Electronic Supplementary Material (ESI) for Nanoscale.
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Supporting Information

Synthesis of Vinyl-Terminated Au Nanoprisms and Nanooctahedra Mediated by 3-Butenoic Acid: Direct Au@pNIPAM Fabrication for Improved SERS Capabilities.

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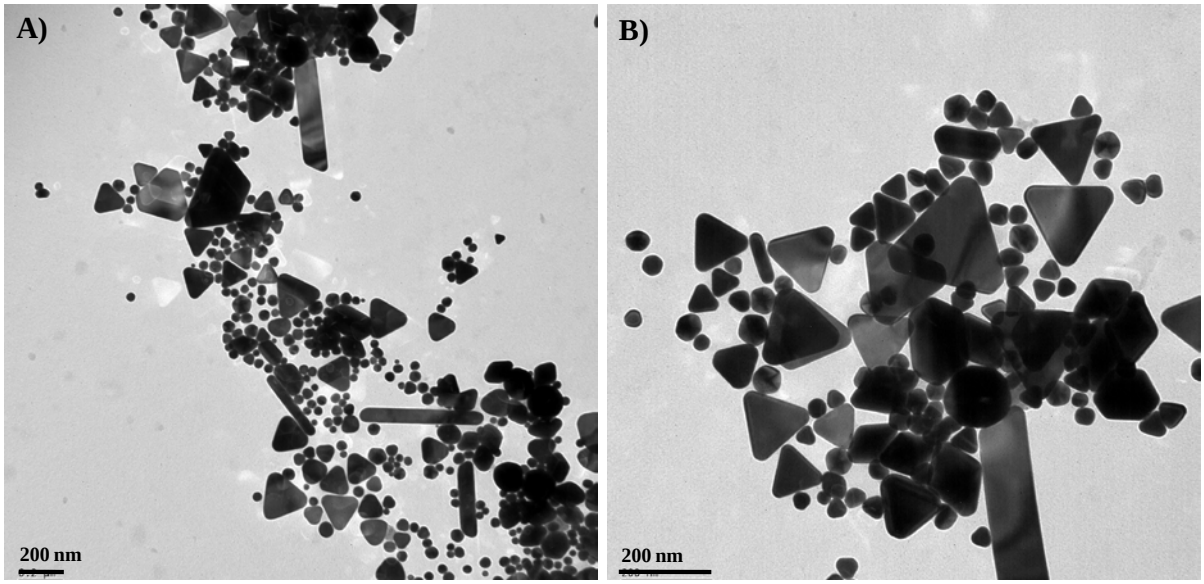

Fig. S1. TEM images of the gold nanoparticles obtained by using CTAC as stabilizer (0.5 mM $HAuCl_4$ and 75^{o}C)

