

Supplementary Materials

Hysteresis in the thermo-responsive assembly of hexa(ethylene glycol) derivative-modified gold nanodiscs as an effect of shape

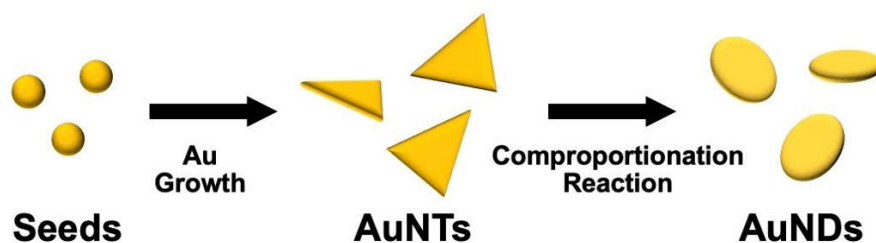
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Scheme 1. Illustration of AuND synthesis.

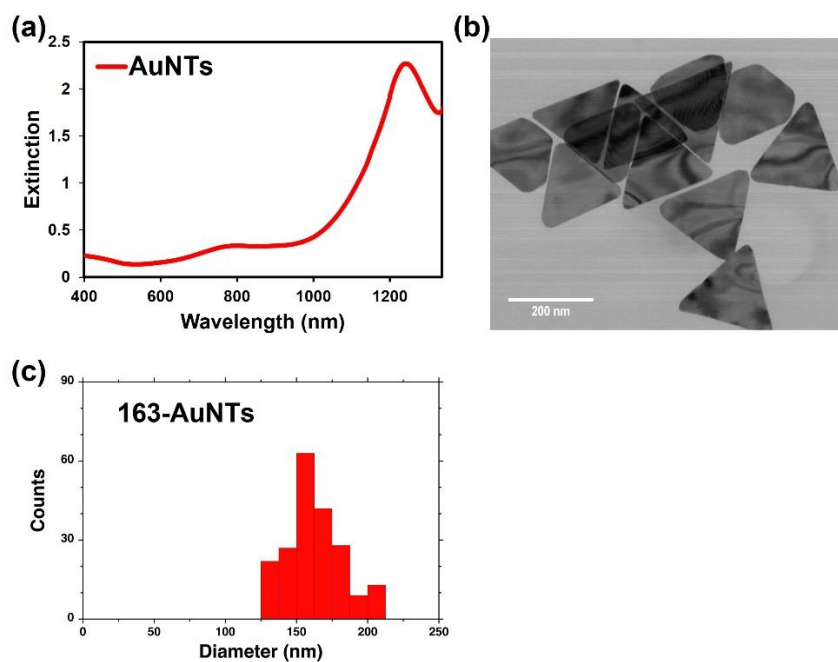


Figure S1. Characterization of gold nanotriangles (AuNTs). (a) Extinction spectrum of AuNTs. (b) STEM image of AuNTs. (c) Histogram of AuNT edge length.

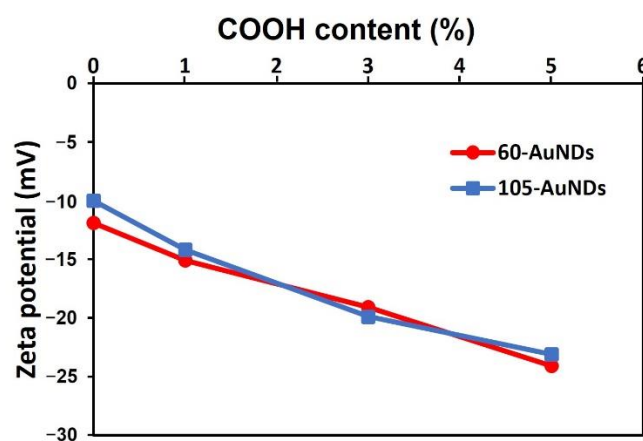


Figure S2. A plot of the zeta potential of AuNDs against the COOH content on their surface ligands.

