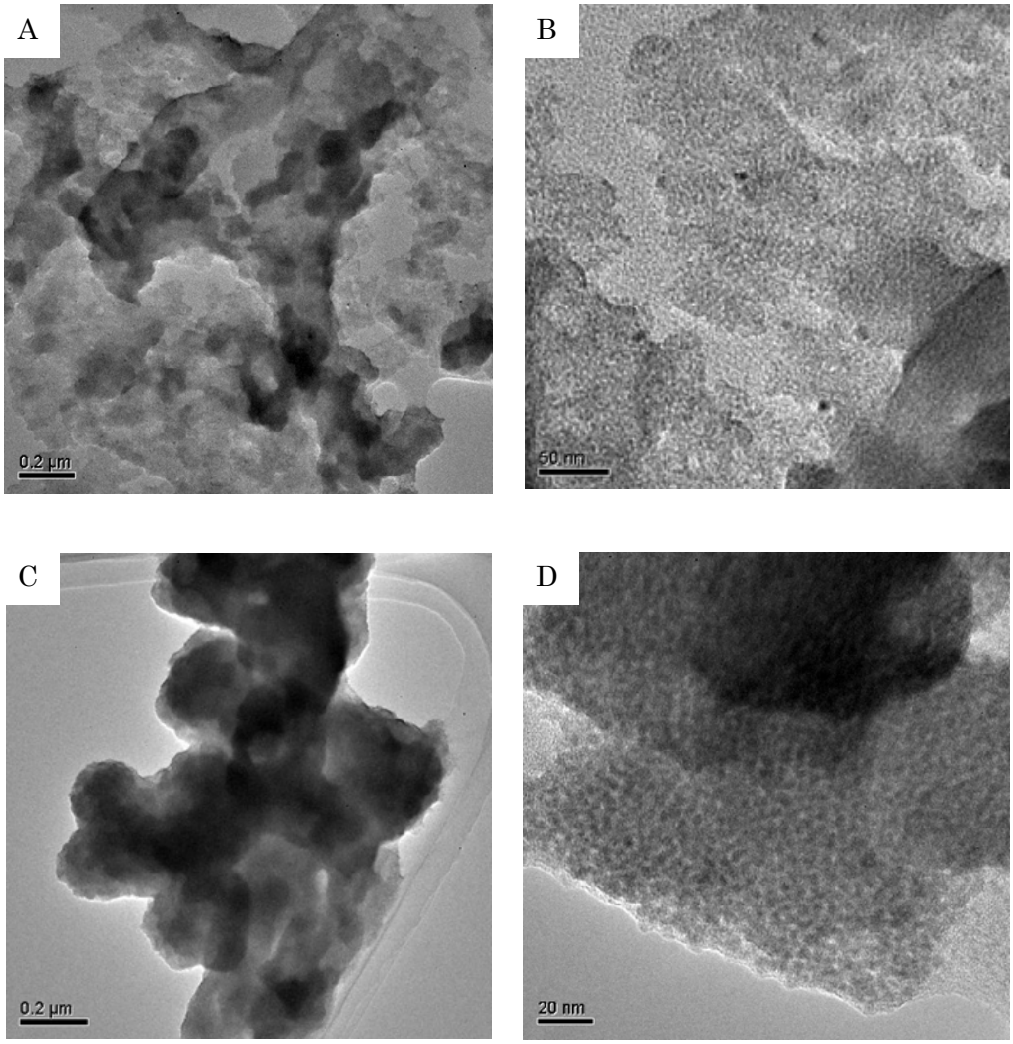

Fig. S1 TEM images of the particles synthesized at 200 °C in NaOH concentration of 1mol/L with the molar ratio of Ba:OLA:octalamine (A,B) and Ba:OLA:oleylamine (C, D) =1:8:8 for 72 h

