Supporting Information

Microwave Synthesis of Au Nanoparticles in the Presence of Tetrahydrothiophenocucurbituril

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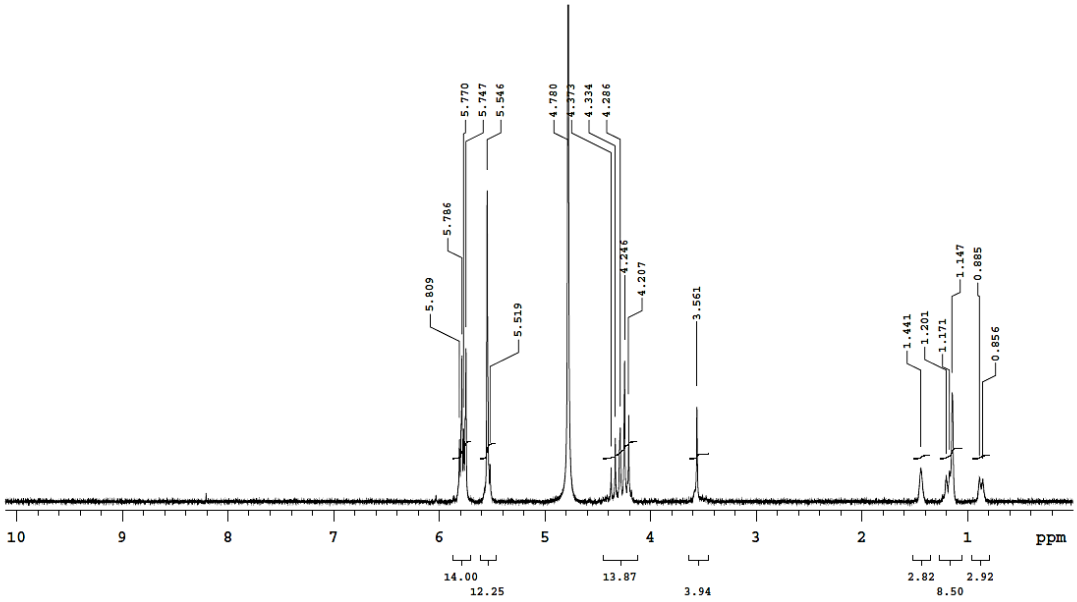


