

Supporting Information

Recyclable fluorescent gold nanocluster membrane for visual sensing of copper(II) ion in aqueous solution

Zhijin Lin, Fenqiang Luo, Tongqing Dong, Liyan Zheng, Yaxian Wang, Yuwu Chi,
Guonan Chen*

MOE Key Laboratory of Analysis and Detection Technology for Food Safety, Fujian
Provincial Key Laboratory of Analysis and Detection Technology for Food Safety,
and Department of Chemistry, Fuzhou University, Fujian 350108, China.

List of Contents

1. Optical properties of the as-prepared Au NCs. Fig. S1
2. The photos for a piece of fluorescence gold nanoclusters membrane (FGM) obtained by drying Au NC suspension at 90 °C. Fig. S2
3. The photos of FGM-based sensors using FGMs of various thicknesses. Fig. S3
4. The photos of eliminating the interference of Hg^{2+} in detecting Cu^{2+} by Au NCs. Fig. S4
5. The fluorescence inhibition ratio of FGM upon addition of various concentrations of Cu^{2+} Fig. S5

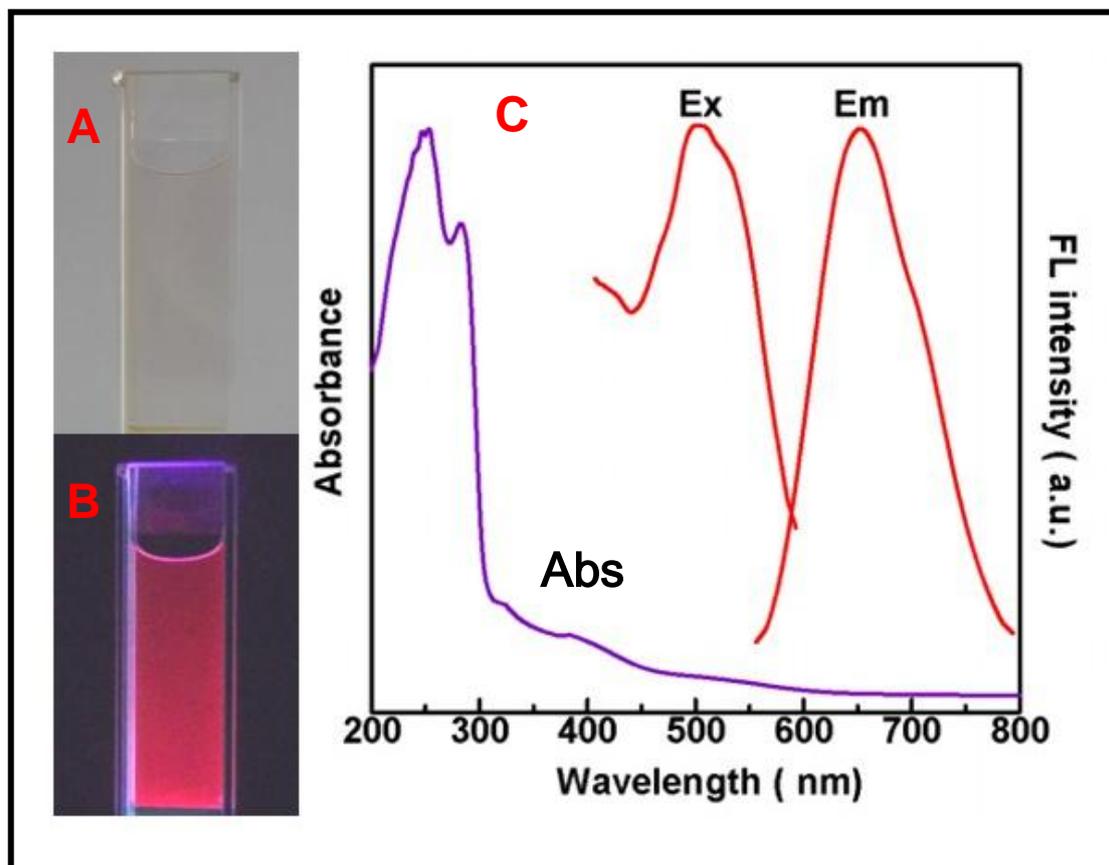


Figure S1. Optical properties of the as-prepared Au NCs. (A) The photo of an Au NC solution illuminated by white light; (B) The fluorescent photo of the Au NC solution under UV light excitation (365nm). (C) UV-Vis absorption and fluorescence spectra obtained for the Au NC solution.

