

## Supplementary Information

### Surfactant-Free Synthesis of Porous Au by urea complex

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## SUPPLEMENTARY FIGURES

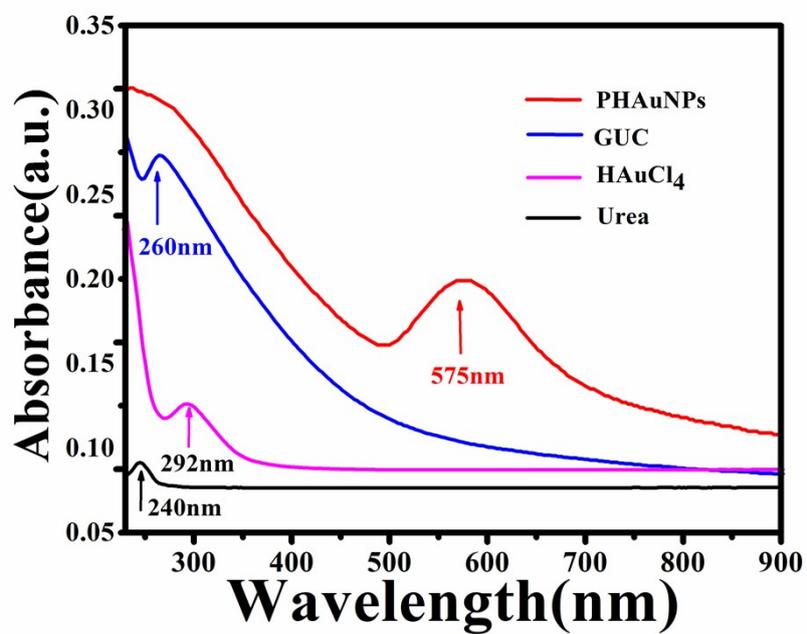


Figure S1. UV-vis absorption spectra of HAuCl<sub>4</sub>, GUC and PHAuNPs

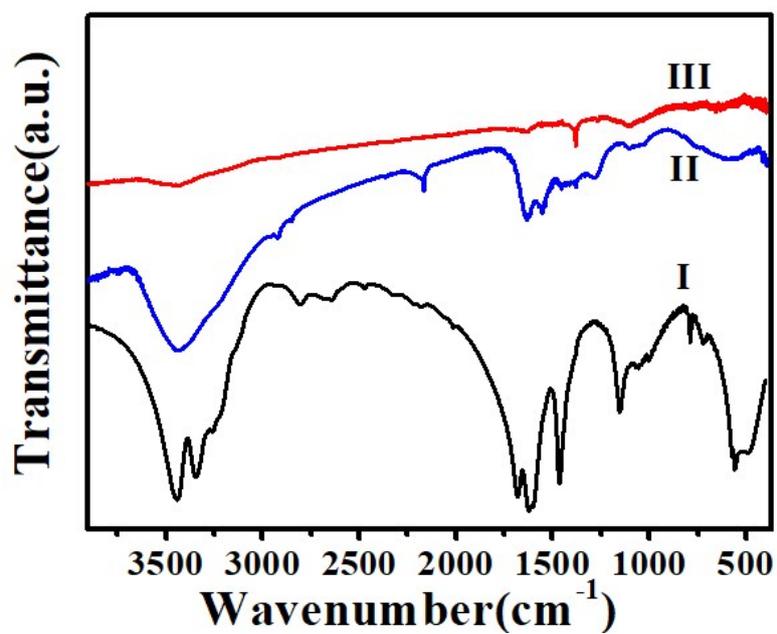
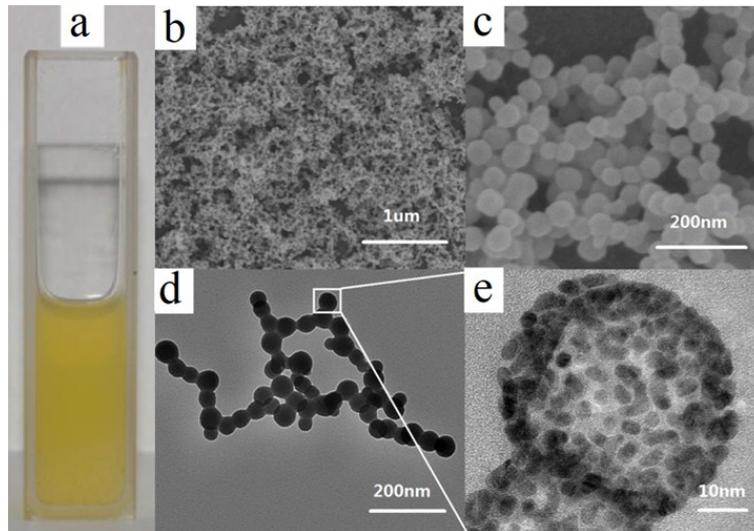
