

Supplemental Information

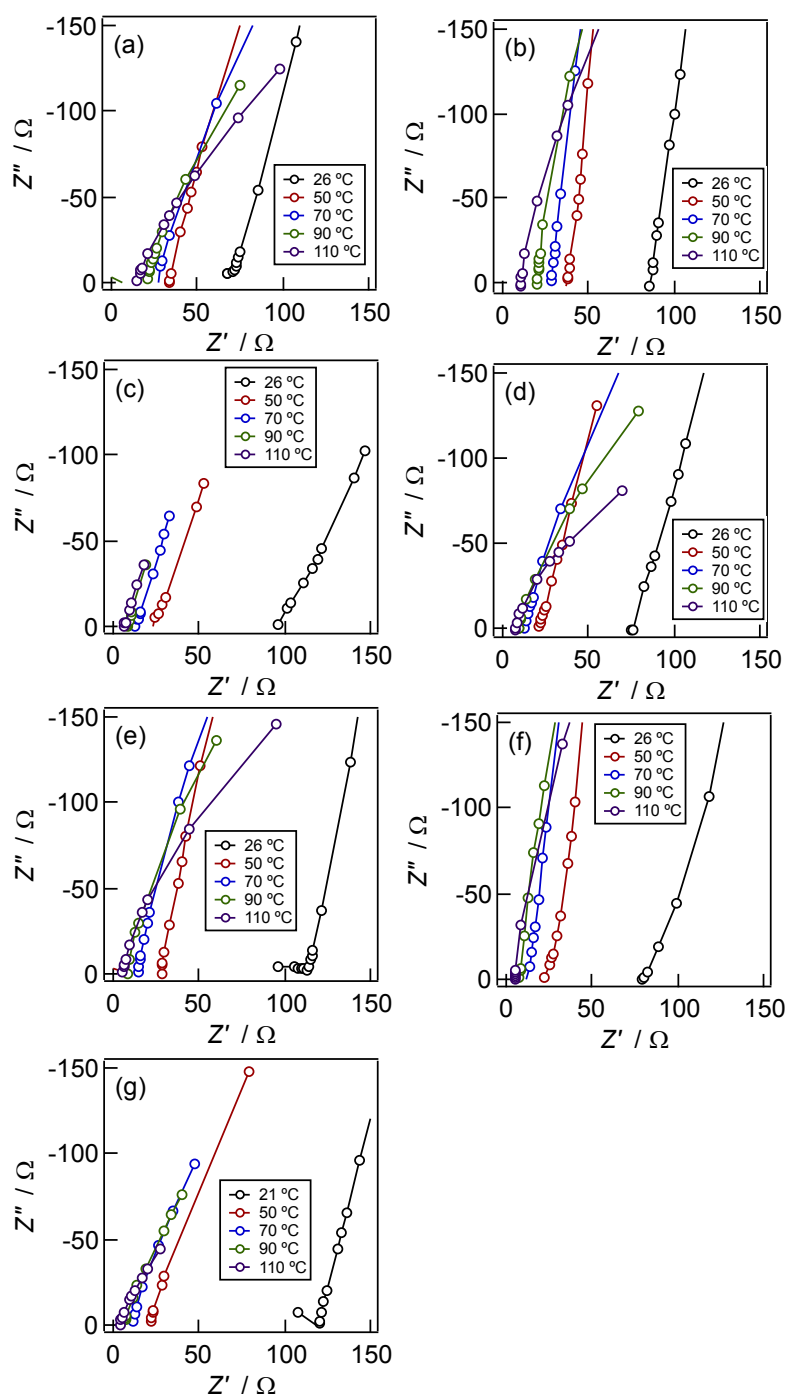


Figure S1. Impedance plots of (a) the pure $\text{Li}_6\text{PS}_5\text{Cl}$, (b-f) the $(1-x) \text{Li}_6\text{PS}_5\text{Cl} - x \text{CaS}$ ($x = 0.01, 0.02, 0.03, 0.05$, and 0.1) and (g) the $0.98 \text{Li}_6\text{PS}_5\text{Cl} - 0.02 \text{YCl}_3$ samples.