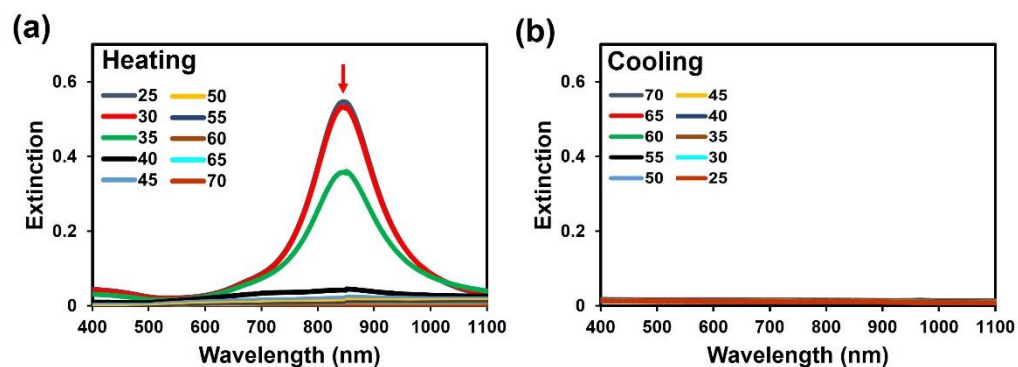


Figure S3. Thermo-responsive assembly of 105-AuND-(100:0). (a) The extinction spectra of 105-AuND-(100:0) upon heating from 25 to 70 °C and (b) upon cooling from 70 to 25 °C.

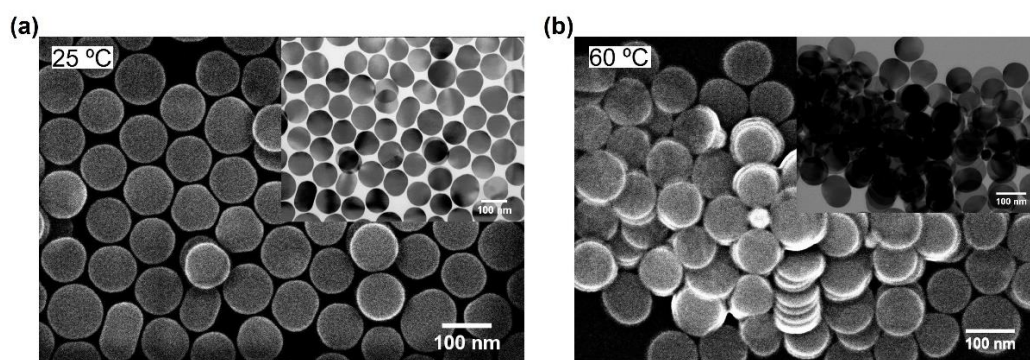


Figure S4. STEM images of 105-AuND-(97:3). (a) SEM image of 105-AuND-(97:3) dried at 25 °C and (b) dried at 60 °C with a STEM image as the insert.

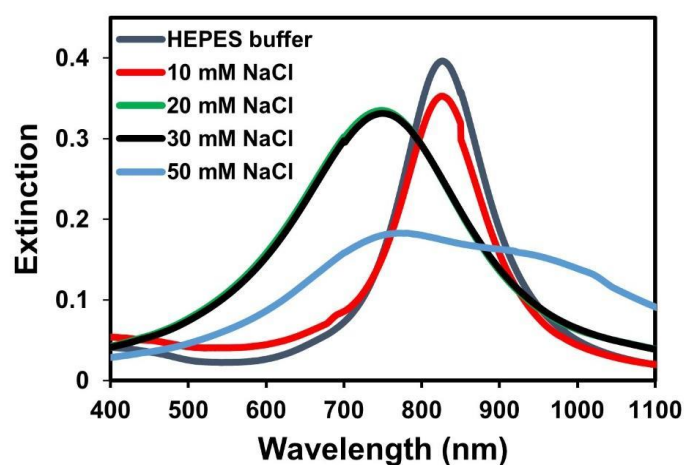


Figure S5. The extinction spectra of 105-AuND-(97:3) under various salt concentrations.