Figure S1. The ^{1}H NMR spectrum of ama@THT$_1$Q[7]Cl in D_2O

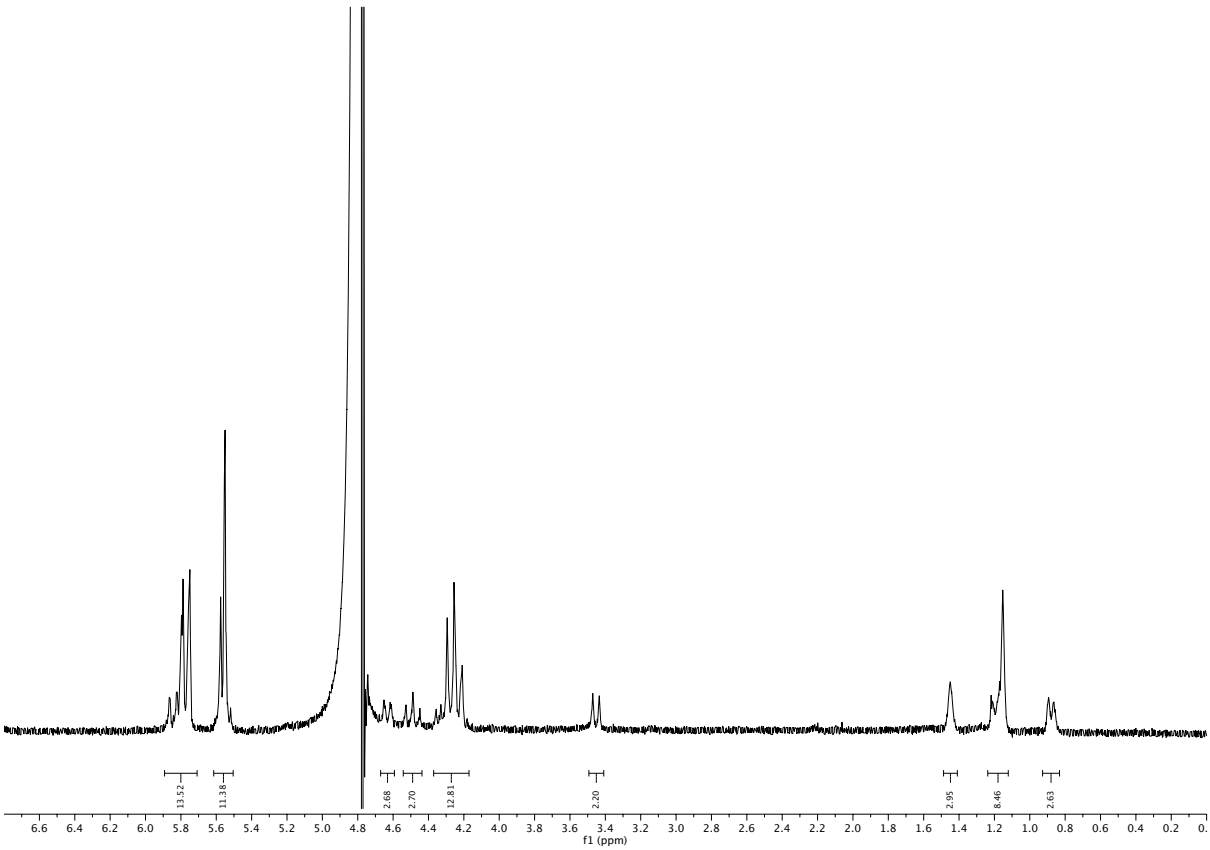
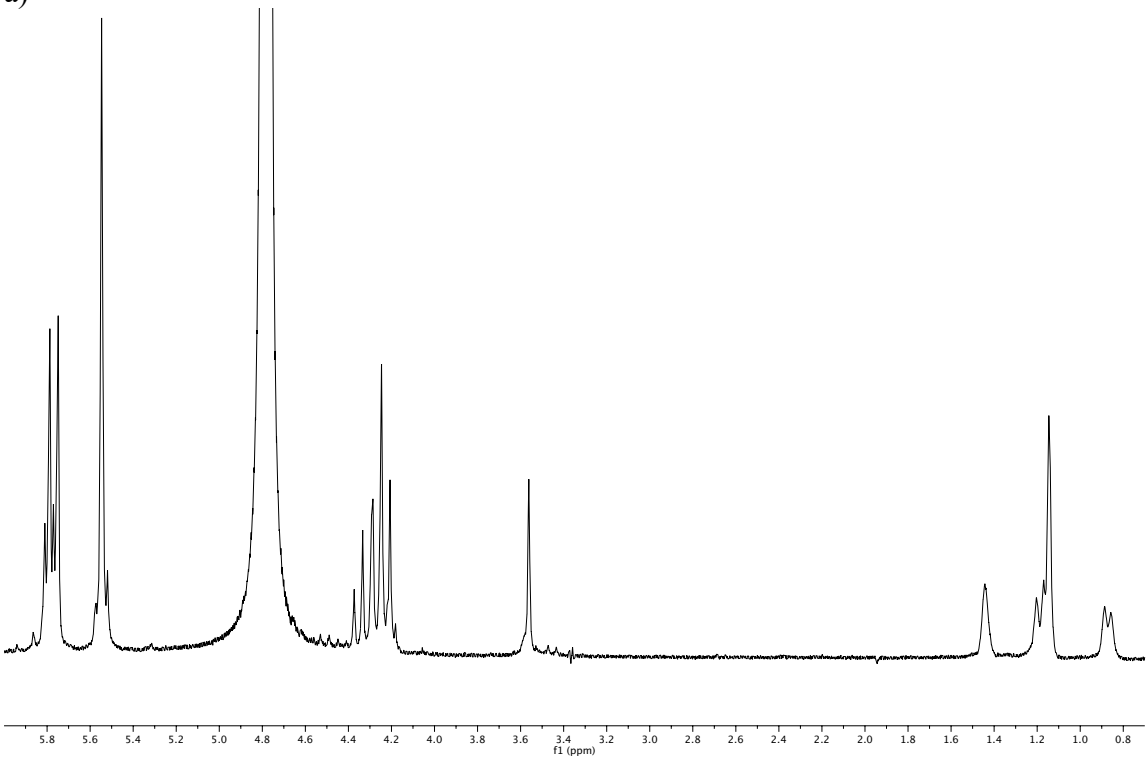


