Electronic Supplementary Material (ESI) for CrystEngComm.

One-pot synthesis of monodisperse Cu_2O nanoparticle aggregates through an *in situ* generated seed process

Jianwei Jiang, Sanghyuk Park* and Longhai Piao*

Supporting Information

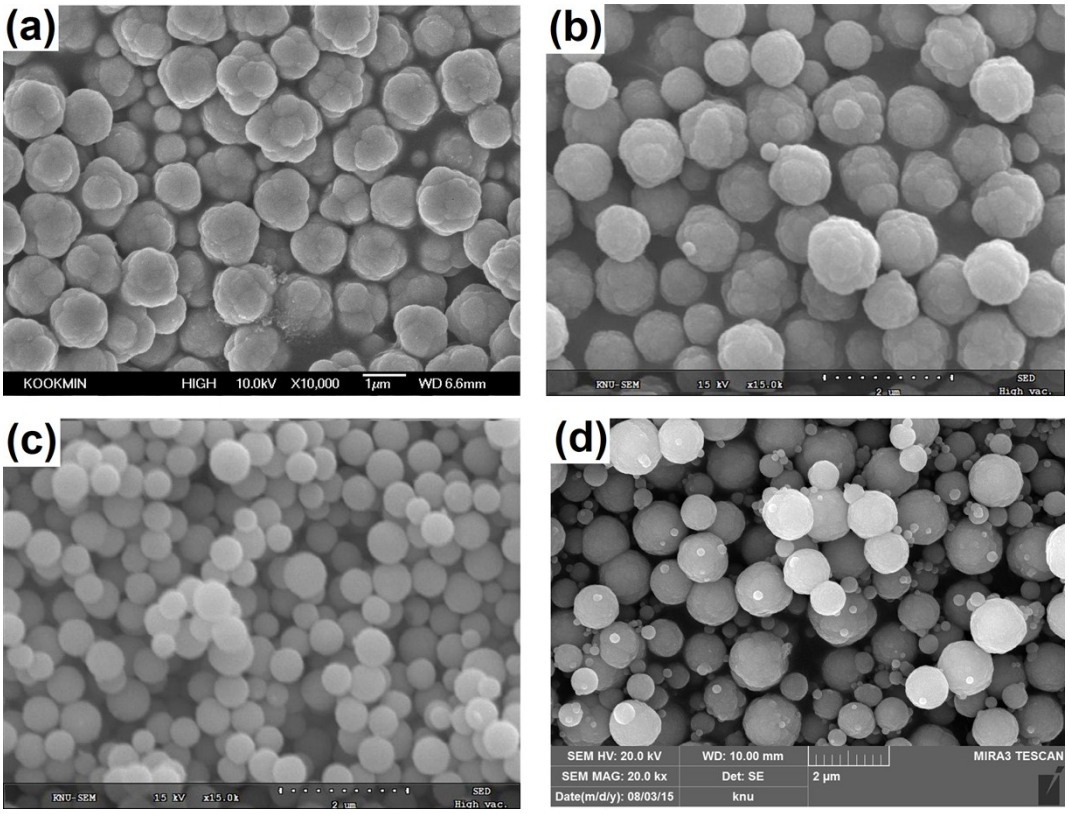


Fig. S1 Synthesis of Cu_2O NPAs using the different types of surfactants: (a) hydroxypropyl cellulose, (b) PEG-4,000, (c) PAM-1500, and (d) PVP-55,000.