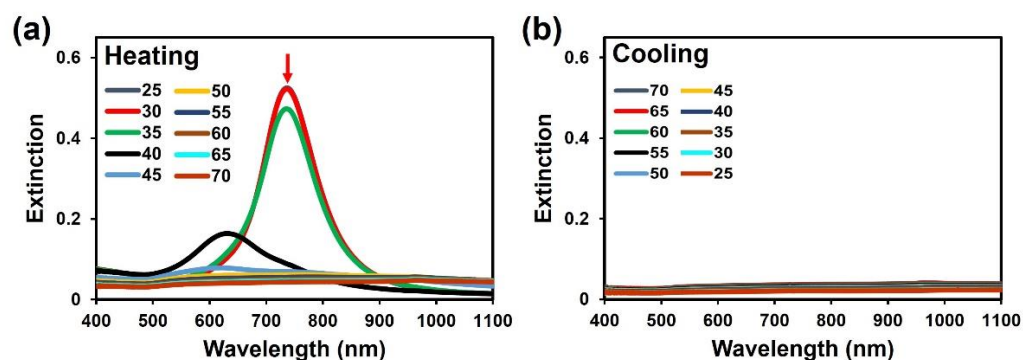


Figure S6. Thermo-responsive assembly of 60-AuND-(100:0). (a) The extinction spectra of 60-AuND-(100:0) upon heating from 25 to 70 °C and (b) upon cooling from 70 to 25 °C.

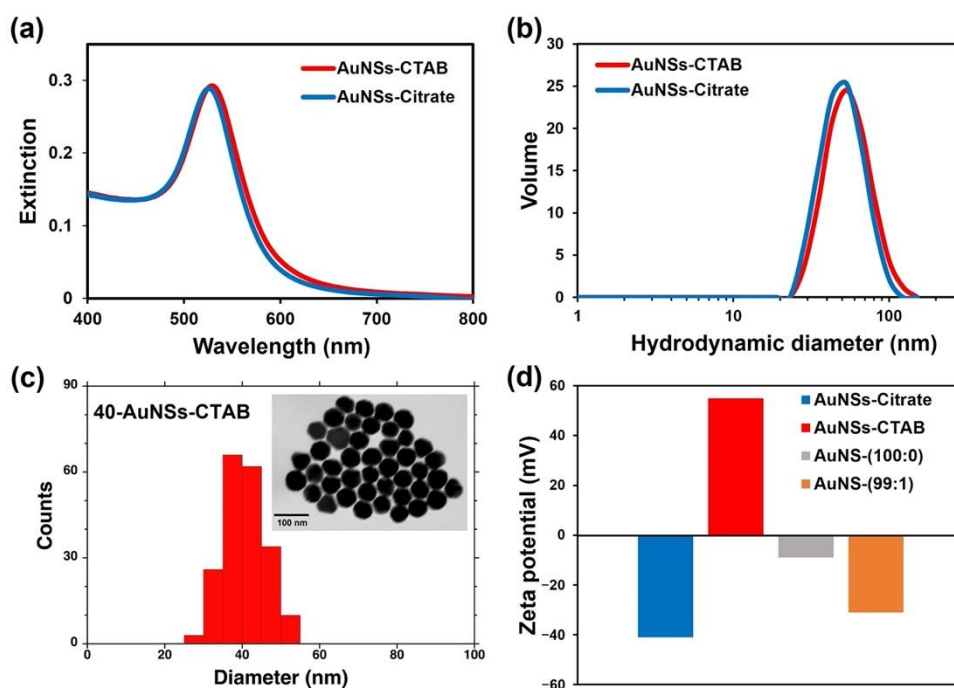


Figure S7. Characterization of 40-AuNSs. (a) The extinction spectra of 40 nm citrate-stabilized AuNSs before (red) and after (blue) CTAB coating. (b) DLS analyses of 40 nm citrate-stabilized

AuNSs before (red) and after (blue) CTAB coating. (c) TEM image and size distribution of 40 nm CTAB-capped AuNSs. (d) Zeta potentials of 40-AuNSs stabilized with citrate (blue), CTAB (red) and modified with a mixture of C1:COOH ligands; (100:00) (grey) and (99:1) (orange).

