

Electronic Supplementary Information

Gold-doped Silver Nanoclusters with Enhanced Photophysical Properties

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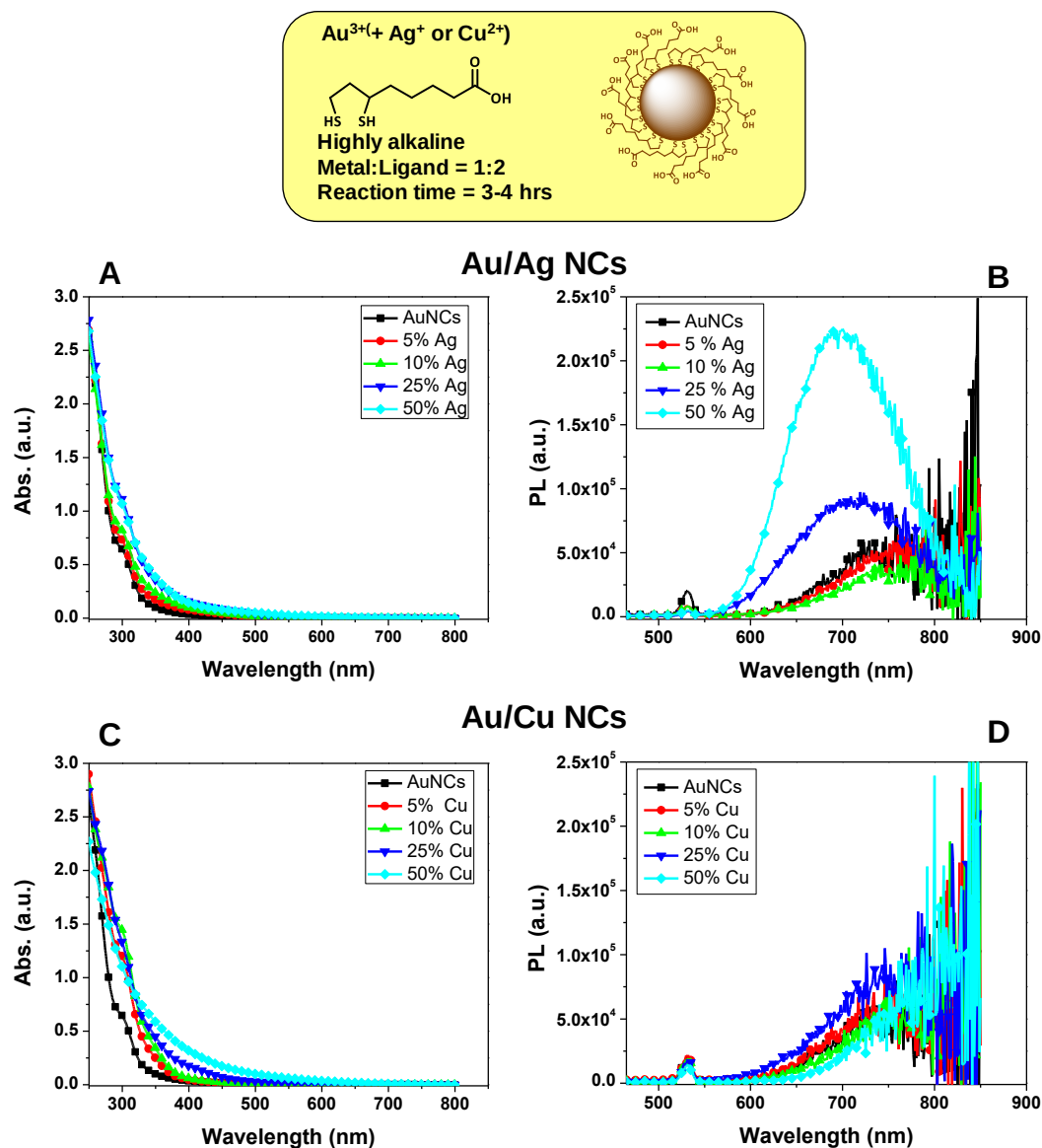
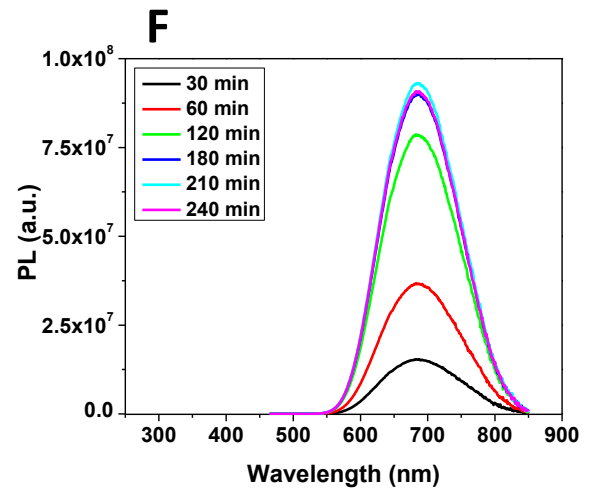
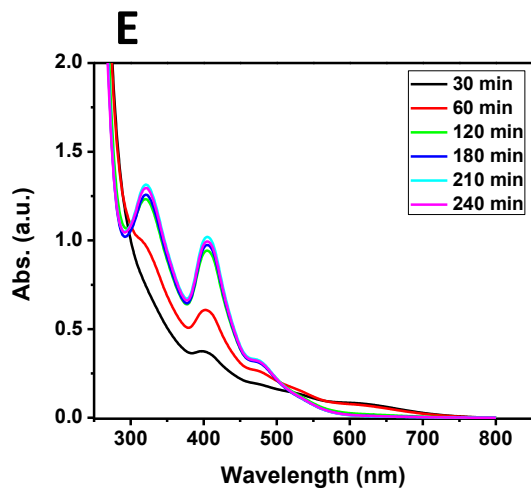