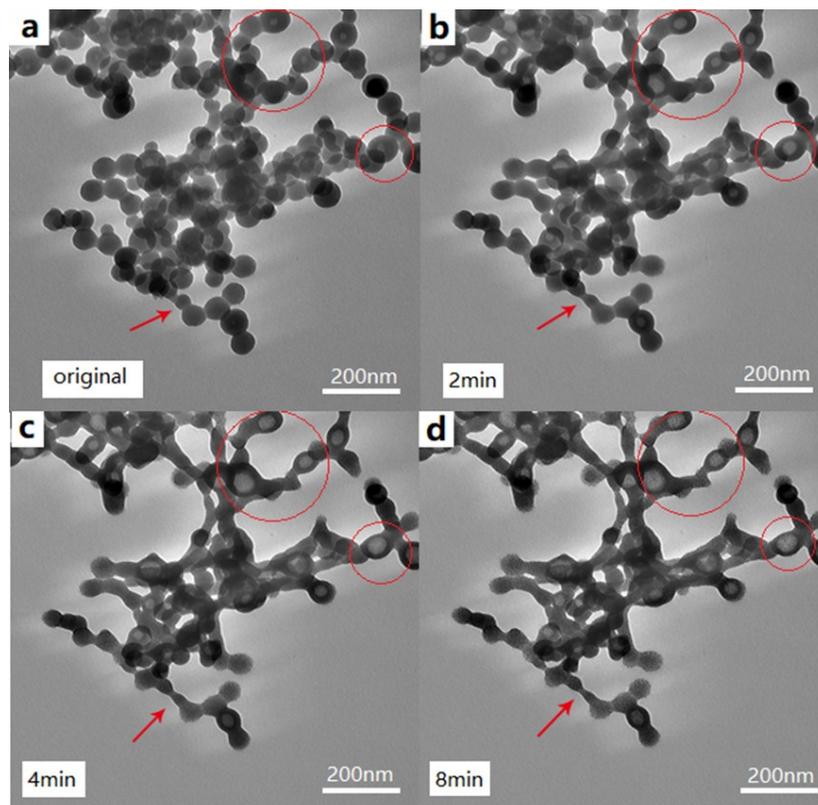


Figure S2. FTIR spectra of urea (I), GUC (II), PHAuNPs (III).



**Figure S3.** (a). GUC dispersion; (b) Low and (c) high magnification SEM images of GUC; (d) low and (e) high power magnification TEM images of GUC.



**Figure S4.** From a to d: the GUC under the TEM gradient image. The direction of the arrow and circle indicate the fusion of GUC