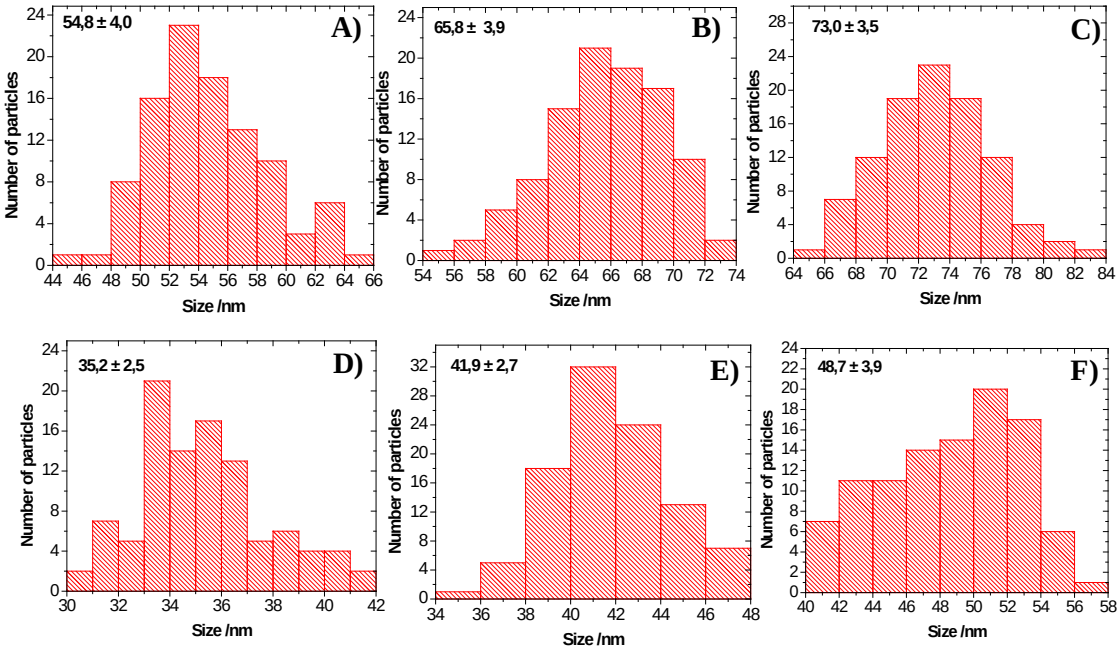

Fig. S2. Dimension analysis (100 particles) for the edge size of the Au NTs synthesized at different [$HAuCl_4$] and 75°C A) 0.5 mM, B) 1.0 mM and C) 1.5 mM. Dimension analysis of the size of the Au octahedra obtained at different [$HAuCl_4$] and 75°C D) 0.5 mM, E) 1.0 mM and F) 1.5 mM. Average size and standard deviation is included in each case.

