

Supporting Information

Catalytic reduction of 4-nitrophenol with gold nanoparticles stabilized by large-ring cyclodextrins

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Figure S1. Photograph of Au_LR-CD NP after reduction step in alkaline aqueous solution.

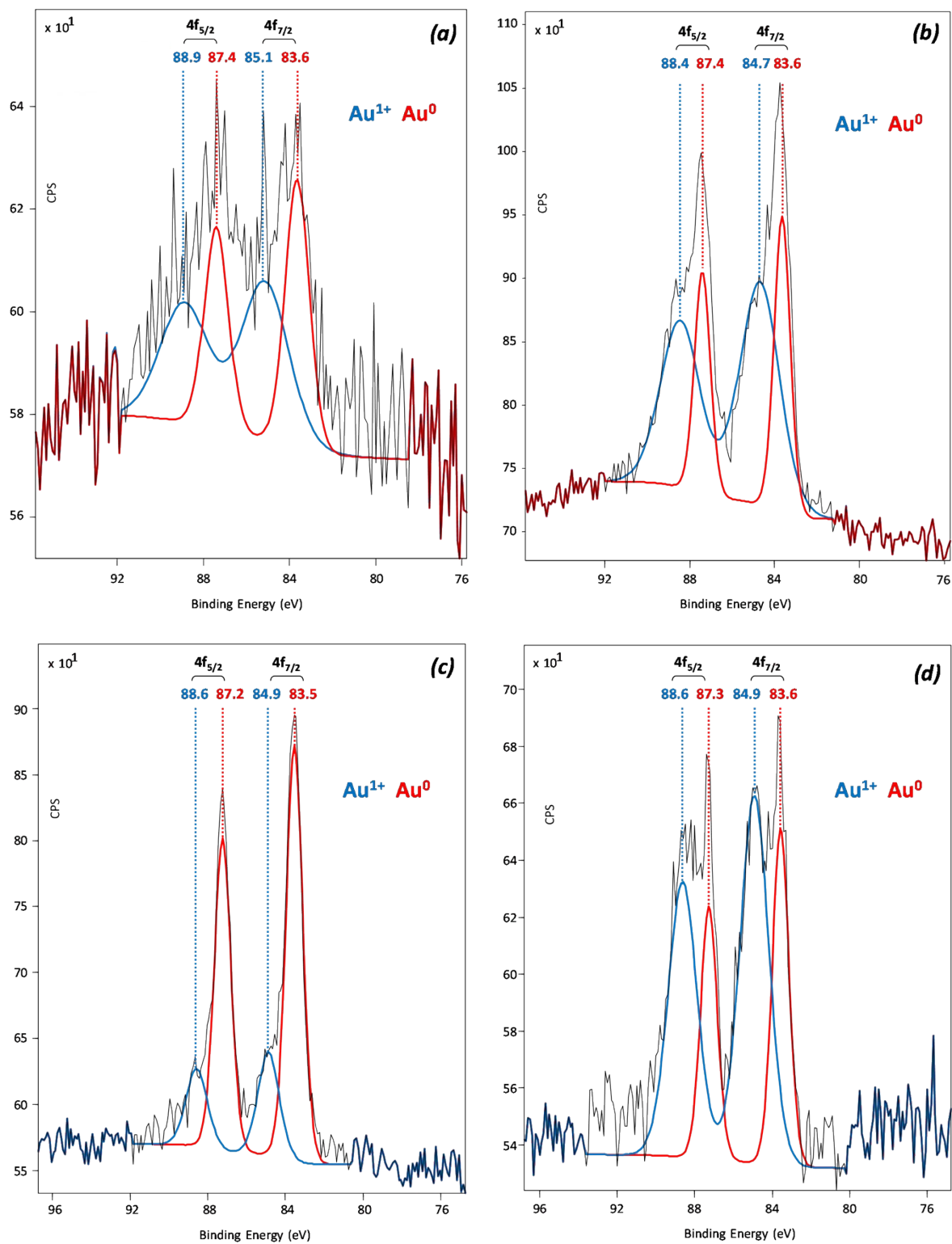


Figure S2. XPS spectra of Au NP stabilized by (a) α -CD, (b) β -CD, (c) γ -CD, and (d) LR-CD.