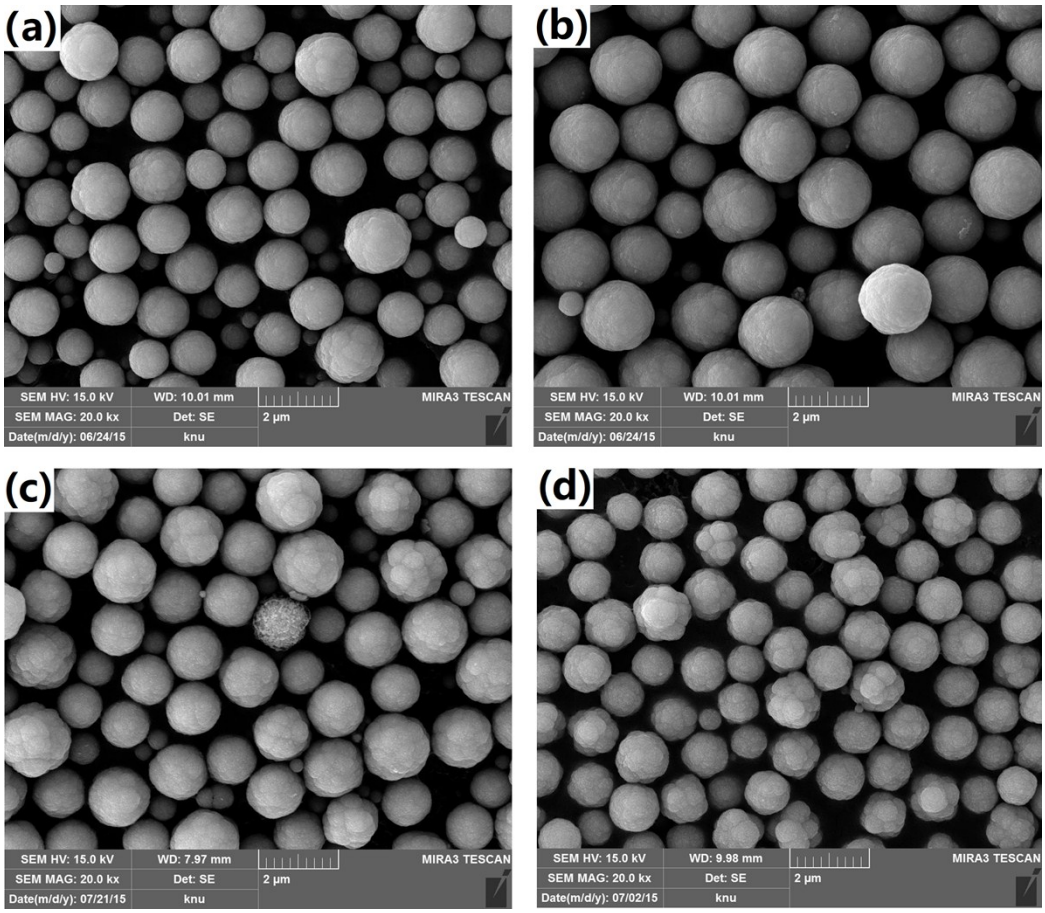


Fig. S2 Synthesis of Cu_2O NPAs using PVP with different chain lengths: (a) 10,000 g/mol, (b) 29,000 g/mol, (c) 40,000 g/mol, and (d) 55,000 g/mol.

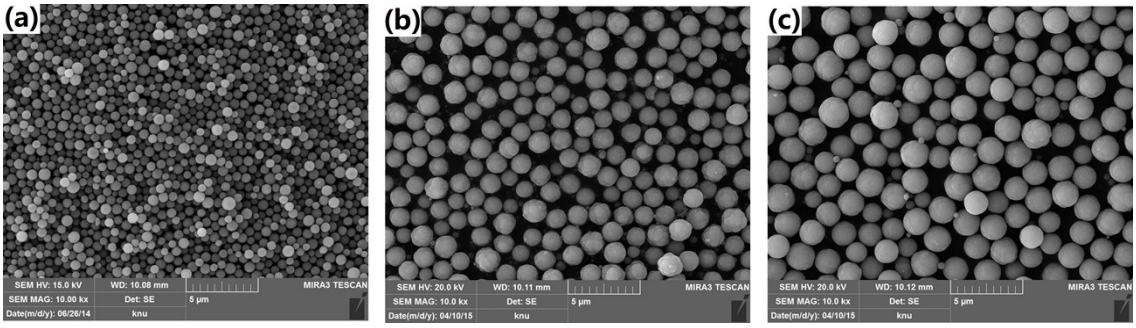


Fig. S3 Synthesis of Cu_2O NPAs by varying the PVP-29,000 concentration: (a) 60 g/L, (b) 40 g/L, and (c) 20 g/L.

