Electronic Supplementary Information (ESI) for *Chemical Communication*

Nanoparticle induced formation of self-assembled zwitterionic surfactant microdomains which mimic microemulsions for the in situ fabrication and dispersion of silver nanoparticles

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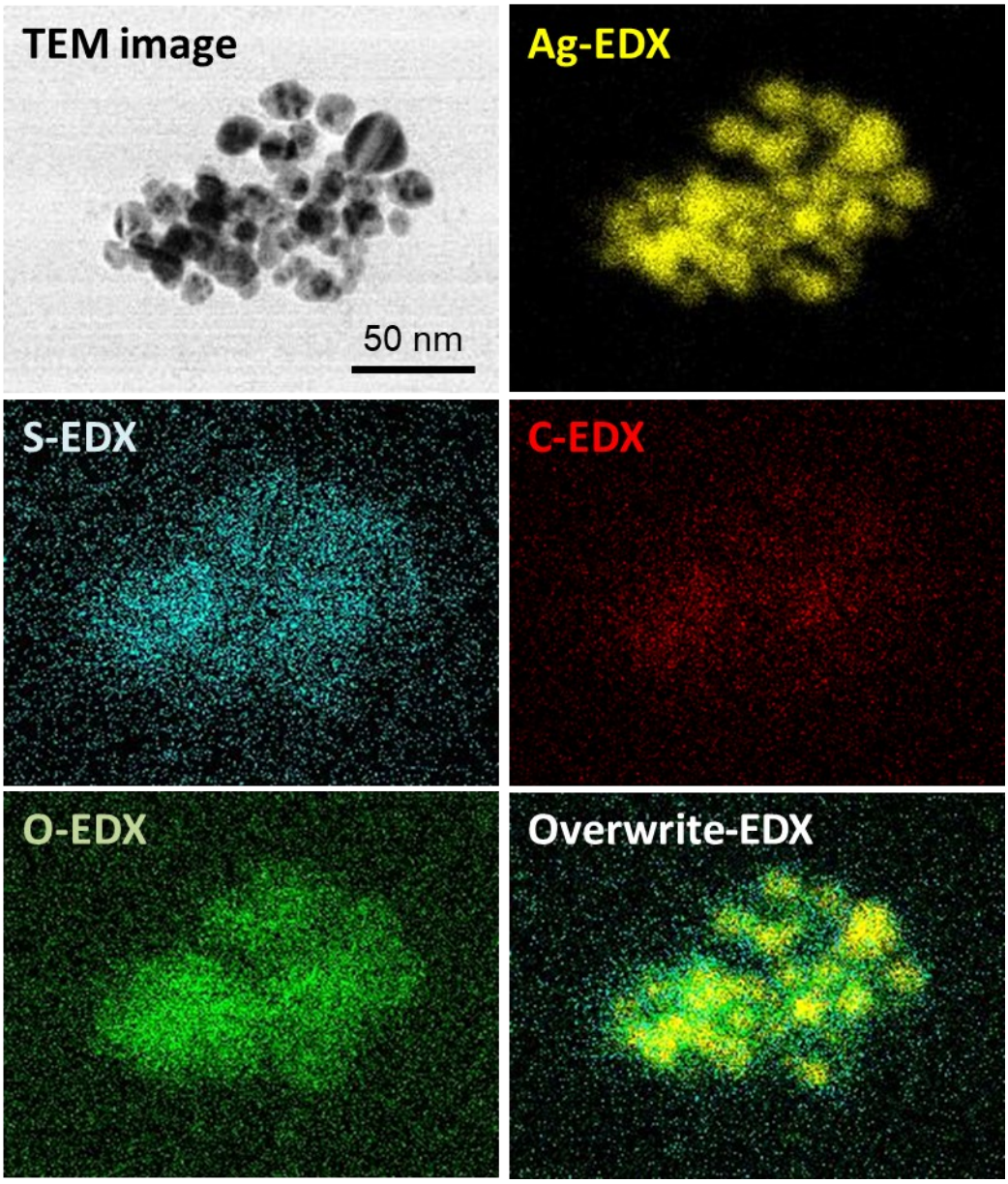

Fig. S1 The elemental mapping in STEM image based on the EDX signal intensity for Ag-NPs in the C_{10}–$APSO_4$ ME microdomain.

