Electronic Supplementary Material (ESI) for RSC Advances.

Growth Pathways of Silver Nanoplates in Kinetically Controlled Synthesis: Bimodal versus Unimodal Growth

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Supporting Figures

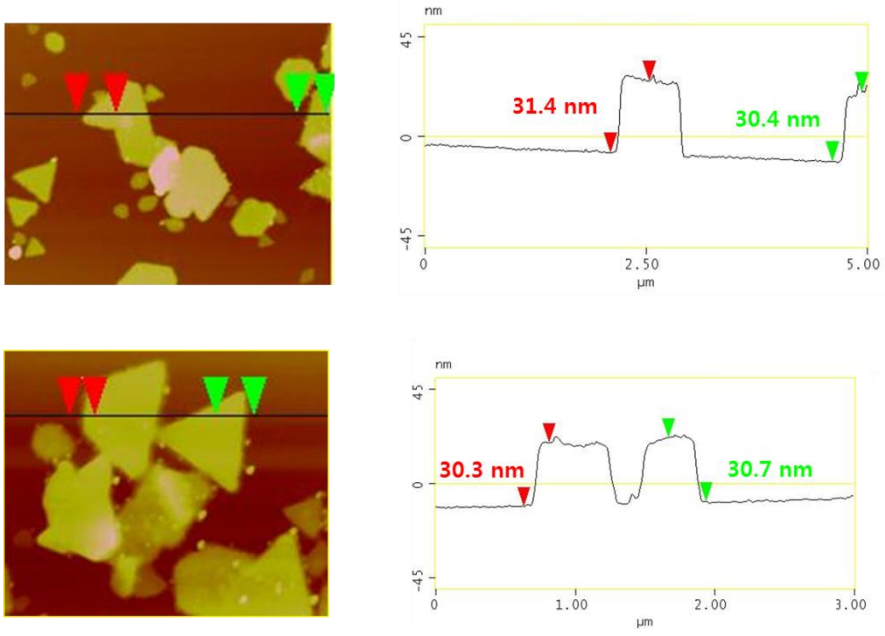

Fig. S1 AFM images of the Ag nanoplates shown in Fig. 2(E). The thicknesses of these Ag nanoplates were measured to be approximately 30 nm.