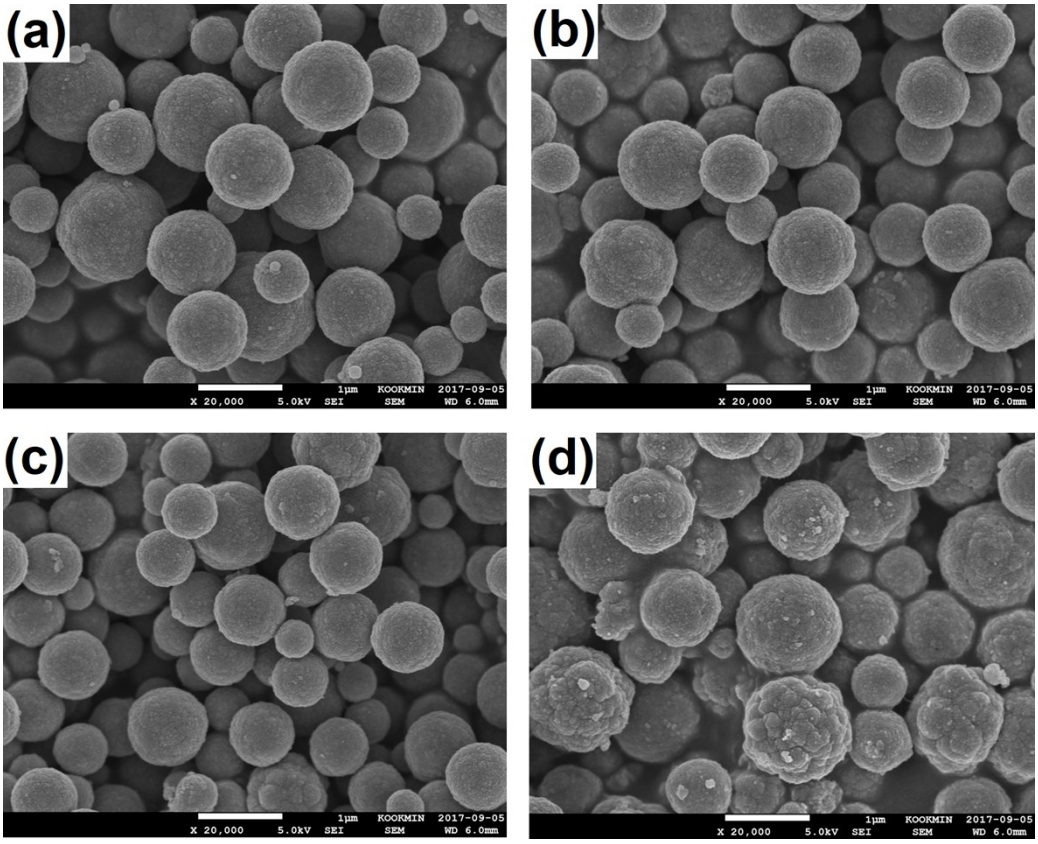


Fig. S4 Synthesis of Cu_2O NPAs under different reaction temperatures in the presence of the PVP-10,000: (a) 27 °C, (b) 40 °C, (c) 55 °C, and (d) 70 °C.

