

Supporting information

for

**Rational Design and Fabrication of Cancer-targeted Chitosan  
Nanocarrier to Enhance Selective Cellular Uptake and  
Anticancer Efficacy of Selenocystine**

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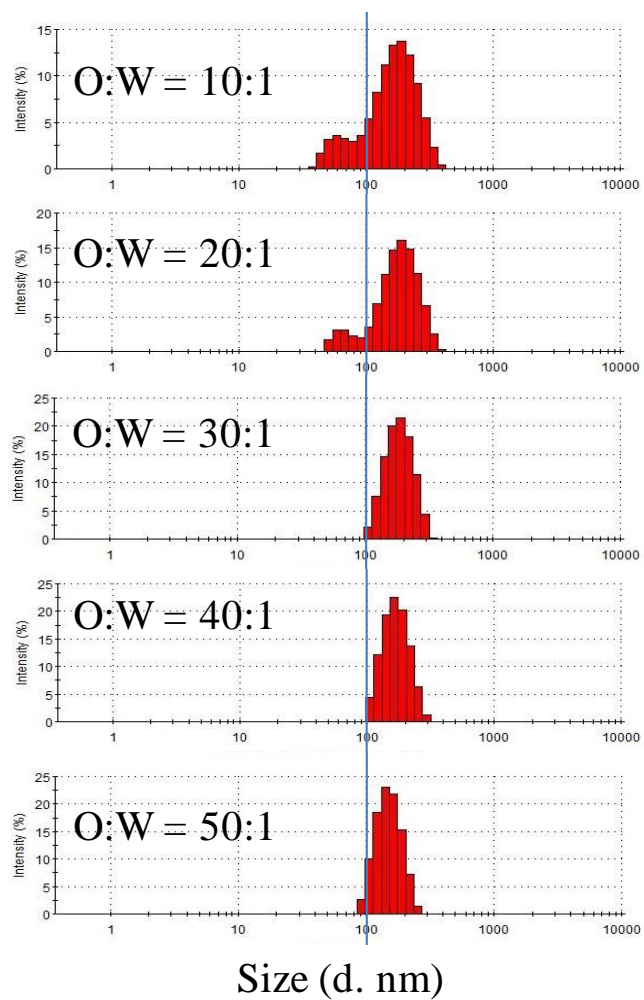
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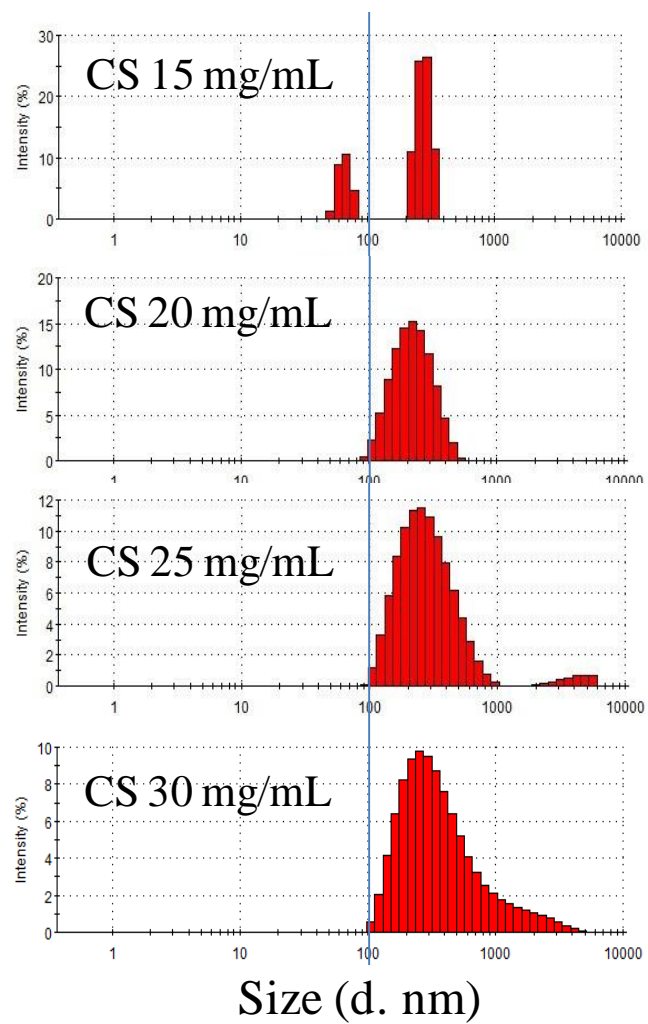
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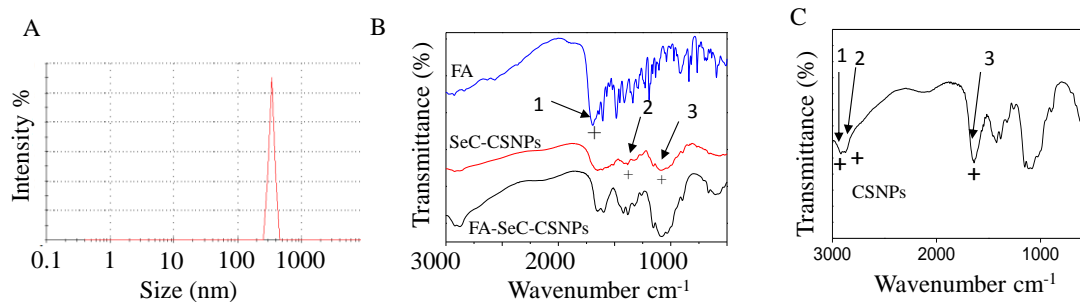
## RESULTS