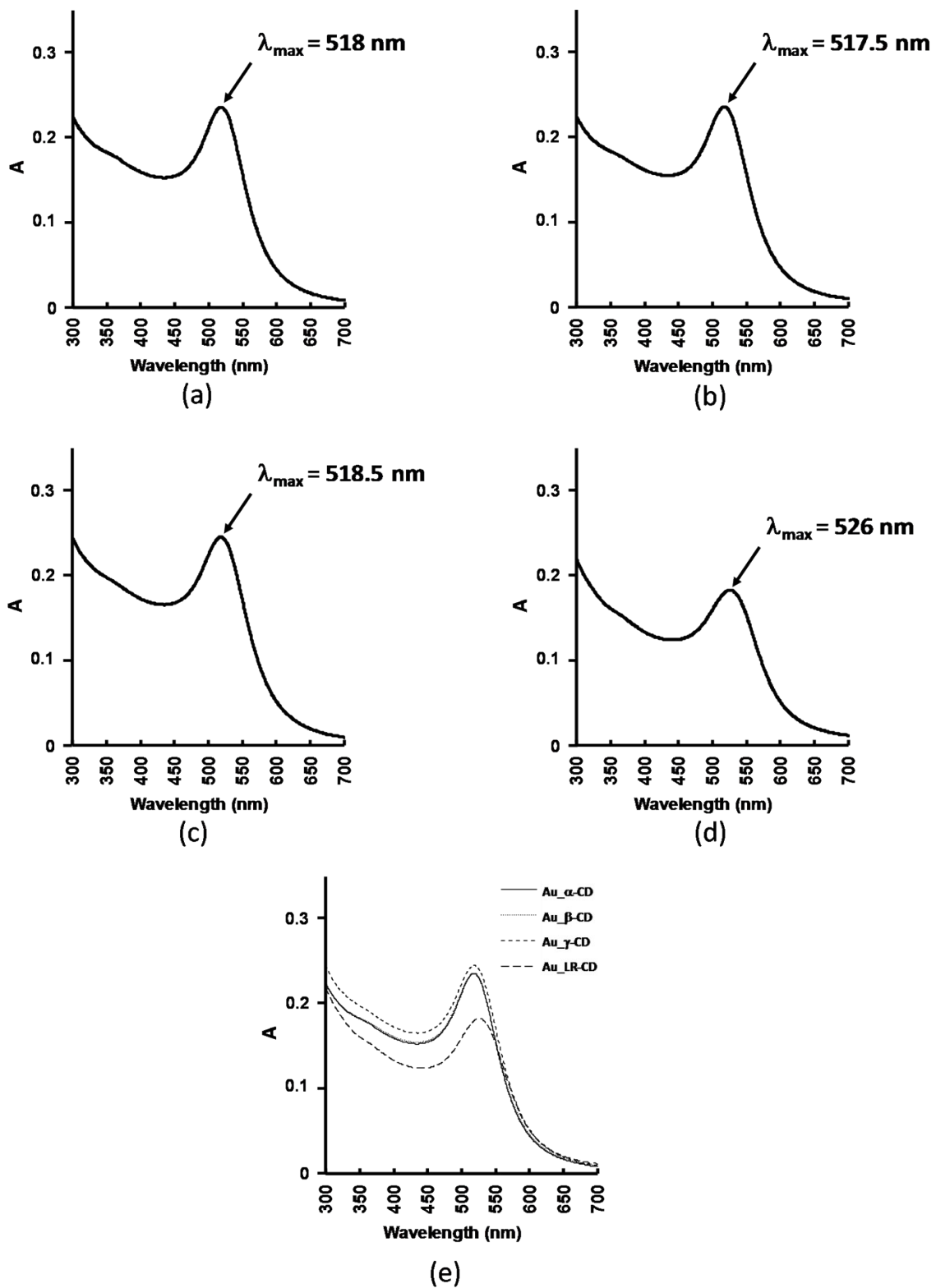


Figure S3. Liquid UV-Vis spectra of (a) Au_α-CD NP, (b) Au_β-CD NP, (c) Au_γ-CD NP, (d) Au_LR-CD NP and (e) superposition of all of the UV-Vis spectra.