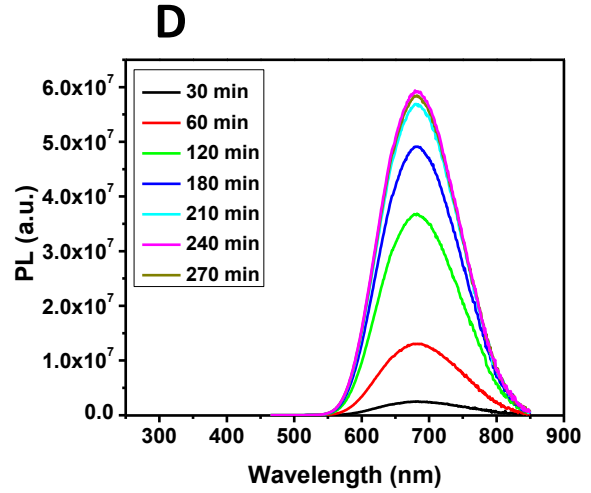
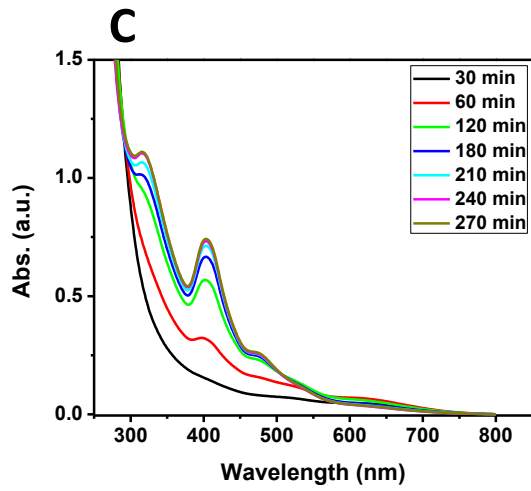
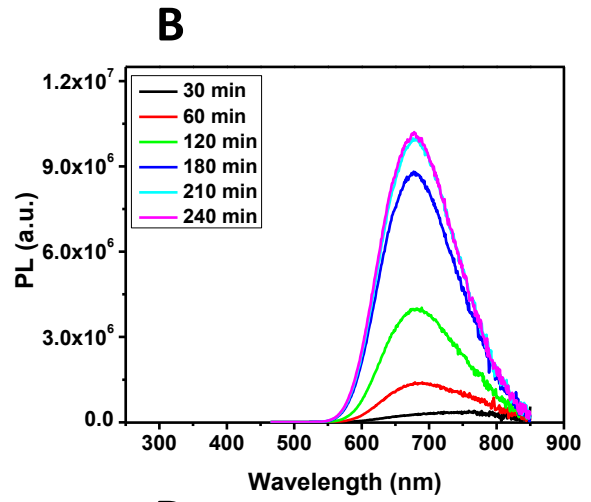
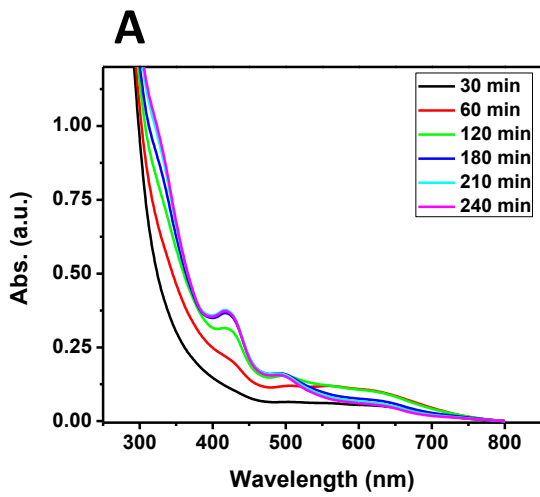