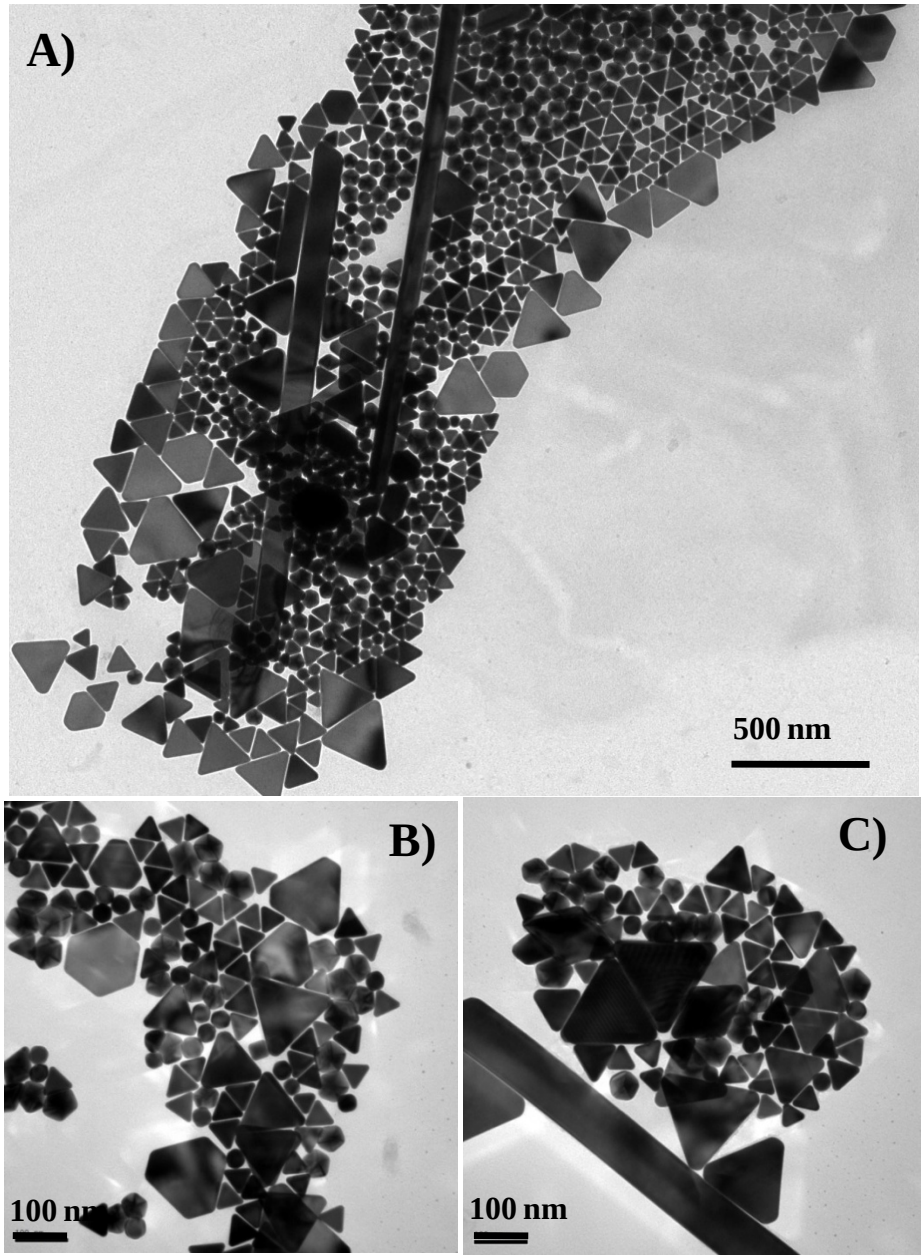

Fig. S3. TEM images of the Au nanoparticle synthesized at 75^{o}C and 1.5mM $HAuCl_4$

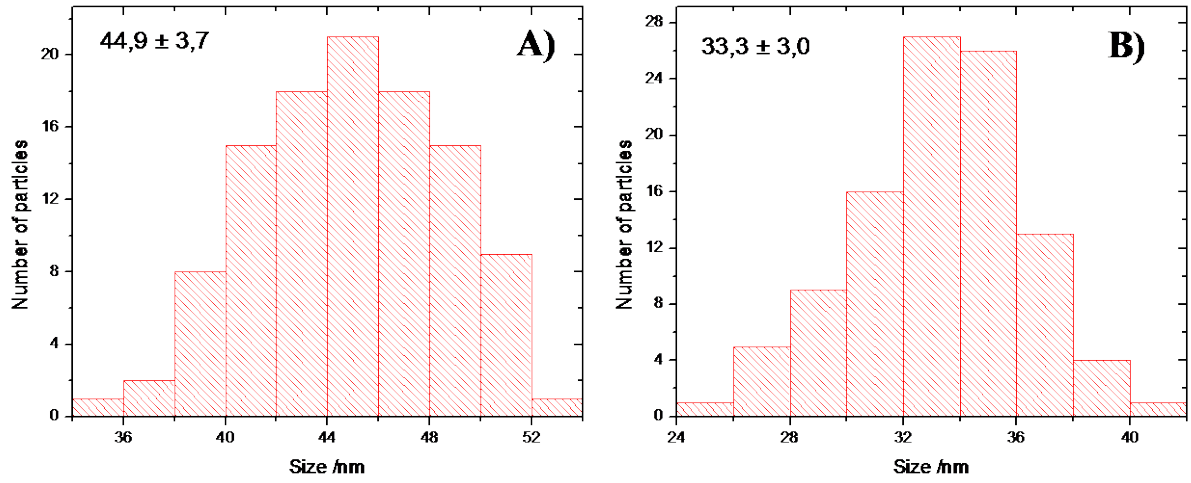

Fig. S4. Dimension analysis (on 100 particles) for the edge length size of the Au nanoprisms synthesized at 0.5 mM $HAuCl_4$ and at different temperatures A) 85 and B) 95^{o}C