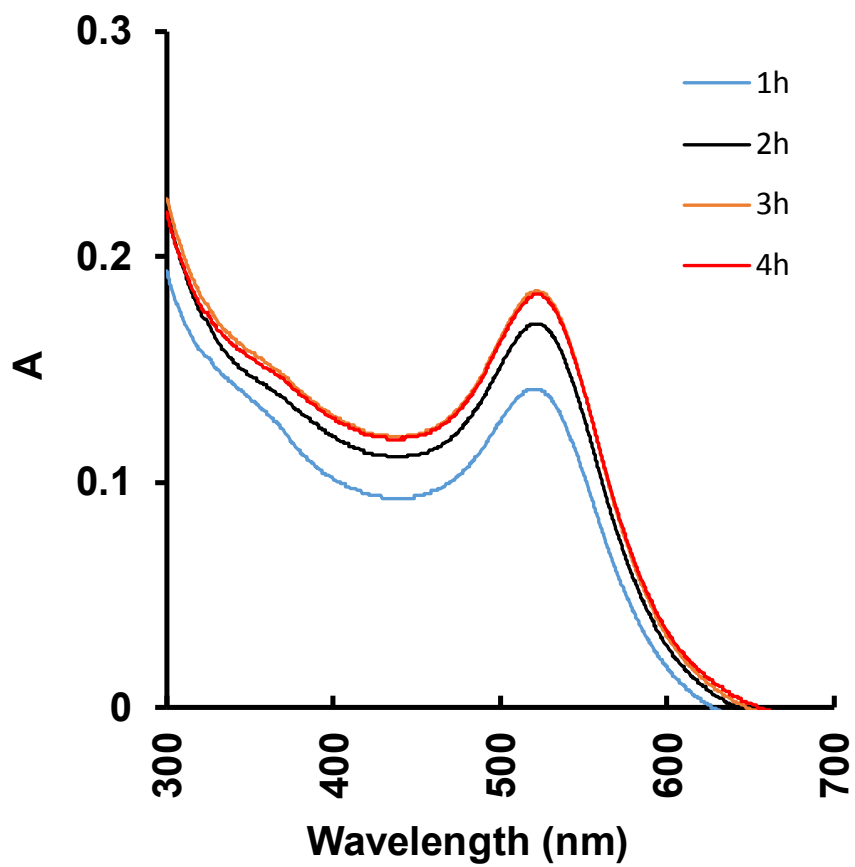
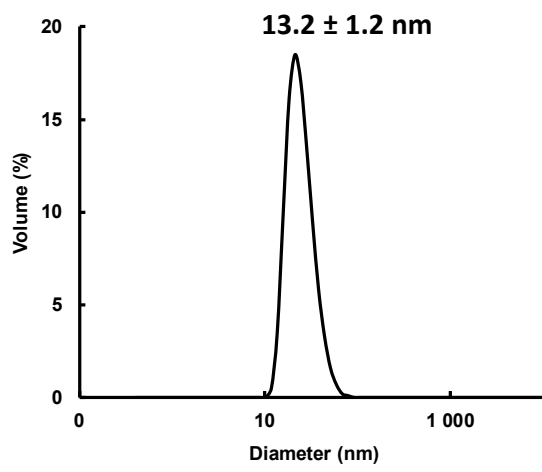
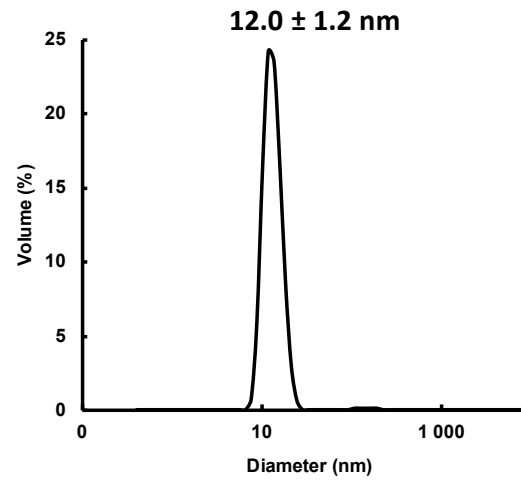


