

## Supplemental Information

### Quantifying the level of nanoparticle uptake in mammalian cells using flow cytometry

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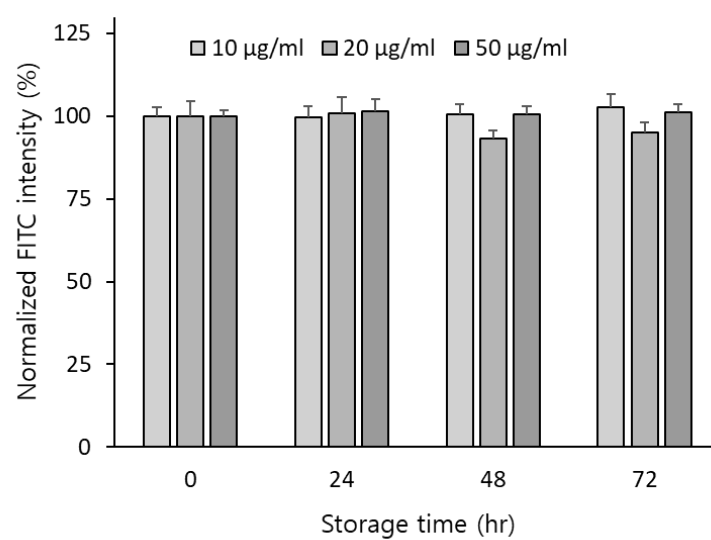
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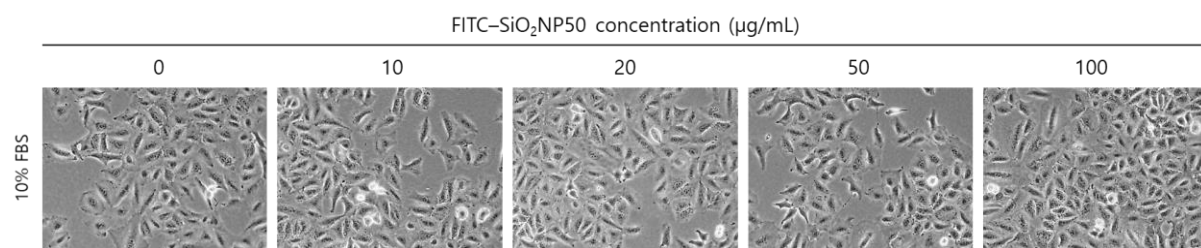
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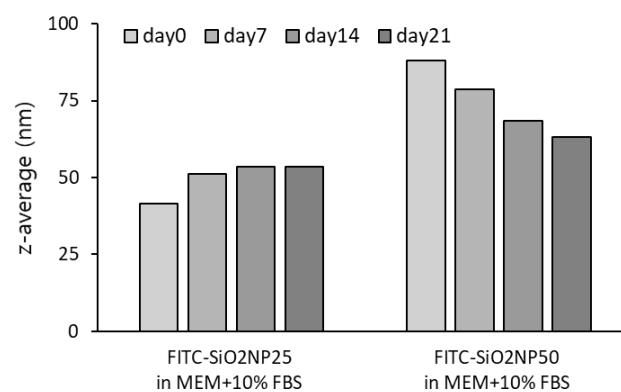
*Keywords:* Nanoparticle uptake, silica nanoparticle, fluorescence-labeled nanoparticle, flow cytometry, semi-quantification, MESF



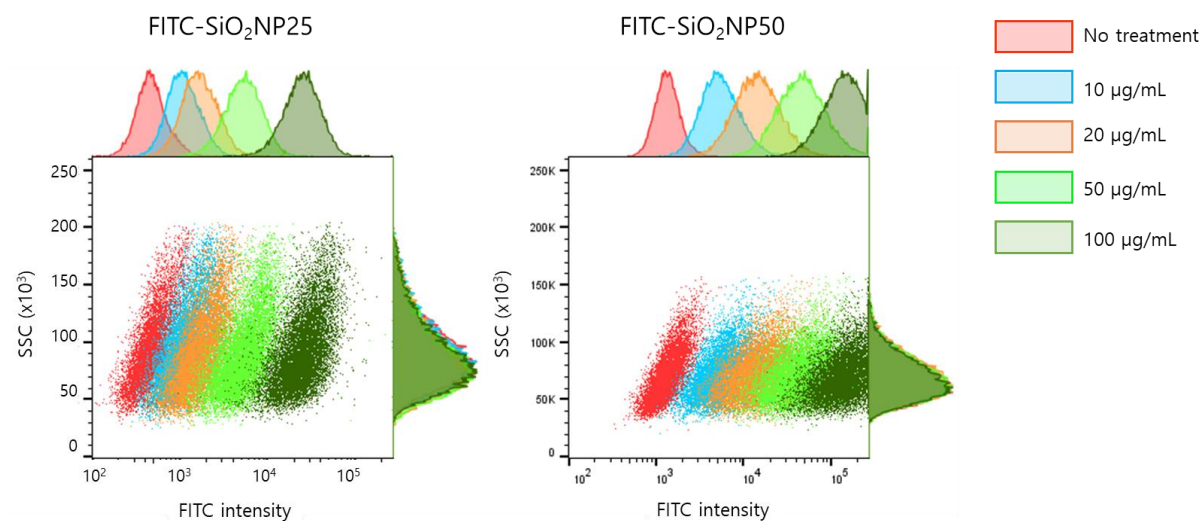
**Supplemental Figure 1.** Stability of FITC molecules in 20 nm SiO<sub>2</sub> nanoparticles during 72 hr.