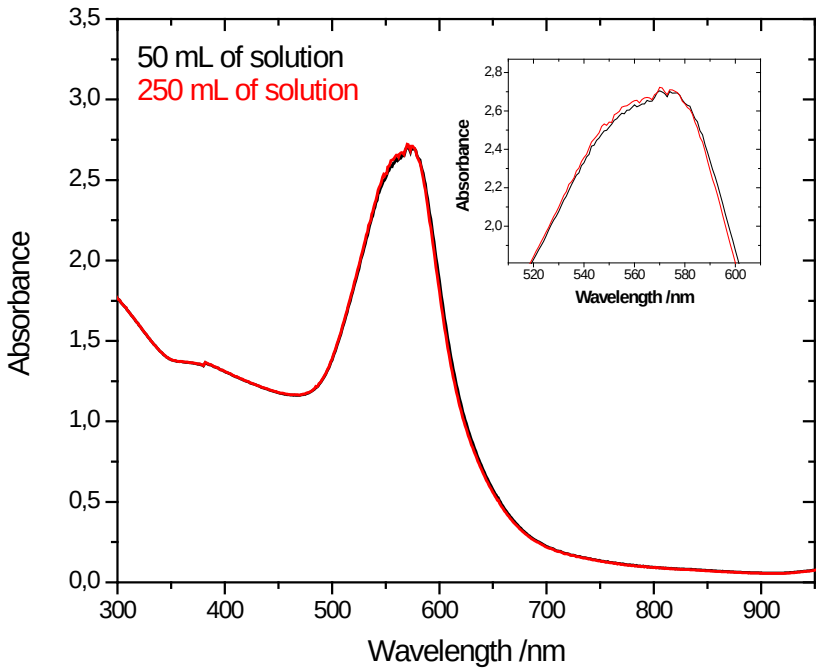

Fig. S5. UV-vis spectra of two different samples prepared using 50 ml (black line) and 250 mL (red line) of reaction mixture for the synthesis at 75^{o}C and 0.5 mM of $HAuCl_4$. Inset: zoom on the LSPR maxima.

