

Supplementary Information

Silver Ions Induced Growth of Plasmonic Au Hexagonal Star plates

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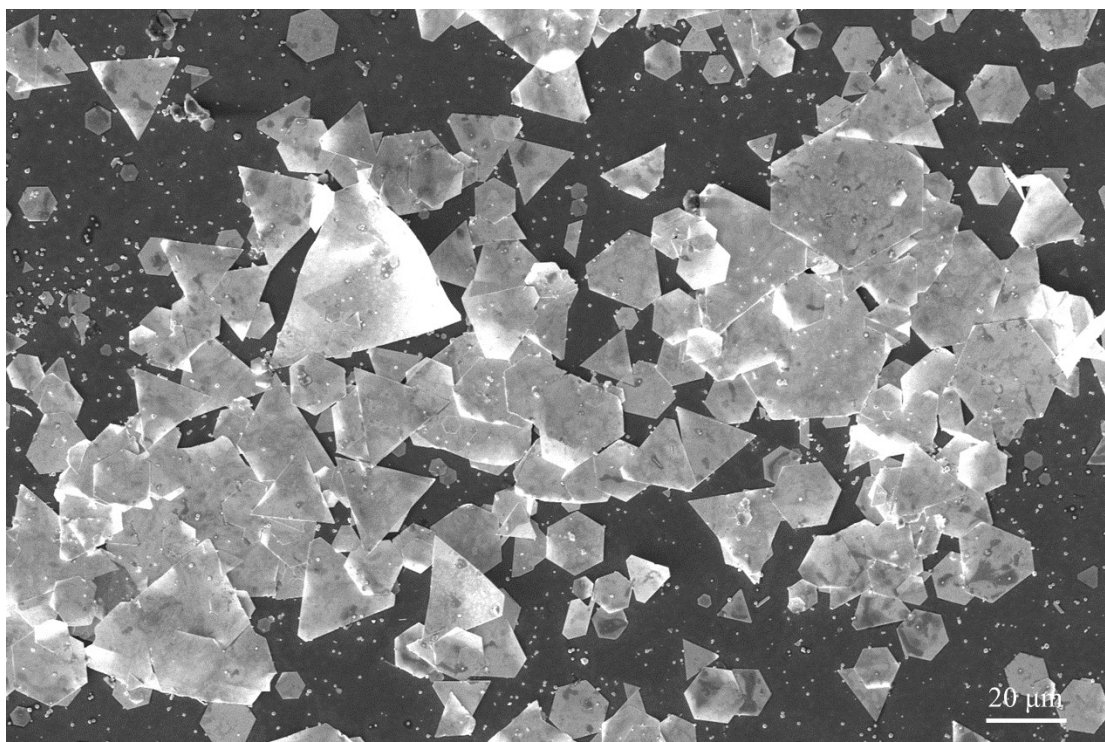


Figure S1. Representative SEM image of Au plates which have not added AgNO₃ in the process of synthesis at low magnification.

