

## Electronic Supplementary Information (ESI)

### Chemical Effect of Halide Ligands on the Electromechanical Properties of Ag Nanocrystal Thin Films for Wearable Sensors

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Ag NCs treated with	TBAC ( $\text{Cl}^-$ )	TBAB ( $\text{Br}^-$ )	TBAI ( $\text{I}^-$ )
Silver (At%)	9.67	14.46	9.41
Halide (At%)	1	1.71	1.27
Halide At% / Silver At%	0.1	0.12	0.13

Table S1 Atomic ratios of halides and Ag.

TBAI-treated Ag NCs	60 s	30 s	10 s
Ag (wt%)	27.53	31.69	29.83
I (wt%)	4.39	4.73	4.88
Iodine wt% / Silver wt%	0.16	0.15	0.16

Table S2 Ratios of weight percentages of halides and Ag time corresponding to the substitution time

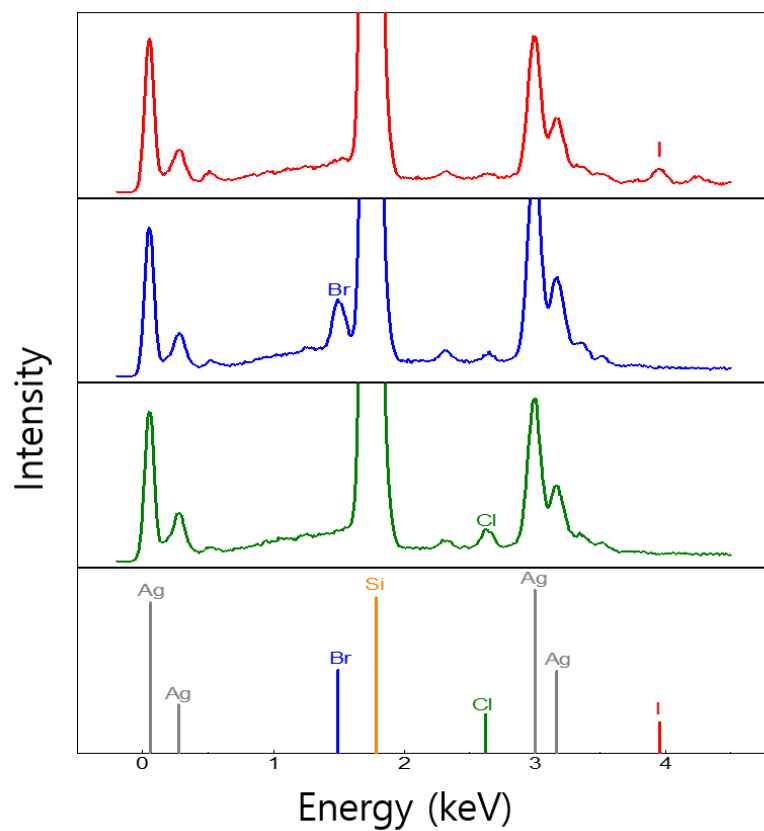


Figure S1. EDS profiles of halide-ligand-treated Ag NC thin films: I (red), Br (blue), and Cl (green).

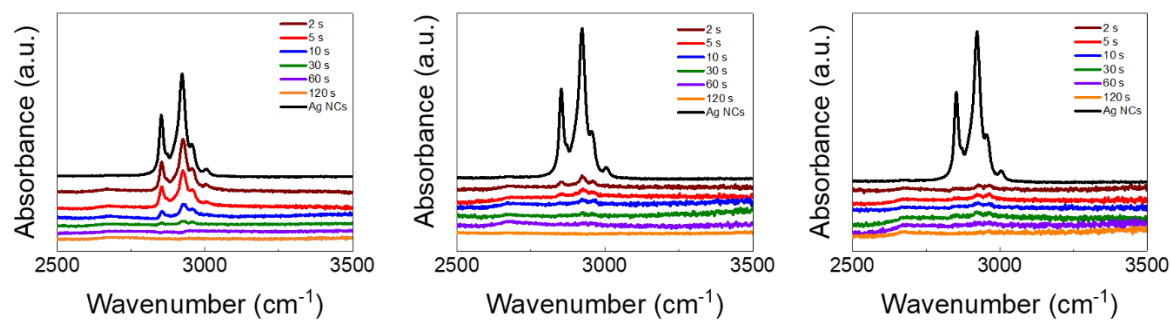


Figure S2. FTIR spectra of TBAC-treated (left), TBAB-treated (middle), and TBAI-treated (right) Ag NC thin films.