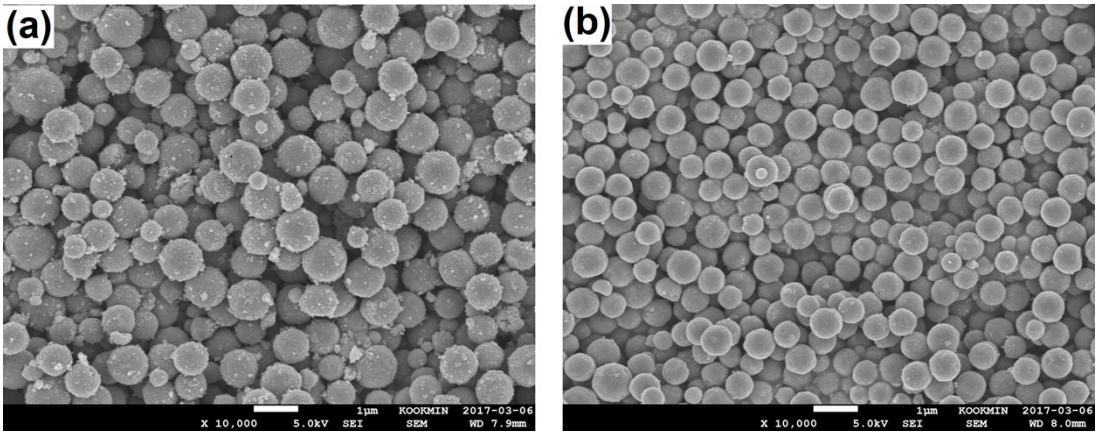


Fig. S5 Synthesis of Cu_2O NPAs using a mixed solvent (the volume ratio of ethanol to H_2O is 7/3): (a) 40 g/L of PVP-10,000 and (b) 60 g/L of PVP-10,000.

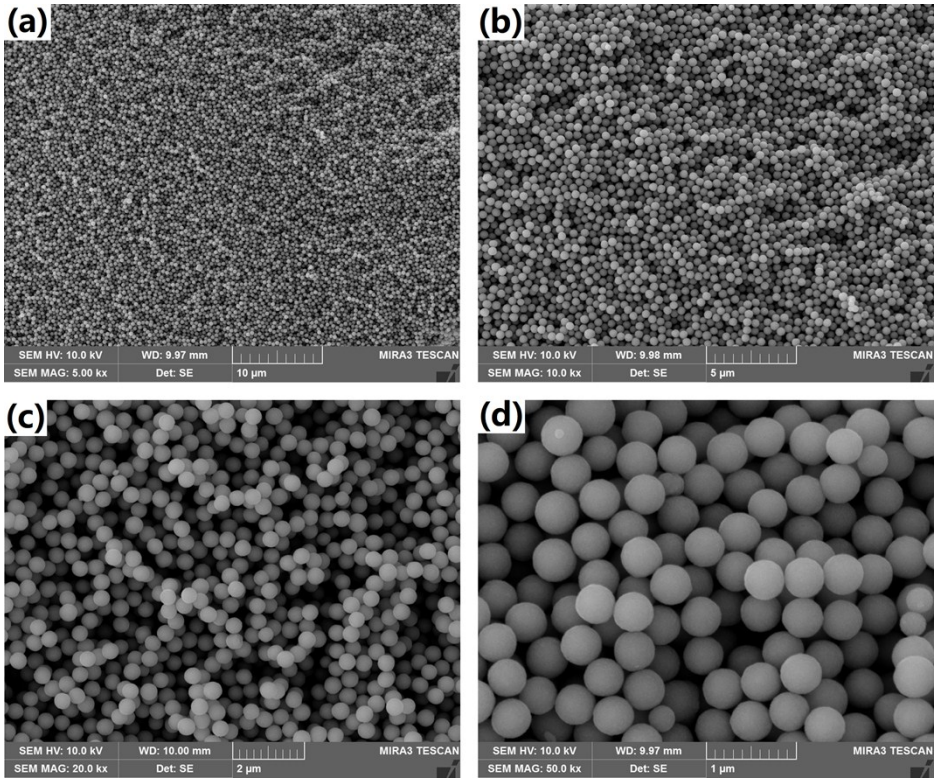


Fig. S6 SEM images of Cu_2O NPAs with 3% NaCl at different resolutions.