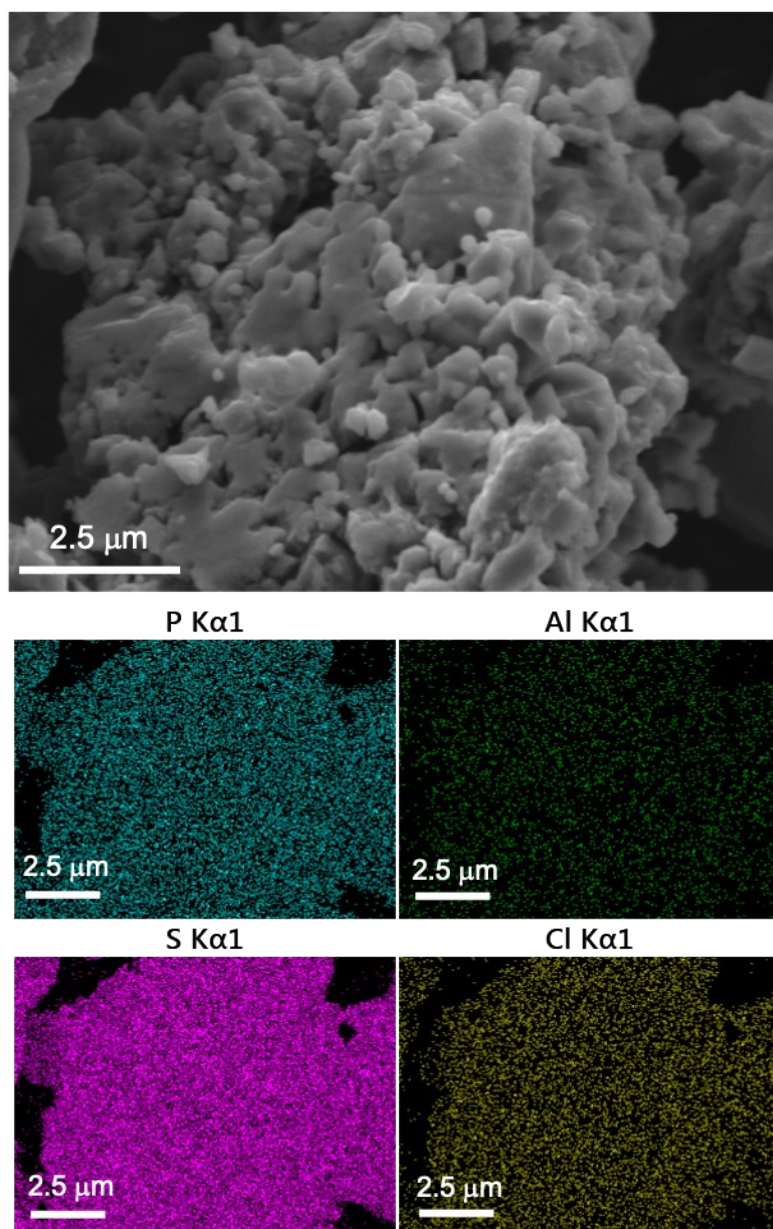


Figure S2. FE-SEM and EDX images of 0.98 $\text{Li}_6\text{PS}_5\text{Cl}$ – 0.02 AlCl_3 .

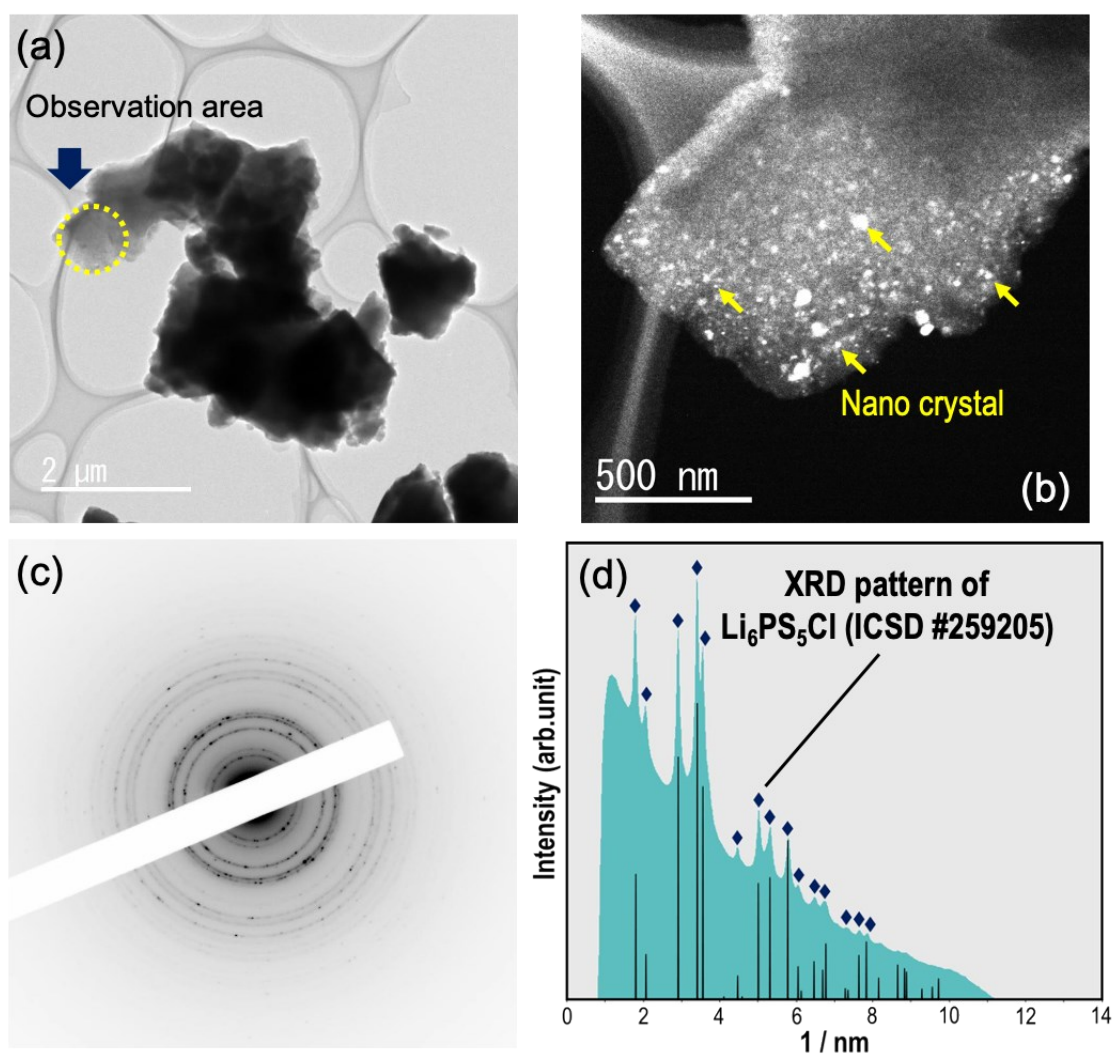


Figure S3. (a) TEM image, (b) the HCDF image, (c) selected area electron diffraction patterns and (d) the corresponding intensity profiles of 0.9 $\text{Li}_6\text{PS}_5\text{Cl}$ – 0.1 YCl_3 with the XRD patterns of $\text{Li}_6\text{PS}_5\text{Cl}$ (ICSD #259205).