Fig. S1. Absorption and PL spectra of AuNCs together with those of Ag- and Cu-doped AuNCs, prepared using the method reported by Xie and co-workers (reference 47). The PL intensities were normalized with respect to the absorbance at 450 nm.



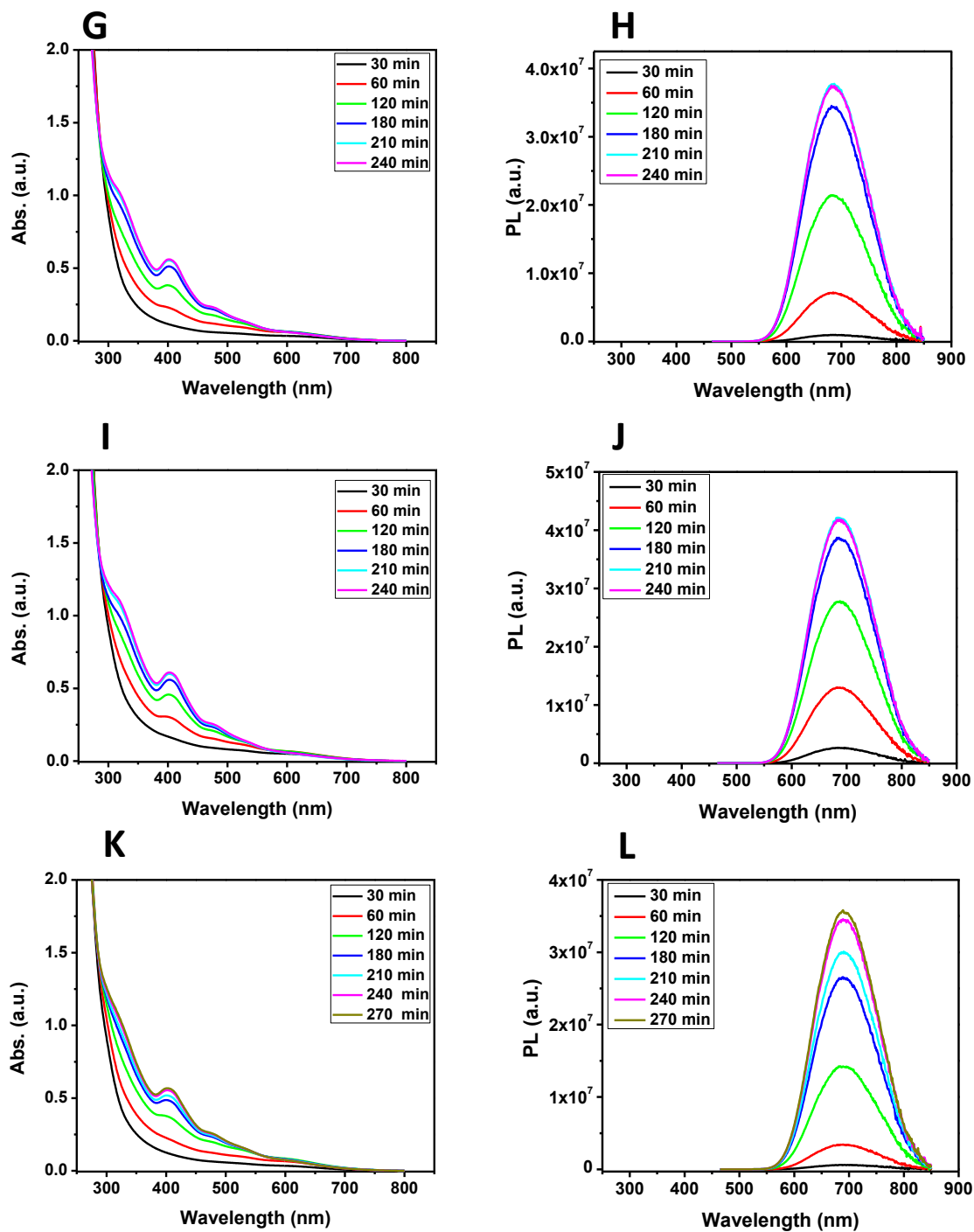


Figure S2. Time depend optical absorption (left) and PL emission (right) spectra of the Au-doped Ag clusters. The percentage of Au precursor was 0% (A, B), 4 % (C, D) and 8 % (E, F), 12 % (G, H), 16 % (I, J) and 20 % (K, L).