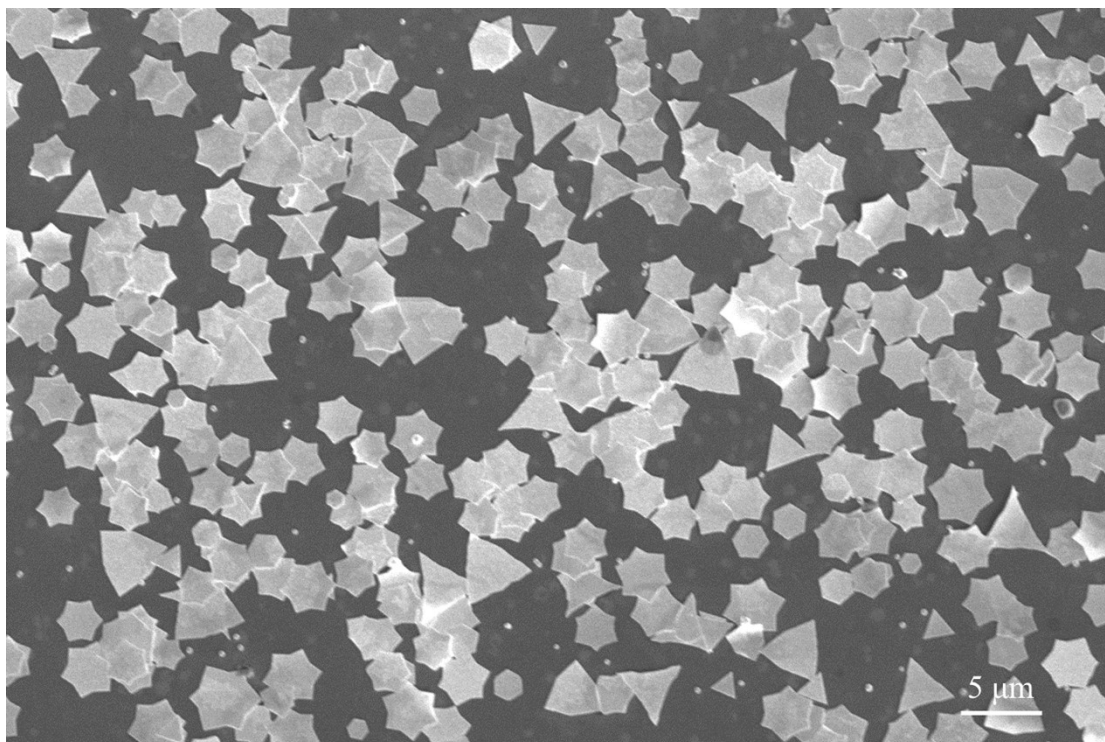


Figure S2. Representative SEM image of Au plates which added AgNO_3 in the process of synthesis at low magnification.

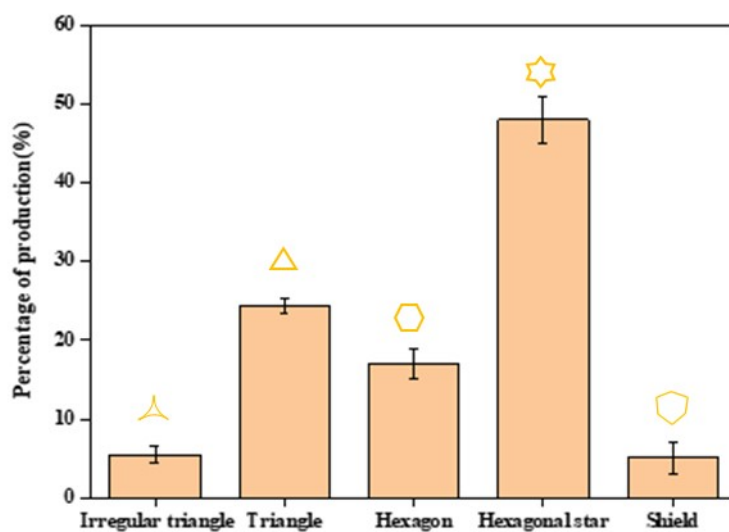


Figure S3. The yield of different kinds of Au plates.

Map

Element	At. No.	Netto	Mass [%]	Mass Norm. [%]	Atom [%]	abs. error [%] (1 sigma)	rel. error [%] (1 sigma)
Gold	79	22684	99.87	99.87	99.77	10.05	10.06
Silver	47	3	0.13	0.13	0.23	0.10	77.16
		Sum	100.00	100.00	100.00		

Fig. S4. EDX elemental mapping analysis of the elements content in Figure 1d-e.