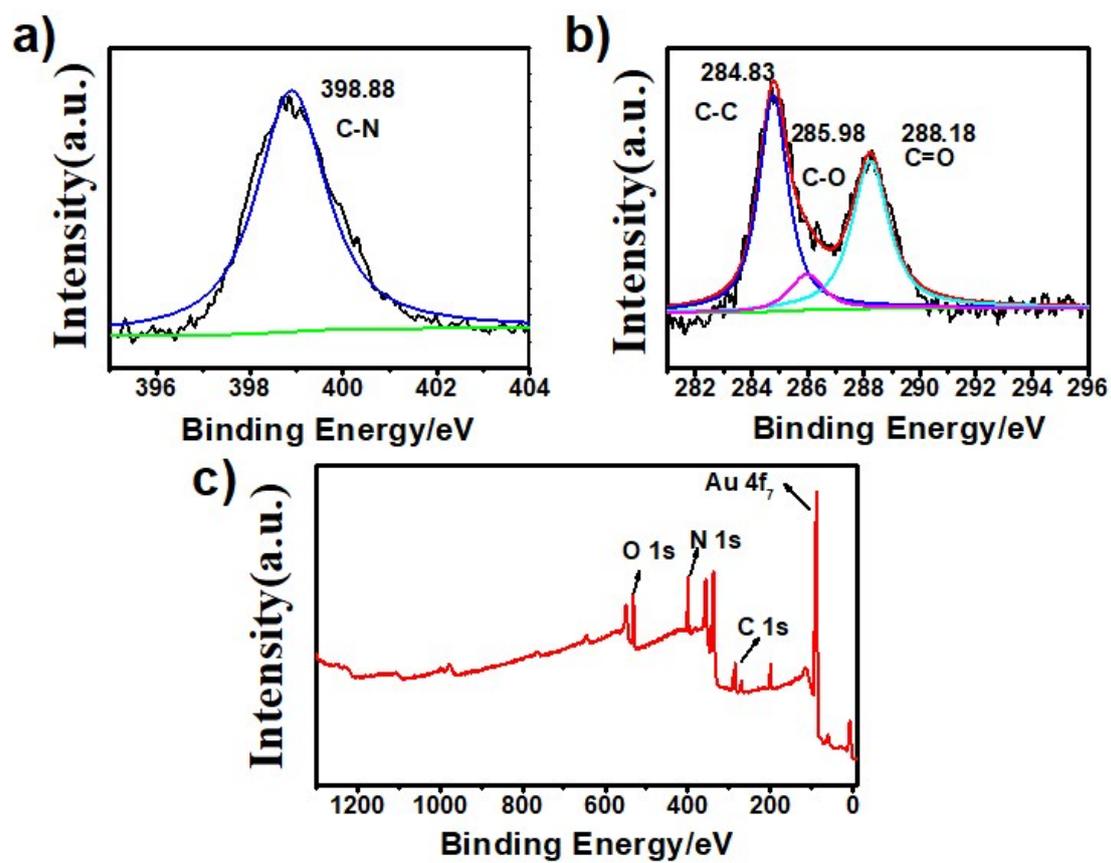


Figure S5. XPS of (a)N 1s, (b)C 1s and (c)survey spectrum of Gold-Urea Complex.

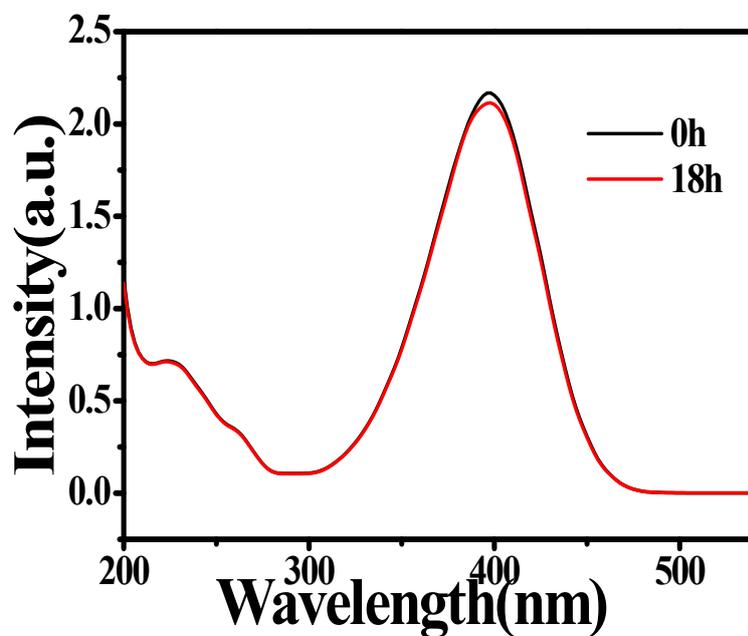


Figure S6. UV-vis absorption spectra of 4-NP solution after adding sodium borohydride in 0h, 18h