Figure S2. The ^{1}H NMR spectrum of ama@O-THT$_1$Q[7]Cl in D_2O.

a)



b)

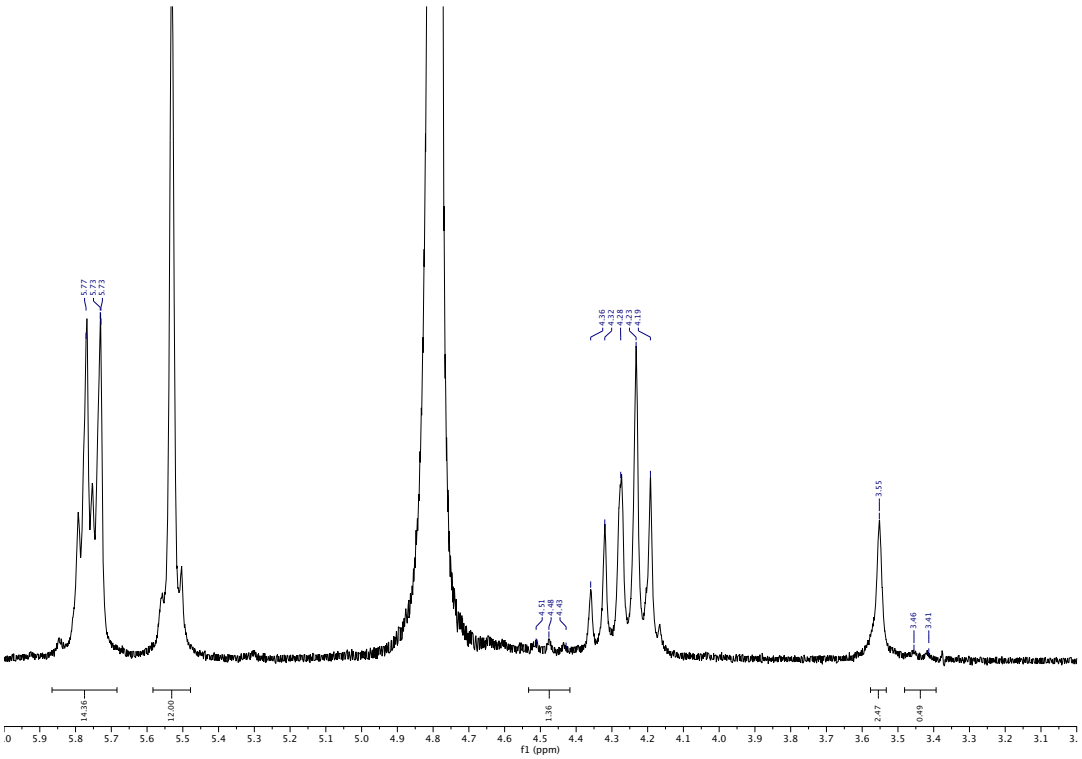


Figure S3. a) The ^{1}H NMR spectrum of the reaction mixture from the MW reaction of ama@THT$_1$Q[7] with $HAuCl_4$ in water heated to 70 °C for 5 min. A freeze-dried sample dissolved in D_2O. b) A zoomed in section of the same sample.