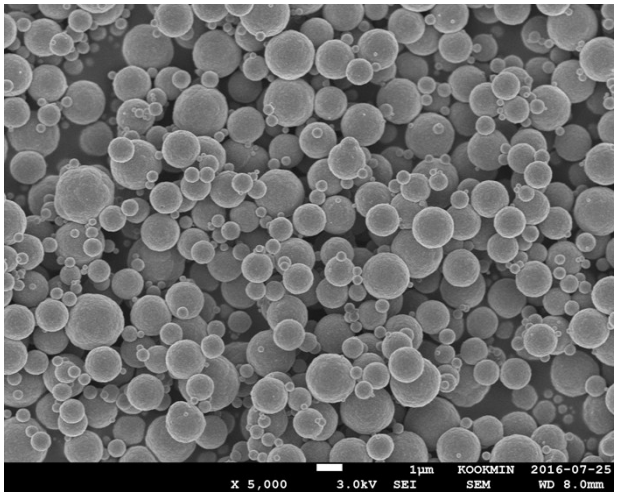


Fig. S7 Synthesis of Cu_2O NPAs with the addition of $NaNO_3$.

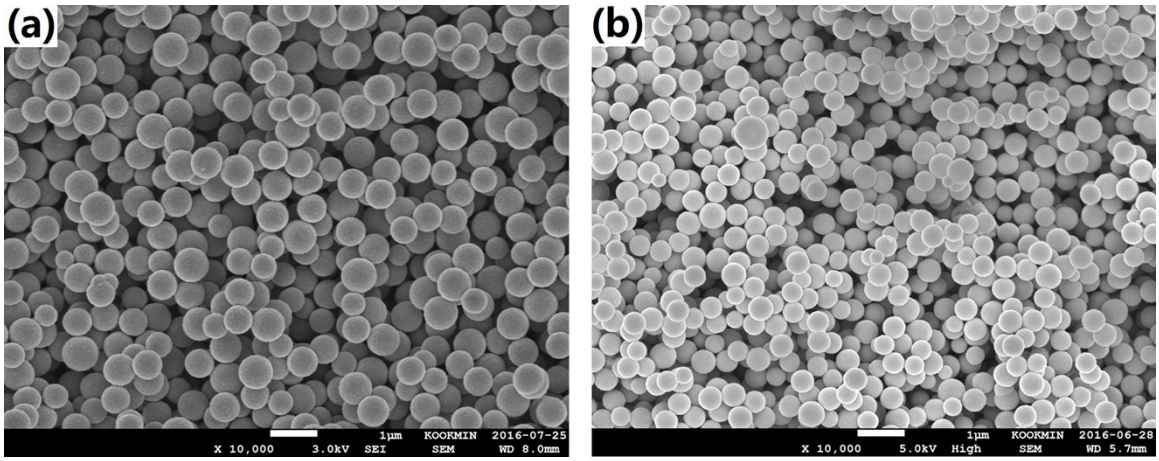
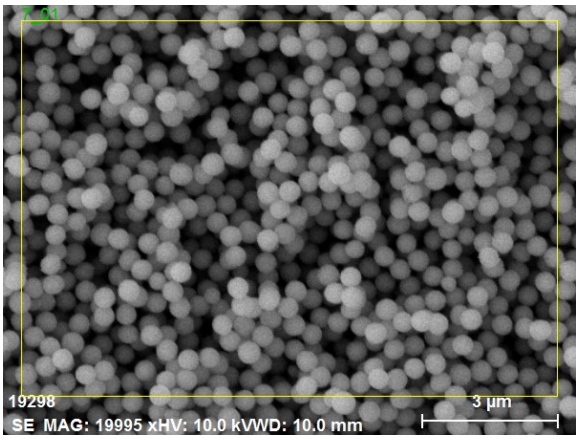
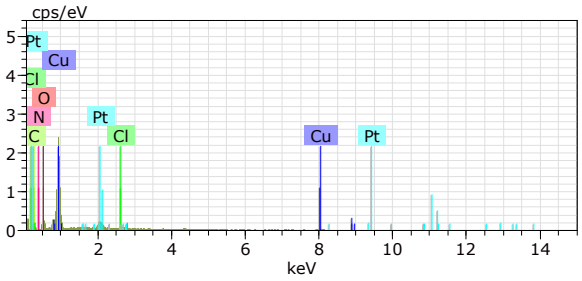


Fig. S8 Synthesis of Cu_2O NPAs with the addition of (a) KCl (3%) and (b) NaCl (3%).





