Supporting Information

for

Gold Triangular Nanoplates Based Single-Particle Dark-Field Microscopy Assay of Pyrophosphate

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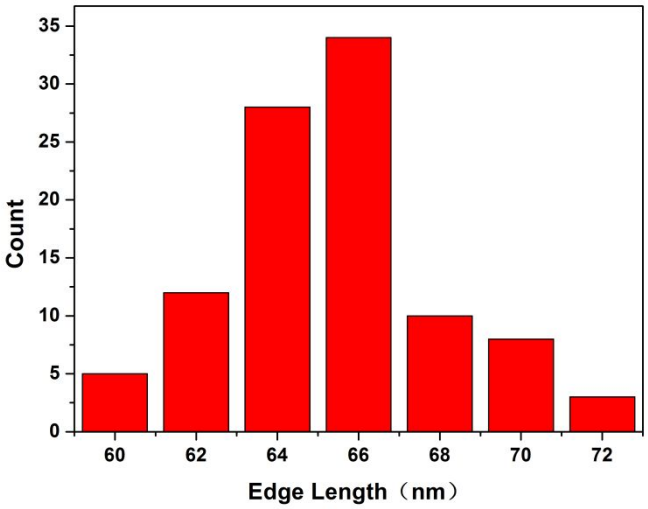

Figure S1. The histogram of edge length of AuNPLs by counting 100 nanoparticles.

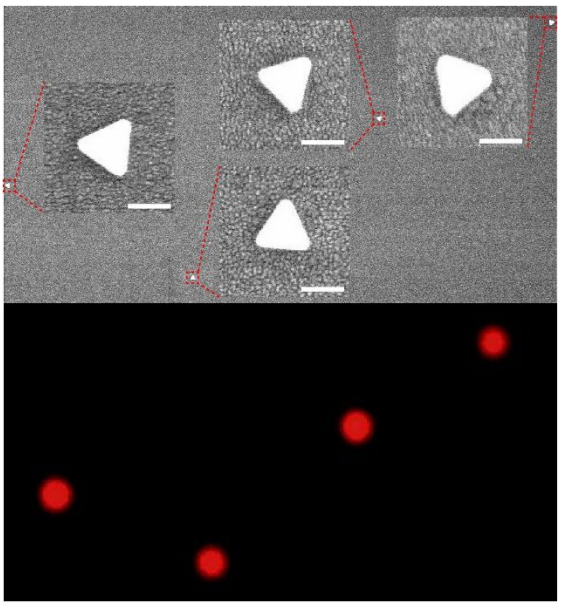

Figure S2. The co-localization images of the DFM and SEM (scale bar: 60nm).

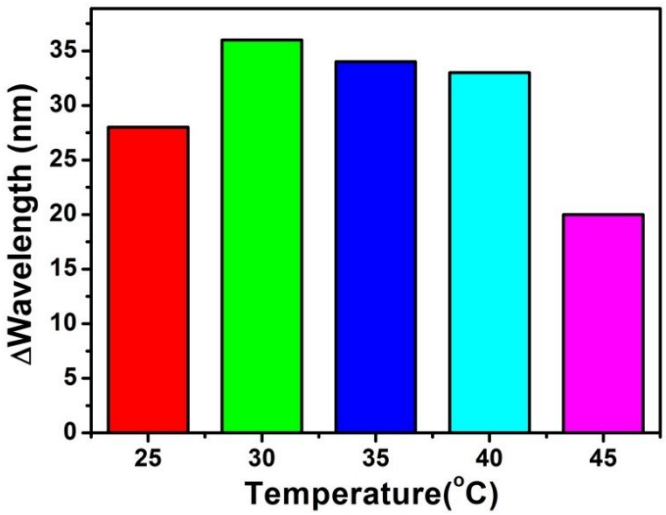

Figure S3. Effect of temperature on the AuNPLs etching. The result showed that when the temperature reached 30 °C, the redshift of wavelength is largest.