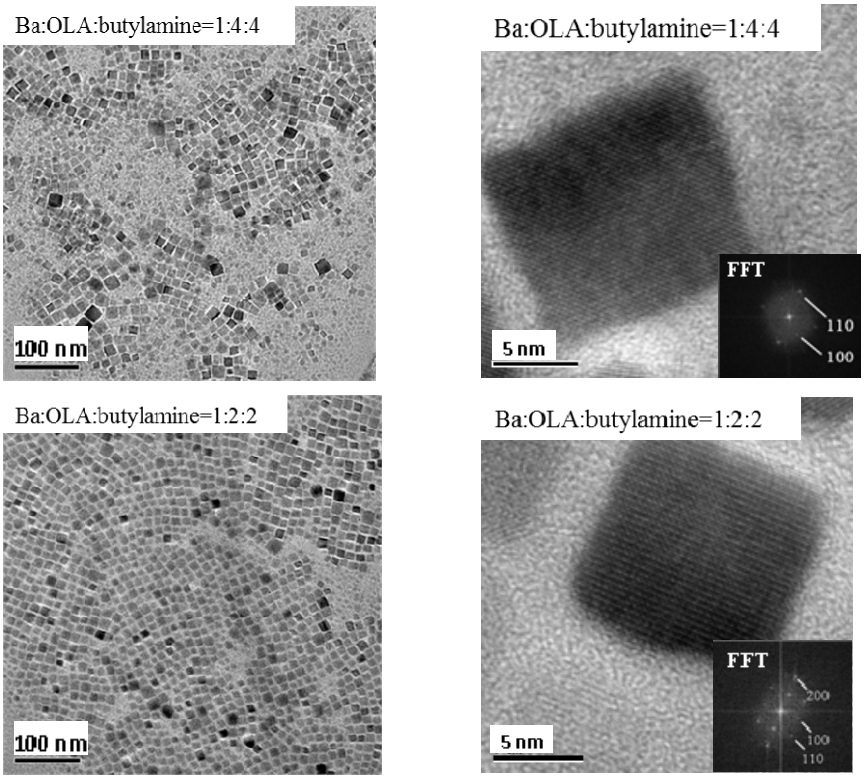

Fig. S2 TEM images of particles synthesized at 200 ^{o}C, NaOH=1mol/L with Ba:OLA:butylamine=1:4:4 and 1:2:2 for 72h

$BaTiO_3$ nanocubes were synthesized at 200 ^{o}C, NaOH 1mol/L for 72h with the molar ratios of Ba:OLA:butylamine=1:4:4 and 1:2:2. As shown in Fig. 1, the particle size of nanocubes decreased through the decrease of concentration of surfactants, and rough surface was obtained for nanocubes. Nanocrystals did not disappear through the decrease of concentration of surfactants. Furthermore, the oriented aggregates of nanocubes disappeared when synthesized at low concentration of surfactants. We got the conclusion that the oriented aggregation of nanocubes with perfect cubic morphology could be only obtained when synthesized at high concentration of surfactants.

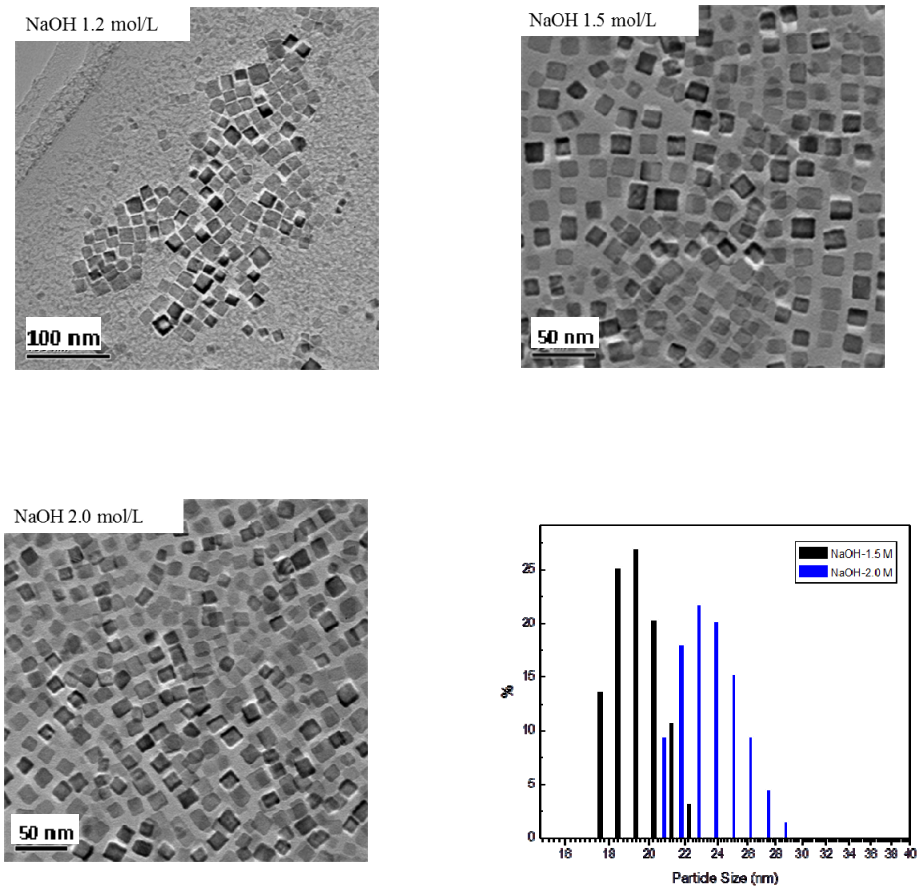

Fig. 2 TEM images and DLS results of particles synthesized at 200 ^{o}C, Ba:OLA:butylamine=1:8:8 for 72h with NaOH=1.2, 1.5 and 2mol/L

Figure S3 shows the TEM images of $BaTiO_3$ nanocubes synthesized at 200 ^{o}C, Ba:OLA:butylamine=1:8:8 with the NaOH concentration of 1.2, 1.5 and 2 mol/L. Only cubic-like particles with rough edge were obtained when the concentration of NaOH was higher than 1.5 mol/L. The particle size increased through the increase of the concentration of NaOH, which was identified by the DLS results. On the other hand, the oriented aggregates of nanocubes disappeared when synthesized at high concentration

of NaOH.