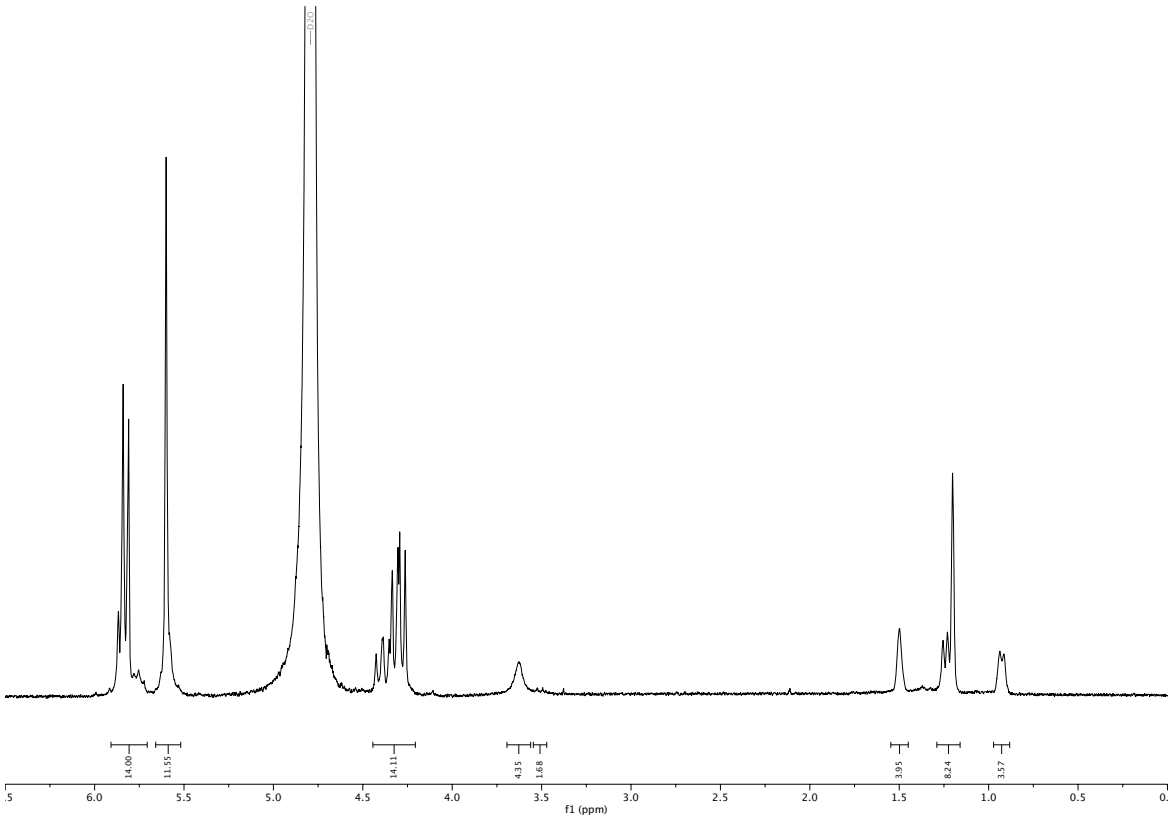


Figure S4. The ^{1}H NMR spectrum (500 MHz) of the reaction mixture from the MW reaction of ama@THT$_1$Q[7]PF_6 with $HAuCl_4$ in water heated to 70 °C for 15 min. At this point the solution is colorless and clear.