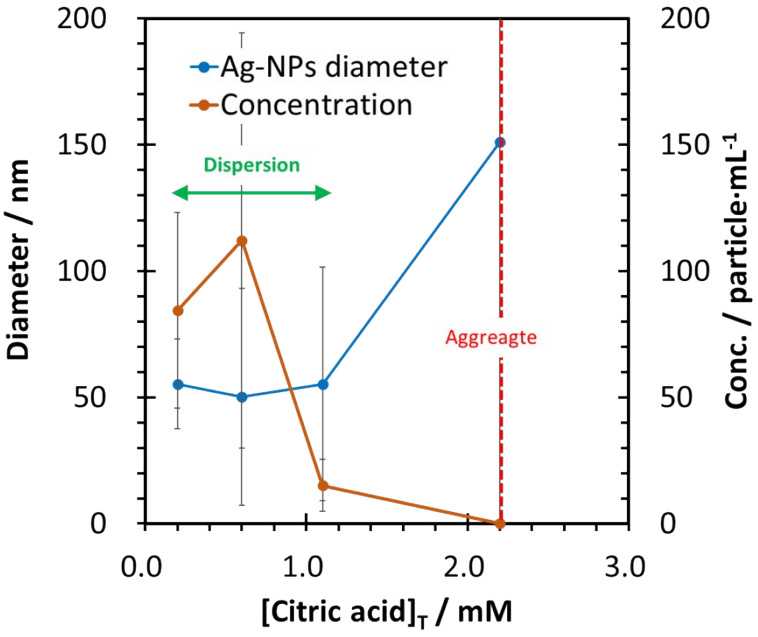

Fig. S2 The impact of citric acid concentration on the diameter of prepared Ag-NPs in ME (blue line) and the concentration of Ag-NPs in ME (orange line). Experimental conditions: $[C_{10}APSO_4]_T$ = 0.20% (w/w); $[AgNO_3]_T$ = 0.11 mM; total volume: 2.25 mL; pH = 11; reaction time: 8 min at 108°C; diameters determined by DLS and particle concentrations from TEM images.

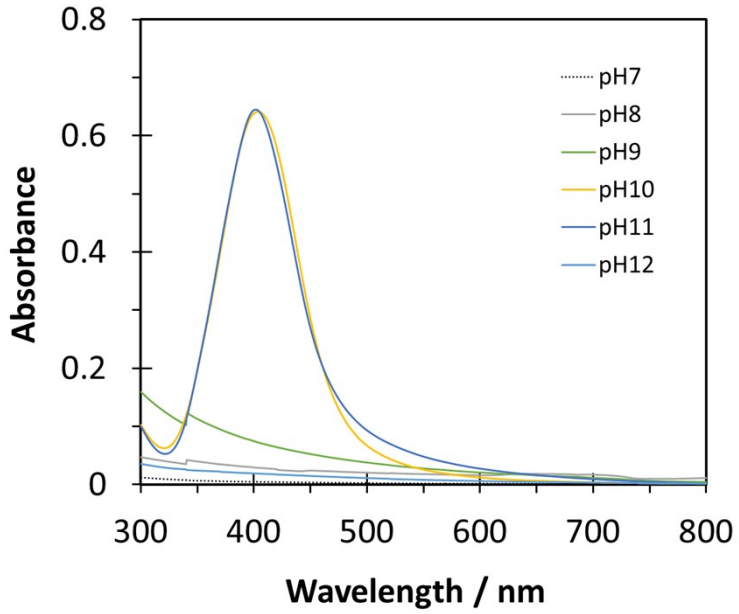

Fig. S3 Absorption spectra of the final solution obtained using the typical synthetic protocol for the reaction conducted at the indicated pH values.

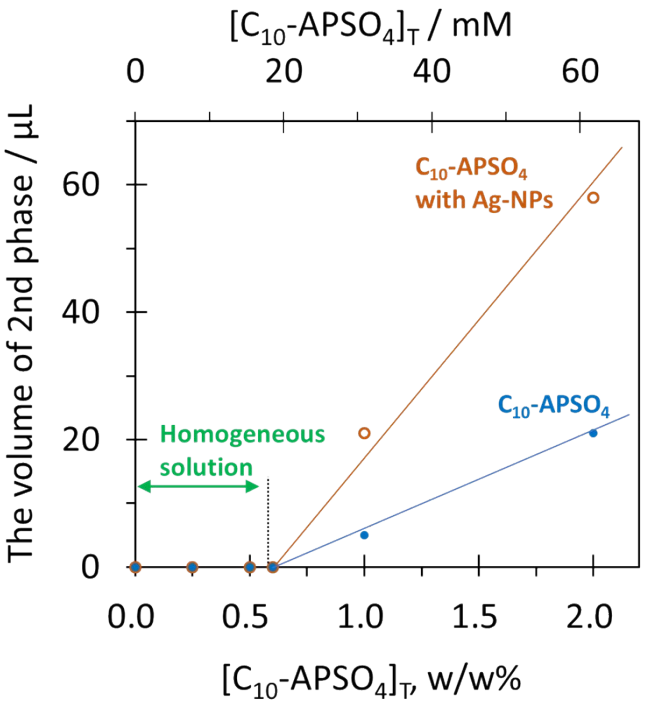

Fig. S4 The relationship between the surfactant concentration and the volume of second surfactant-rich phase that resulted from the phase separation of the thermoresponsive C_{10}-$APSO_4$ surfactant. Blue line obtained for just aqueous C_{10}-$APSO_4$ surfactant solutions; orange line shows the behavior for C_{10}-$APSO_4$ surfactant solutions containing the formed Ag-NPs.