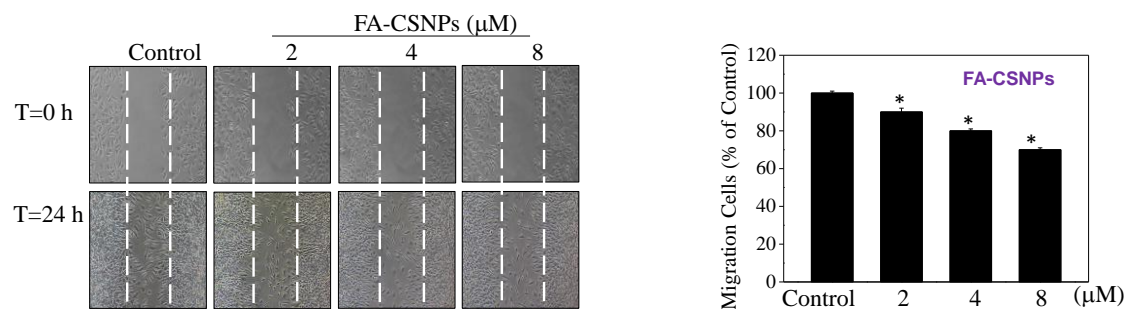
**Figure S1.** The influence of oil:water (O:W) ratio on the size distribution of CSNPs .



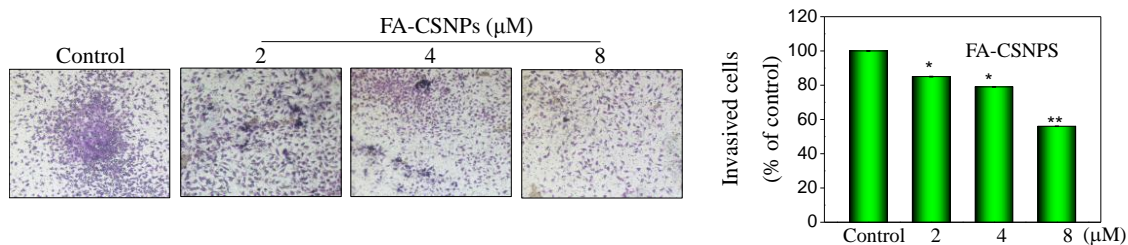
**Figure S2.** The influence of chitosan concentration in acetic acid solution on the size distribution of CSNPs



**Figure S3.** (A) Representative size distribution of FA-SeC-CSNPs. (B) FT-IR analysis of decoration chitosan. (C) FT-IR analysis of decoration chitosan. CSNPs. This peak 1 was attributed to C-C group and can be seen at  $2958\text{ cm}^{-1}$  (peak 1), the C-H stretching peak in the amide groups was found at  $2928\text{ cm}^{-1}$  (peak 2) and C-N in the ether groups was found at  $1647\text{ cm}^{-1}$  (peak 3) of CSNPs.



**Figure S4.** Effects of FA-CSNPs on HeLa cells migration. Wound healing assay was performed 12 hours after plating. The total distance migrated by wounded cells was expressed as percentage of initial distance. Data are presented as mean  $\pm$  SD ( $n = 3$ ). Difference with  $P < 0.05$ (\*) or  $P < 0.01$ (\*\*) was considered statistically significant comparing with the control group.



**Figure S5.** Effects of FA-CSNPs on HeLa cells invasion. The inhibition of cell invasion was measured by transwell and Boyden chamber assay. The number of cells was counted to calculate the average number of migrated cells. Data are presented as mean  $\pm$  SD (n = 3). Difference with  $P < 0.05$  (\*) or  $P < 0.01$  (\*\*) was considered statistically significant comparing with the control group.

**Table S1.** The drug-loaded rate and efficiency of drug incorporation into chitosan nanoparticles with different mass ratio of chitosan and SeC.

No.	CS : SeC	Encapsulation Efficiency	Drug-loaded Rate
1	4:1	53.72%	4.20%
2	2:1	51.13%	9.33%
3	1:1	46.87%	16.36%

Drug loading rate (%) = drug (encapsulated)/mass of nanosystem×100%.

Encapsulation efficiency (%)= drug (encapsulated)/drug (total)×100%.