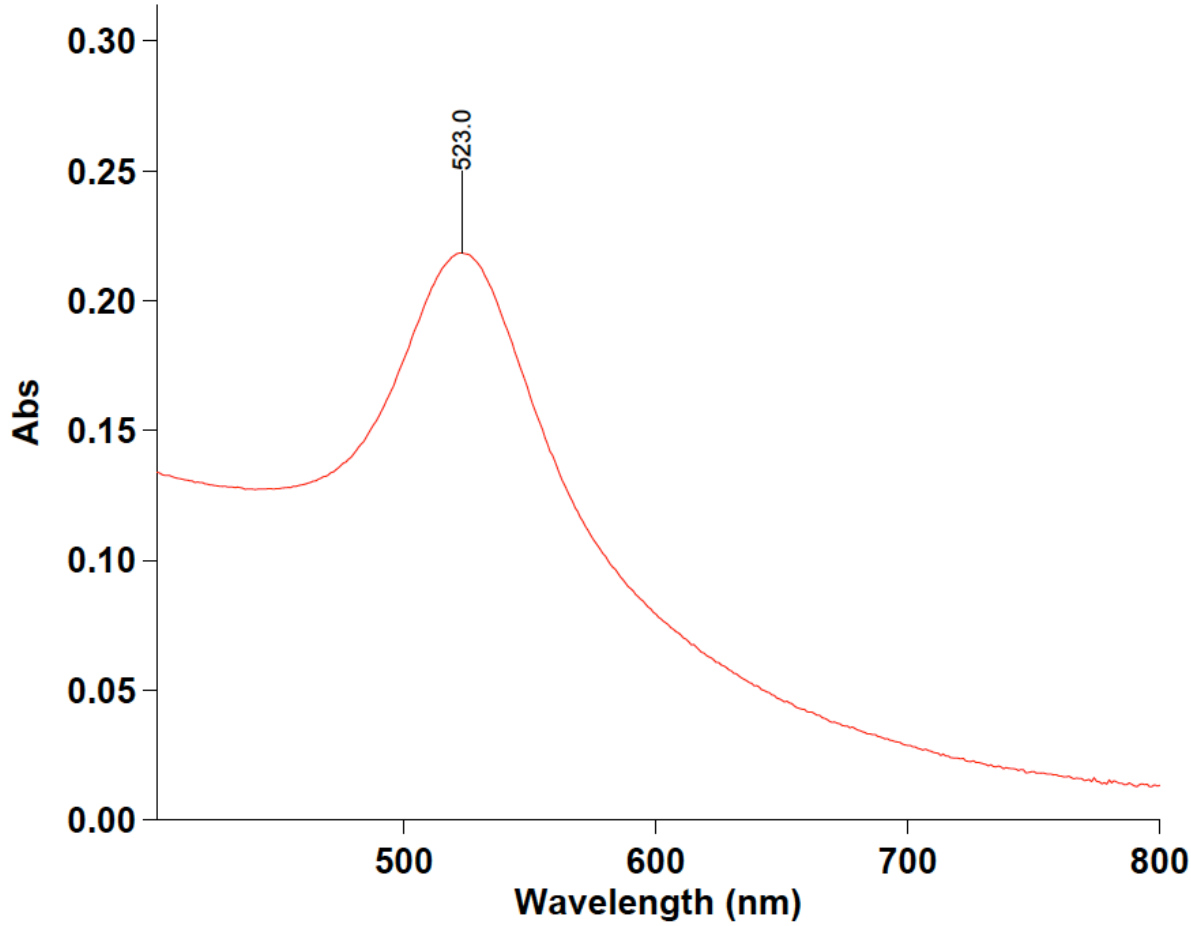


Figure S5. Visible spectra of AuNP-THTglycoluril prepared in a mixture of DMSO/water (2:1) in the MW reactor over 10 min at 70 °C.