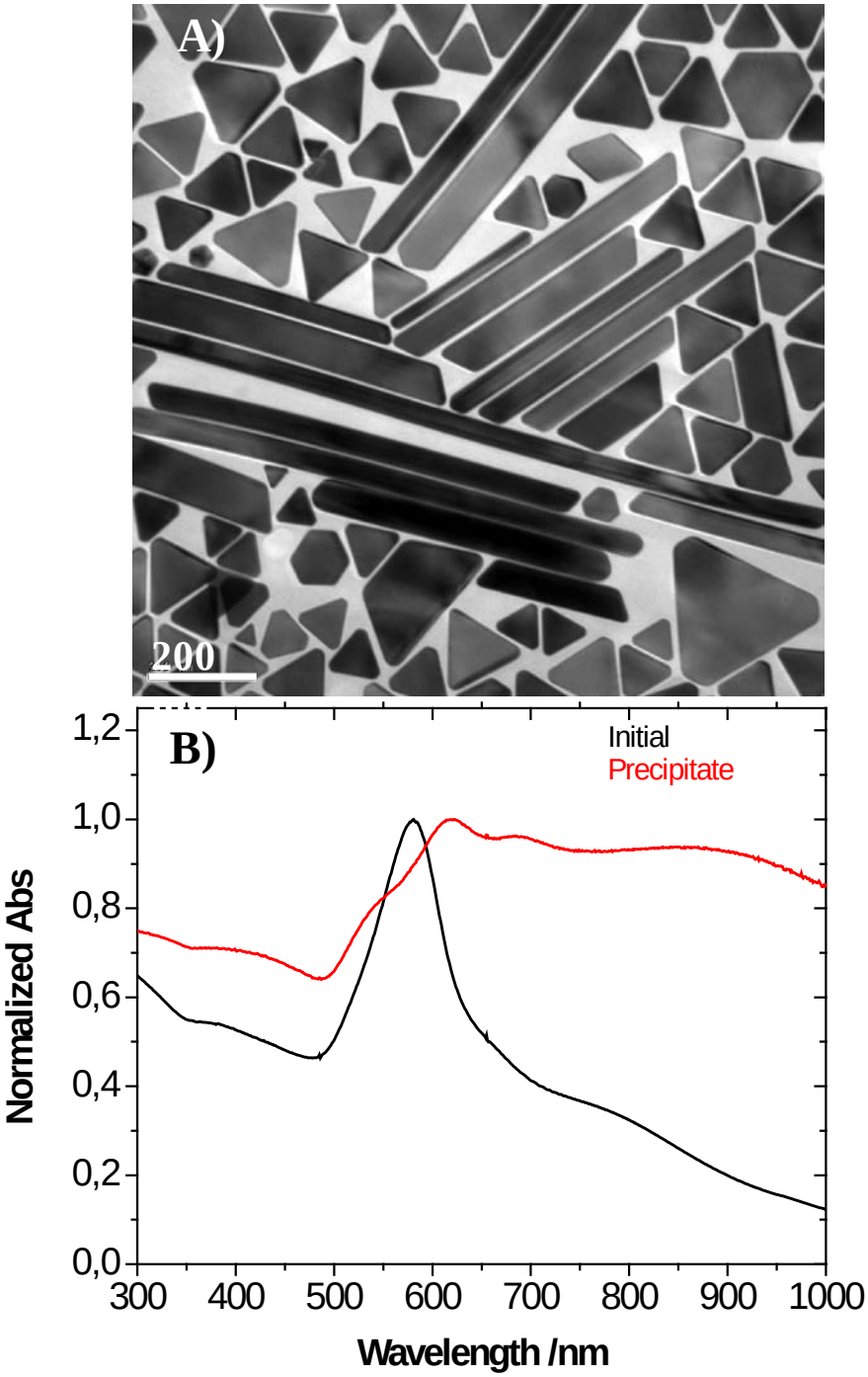

Fig. S6. Representative TEM images of the precipitate solution after depletion-induced separation at 100 mM CTAC A), UV-vis spectra for the Au NPS synthesized at 75°C and 1.5 mM $HAuCl_4$ (black line)

