Supporting Information for:

From Multi-responsive Tri- and Diblock Copolymers to Diblock-Copolymer-Decorated Gold Nanoparticles: Effect of Architecture on Micellization Behaviors in Aqueous Solutions

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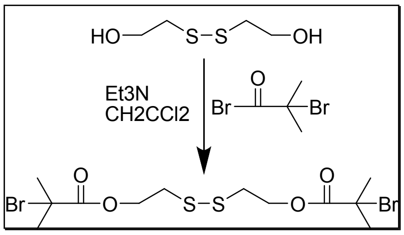
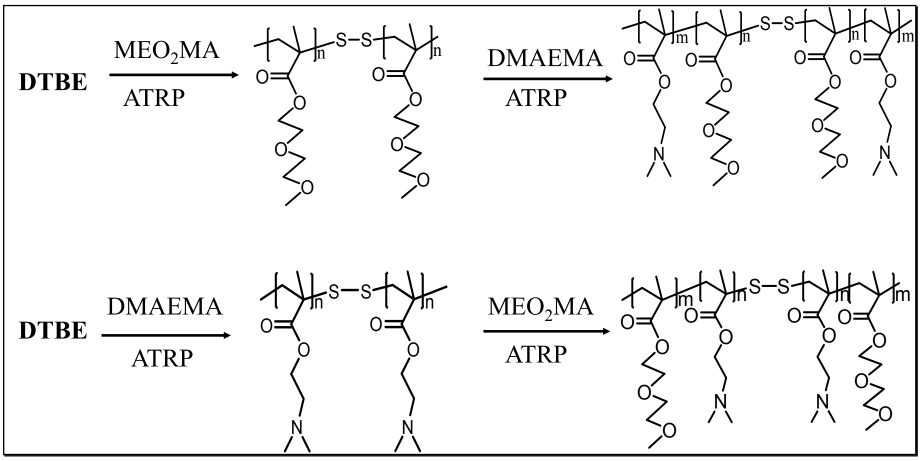


Scheme 1. Synthesis the ATRP initiator DTBE.



Scheme 2. Synthesis of the PDMAEMA-b-PMEO$_2$MA-b-PDMAEMA, PMEO$_2$MA-b-PDMAEMA-b-PMEO$_2$MA triblock copolymers.

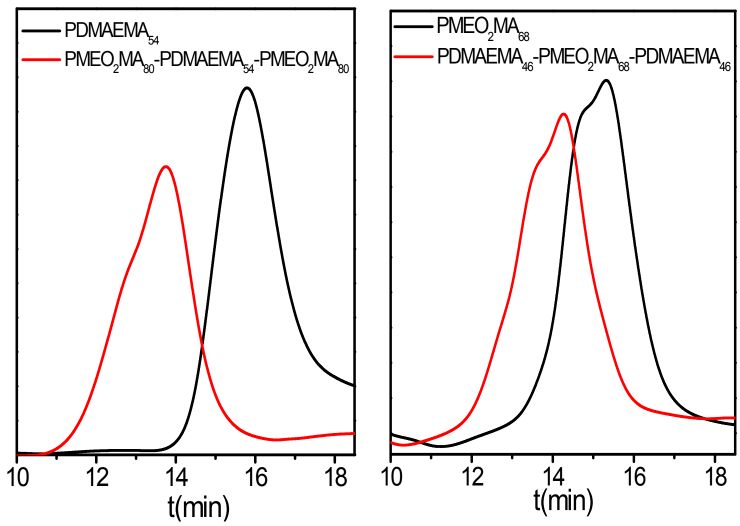


Figure S1. Gel Permeation Chromatography (GPC) traces of polymers.

Table S1. The Composition, Molecular Weight and Polydispersity of Polymers

Polymer	$M_{H\ NMR}$[a]	Mn[b]	Mw[b]	PDI[b]
$PDMAEMA_{54}$	8945	8761	10838	1.23
$PMEO_2MA_{80}$-$PDMAEMA_{54}$-$PMEO_2MA_{80}$	23233	39180	54981	1.40
$PMEO_2MA_{68}$	12484	13369	17294	1.29
$PDMAEMA_{46}$-$PMEO_2MA_{68}$-$PDMAEMA_{46}$	21119	27748	36869	1.33

[a]As calculated from ^{1}H NMR spectra.