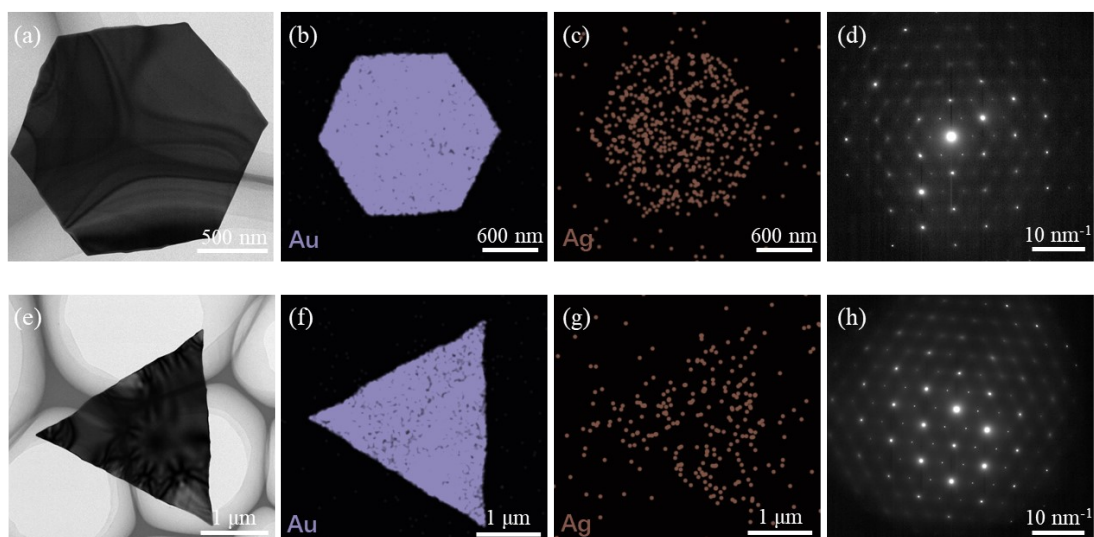


Figure S5. (a). HRTEM image of the Au hexagon plate. (b) and (c). STEM-EDX elemental mapping images of the Au hexagon plate. (d). SAED pattern of the Au hexagon plate. (e). HRTEM image of the Au triangle plate. (f) and (g). STEM-EDX elemental mapping images of the Au triangle plate. (h). SAED pattern of the Au triangle plate.

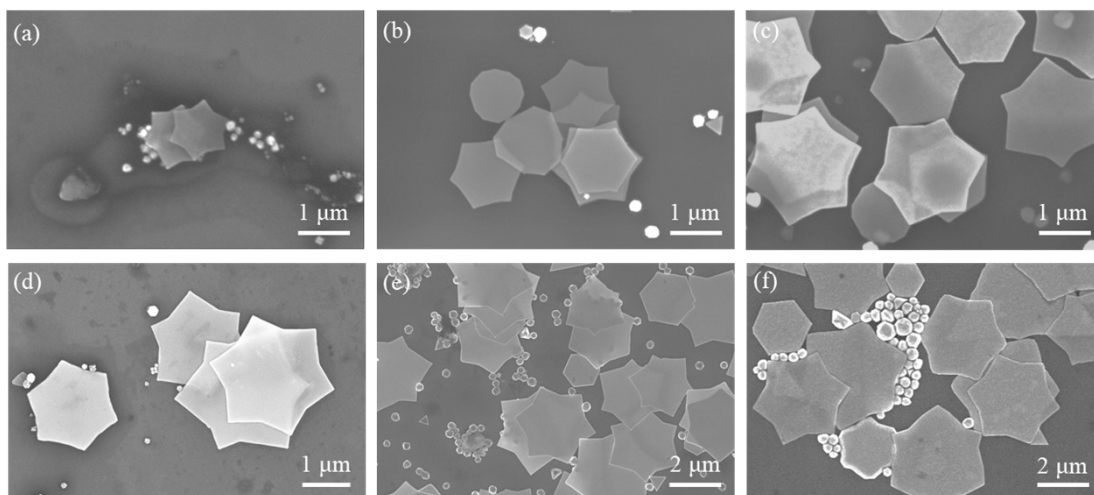


Fig S6. Representative SEM images of Au plates which produced at different reaction time at low magnification. (a) 6 h, (b) 12 h, (c) 18 h, (d) 24 h, (e) 30 h, (f) 36 h.