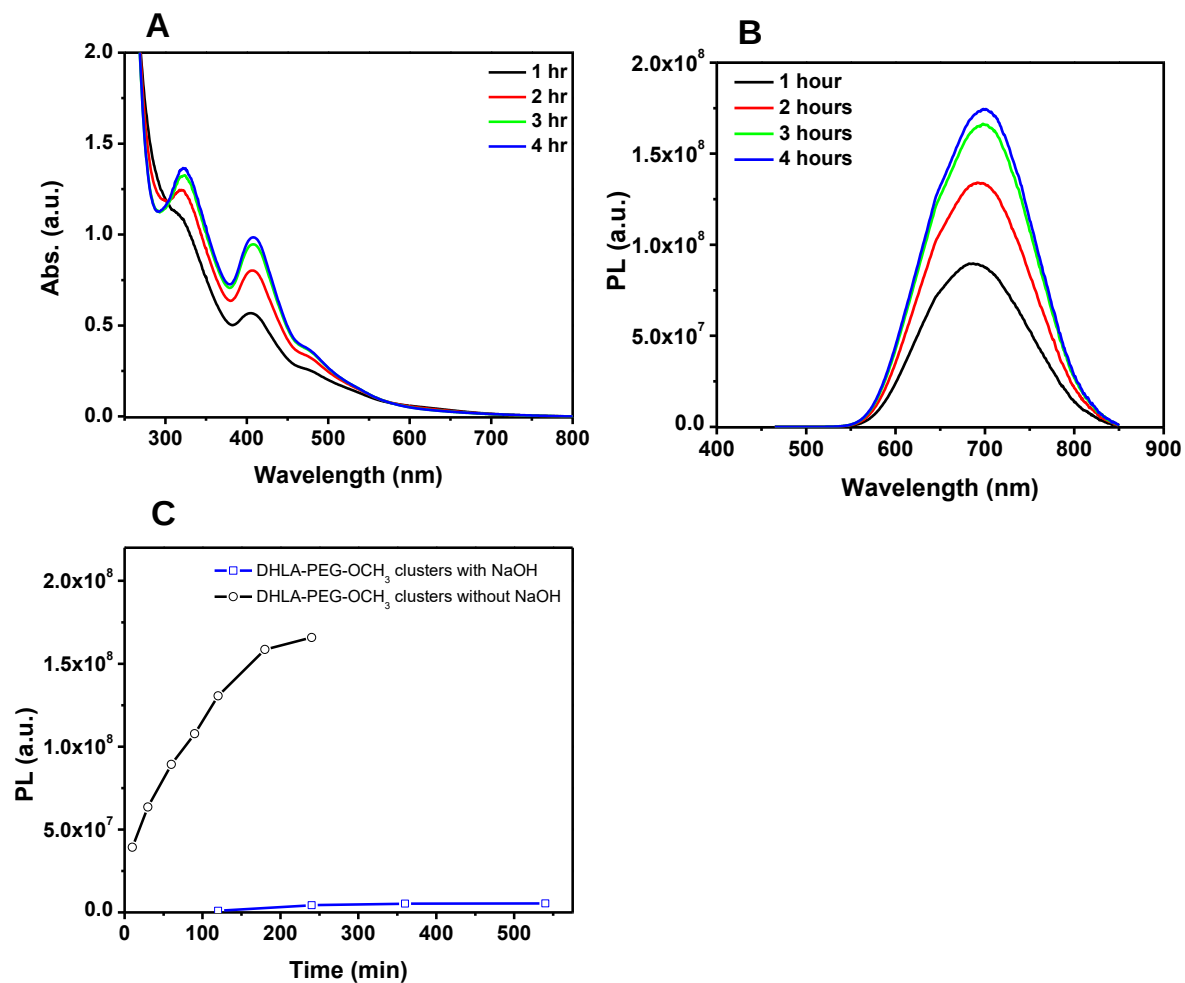


Figure S3. Optical absorption (A) and PL emission (B) spectra of the nanoclusters prepared using DHLA-PEG-OCH₃ ligand, collected at various reaction times. (C) Side-by-side comparison of the PL intensity collected from the NCs at different time of growth, prepared in the presence and absence of base. Clearly, the PL change was slower and overall intensity was much smaller, when base was added to medium. When no base was used, the reaction was complete in ~4 hours and the PL intensity was much higher.