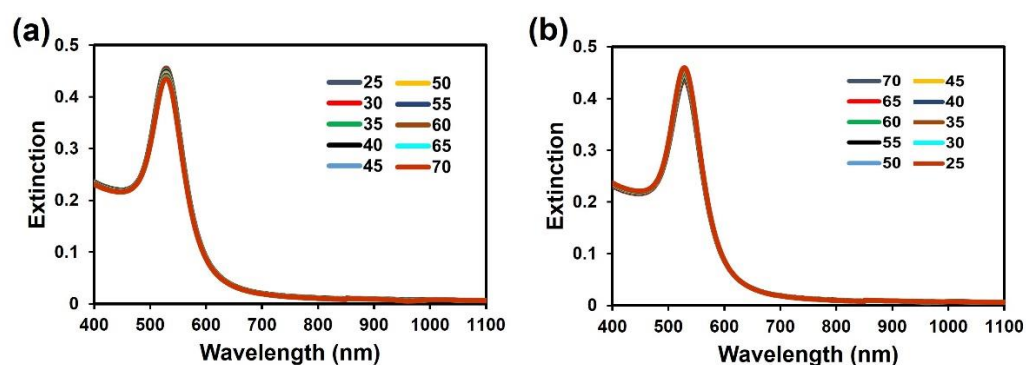


Figure S8. Thermo-responsive assembly of 40-AuNS-(99:1). (a) The extinction spectra of 40-AuNS-(99:1) upon heating from 25 to 70 °C and (b) upon cooling from 70 to 25 °C.

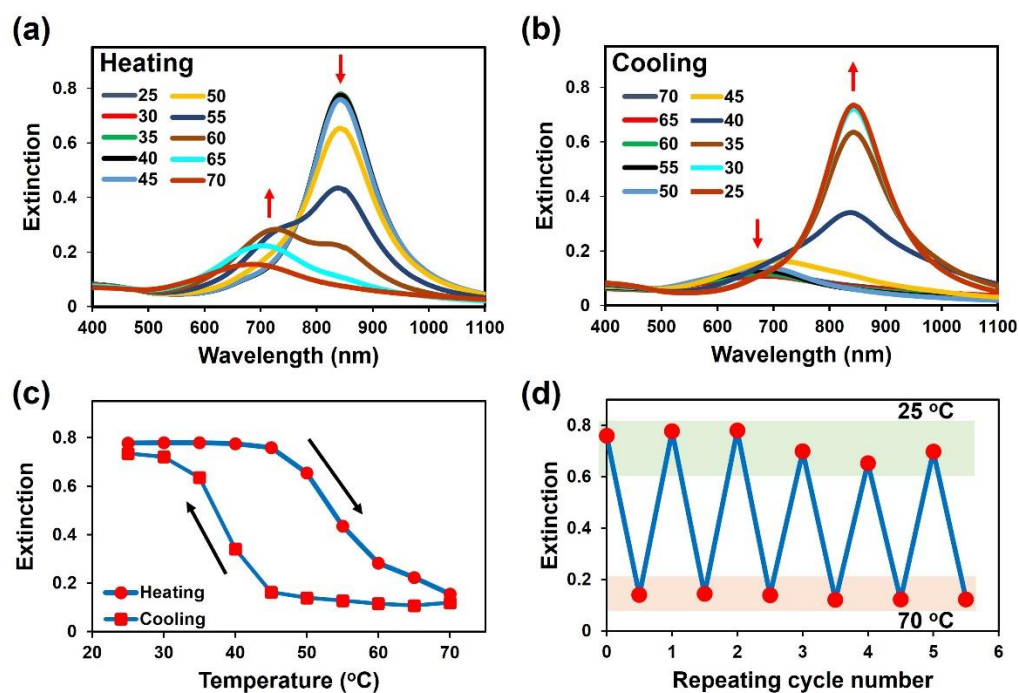


Figure S9. Thermo-responsive assembly of 105-AuND-(99:1). (a) The extinction spectra of 105-AuND-(99:1) upon heating from 25 to 70 °C and (b) upon cooling from 70 to 25 °C. (c) The extinction values at 827 nm against temperature changes. (d) The reversible changes in extinction values between 25 and 70 °C.