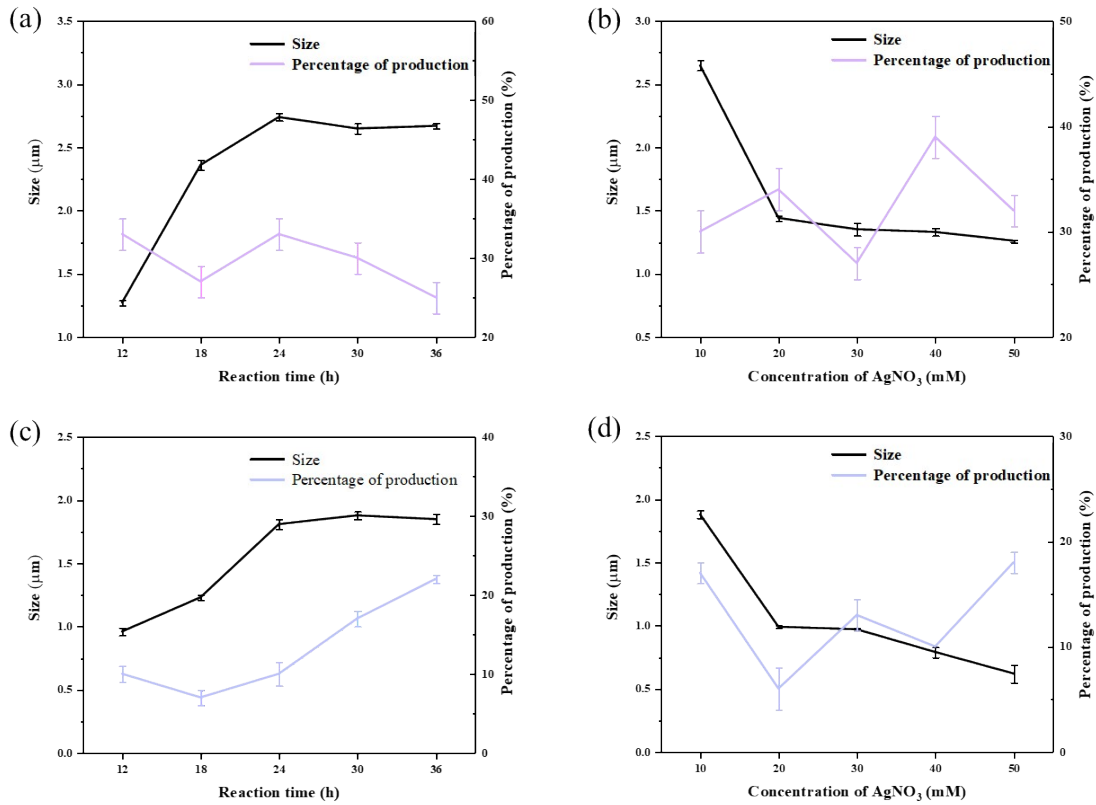


Figure S7. (a). The size and the yield of Au triangle plates at different reaction time. (b). The size and the yield of Au triangle plates at different concentration of AgNO_3 . (c). The size and the yield of Au hexagon plates at different reaction time. (d). The size and the yield of Au hexagon plates at different concentration of AgNO_3 .