El	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]
C	3.77	3.77	13.28
N	2.35	2.35	7.09
O	8.14	8.14	21.53
Cl	1.88	1.88	2.25
Cu	83.86	83.86	55.85
Total:	100.00	100.00	100.00

Fig. S9 EDX spectrum of the Cu_2O NPAs synthesized with NaCl (3%).

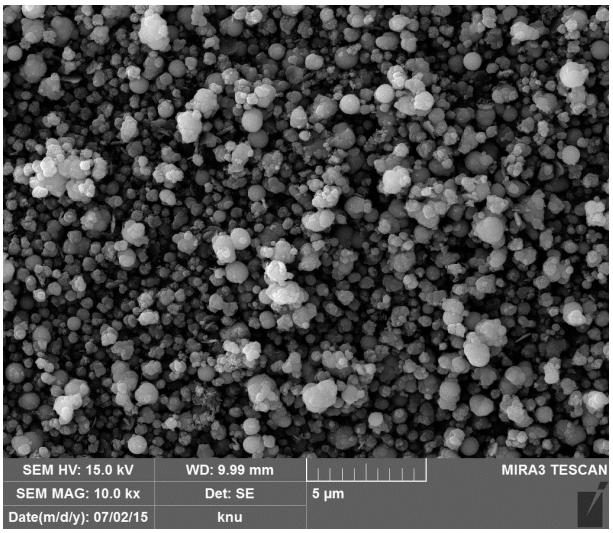


Fig. S10 Synthesis of Cu_2O NPAs with NaCl (10%)

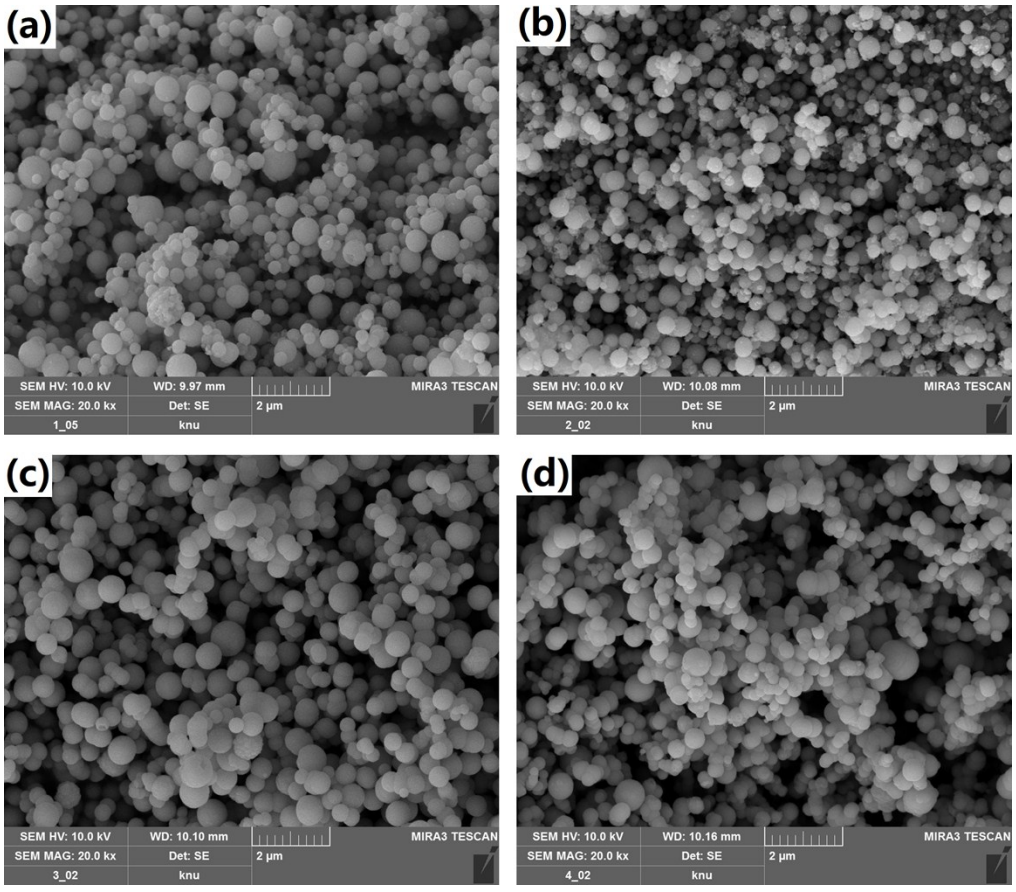


Fig. S11 Synthesis of Cu_2O NPAs without stirring with NaCl (a) 2%, (b) 3%, (c) 4%, and (d) 6%.