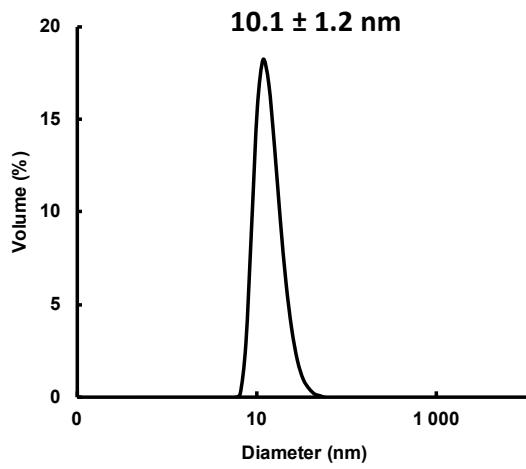
Figure S4. Successive UV-Vis spectra of Au_LR-CD NP at different time from 1h to 4h.



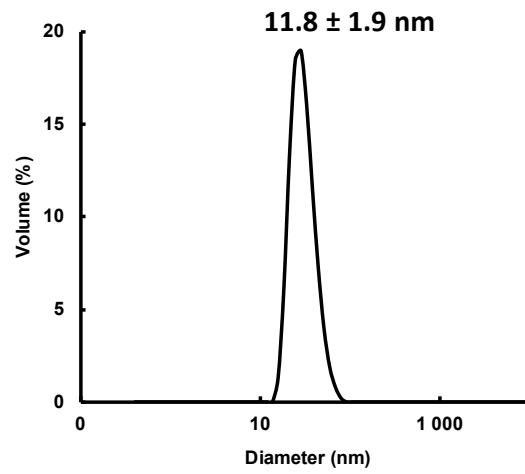
(a)



(b)



(c)



(d)

Figure S5. Size distribution in volume of (a) Au_α-CD NP, (b) Au_β-CD NP, (c) Au_γ-CD NP and (d) Au_{LR}-CD NP obtained by Dynamic Light Scattering.

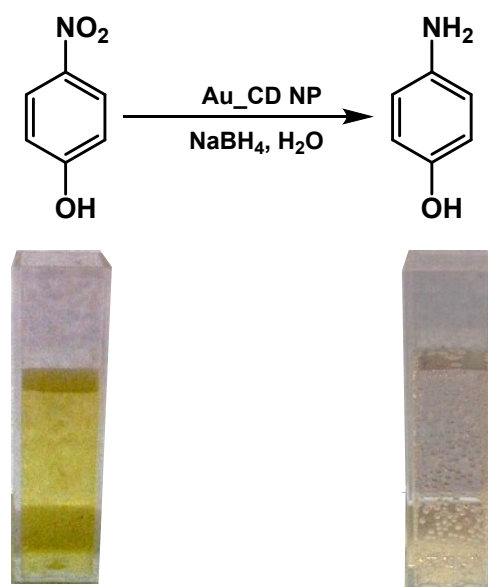


Figure S6. Scheme of the catalytic reduction of 4-nitrophenol into 4-aminophenol by Au NP in the presence of an excess of NaBH_4 .