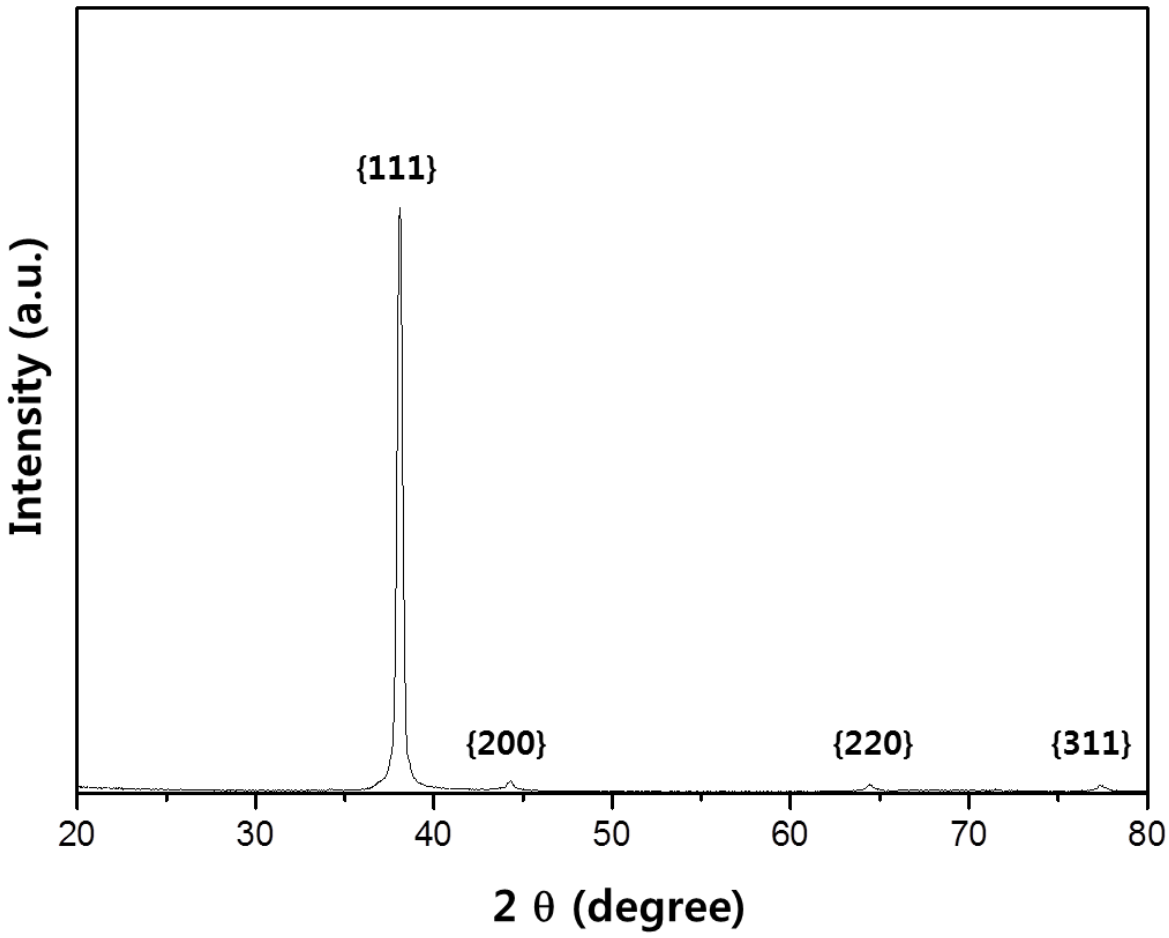

Fig. S2 XRD pattern of the Ag nanoplates shown in Fig. 2(E).

