

Supporting Information for

## **Synthesis of Cuprous Oxide Nanocomposite Electrodes by Room-Temperature Chemical Partial Reduction**

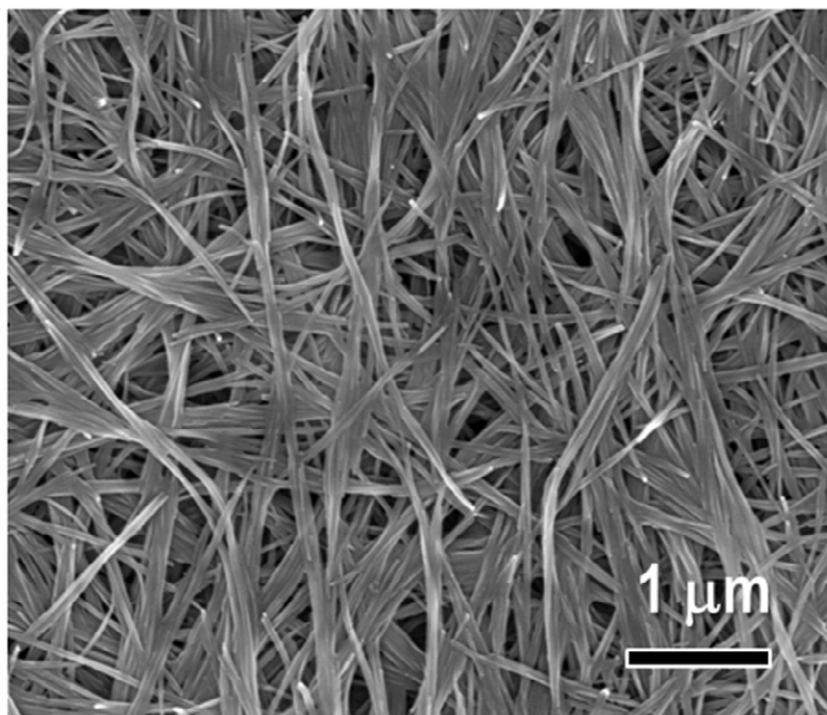
*Kyung-Soo Park,<sup>a†</sup> Seung-Deok Seo,<sup>a†</sup> Yun-Ho Jin,<sup>a</sup> Seung-Hun Lee,<sup>a</sup> Hyun-Woo Shim,<sup>a</sup>  
Du-Hee Lee,<sup>b</sup> and Dong-Wan Kim<sup>\*a</sup>*

<sup>a</sup>Department of Materials Science and Engineering, Ajou University, Suwon 443-749, Korea

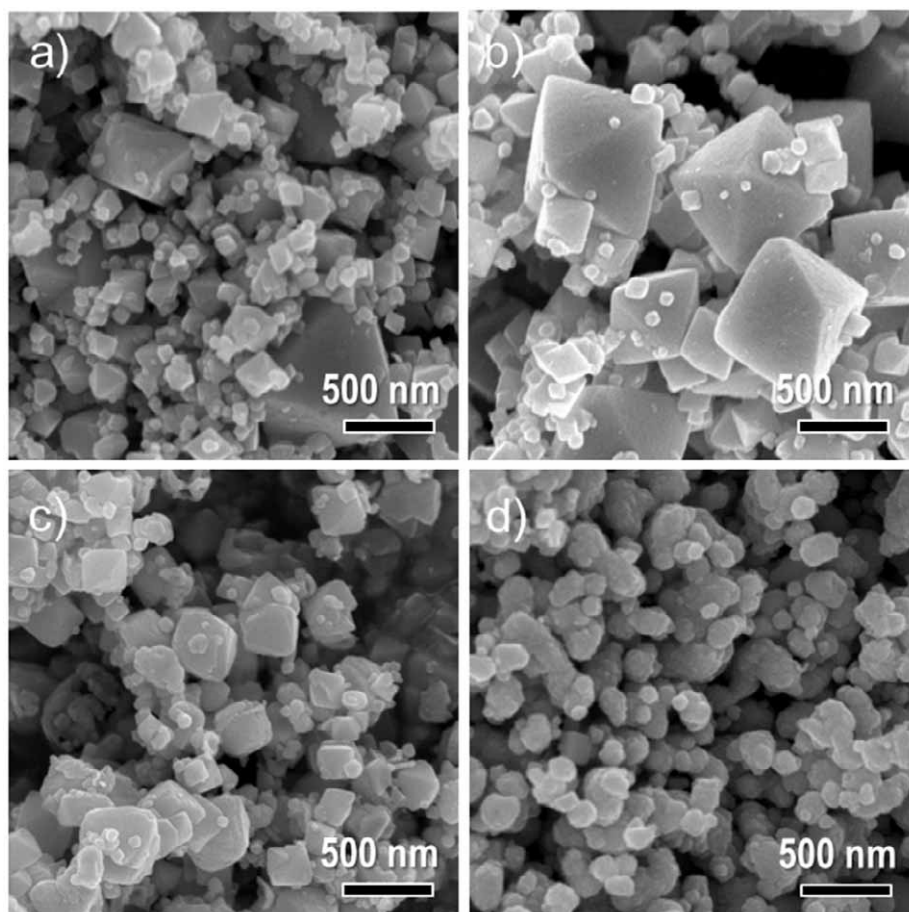
<sup>b</sup>LS Mtron, Anyang 431-749, Korea