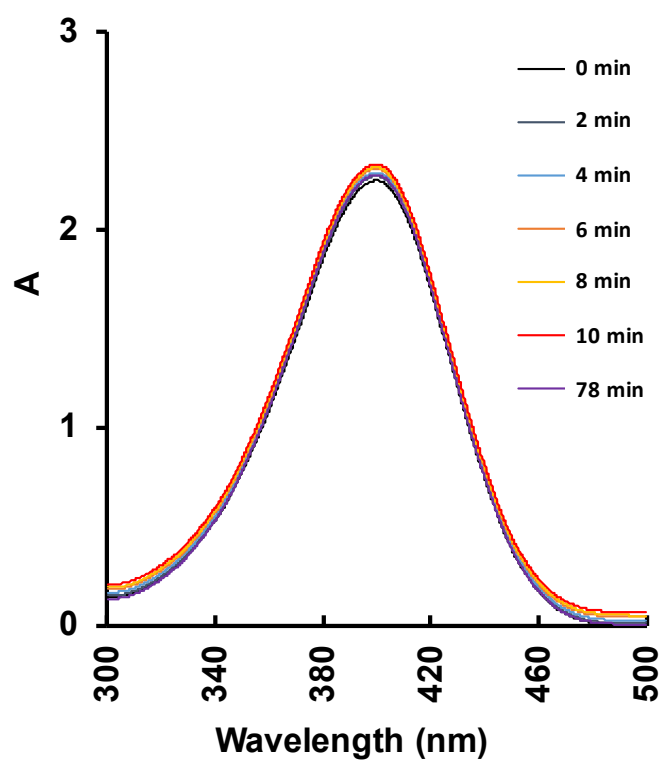


Figure S7. UV-Vis absorption spectra during the reaction of 4-nitrophenol with NaBH_4 without any Au NP.

