

Electronic Supplementary Information

## **Ligand Exchange on Noble Metal Nanocrystals Assisted by Coating and Etching of Cuprous Oxide**

Chunyu Zhou,<sup>ab</sup> Yaocai Bai,<sup>b</sup> Fan Yang,<sup>b</sup> Tao Sun,<sup>a</sup> Liang Zhang,<sup>a</sup> Yuanqing Cai,<sup>a</sup> Tao Gu,<sup>a</sup> Yun  
Liu,<sup>a</sup> Mingfu Gong,<sup>\*a</sup> Dong Zhang<sup>\*a</sup> and Yadong Yin<sup>\*b</sup>

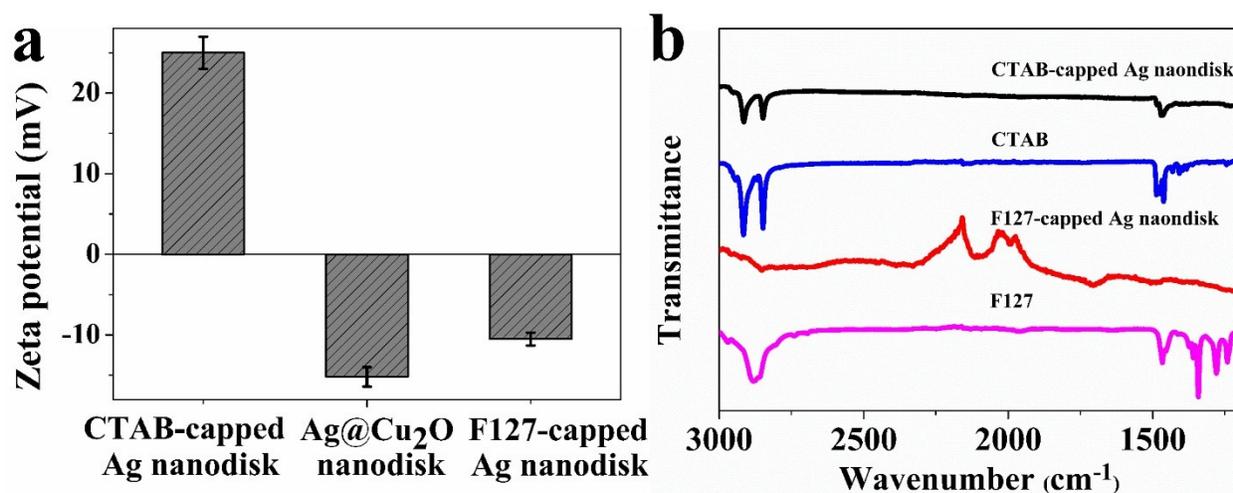
<sup>a</sup>Department of Radiology, Xinqiao Hospital, Army Medical University, Chongqing 400037, P.  
R. China

<sup>b</sup>Department of Chemistry, University of California, Riverside, CA 92521, USA