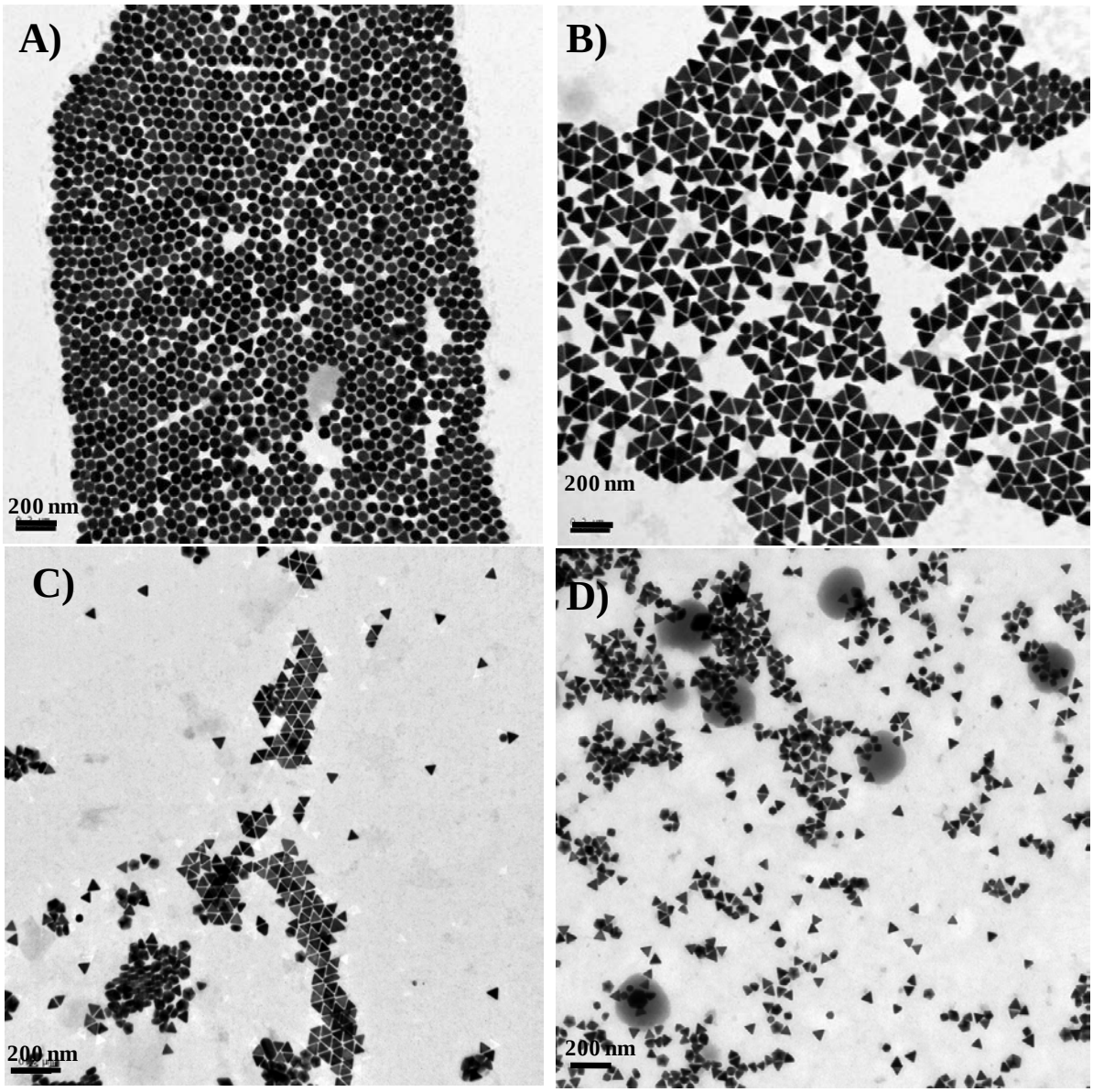

Fig. S7. TEM images of the A) Au octahedra and B) AuNTPs (75^{o}C; 1.5 mM $HAuCl_4$) after depletion-induced flocculation

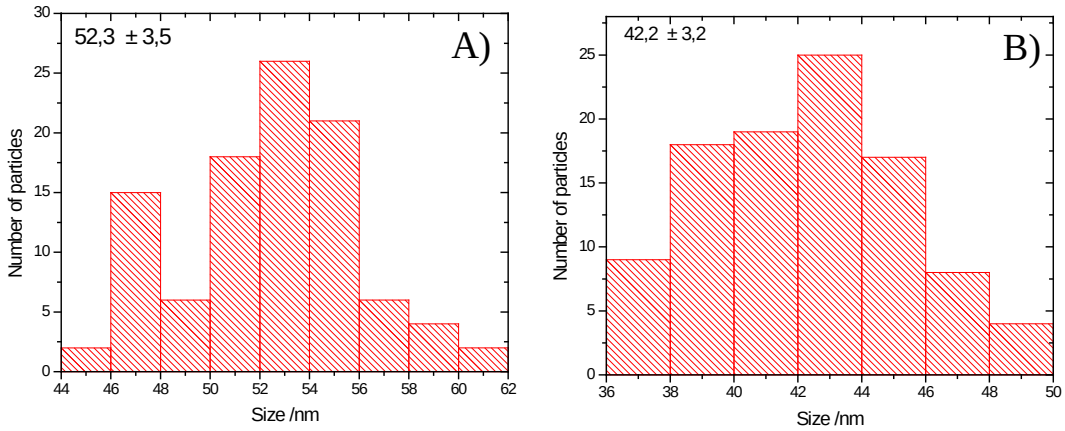

Fig. S8. Dimension analysis (on 100 particles) for the edge length size of the Au nanoprisms synthesized at 1.5 mM $HAuCl_4$ and at A) 85 and B) 95^{o}C