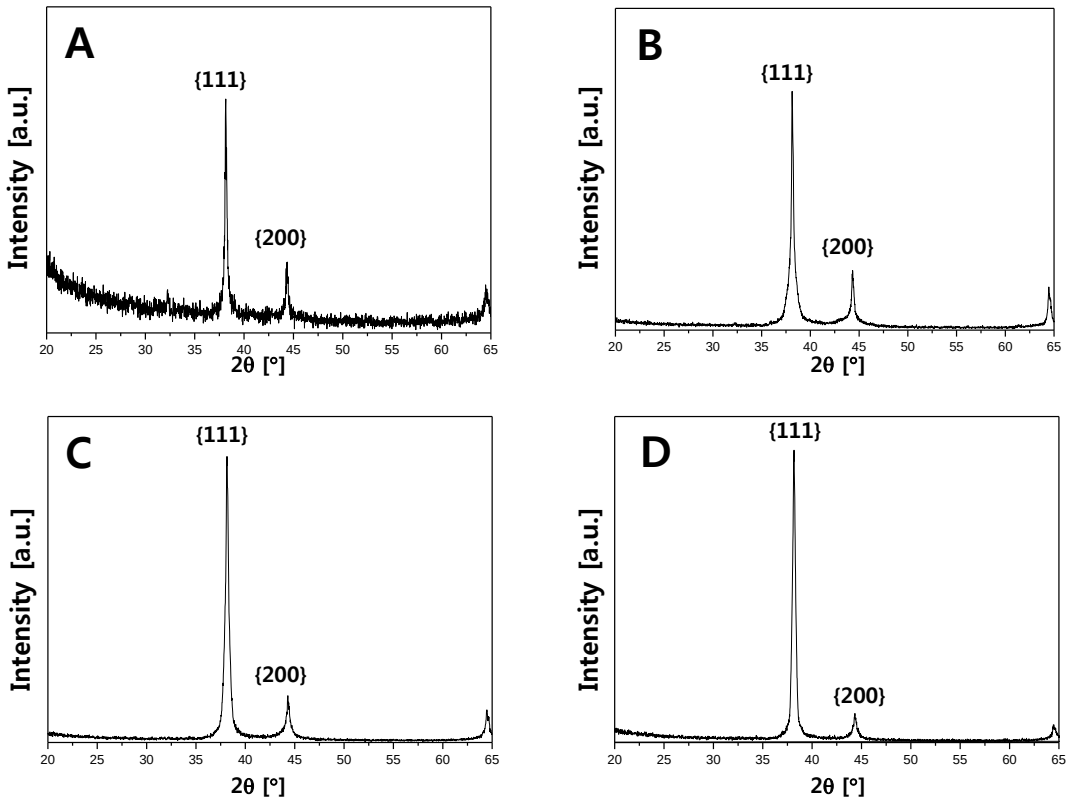

Fig. S3 XRD patterns of the Ag nanoplates at different stages of a reaction: (A) t = 1 h, (B) t = 3 h, (C) t = 6 h, and (D) t = 12 h. The intensity ratios of the {111} to {200} diffraction peaks were nearly 3, 4, 6, and 11, respectively.

