

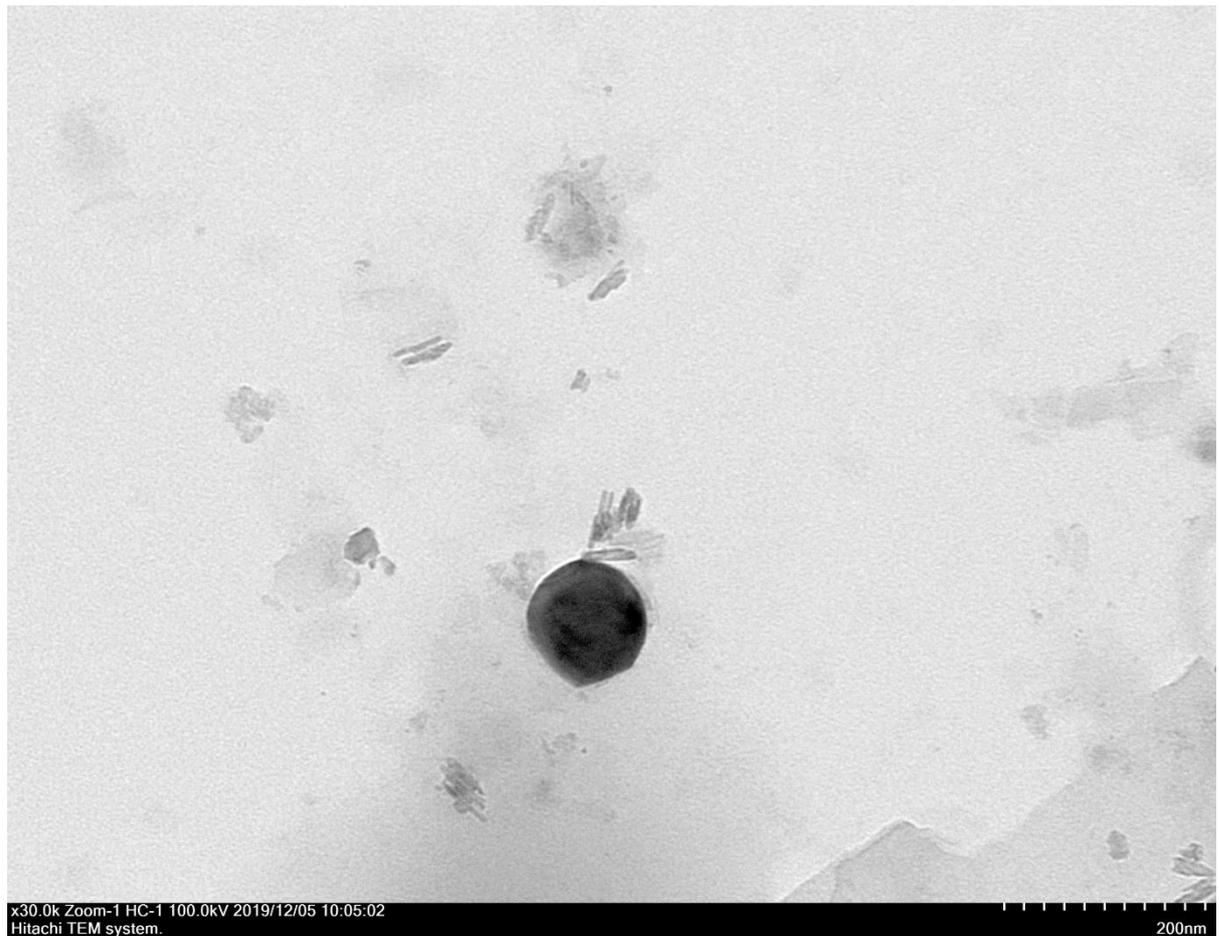
## Supplementary materials

**Table S1.** The Physicochemical Characteristics of CS-NPs prepared by using different concentration of the CS.

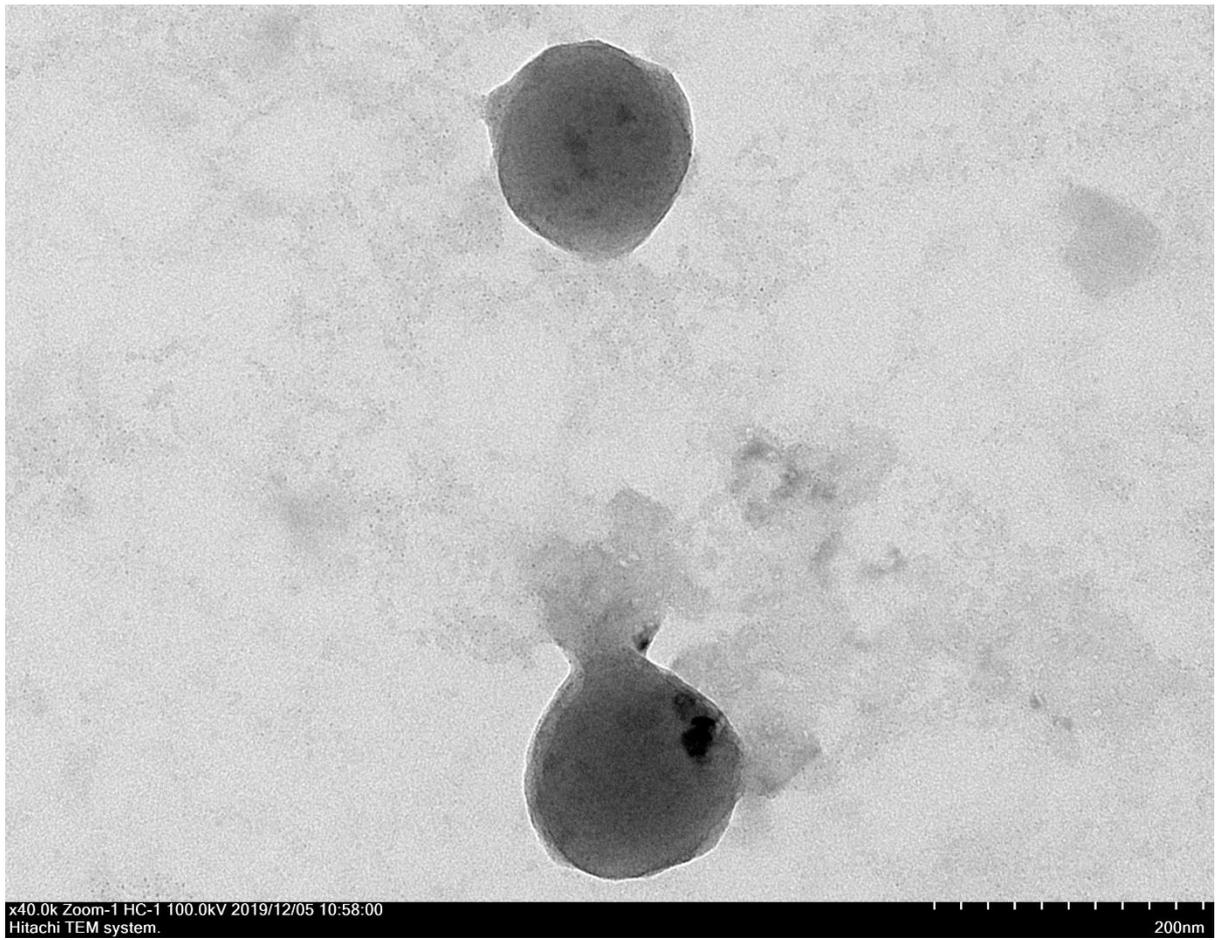
Ccs (mg/mL)	MHD $\pm$ SD (nm)	PDI	$\zeta$ -pot $\pm$ SD (mv)	EE $\pm$ SD (%)	LC (%)
1	90 $\pm$ 1	0.18	20 $\pm$ 1	37 $\pm$ 1	59 $\pm$ 1
1.5	101 $\pm$ 2	0.19	22 $\pm$ 1.5	41 $\pm$ 2	49 $\pm$ 1
2	115 $\pm$ 1	0.19	20 $\pm$ 0.2	49 $\pm$ 0.2	30 $\pm$ 0.5
2.5	123 $\pm$ 3	0.18	19 $\pm$ 1	52 $\pm$ 1	24 $\pm$ 1
3	128 $\pm$ 2	0.16	18 $\pm$ 1	66 $\pm$ 1	24 $\pm$ 1

CS concentration = 1mg/ml.

Results were reported as mean  $\pm$  SD, n=3.



**Figure S1.** TEM image of BSA-loaded NPs.



**Figure S2.** TEM image of re-dissolved BSA-loaded NPs.