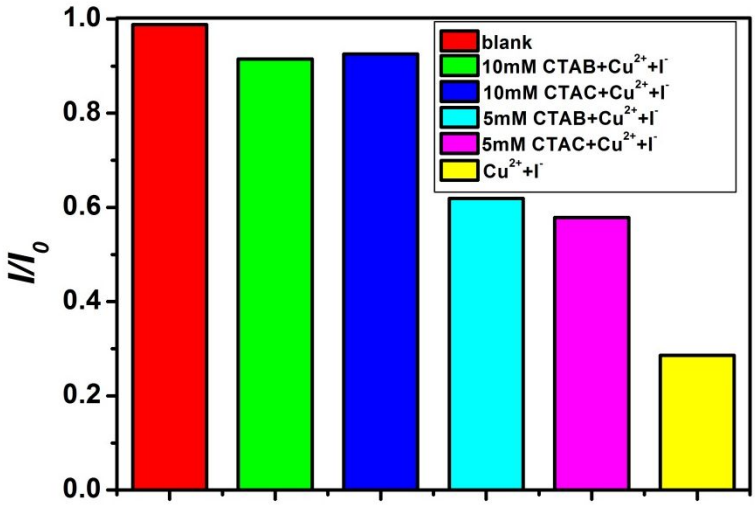

Figure S4. Effect of surfactant type on the AuNPLs etching. CTAC and CTAB was investigated to show that the increase of surfactant concentration resulted in increased value of I/I_0 ratio, indicating that CTAC and CTAB inhibited the AuNPLs etching.

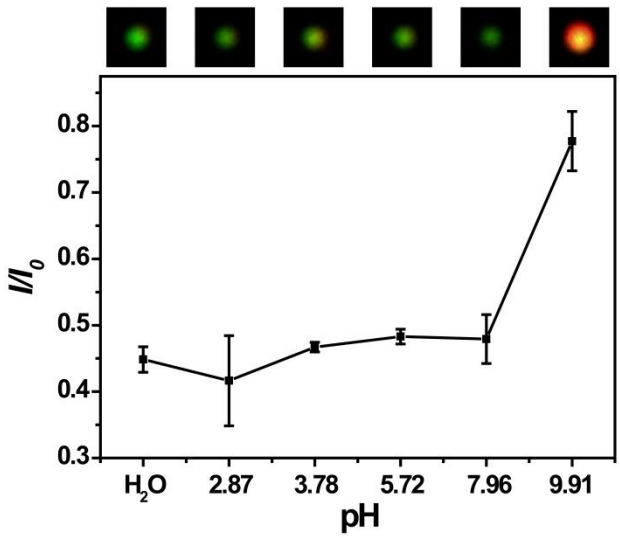

Figure S5. Effect of pH on the AuNPLs etching. The ratio of scattering intensities (I/I_0) and DFM images was not sensitive to the pH under the acidic conditions. However, in the basic medium, the ratio increased greatly and the color of the nanoplates was red under DFM, indicating the inhibition of the etching reaction, which is attributed to the formation of copper hydroxides under basic conditions.

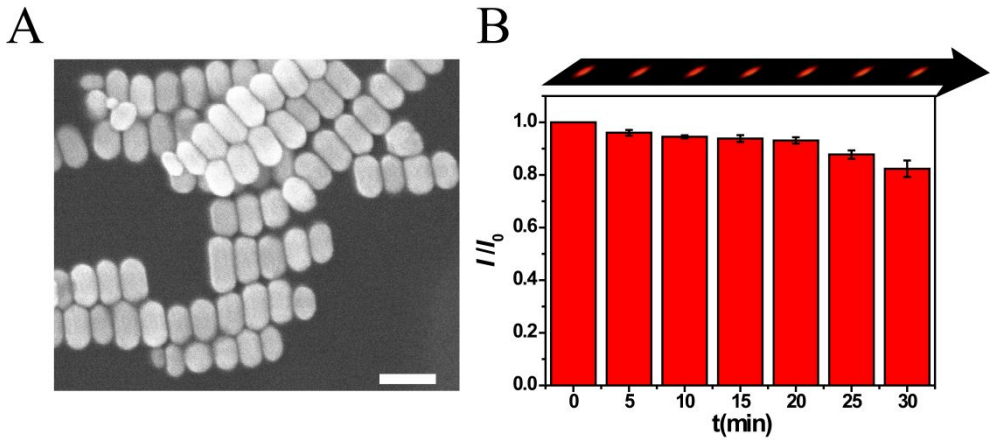

Figure S6. The etching process of an individual AuNR. (A) SEM images of AuNRs. (B) The representative time-dependent single-particle ratio of intensity, shown above is the DFM images of an individual AuNR over time.