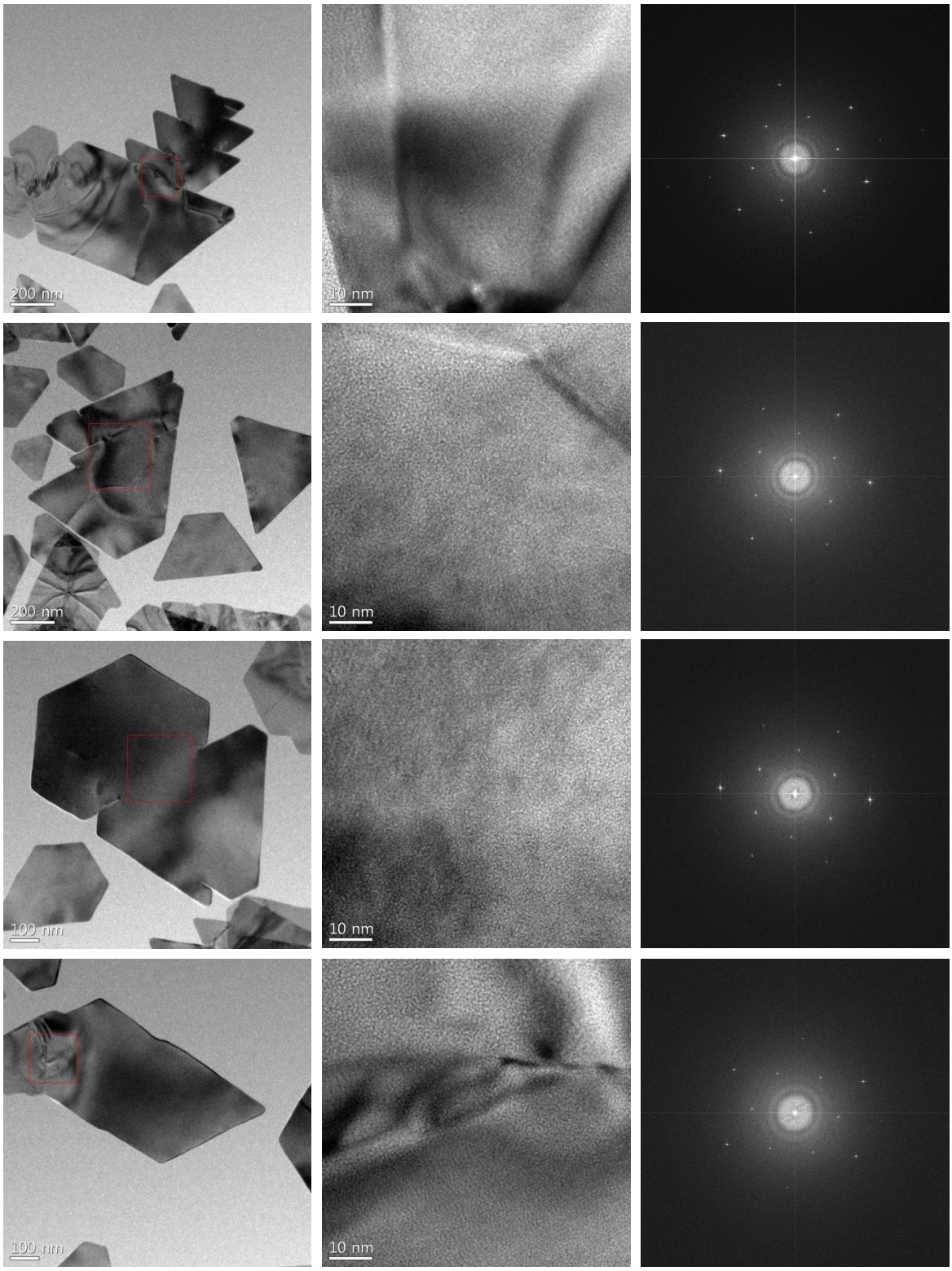

Fig. S4 High-resolution TEM images taken from the top flat faces of the large nanoplates shown in Fig. 2(E) and the corresponding fast Fourier transform (FFT) patterns of the images.

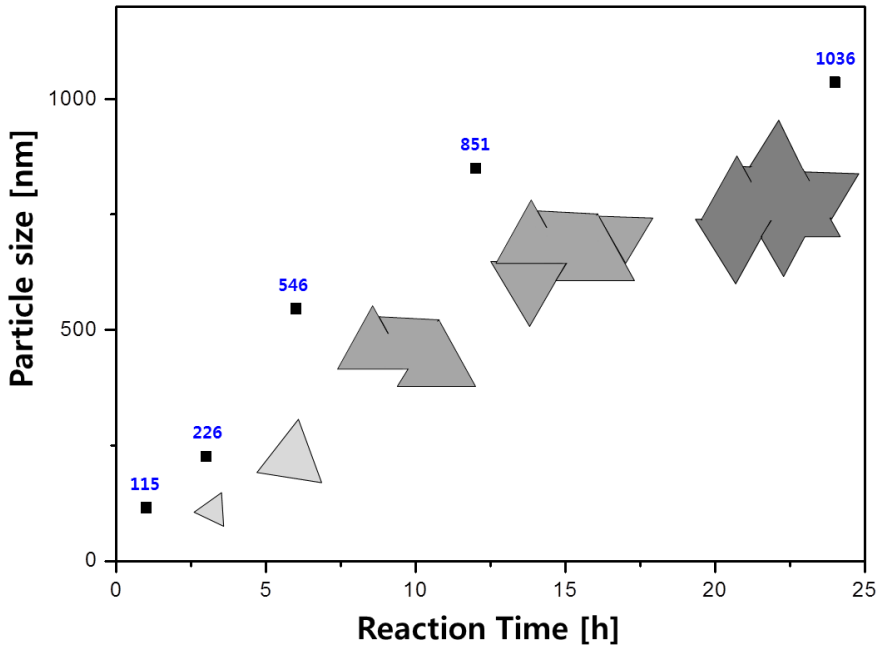

Fig. S5 Plot of the average size of the Ag nanoplates in the formation of a large plate based on the Figs. 1 and 2