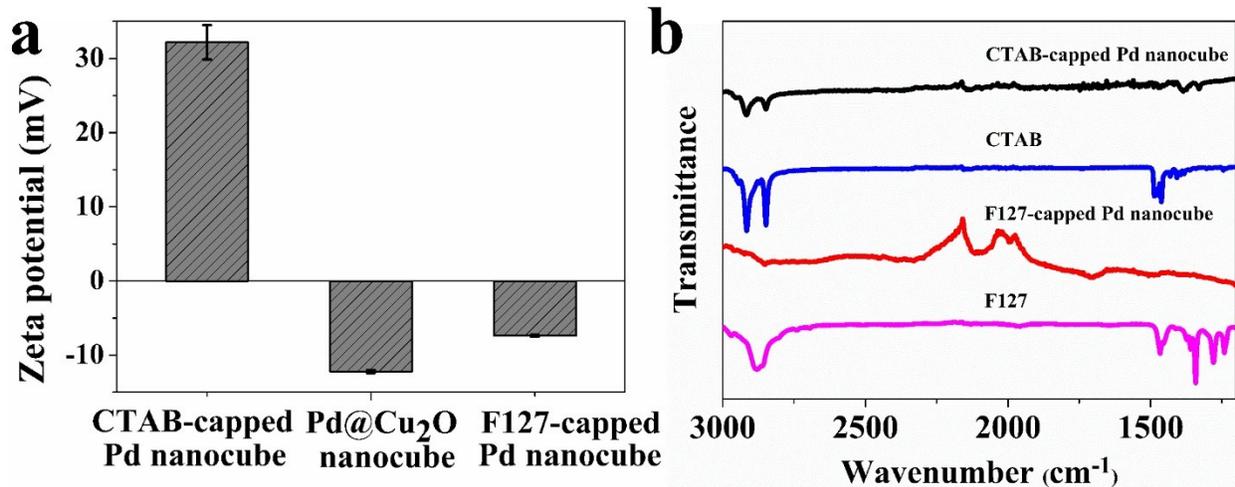
\*To whom correspondence should be addressed: [hummer198625@163.com](mailto:hummer198625@163.com) (Mingfu Gong),  
[hszhangd@tmmu.edu.cn](mailto:hszhangd@tmmu.edu.cn) (Dong Zhang), [yadong.yin@ucr.edu](mailto:yadong.yin@ucr.edu) (Yadong Yin).

**Table S1.** ICP-MS results for the nanorods obtained during ligand exchange through  $\text{Cu}_2\text{O}$  coating and etching for the CTAB-capped AuNRs.

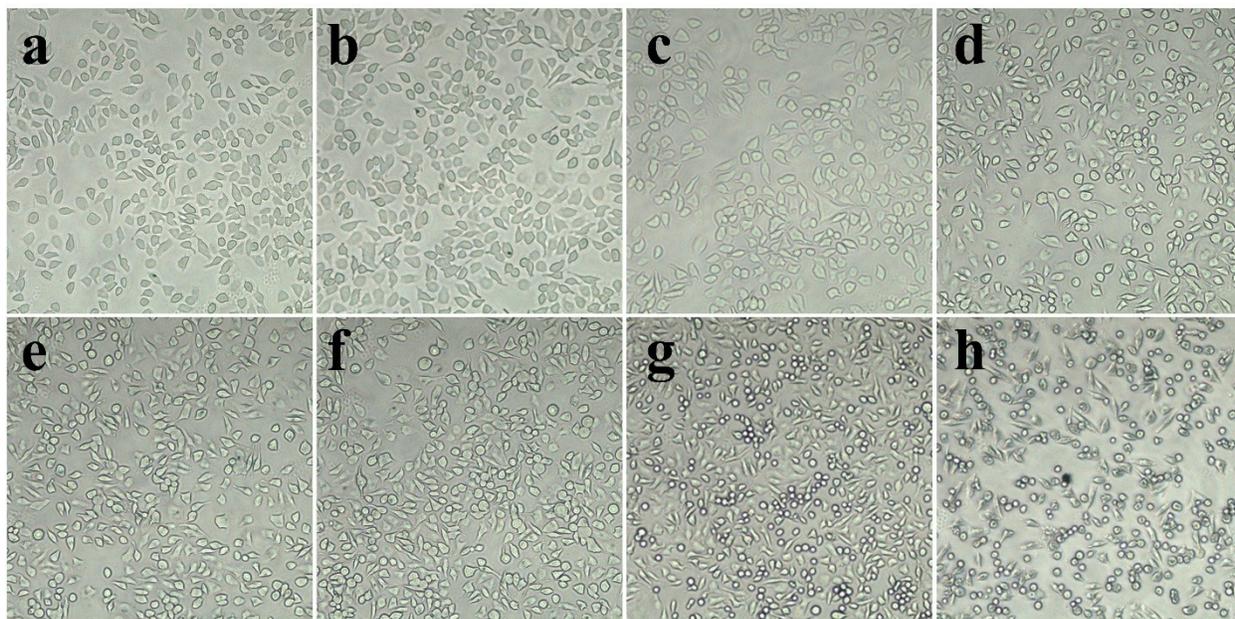
Nanoparticles	Au (wt%)	Cu (wt%)
CTAB-capped AuNRs	99.996	0.004
$\text{Au@Cu}_2\text{O}$ NRs	23.889	76.111
F127-capped AuNRs	99.994	0.006