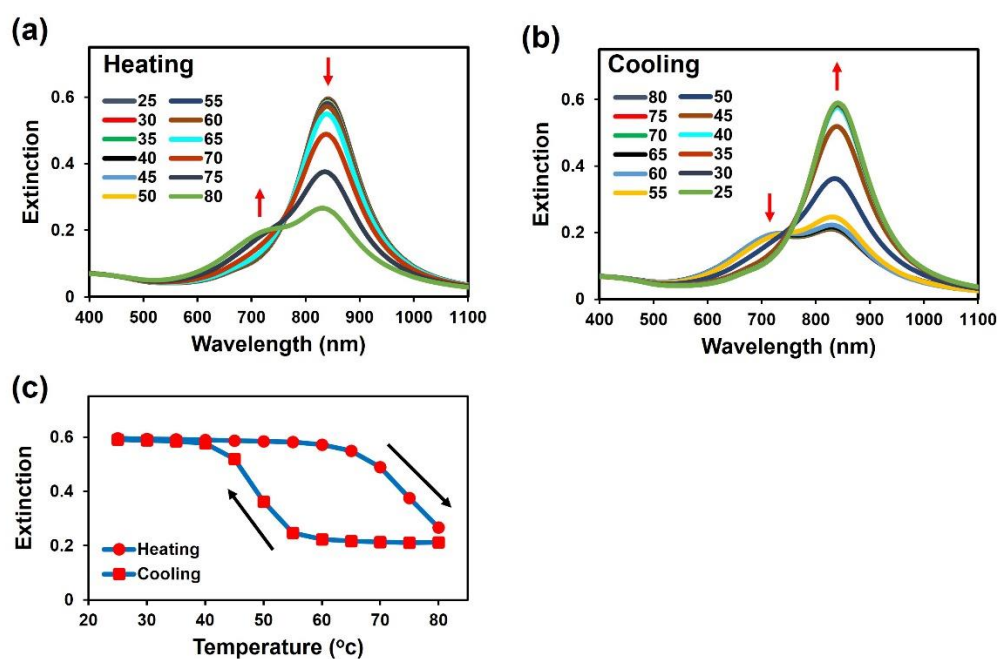


Figure S10. Thermo-responsive assembly of 105-AuND-(95:5). (a) The extinction spectra of 105-AuND-(95:5) upon heating from 25 to 80 °C and (b) upon cooling from 80 to 25 °C. (c) The extinction values at 827 nm against temperature changes.

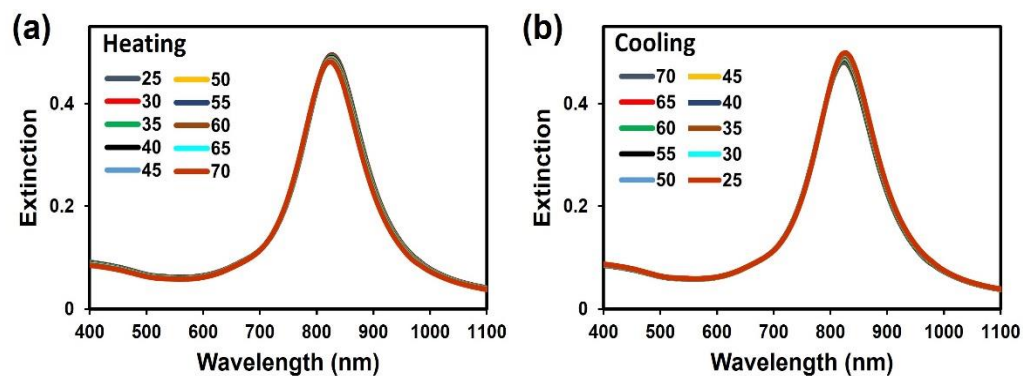


Figure S11. Thermo-responsive assembly of 105-AuND-(90:10). (a) The extinction spectra of 105-AuND-(90:10) upon heating from 25 to 70 °C and (b) upon cooling from 70 to 25 °C.