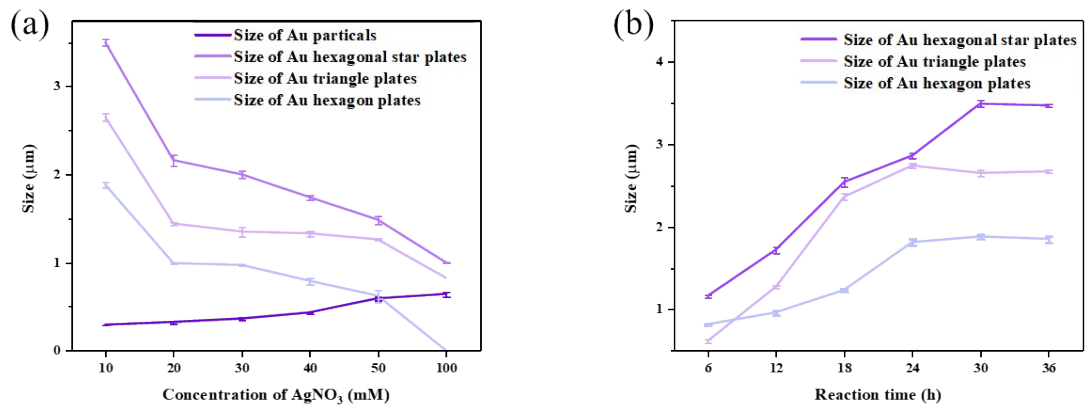


Figure S8. (a). The size of Au particles and different kinds of Au plates at different concentration of AgNO_3 . (b). The size of different kinds of Au plates at different reaction time.

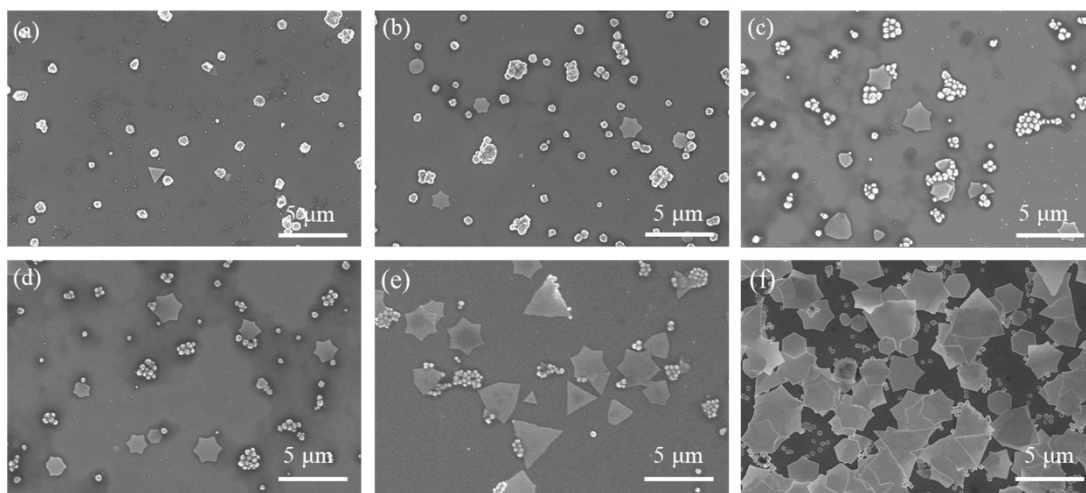


Figure S9. Representative SEM images of samples which produced at different AgNO_3 concentrations at low magnification. (a) 100 mM, (b) 50 mM, (c) 40 mM, (d) 30 mM, (e) 20 mM, (f) 10 mM.