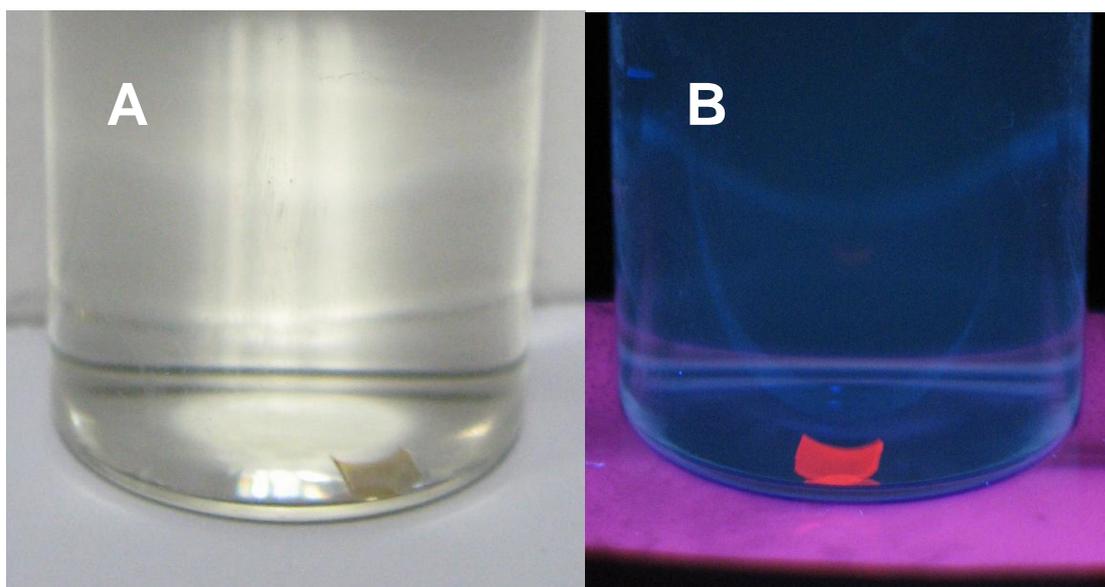


Figure S2. The photos for a piece of fluorescence gold nanoclusters membrane (FGM) obtained by drying Au NC suspension at 90 °C. (A) The photo was taken under a white light. (B) The photo was taken under a 365 nm UV light.

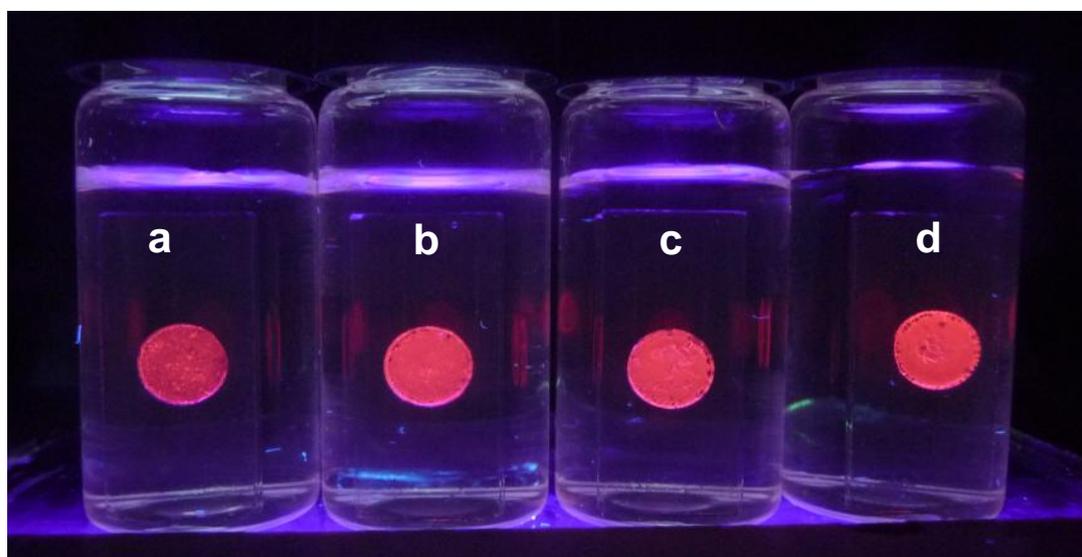


Figure S3. The photos of FGM-based sensors using FGMs of various thicknesses: (a) 67 μm ; (b) 100; (c) 133 μm ; (d) 167 μm . The photo was taken under 365 nm UV light.