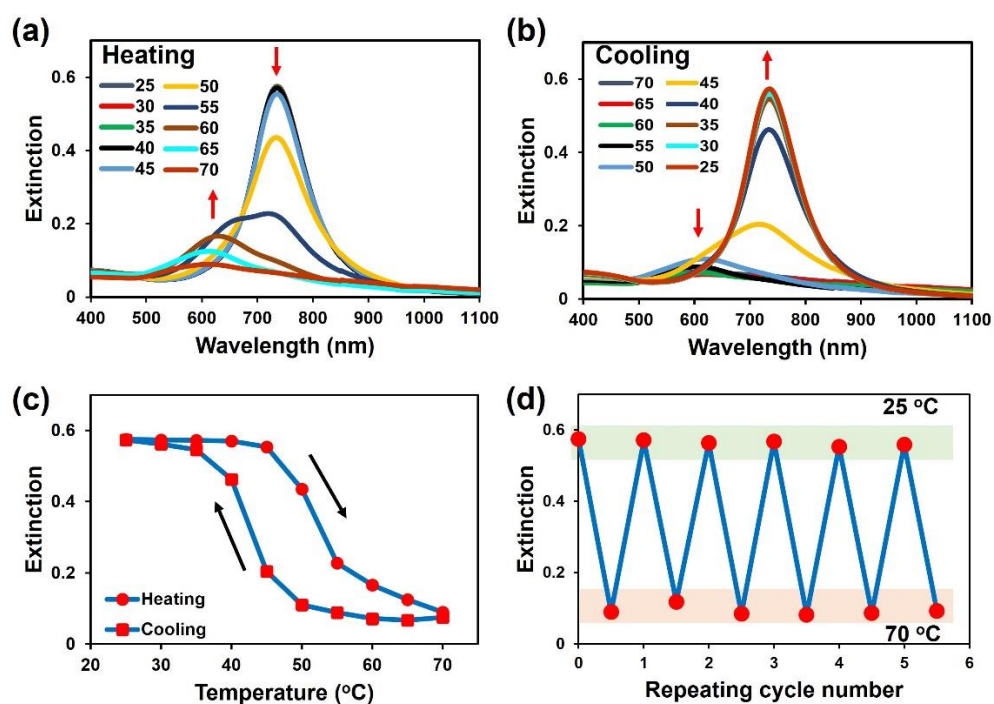


Figure S12. Thermo-responsive assembly of 60-AuND-(99:1). (a) The extinction spectra of 60-AuND-(99:1) upon heating from 25 to 70 °C and (b) upon cooling from 70 to 25 °C. (c) The extinction values at 715 nm against temperature changes. (d) The reversible changes in extinction values between 25 and 70 °C.

