Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary information for:

Colorimetric Detection of Glutathione Based on Transverse Overgrowth of High Aspect Ratio Gold Nanorods Investigated by MCR-ALS

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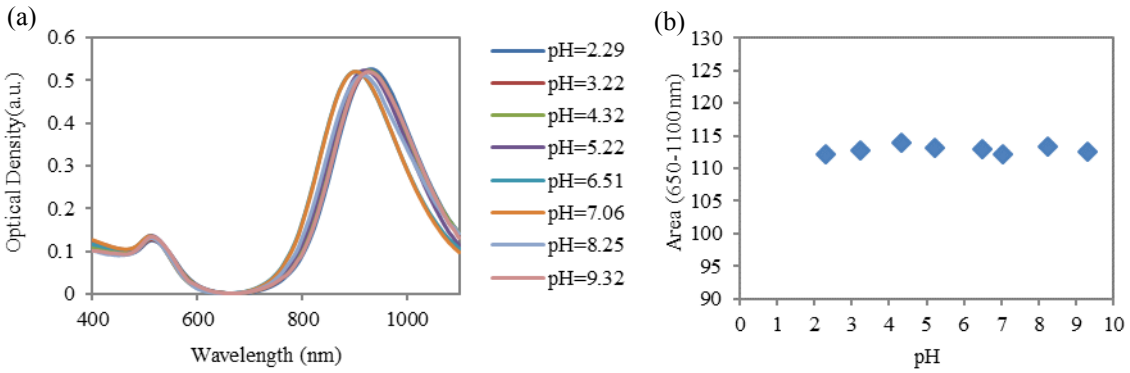

Figure S1 a) UV- Vis spectra of original Au NRs in different pH and b) corresponding surface area of Au NRs at the range of 650-1100 nm. Variation of pH in the range of 2.29 to 9.32 did not induce any morphology changes on NRs, as there is not significant shift of longitudinal surface plasmon supported by constant surface area at the range of 650-1100 nm at different pH.

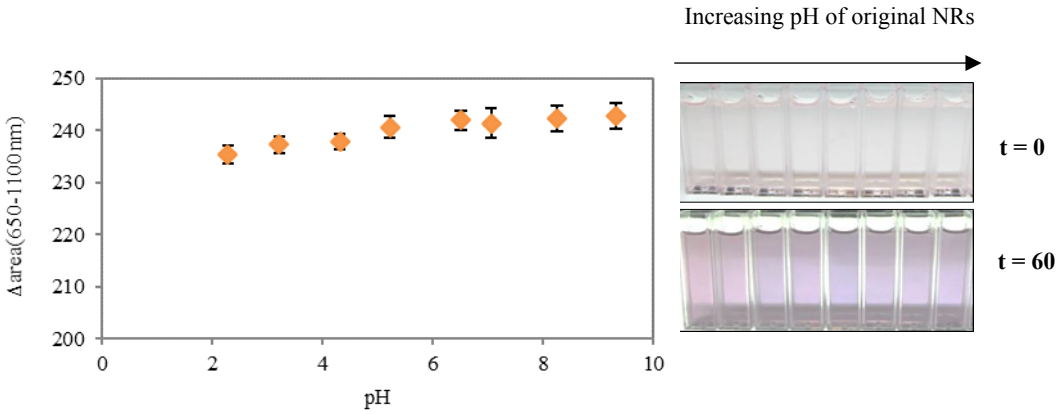

Figure S2 Glutathione-induced overgrowth on Au NRs solution having different initial pH. The concentration of glutathione was 5 µM for all cases.

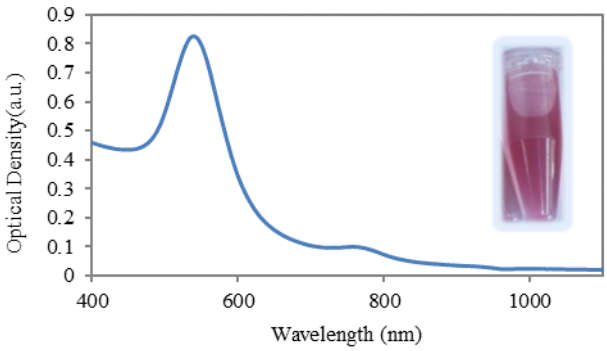

Figure S3 UV- Vis spectrum of Au NRs in presence of 24 mM NaOH. The original growth solution was colorless, but after injection of NaOH, the color of solution turned to reddish along with appearance of a plasmon peak at around 530 nm that is an indication of gold nanoparticles formation.