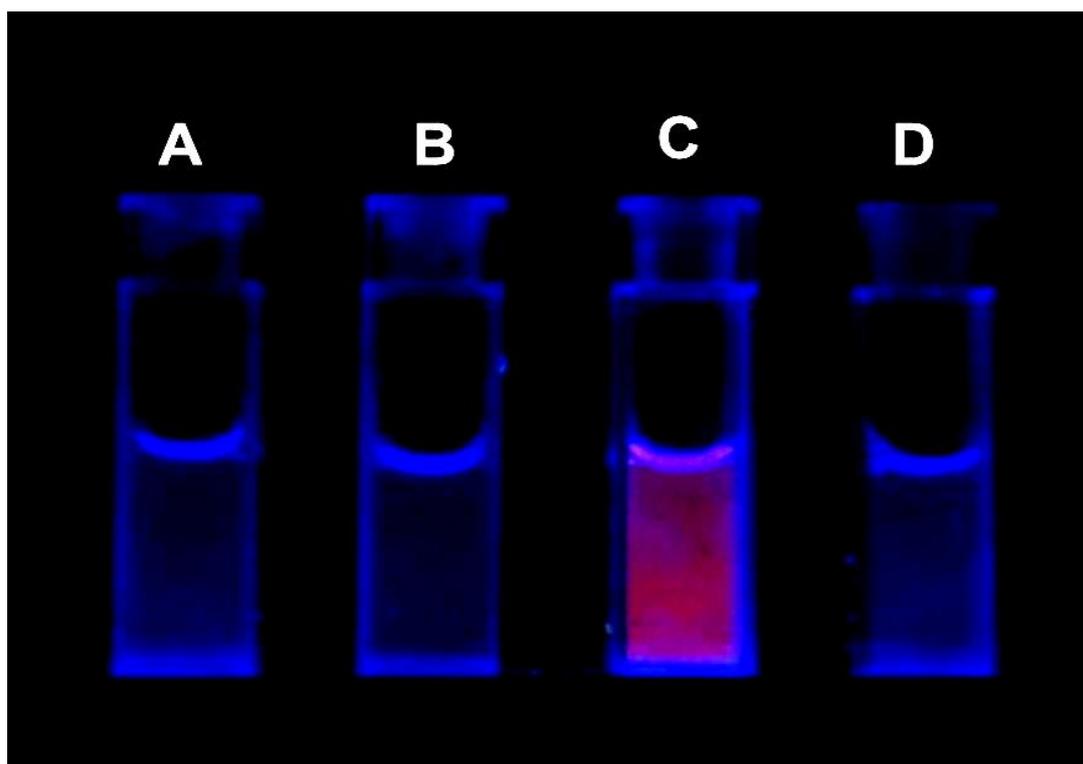


Figure S4. The photos of eliminating the interference of Hg^{2+} in detecting Cu^{2+} by Au NCs. (A) The fluorescence of Au NCs in the presence of Hg^{2+} ; (B) The fluorescence of Au NCs in the presence of Cu^{2+} ; (C) The fluorescence of Au NCs in the presence of Sn^{2+} and Hg^{2+} ; (D) The fluorescence of Au NCs in the presence of Sn^{2+} and Cu^{2+} . The photo was taken under 365 nm UV light. The concentration of metal ions: $[\text{Hg}^{2+}] = 5 \times 10^{-5} \text{ M}$; $[\text{Cu}^{2+}] = 10^{-3} \text{ M}$; $[\text{Sn}^{2+}] = 10^{-3} \text{ M}$. The pH value of the acetate buffer solution is 6.

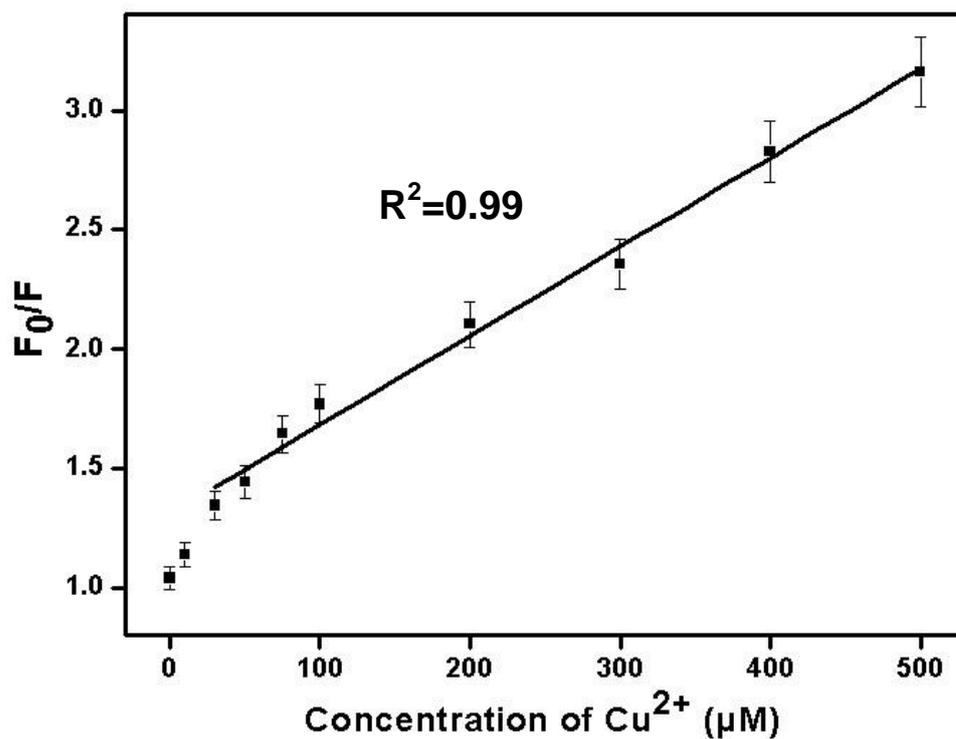


Figure S5. The calibration curve of the FGM sensors at pH 6. The fluorescence inhibition ratio (F_0/F) was measured under various concentrations of Cu^{2+} (From bottom to top): 0, 10, 30, 50, 75, 100, 200, 300, 400, 500 μM). The error bars represent the standard deviation in three measurements.