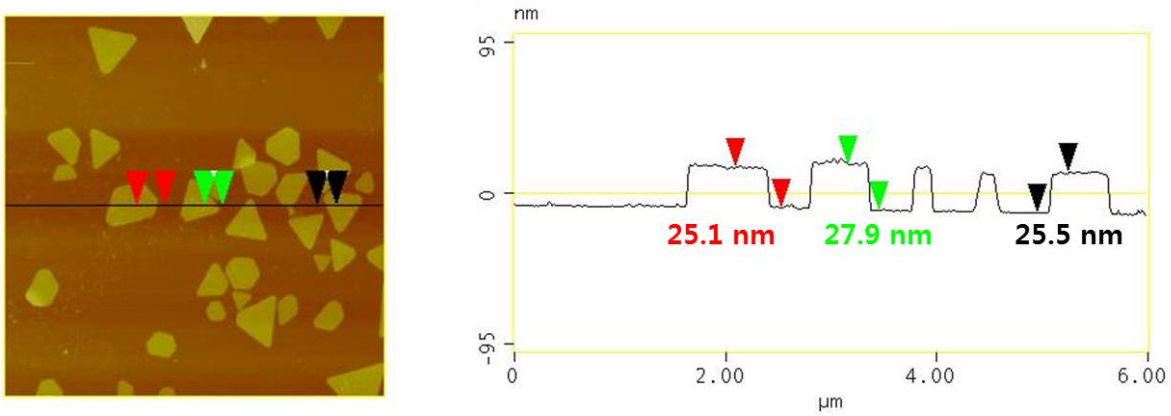

Fig. S6 AFM image of the Ag nanoplates shown in Fig. 7(A) and 7(B). The thicknesses of these Ag nanoplates were measured to be approximately 25 nm ~ 28 nm.

Tab. S1 A Table comparing the present method with previously reported procedures for producing Ag nanoplates

	Reducing agent	Stabilizer	Reaction Medium	Shape	Remarks
Present Study	PVP	PVP	DMF	Irregular or triangular	• Single-step synthetic process • Large particle size (> 1 μm) • Reaction yield (>99%) • Bimodal or unimodal particle growth depending on PVP conc.
Ref. 9(a)	PVP	PVP	Water	Triangular	• Single-step synthetic process • Small particle size (< 400 nm) • Reaction yield (~80%)
Ref. 4(e)	PVP	PVP	Water	Triangular	• Hydrothermal process • Small particle size (< 500 nm)
Ref. 9(e)	PVP	PVP	NMP (N-methylpyrrolidone)	Triangular	• Single-step synthetic process • Small particle size (< 400 nm) • Reaction yield (>99%)
Ref. 9(d)	PVP	PVP	Water	Triangular	• Heat-up process • Large particle size (> 1 μm) • Low reaction yield (containing considerable amount of small quasi-spherical particles)
Ref. 2(d)	DMF (+ water)	PVP	DMF	Triangular	• Ultrasonic-assisted process • Small particle size (< 200 nm)
Ref. 12(b)	DMF (+ water)	PVP	DMF	Polygonal (mainly triangular)	• Single-step synthetic process • Small particle size (< 200 nm)
Ref. 4(e)	DMF (+ water)	PVP	DMF	Triangular	• Single-step synthetic process • Small particle size (< 200 nm)
Ref. 2(a)	$NaBH_4$	Bis(p-sulfonatophenyl) phenylphosphine dihydrate dipotassium	Water	Triangular	• Seed-mediated growth process • Photo-induced conversion process • Small particle size (< 100 nm)
Ref. 2(c)	$NaBH_4$	Trisodium citrate, PVP	Water	Triangular	• Seed-mediated growth process • Small particle size (< 100 nm)
Ref. 3(a)	Ascorbic acid	Cetyltrimethylammonium bromide	Water	Triangular	• Seed-mediated growth process • Small particle size (< 100 nm)
Ref. 4(a)	Ascorbic acid	Trisodium citrate	Water	Triangular	• Seed-mediated growth • Small particle size (< 100 nm)
Ref. 3(d)	Ethylene glycol	Polyacrylamide	Ethylene glycol	Triangular	• Single-step synthetic process • Small particle size (< 50 nm) • Reaction yield (~90%)