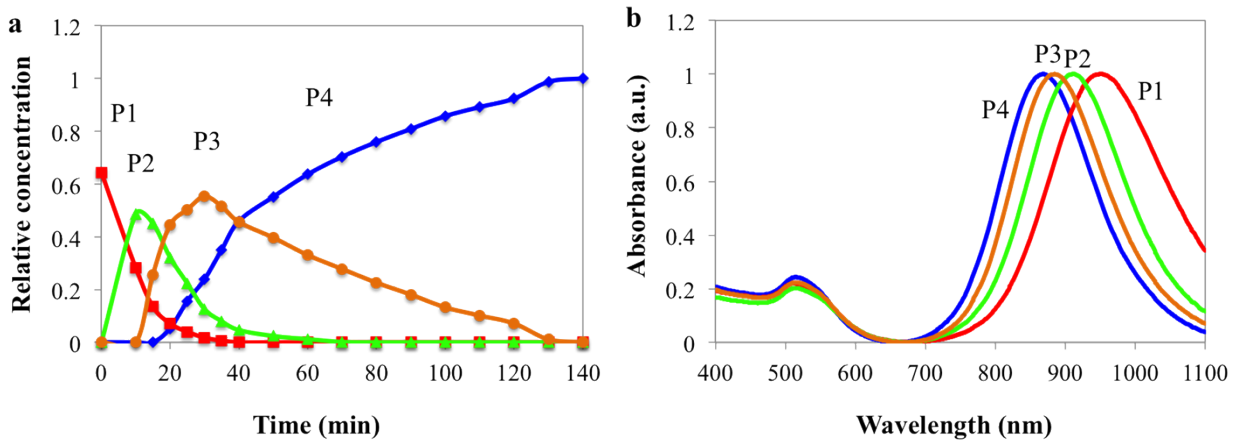

Figure S4 MCR-ALS analysis of transverse overgrowth on Au nanorods resulted from addition of 0.1 mL of growth solution in presence of 5 μM glutathione. a) Normalized optimum concentration profiles and b) Calculated normalized pure spectra of the resolved particles. Component P1 is original nanorods with TEM image in Fig.1 in the main text. Lack of fit (LOF) error for root mean square of the differences between the absorbences calculated by the MCR-ALS model and those obtained experimentally was 0.23. Also, the lack of fit (LOF) error for root mean square of the differences between the absorbences calculated by the MCR-ALS model those reproduced by FA was 0.08.

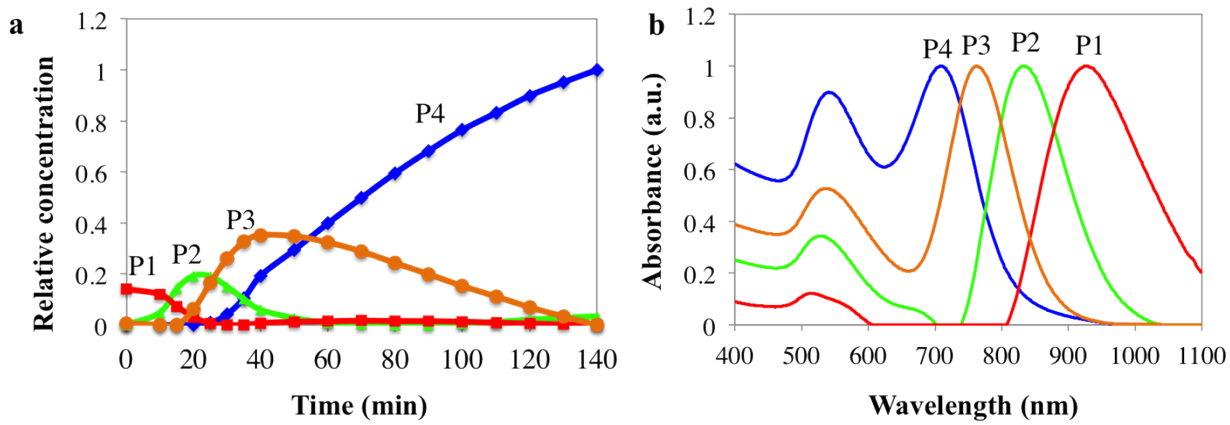

Figure S5 MCR-ALS analysis of transverse overgrowth on Au nanorods resulted from addition of 2.0 mL of growth solution in presence of 5 μM glutathione. a) Normalized optimum concentration profiles and b) Calculated normalized pure spectra of the resolved particles. Component P1 is original nanorods with TEM image in Fig.1 in the main text. Lack of fit (LOF) error for root mean square of the differences between the absorbences calculated by the MCR-ALS model and those obtained experimentally was 1.58. Also, the lack of fit (LOF) error for root mean square of the differences between the absorbences calculated by the MCR-ALS model those reproduced by FA was 0.4.