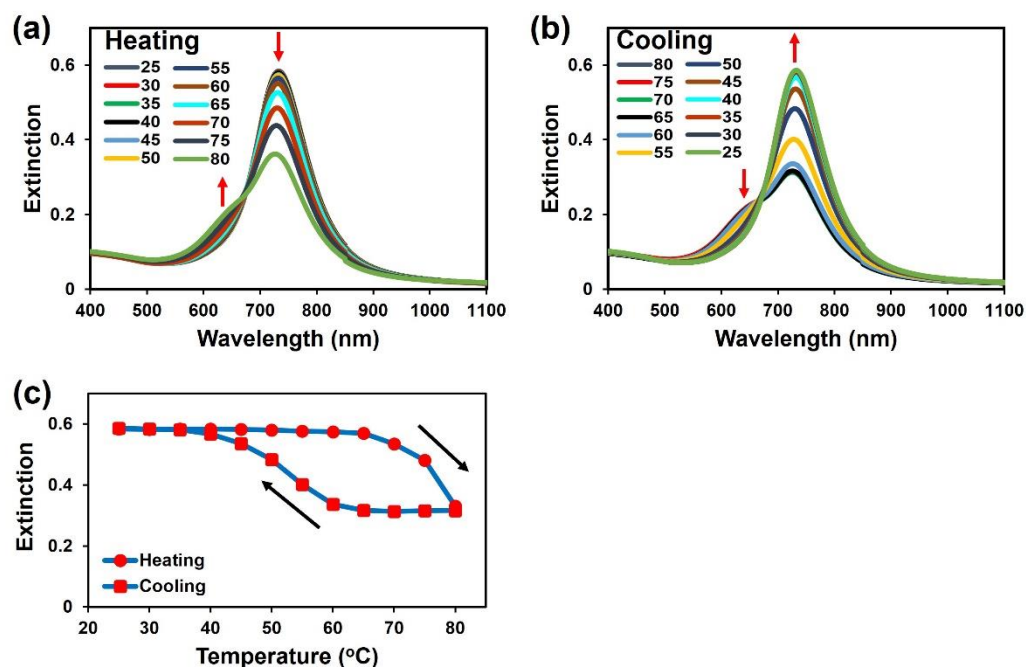


Figure S13. Thermo-responsive assembly of 60-AuND-(95:5). (a) The extinction spectra of 60-AuND-(95:5) upon heating from 25 to 80 °C and (b) upon cooling from 80 to 25 °C. (c) The extinction values at 715 nm against temperature changes.

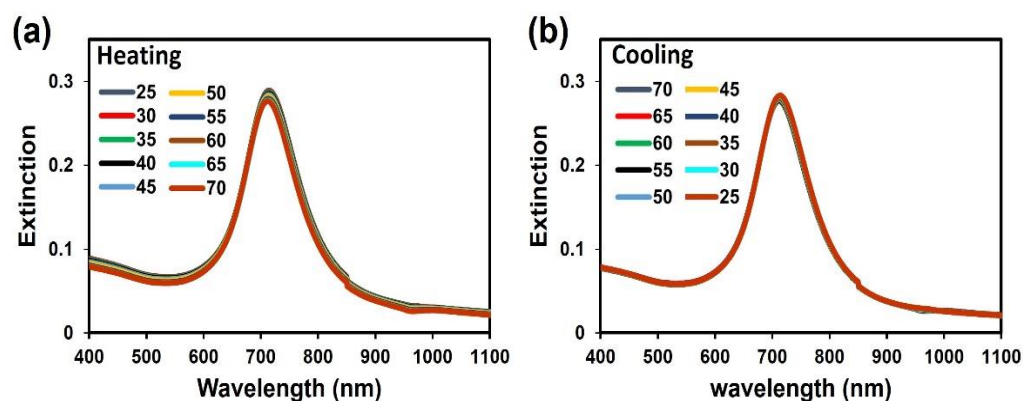


Figure S14. Thermo-responsive assembly of 60-AuND-(90:10). (a) The extinction spectra of 60-AuND-(90:10) upon heating from 25 to 70 °C and (b) upon cooling from 70 to 25 °C.

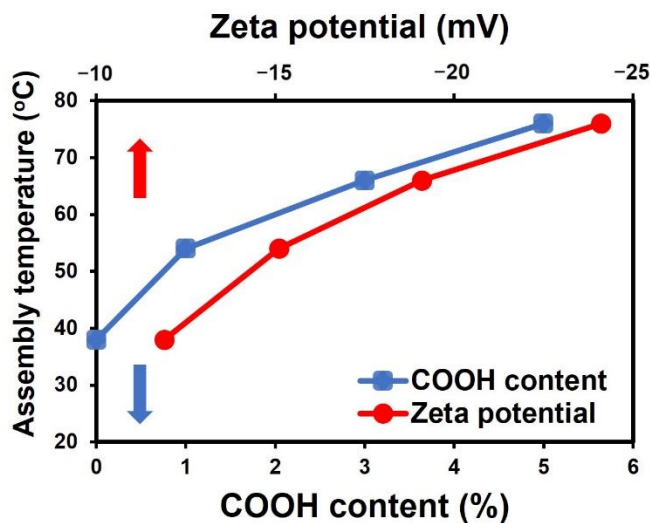


Figure S15. Assembly temperature of 60-AuNDs against COOH content and zeta potential.