<sup>†</sup> S. D. Seo and K. S. Park contributed equally to this work.

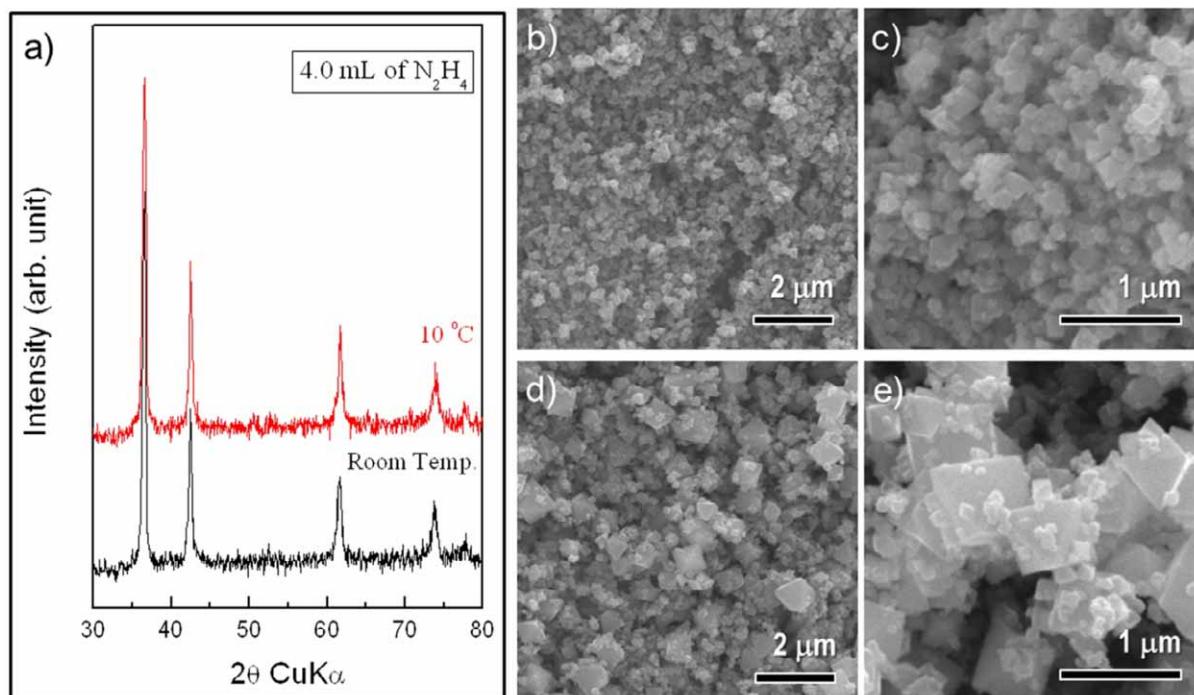
\* Author to whom any correspondence should be addressed. E-mail: [dwkim@ajou.ac.kr](mailto:dwkim@ajou.ac.kr)