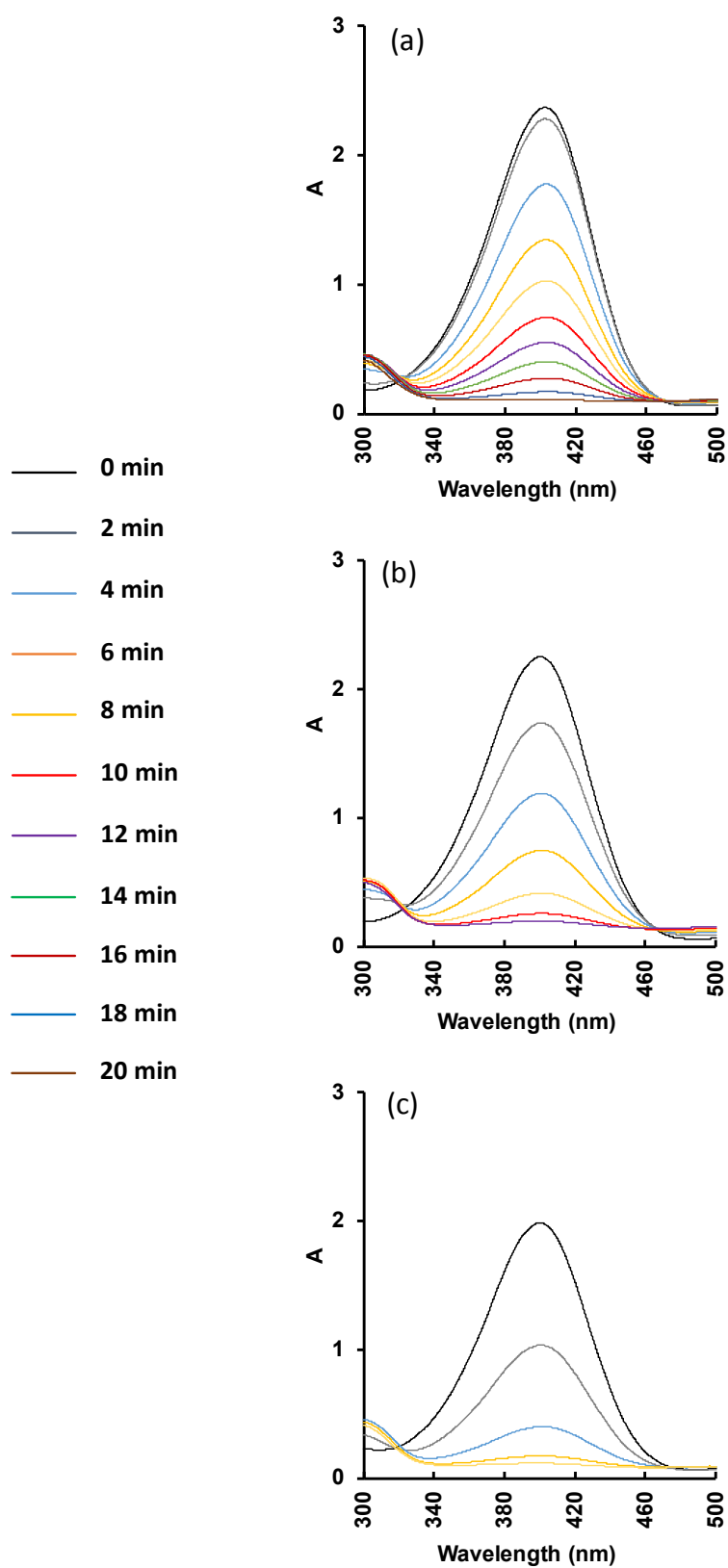


Figure S8. UV-Vis absorption spectra during the reduction of 4-nitrophenol with NaBH₄ by (a) Au_α-CD NP, (b) Au_β-CD NP and (c) Au_γ-CD NP.

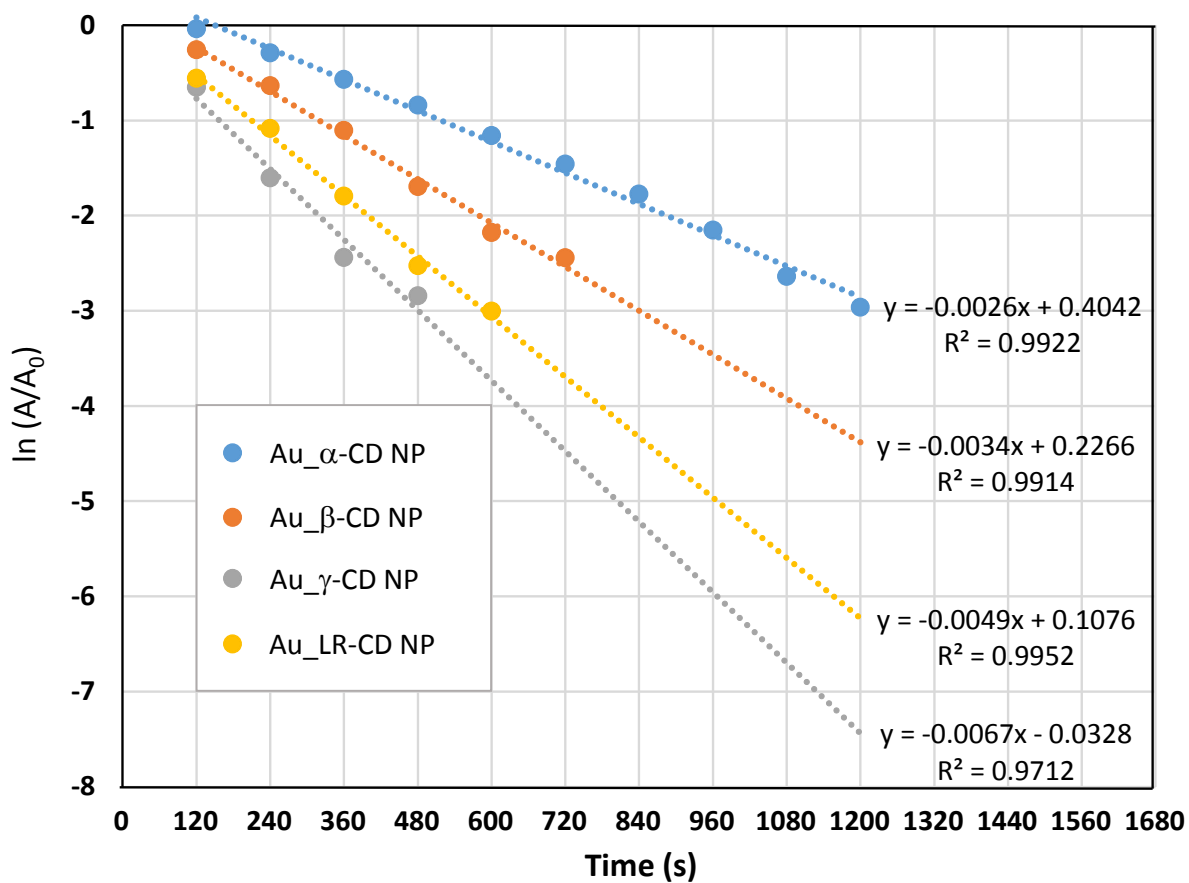


Figure S9. Determination of the k_{app} values relating to 4-nitrophenol reduction catalyzed by Au_α-CD NP, Au_β-CD NP, Au_γ-CD NP and Au_LR-CD NP