[b]As measured by GPC with THF as an eluent.

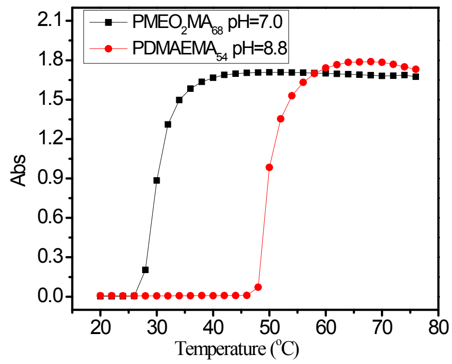


Figure S2. Thermal profile of $PMEO_2MA$ (black) and PDMAEMA (red) in aqueous solutions as probed by UV−vis spectra.

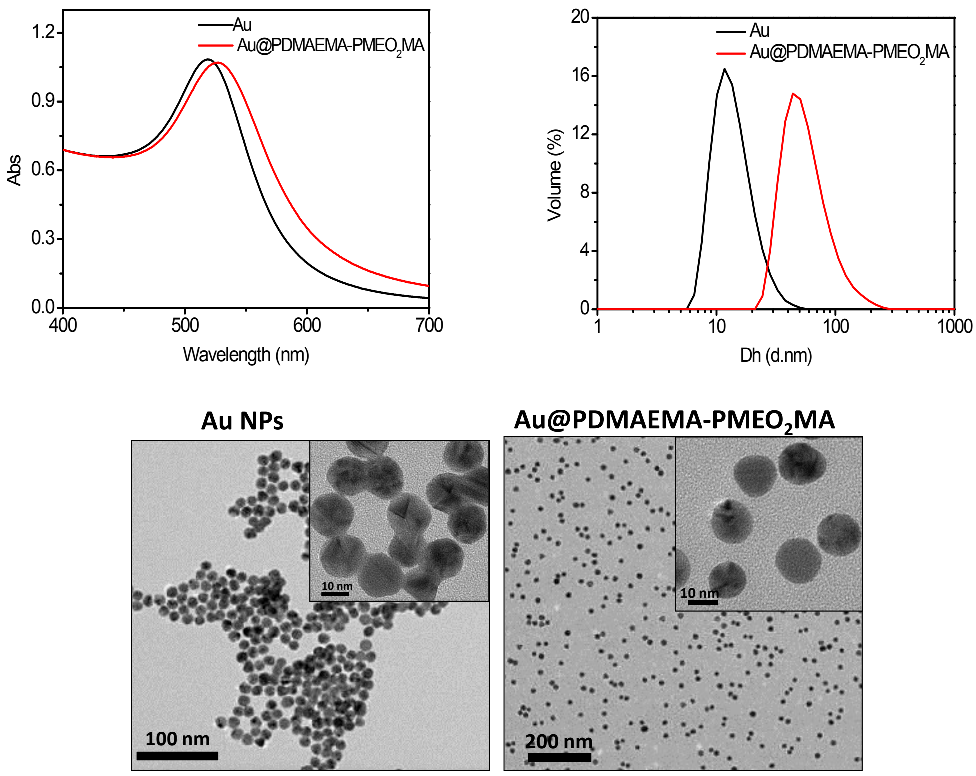


Figure S3. UV−vis spectra, size distributions and TEM images of Au NPs and Au@$PDMAEMA_{27}$-b-$PMEO_2MA_{80}$ particles dispersed in aqueous solutions.