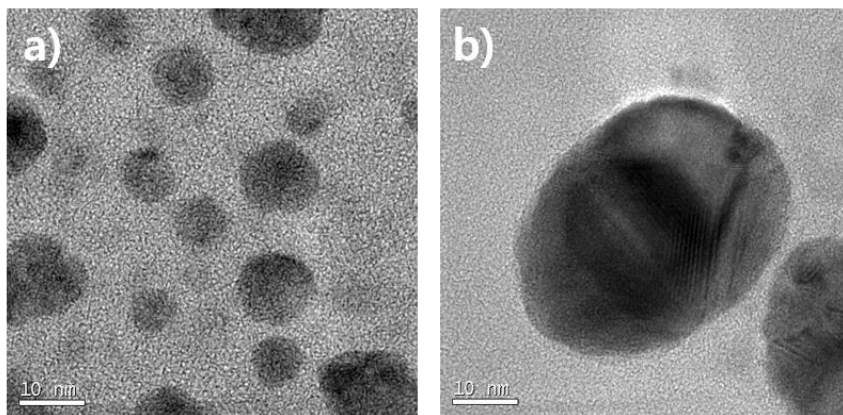


Figure S3. Ag NCs treated with TBAC for (a) 5 s and (b) 5 m.

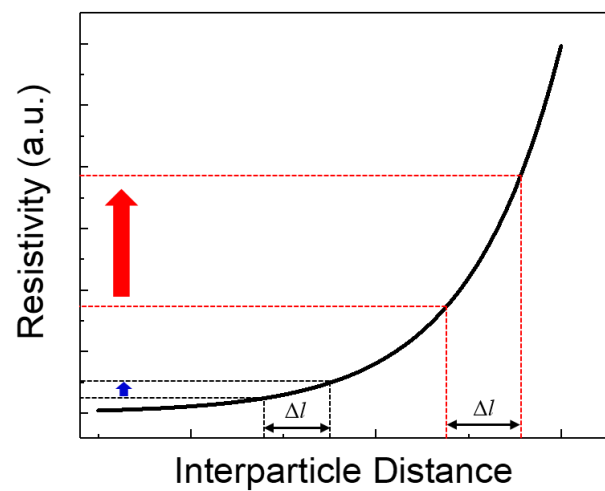


Figure S4. Graph of change in resistivity depending on change in interparticle distance