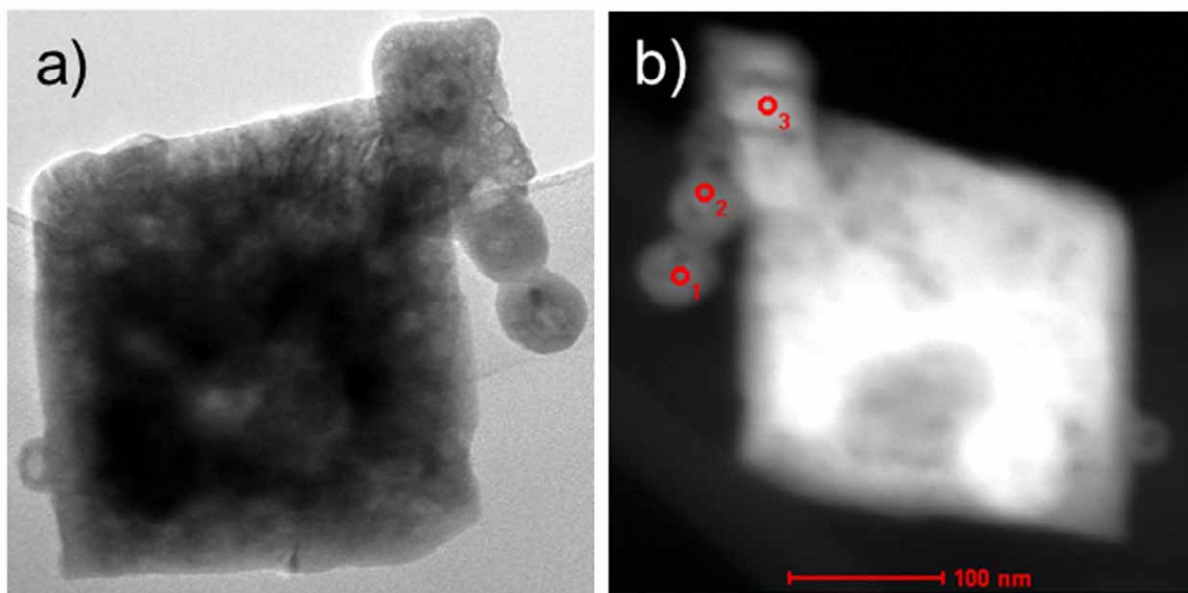
**Fig. S1.** Typical FE-SEM image of as-prepared  $\text{Cu}(\text{OH})_2$  precursor with nanowire morphology.



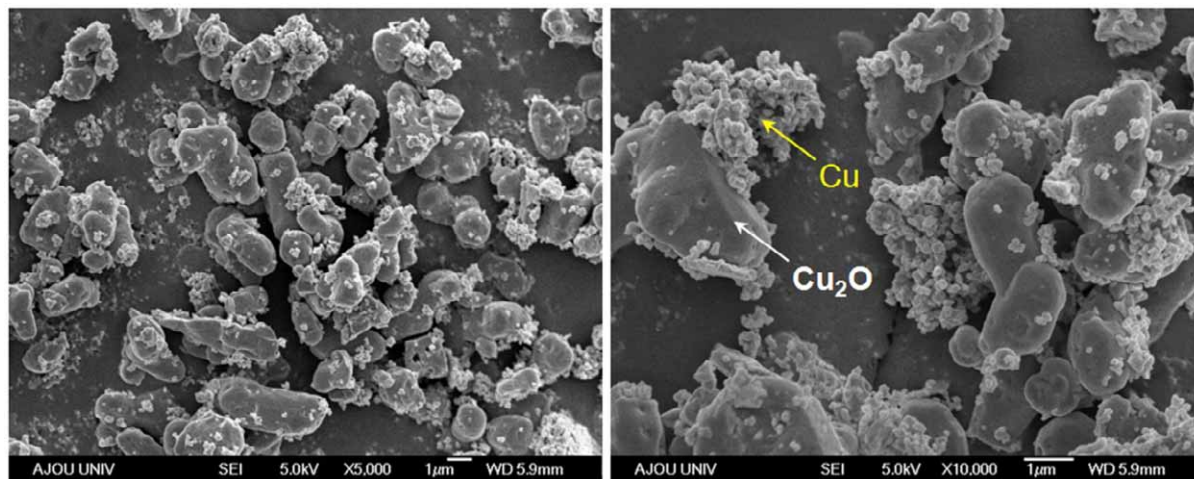
**Fig. S2.** Low-magnification FE-SEM images of the samples prepared by adding various amounts of  $\text{N}_2\text{H}_4$ : (a) 0.5 mL, (b) 4.0 mL, (c) 8.0 mL, and (d) 12.0 mL.



