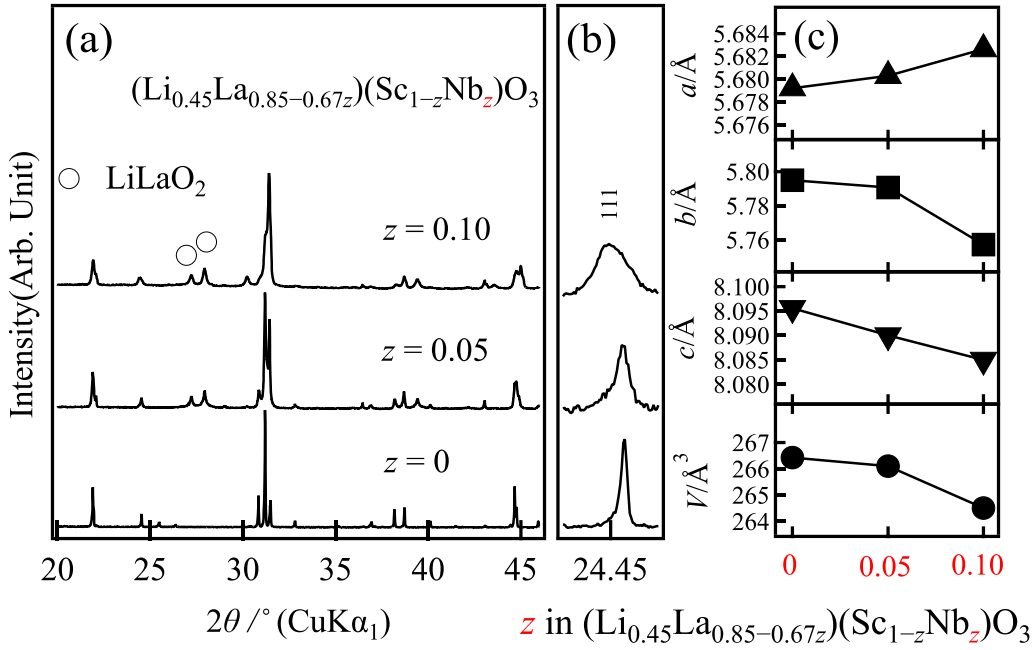

Figure S2. (**a**) X-ray diffraction patterns, (**b**) observed shifts of the selected reflections, and (**c**) variation in the lattice parameters with the composition of $(Li_{0.45}La_{0.85-0.67z})(Sc_{1-z}Nb_z)O_3$ (z = 0 and 0.1).

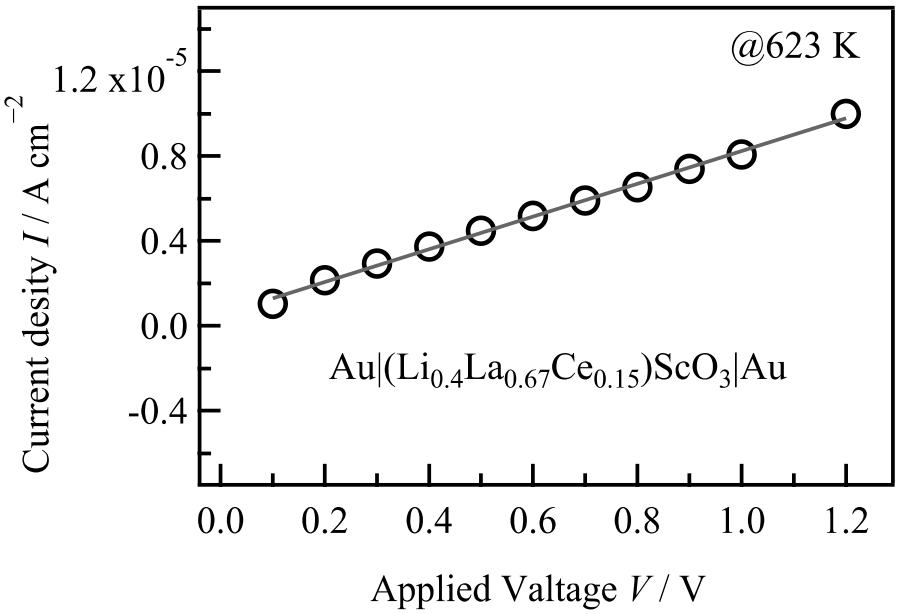

Figure S3. Steady-state current as a function of the applied voltage at 623 K in dry Ar atmosphere for $(Li_{0.4}La_{0.67}Ce_{0.15})ScO_3$.

The chemical compositions of $(Li_{0.45}La_{0.85})ScO_3$ and $(Li_{0.45}La_{0.78}Ce_{0.05})ScO_3$ (Table S1), determined by inductively coupled plasma atomic emission spectroscopy (ICP-AES: Shi-madzu, ICPS-8100), were comparable to the nominal values.

Table S1. Chemical compositions of $(Li_{0.45}La_{0.85})ScO_3$ and $(Li_{0.45}La_{0.78}Ce_{0.05})ScO_3$.

	Li	**La**	**Ce**	**Sc**
Nominal	0.45	0.85	–	1
ICP-AES	0.193(2)	0.924(4)	–	0.954(3)
Nominal	0.45	0.78	0.05	1
ICP-AES	0.463(4)	0.746(3)	0.042(5)	0.983(2)