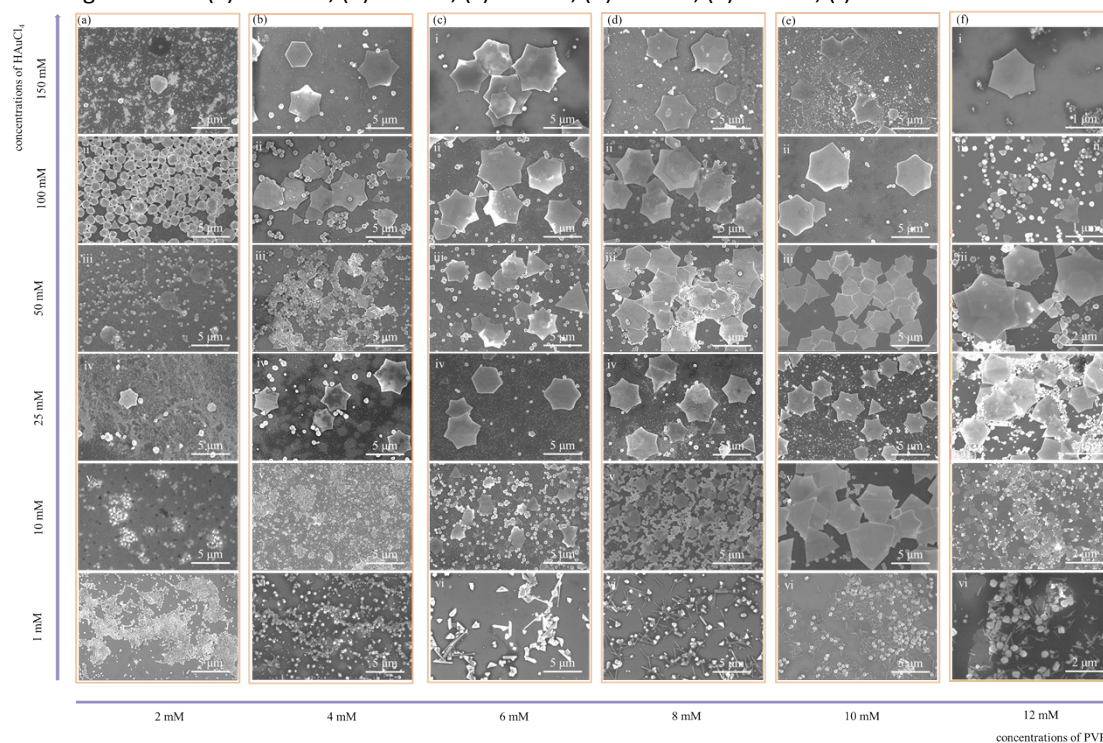


Figure S10. SEM images of Au nanostructure which produced at different concentrations of PVP (from 2 mM to 12 mM) and HAuCl_4 (from 1 mM to 150 mM). SEM images Correspond with Figure 3.

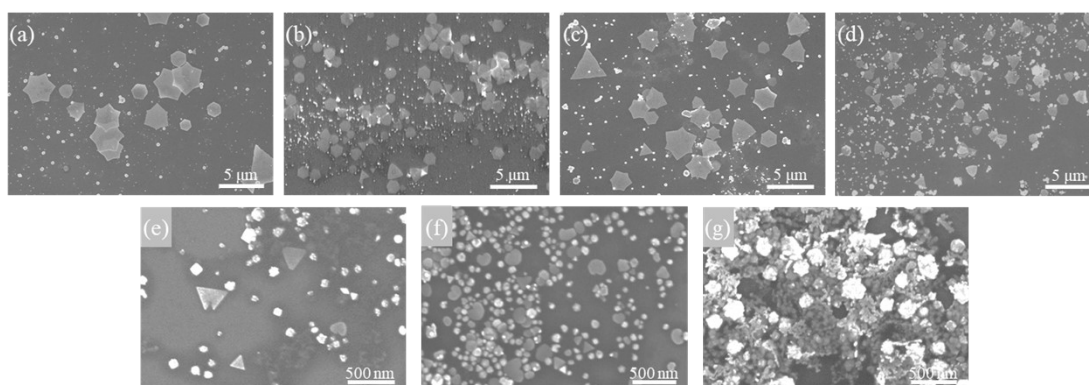


Figure S11. SEM images of Au nanostructure which produced at different PH value. (a) PH=2, (b) PH=4, (c) PH=6,

(d) PH=7, (e) PH=8, (f) PH=10, (g) PH=12.