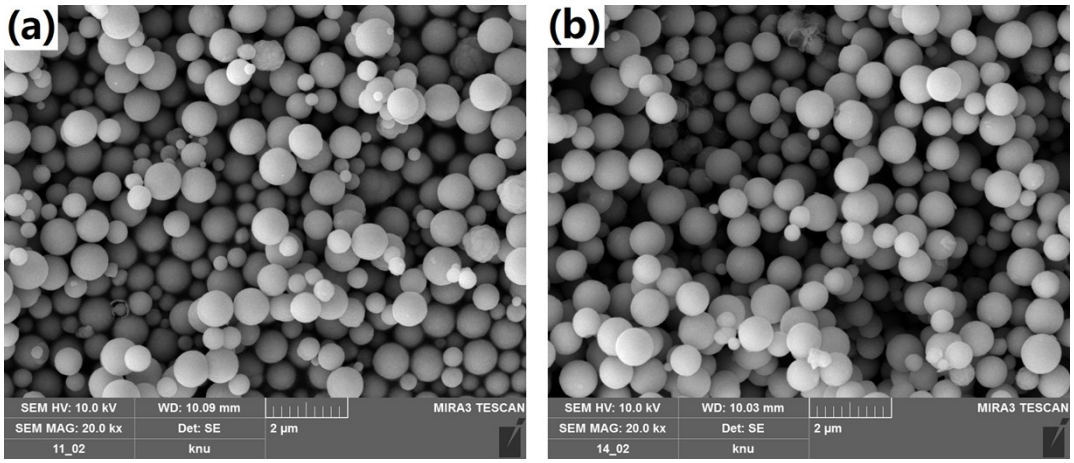


Fig. S12 Synthesis of Cu_2O NPAs at a stirring rate of 600 rpm with NaCl (a) 3% and (b) 4%.

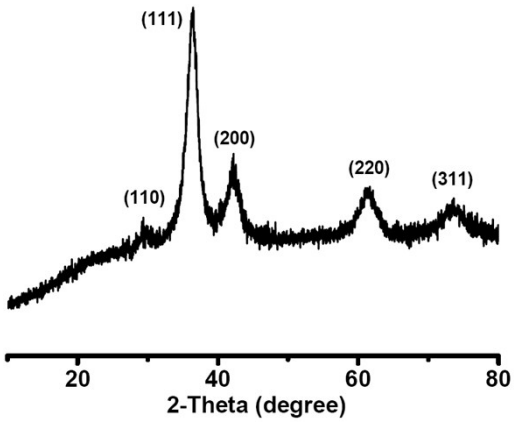


Fig. S13 XRD pattern of Cu_2O NPAs (4% NaCl) after storing for one month in air at 4 degree.

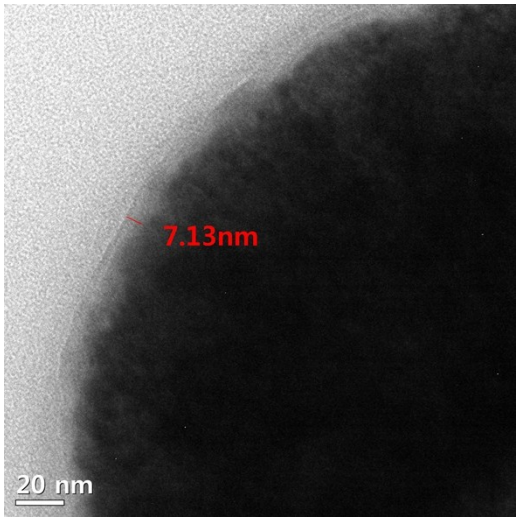


Fig. S14 TEM image of Cu_2O NPAs (4% NaCl).