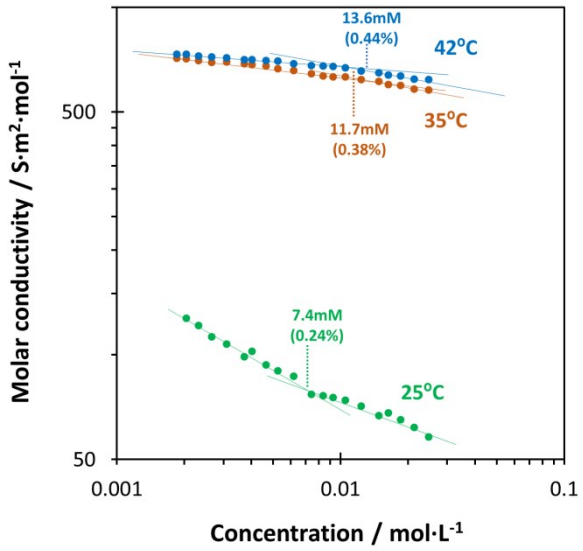

Fig. S5 Relationship between the conductivity and the concentration of C_{10}-$APSO_4$ surfactant in aqueous solution (pH = 3) at the indicated temperatures. The CMC values was taken as that at the inflection points in the plots. Note: A similar plot obtained at pH = 11.0 at 25°C yielded the same CMC value.

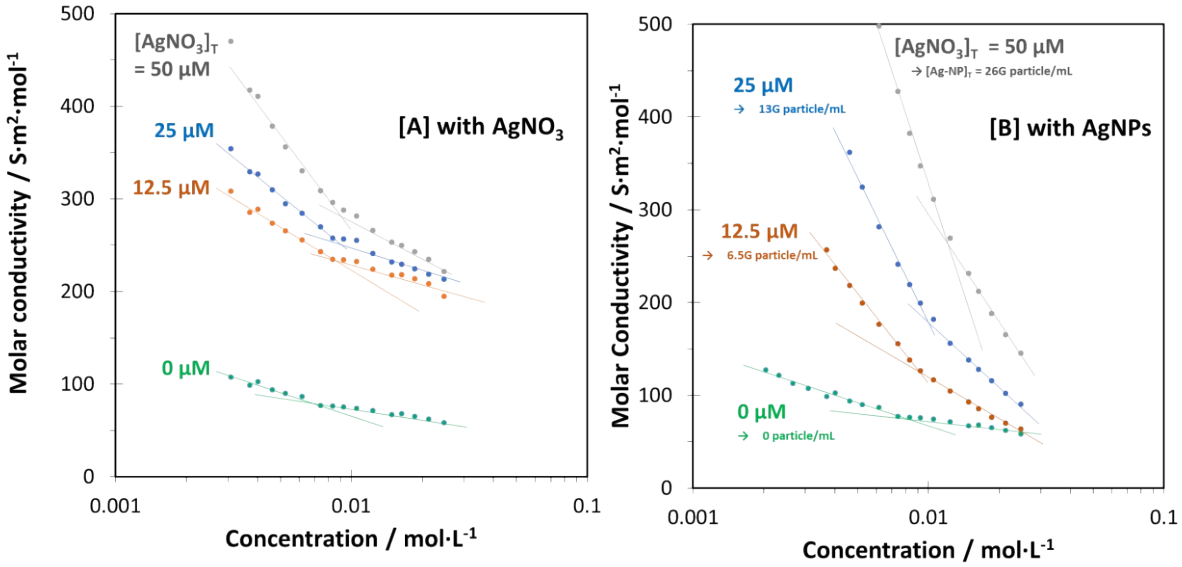

Fig. S6 The relationship between the C_{10}-$APSO_4$ surfactant and conductivity. Panel [A] shows the presence of different concentration of Ag^+ ions. Panel [B] shows the presence of different concentration of Ag-NP. The Ag-NPs was prepared in the condition of the labeled concentration of $AgNO_3$.