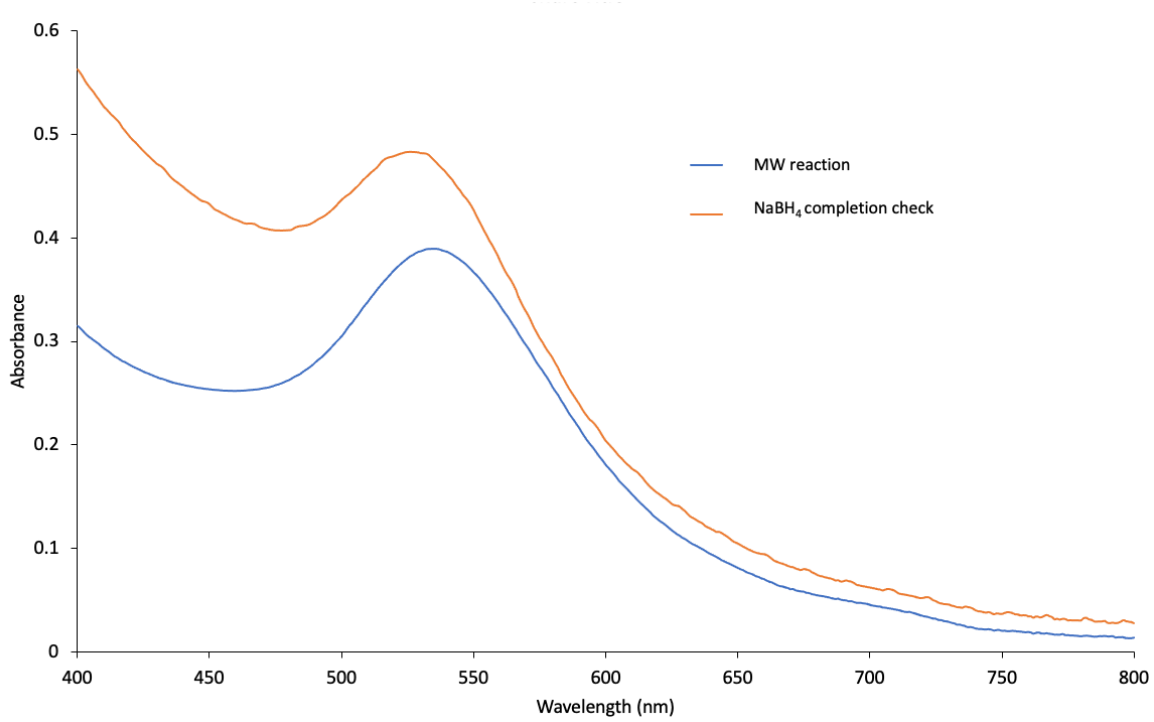


Figure S6. Visible spectra of AuNP-ama@THT$_1$Q[7] prepared in pure water in the MW reactor over 10 min at 70 °C, with a 1:1 mole ratio of Au(III) to THT$_1$Q[7]. After the reaction period was complete, a $NaBH_4$ solution was added revealing the proportion of unreacted Au salts.