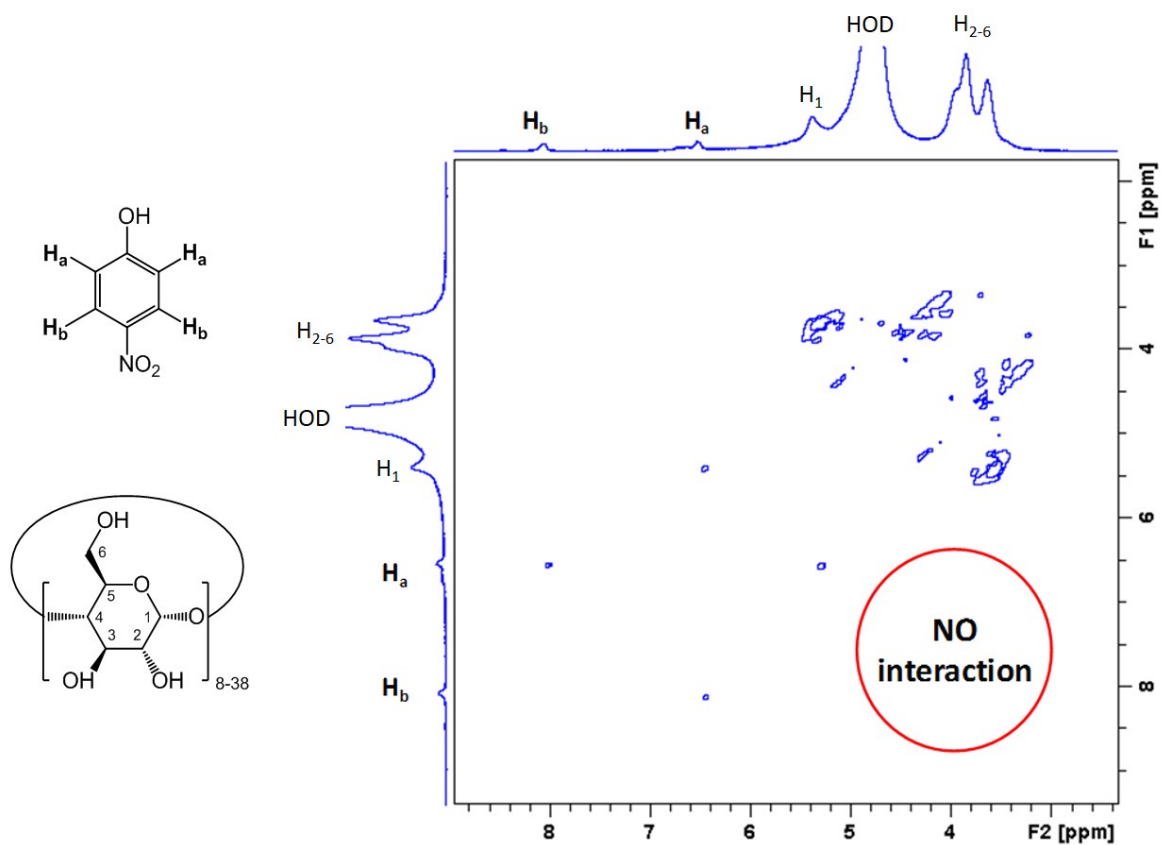


Figure S10. T-ROESY spectrum of 4-nitrophenol + LR-CD in D_2O considering [4-nitrophenol] = 6 mM, [LR-CD] = 6 mM and $[NaBH_4] = 0.26$ M at 20 °C.