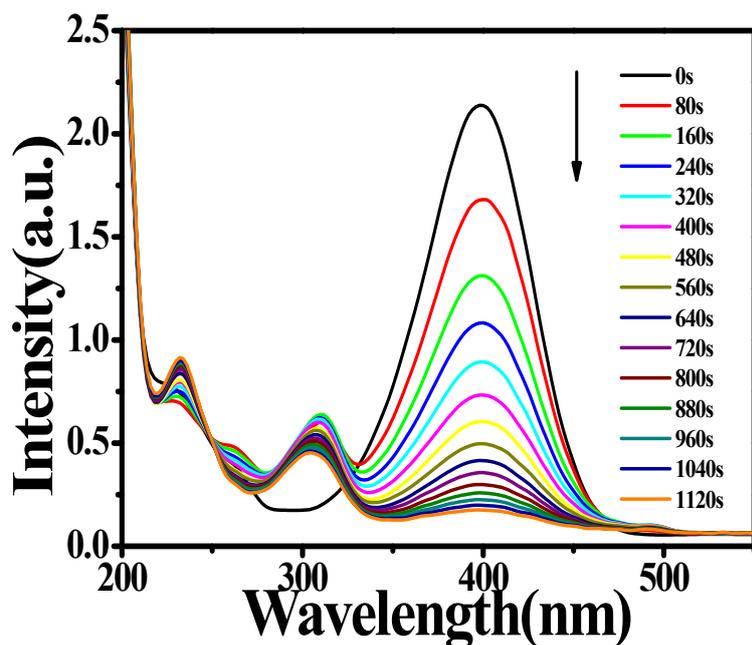


Figure S7. Time-dependent UV-Vis spectra of 4-NP catalyzed by commercial solid gold nanoparticles

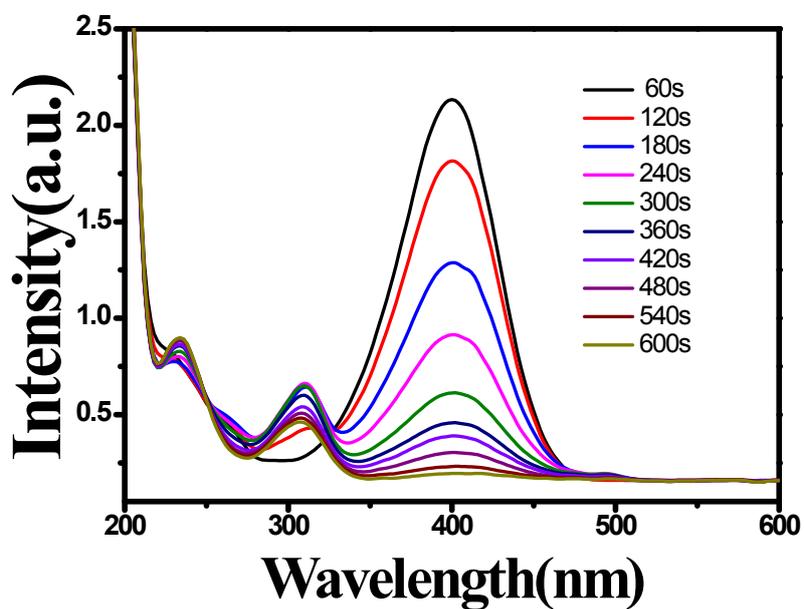


Figure S8. Time-dependent UV-Vis spectra of 4-NP catalyzed by PSAuNPs.