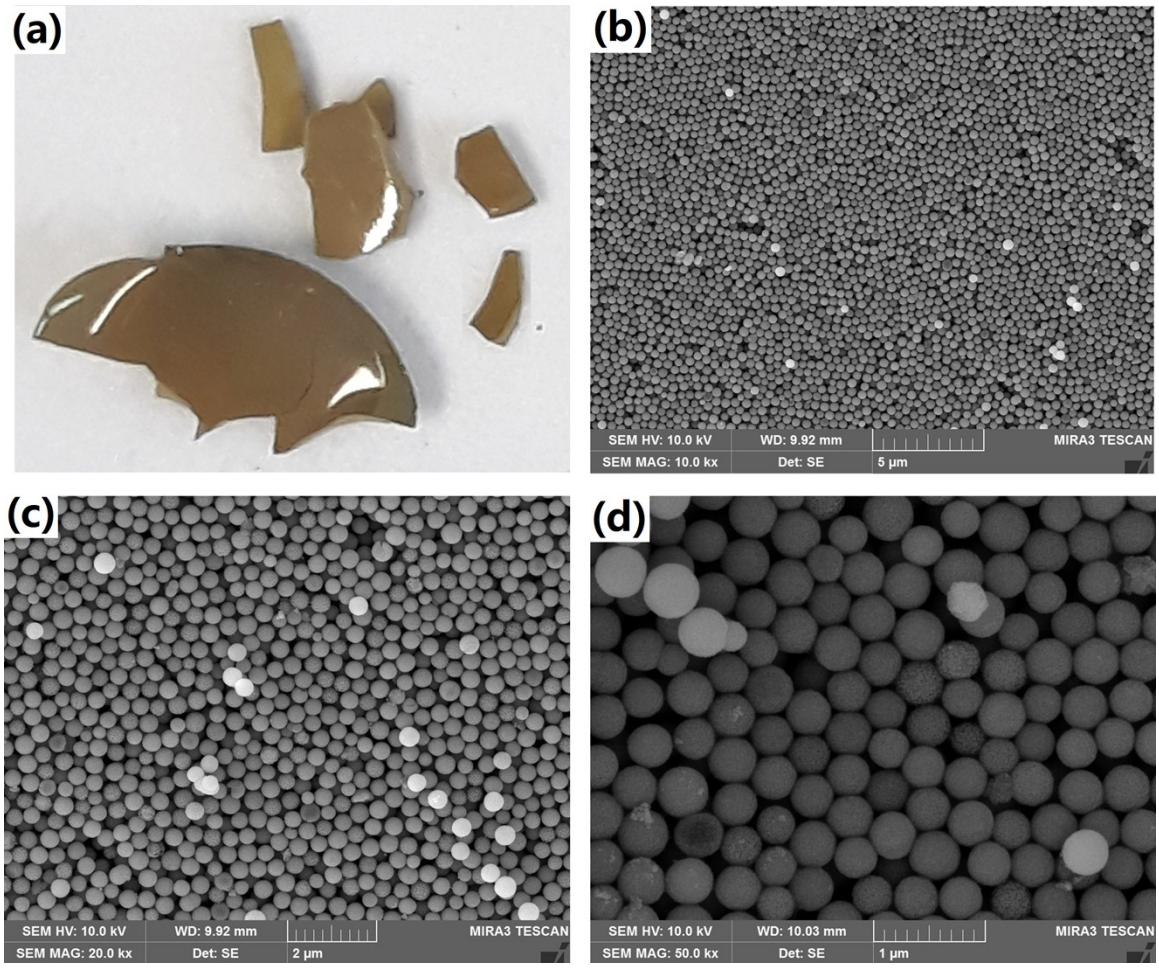


Fig. S15 The photograph (a) and SEM images (b-d) of Cu_2O from a gram-scale synthesis.