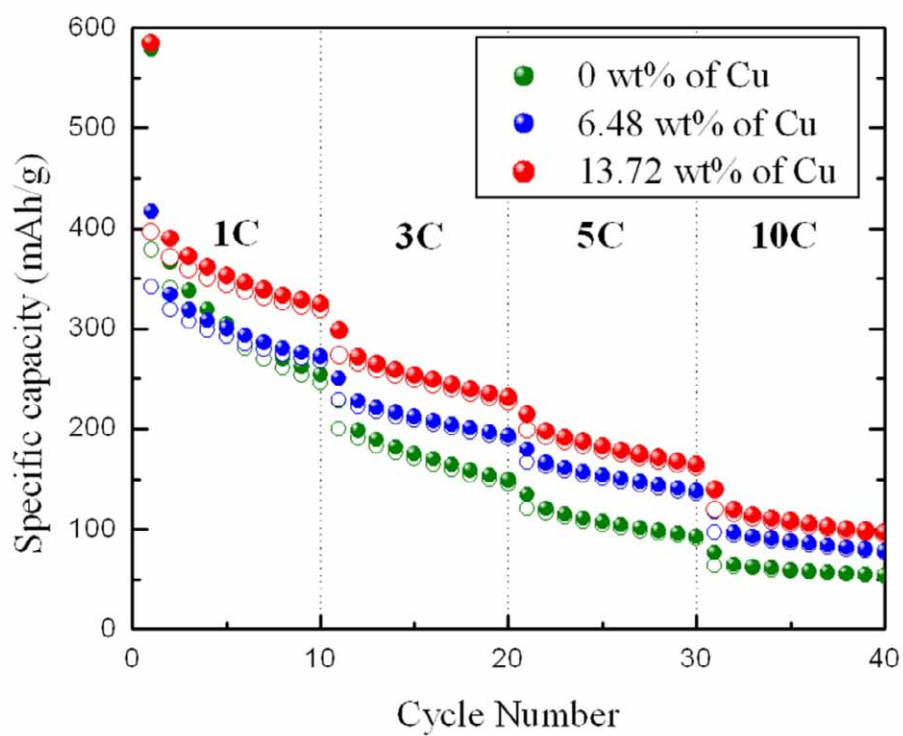
**Fig. S3.** (a) XRD patterns and FE-SEM images of  $\text{Cu}_2\text{O}$  particles prepared by adding 4.0 mL of  $\text{N}_2\text{H}_4$  at different synthetic temperatures: (b and c)  $10^\circ\text{C}$ , and (d and e) room temperature.



**Fig. S4.** (a) Bright-field TEM and (b) HAADF images of a Cu/Cu<sub>2</sub>O nanocomposite (8.0 mL of N<sub>2</sub>H<sub>4</sub>).



**Fig. S5.** Typical FE-SEM images of the mixed commercial Cu/Cu<sub>2</sub>O (10 wt% Cu) powders after mechanical mixing for 12 hrs.



**Fig. S6.** Rate capabilities for the chemically synthesized Cu/Cu<sub>2</sub>O nanocomposite electrodes with various compositions.