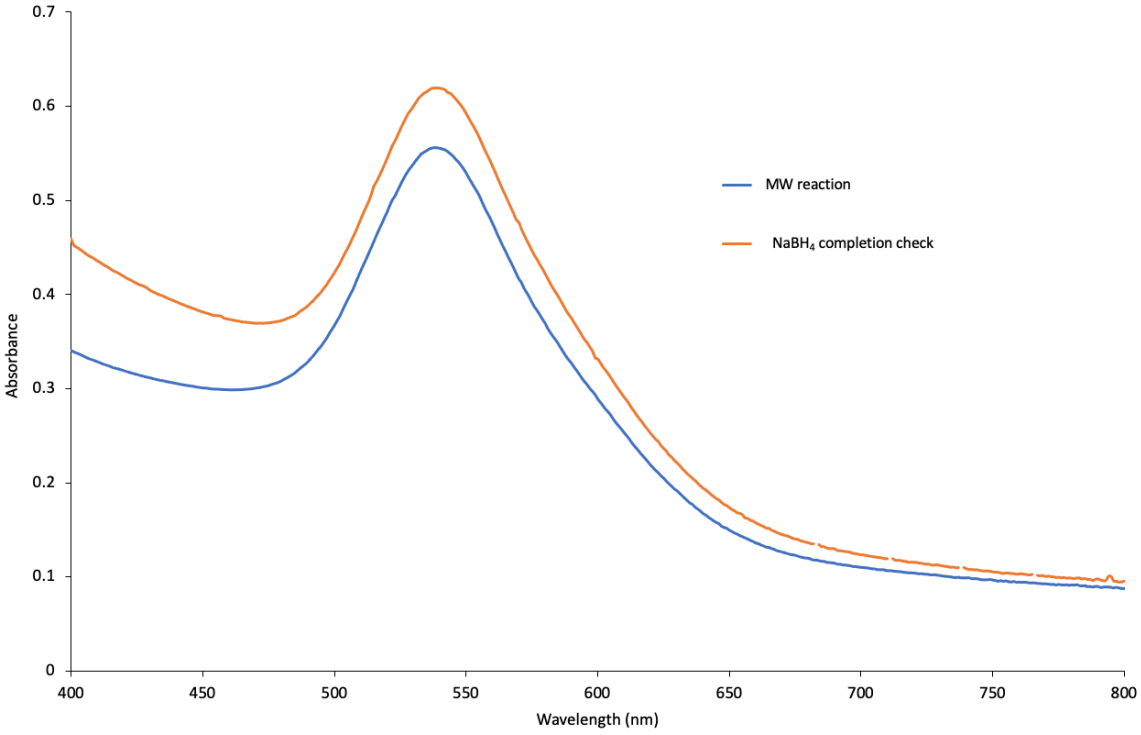


Figure S7. Visible spectra of AuNP-ama@THT$_1$Q[7] prepared in pure water in the MW reactor over 15 min at 70 °C, with a 1:2 mole ratio of Au(III) to THT$_1$Q[7]. After the reaction period was complete, a $NaBH_4$ solution was added revealing the proportion of unreacted Au salts.

