

## Supporting Information

### **Facile preparation of water-soluble fluorescent silver nanoclusters using a polyelectrolyte template**

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#### Experimental Section

*Chemicals.* Poly(methacrylic acid, sodium salt) (PMAA, average  $M_w=9500$ ) and poly(acrylic acid, sodium salt) (PAA, average  $M_w=8000$ ) were bought from Sigma-Aldrich.  $AgNO_3$  was purchased from Beijing Chemical Co. (China). All other reagents were of analytical reagent grade, and used as received. The water used was purified through a Millipore system.

*Preparation of Ag nanoclusters.* For the synthesis of fluorescent Ag nanoclusters, 300  $\mu$ L of PMAA solution (0.8 M) was introduced into a freshly prepared 0.05 M  $AgNO_3$  solution (2.4 mL) under stirring. After 10 min, the mixture solution was transferred into a fluorescence cuvette with a poly(tetrafluoroethylene) lid, and then subjected to the UV irradiation at  $\lambda=365$  nm (Shanghai Jingke Industrial Co., China, WFH 204B, 8 W) for various time intervals. The pH of the solution was adjusted by adding 0.1 M  $HNO_3$  or NaOH. All the experiments were performed at room temperature (293 K).

*Instruments.* Absorption measurements were performed with a Cary 500 UV-Vis-NIR spectrometer (Varian). Fluorescence measurements were carried out on a LS-55 Luminescence Spectrometer (Perkin-Elmer). The emission spectra were recorded using 10 nm/10 nm slit widths.

Figure

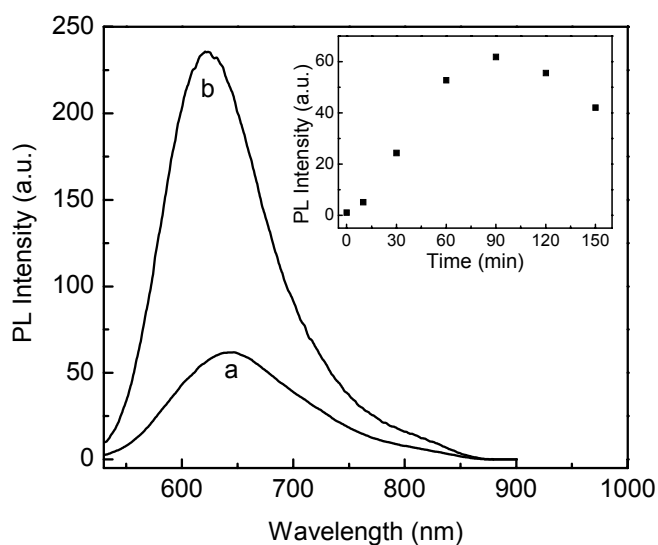


Figure S1. Curve a is the fluorescence emission spectrum of the solution containing 0.1 M PAA and 0.05 M AgNO<sub>3</sub> (pH 6.0) under the UV irradiation at 365 nm for 90 min, and the excitation wavelength is 510 nm. The inset is the fluorescence intensity at 640 nm versus the irradiation time (min), which indicated the maximum fluorescence intensity occurred at 90 min. Curve b is the fluorescence emission spectrum of the solution containing 0.1 M PMAA and 0.05 M AgNO<sub>3</sub> (pH 6.0) under the UV irradiation at 365 nm for 20 min, and the excitation wavelength is 510 nm.