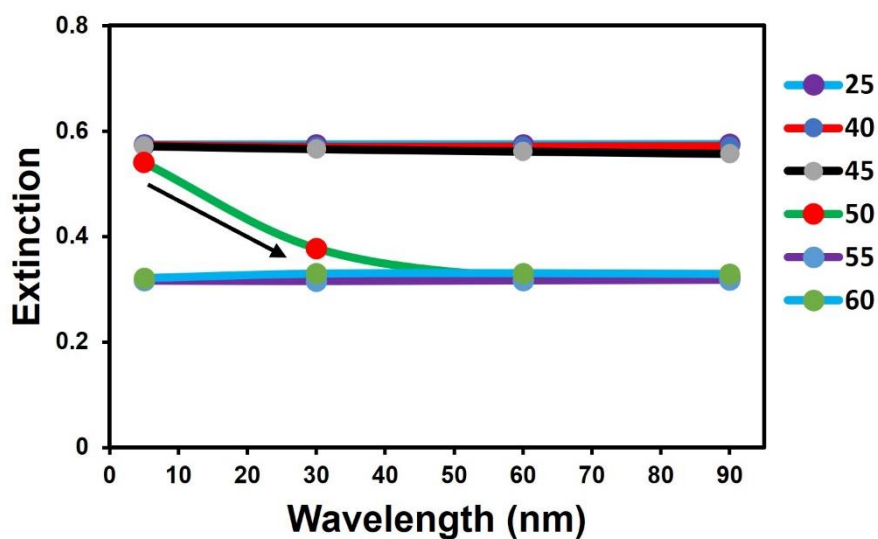


Figure S16. The plot of changes in extinction during the time course experiment of 60-AuND-(97:3) at 25, 40, 45, 50, 55 and 60 °C. The starting point was 25 °C and the sample was heated up to 90 min.

This was followed by heating at 40, 45, 50, 55 and 60 °C up to 90 min while measuring the spectrum change every 30 min.

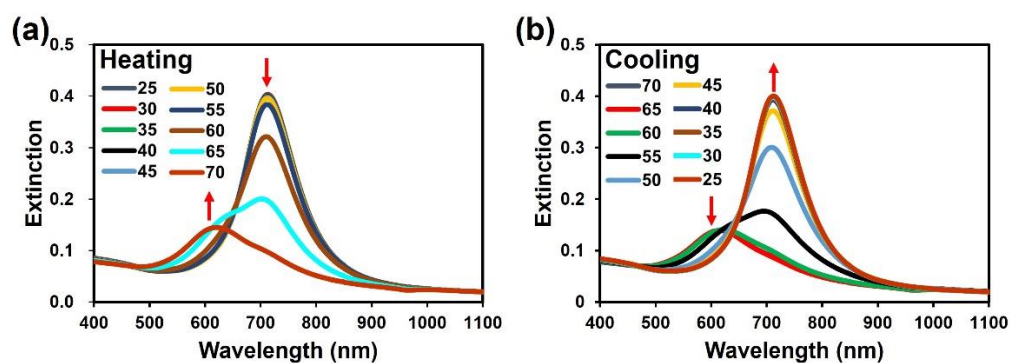


Figure S17. Thermo-responsive assembly of 60-AuND-(97:3) with 30 min of waiting time. (a) The extinction spectra of 60-AuND-(97:3) upon heating from 25 to 70 °C and (b) upon cooling from 70 to 25 °C.

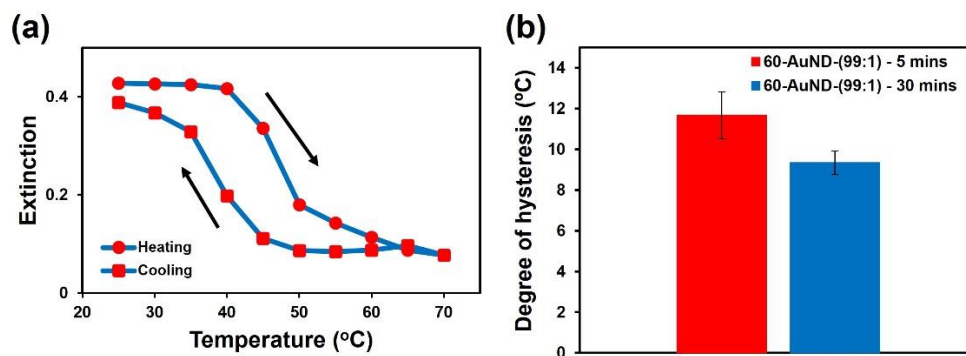


Figure S18. (a) The extinction values at 715 nm against temperature changes with 30 min waiting time for 60-AuND-(99:1). (b) A plot of the degree of hysteresis with the 5 and 30 min waiting time for 60-AuND-(99:1). The error bars represent standard deviation of the mean (n = 3).