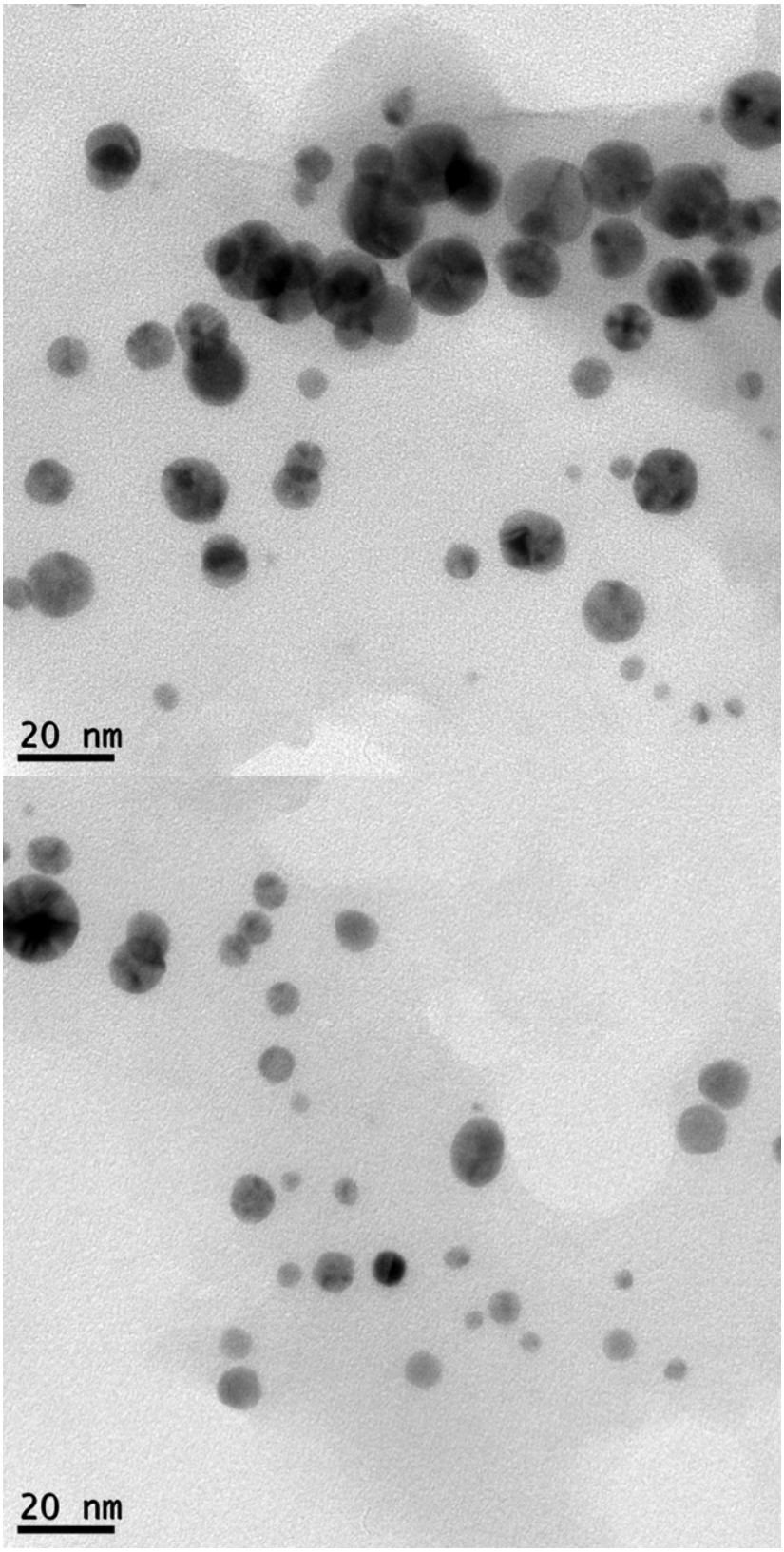


Figure S8. Purified ama@THT$_1$Q[7] TEM micrographs

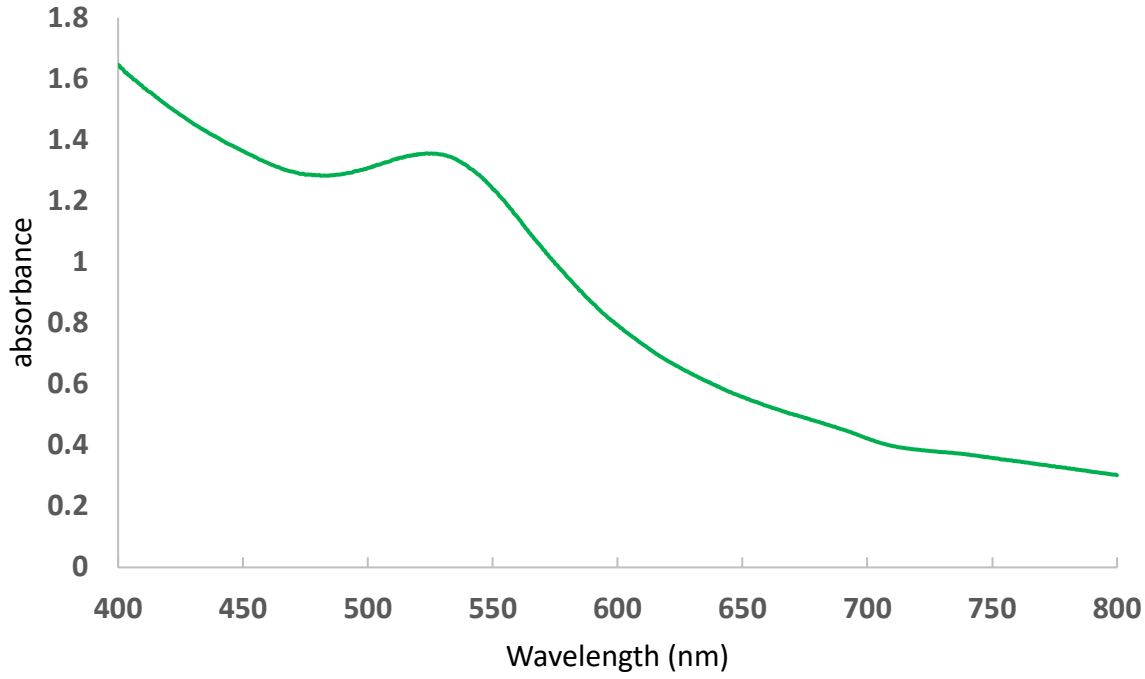


Figure S9. Visible spectrum of AuNP-THT$_6$Q[6] prepared in an aqueous solution of 50 mM $Ca(OAc)_2$ in the MW reactor over 15 min at 70 °C. Mole ratio of Au(III) to THT$_6$Q[6] was 1:1.

AuNP-THT$_6$Q[6] conjugate in aqueous $Ca(OAc)_2$.

AuNP-ama@THT$_1$Q[7] conjugate in H_2O.

Figure S10. Photographs of AuNP-THT$_m$Q[*n*] conjugates