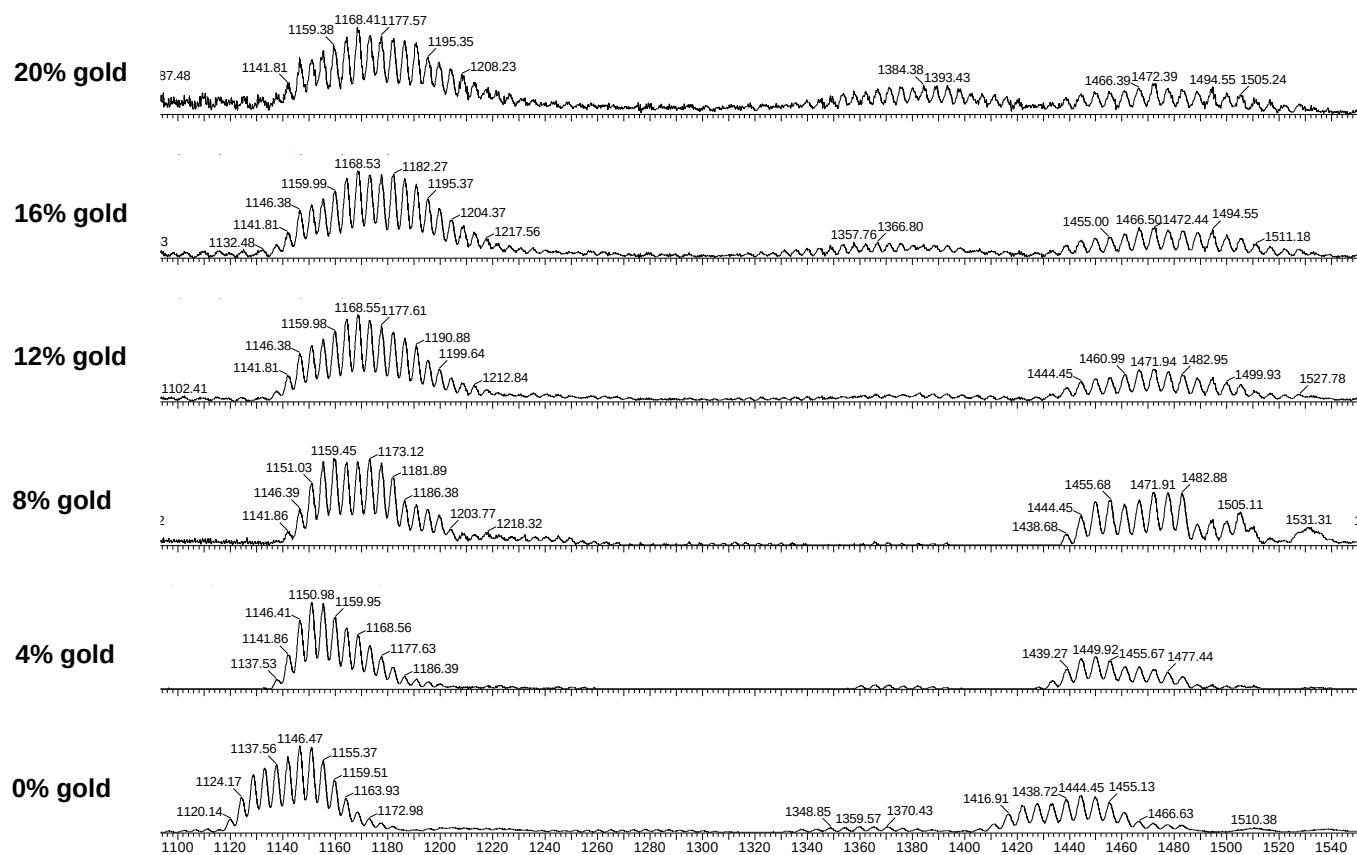


Figure S4. ESI-MS of clusters prepared using 0 to 20% gold precursors. (Note: The percentage values refer to the relative amounts of gold used in the synthesis). The peaks on the left correspond to -5 charged species and those on the right correspond to -4 charges species.

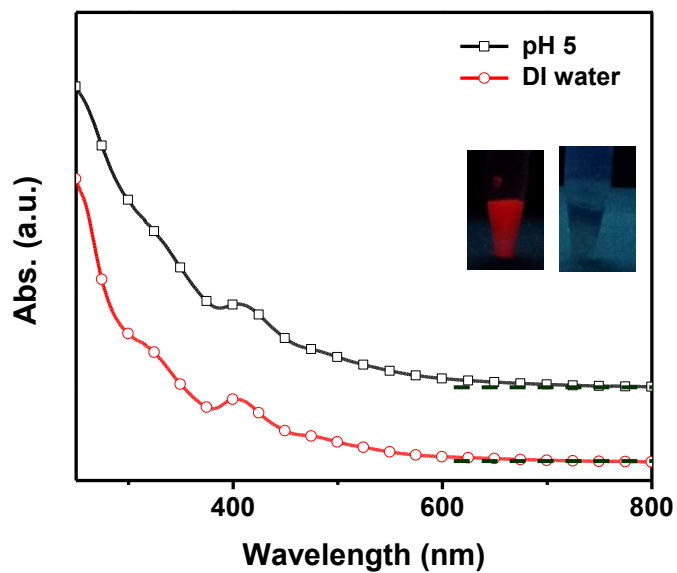


Figure S5. UV-visible absorption spectra of the AuAg₂₈ clusters in DI water and pH 5 buffer. The inset shows the fluorescence images of the cluster solution in the respective conditions.