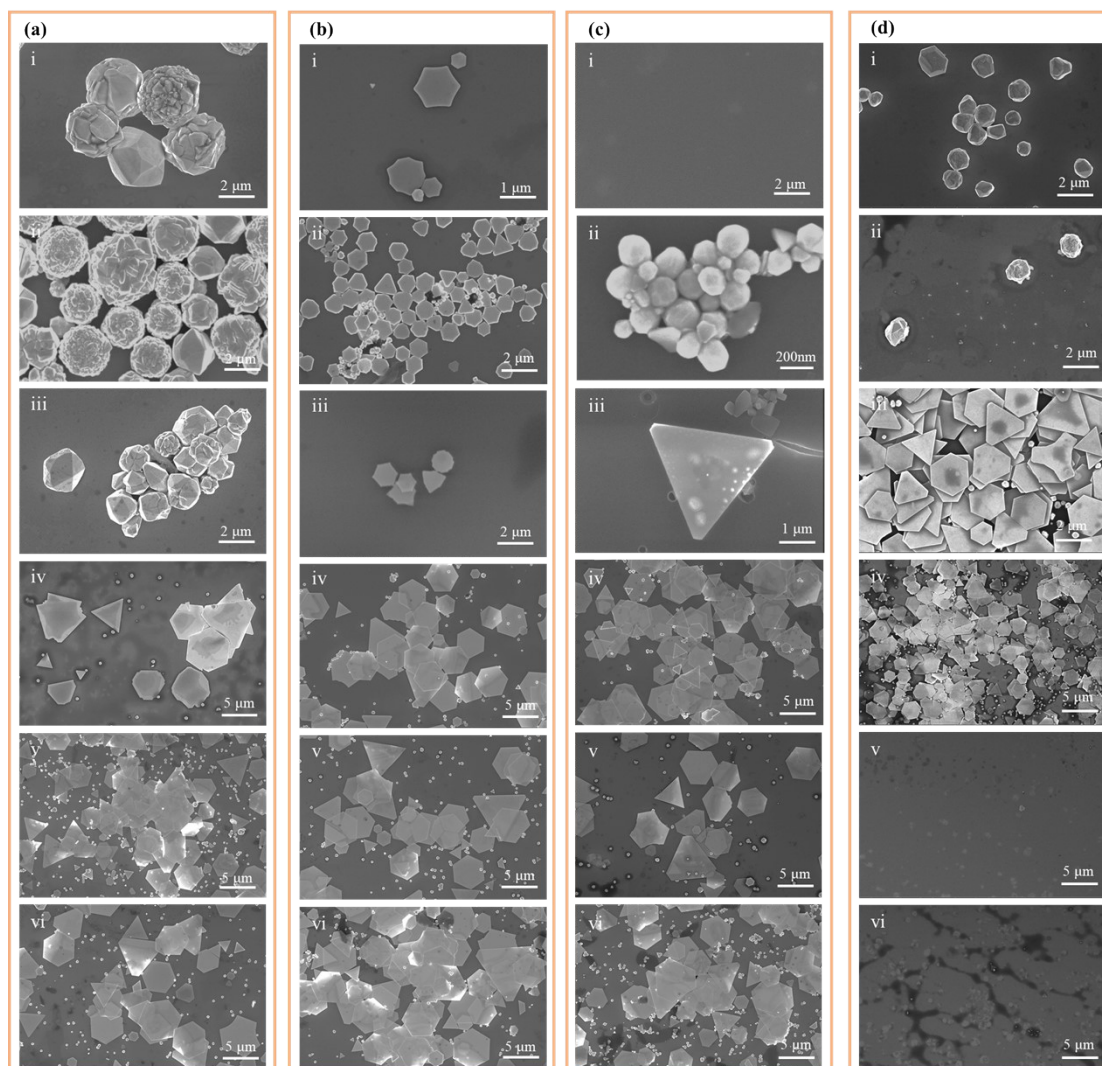


Figure S12. SEM images of the product of the reaction using other ionic with different concentrations, (a) KI, (b) KBr, (c) CuCl₂, (d) FeCl₃. i –vi are SEM images of different concentration, 100 mM, 50 mM, 10 mM, 1 mM, 0.1 mM, 0.01 mM.