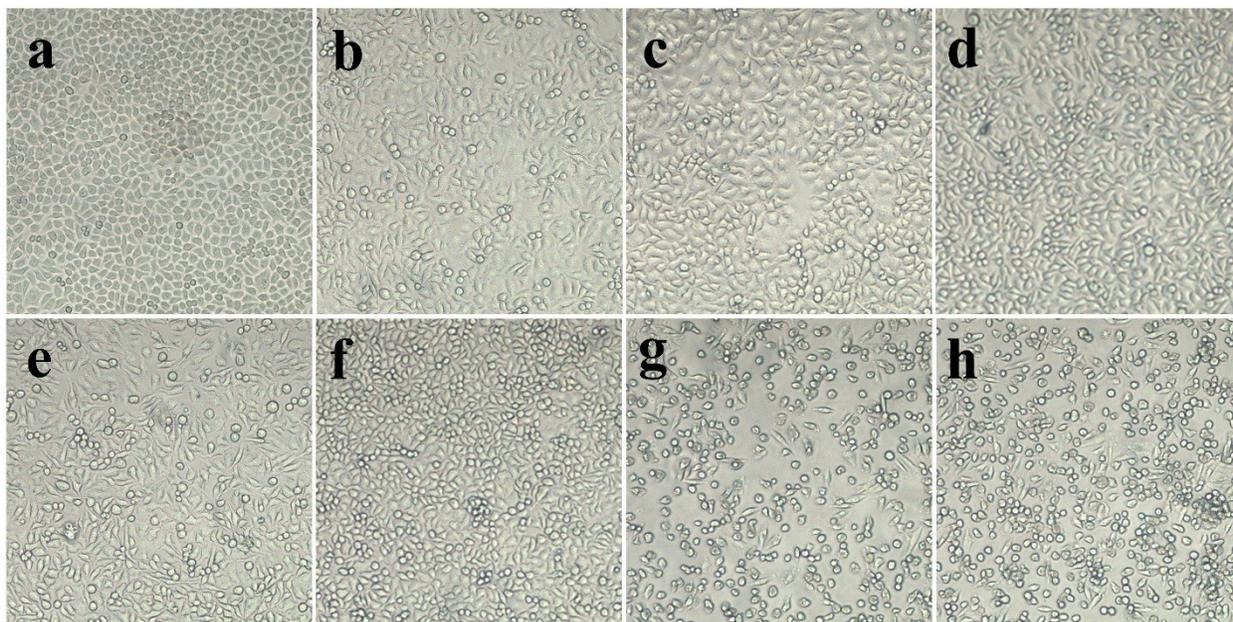
**Figure S1.** (a) Zeta potential of CTAB-capped Ag nanodisks,  $\text{Ag@Cu}_2\text{O}$  nanodisks, and F127-capped Ag nanodisks. (b) FTIR spectra of Ag nanodisks capped with different ligands and the reference spectra of the pure ligands.



**Figure S2.** (a) Zeta potential of CTAB-capped Pd nanocubes, Pd@Cu<sub>2</sub>O nanocubes, and F127-capped Pd nanocubes. (b) FTIR spectra of Pd nanocubes capped with different ligands and the reference spectra of the pure ligands.



**Figure S3.** Cells' images from inverted fluorescence microscope (100×). A549 cells after co-incubated with 10, 50, 100 and 200 µg/mL CTAB-capped AuNRs (a-d) and F127-capped AuNRs (e-h) for 24 h.



**Figure S4.** Cells' images from inverted fluorescence microscope (100 $\times$ ). HepG2 cells after co-incubated with 10, 50, 100 and 200  $\mu\text{g/mL}$  CTAB-capped AuNRs (a-d) and F127-capped AuNRs (e-h) for 24 h.