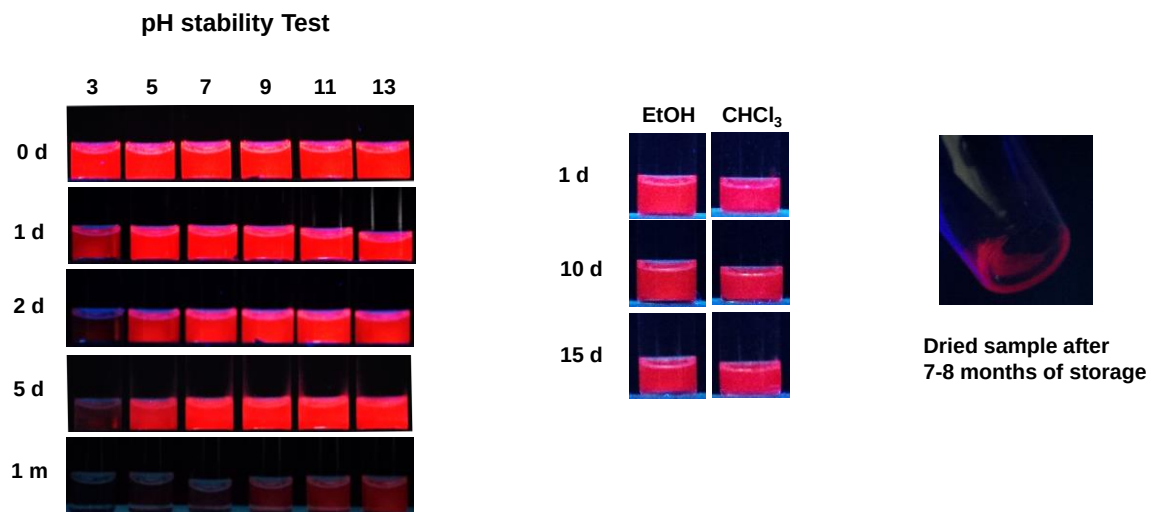


Figure S6. (Left) pH stability test of DHLA-PEG-OCH₃ capped Ag₂₈Au clusters in phosphate buffer (pH 3 to 13). (Center) Images of the cluster solutions dispersed in ethanol and chloroform. (Right) Cluster stored in dried condition in air tight container at 4 °C after 8 months of storage.

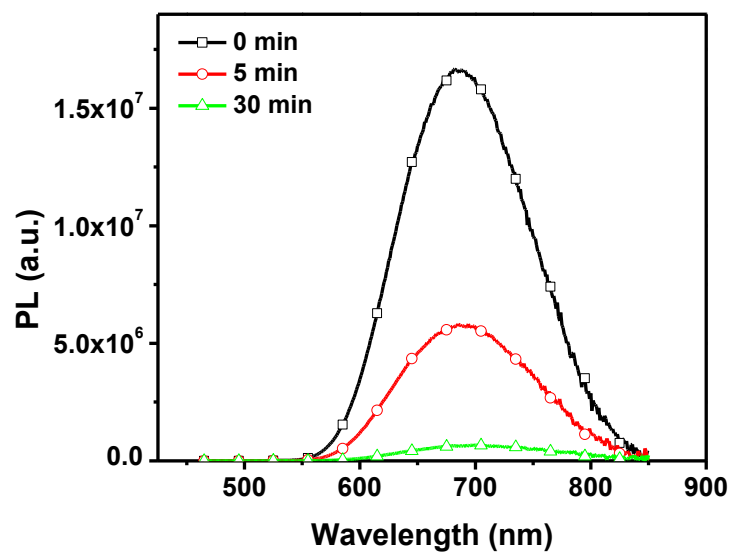


Figure S7. Photostability test of the AuAg₂₈ nanocluster under exposure to UV light. The PL emission was essentially lost after ~30 minutes.