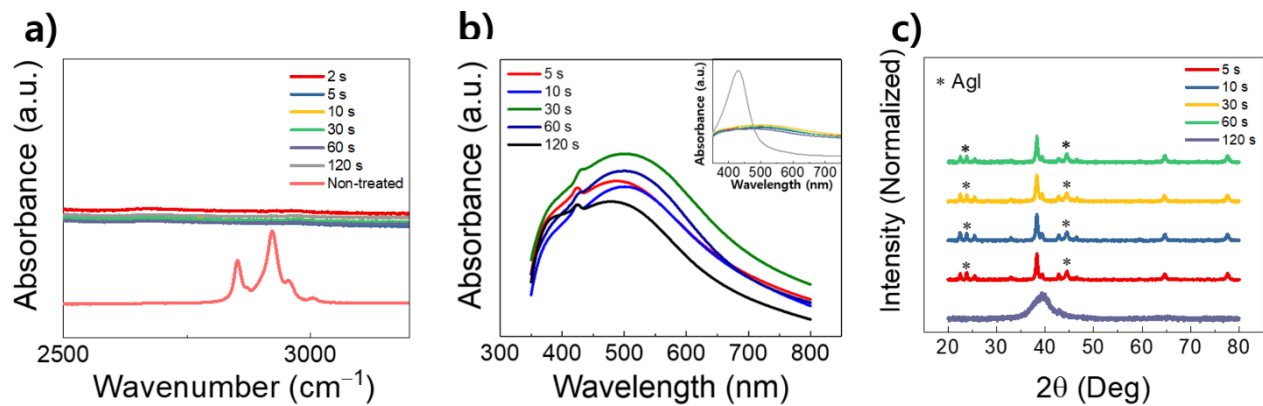


Figure S5. (a) FTIR and (b) UV-Vis absorption spectra; inset is comparison between as-synthesized peak (the highest, black line) and TBAI-treated Ag NC thin films peaks, and (c) XRD patterns of Ag NC thin films treated with TBAI for different times.

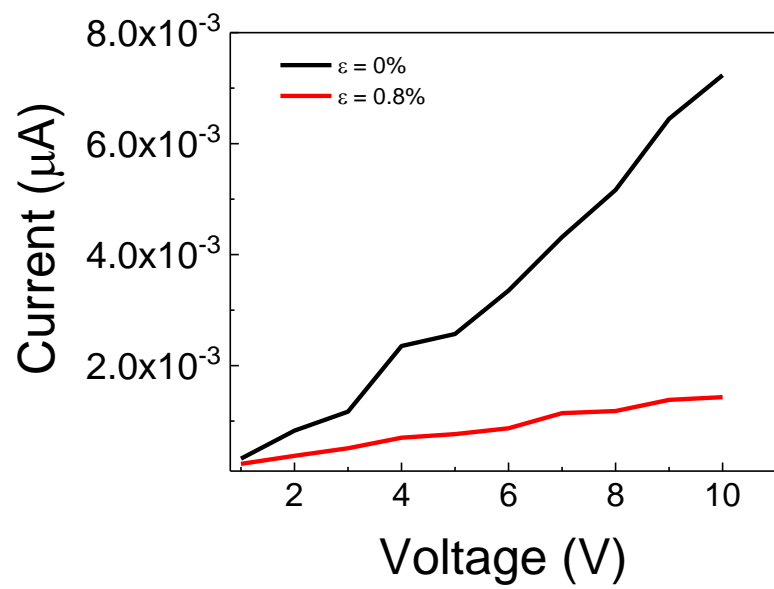


Figure S6. *I*-*V* curve of TBAI-treated Ag NC thin films under 0% and 0.8 % strain.



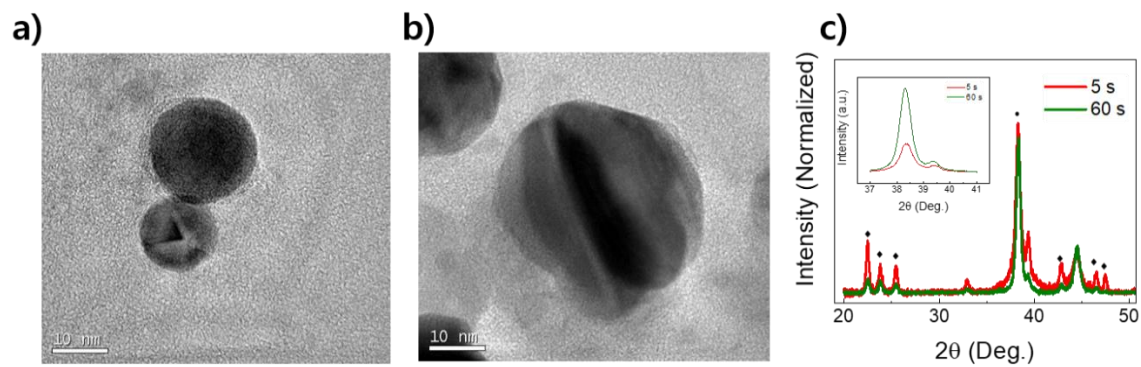


Figure S7. TEM images of TBAI-treated Ag NCs for (a) 5 s and (b) 60 s. (c) XRD spectra of TBAI-treated Ag NCs for 5 s (red line) and 6 s (green line).