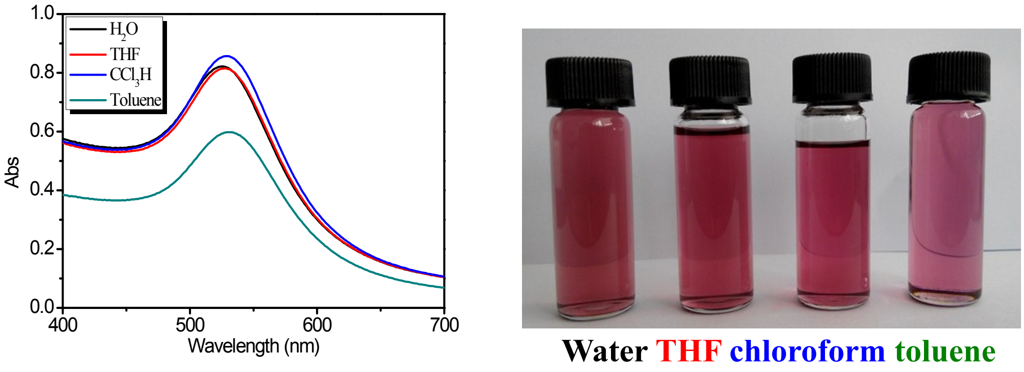


Figure S4. Au@PMEO$_2$MA$_{34}$-b-PDMAEMA$_{46}$ nanoparticles well-dispersed in different solvents (water, THF, chloroform and toluene).

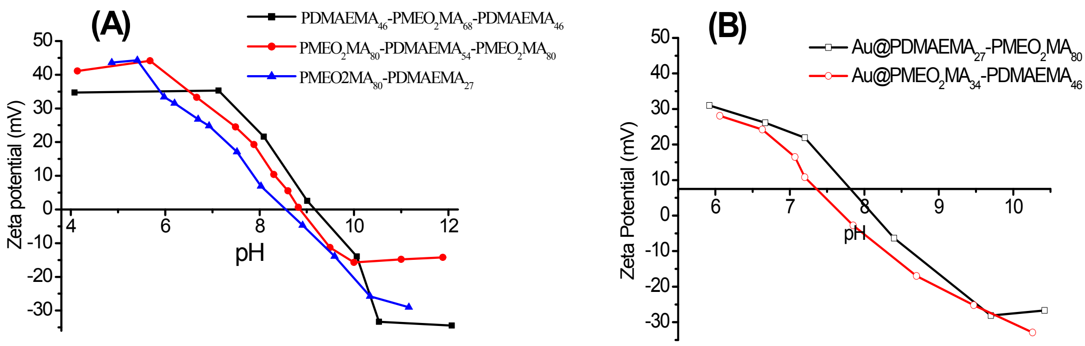


Figure S5. (A) Zeta potential of different block copolymers in aqueous solutions at different pHs. (B) Zeta potential of Au@AB and Au@BA NPs at different pHs. The lines are drawn to guide the eye.

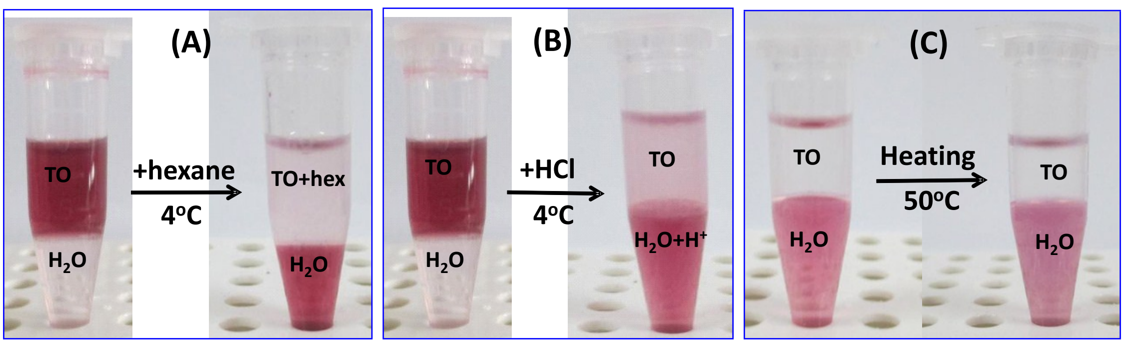


Figure S6. Photographs of the phase transfer process for the Au@PMEO$_2$MA$_{34}$-b-PDMAEMA$_{46}$ system: (A) solvent-triggered NP transfer from toluene to the aqueous phase at 4 °C after shaking, (B) acid-triggered NP transfer from toluene to the aqueous phase at 4 °C after shaking, and (C) retention of NPs in the aqueous phase (0.2 M NaCl) upon heating to 50 °C after shaking.