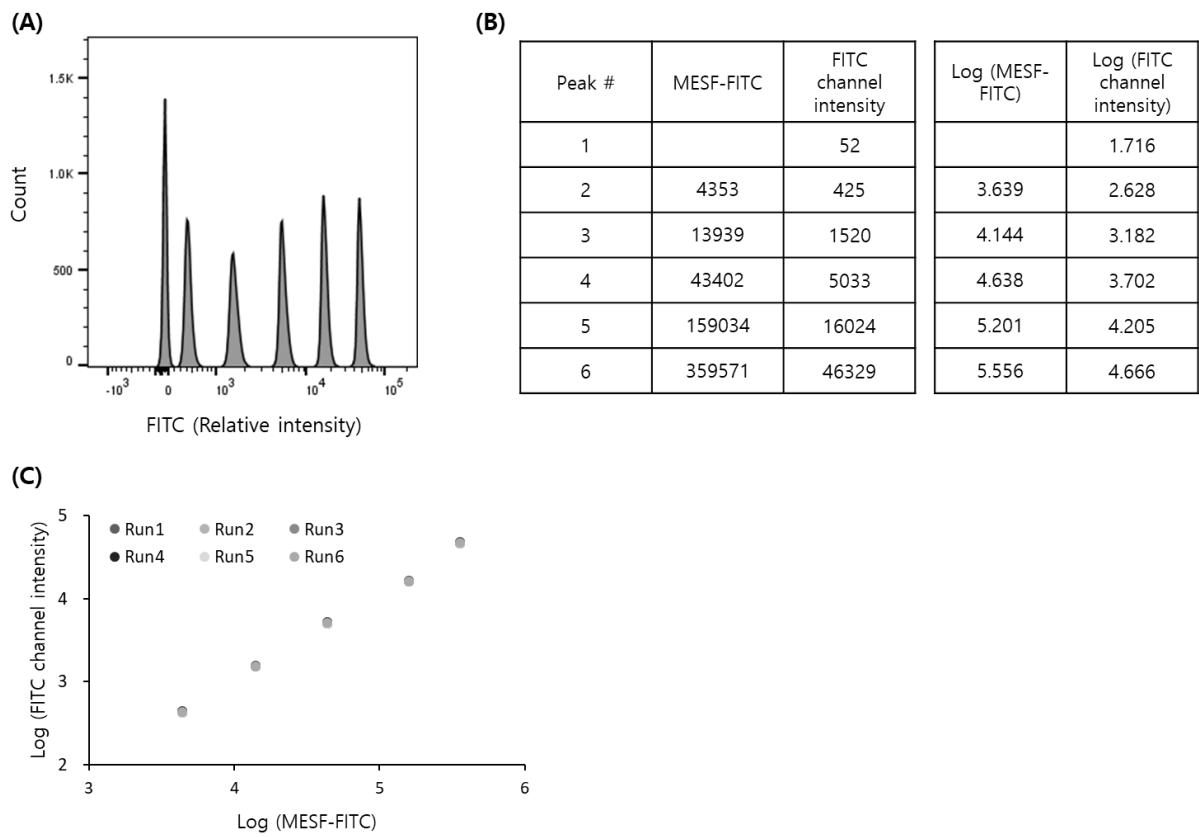
**Supplemental Figure 2.** Effect of the presence of FITC-SiO<sub>2</sub>NP50 treatment on cellular morphology and adhesion.



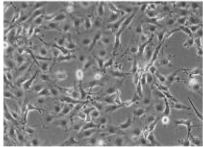
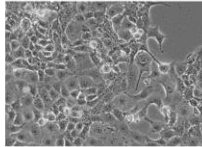
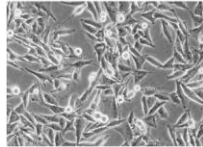
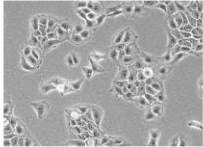
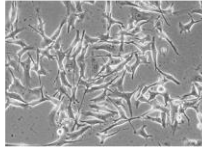
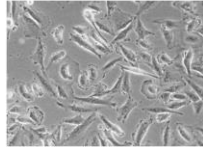
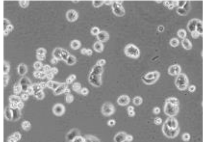
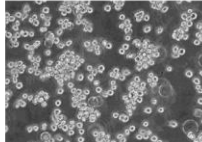
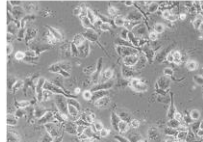
**Supplemental Figure 3.** Change in z-average size of FITC-SiO<sub>2</sub> nanoparticles in serum-containing media.



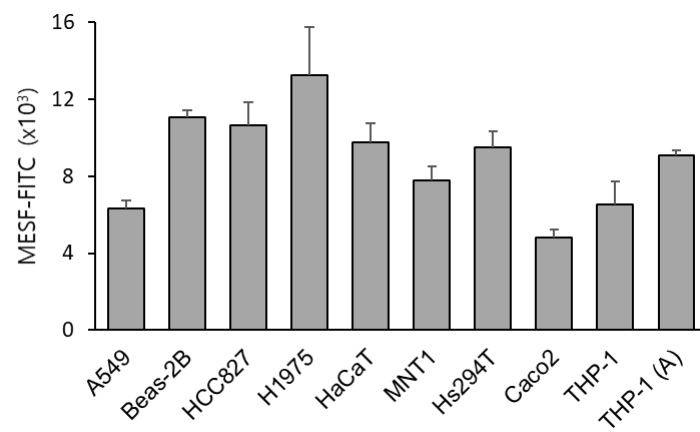
**Supplemental Figure 4.** Effect of nanoparticle treatment on the side scatter of A549 cells.



**Supplemental Figure 5.** Calibration of fluorescence intensity to MESF-FITC using Rainbow Calibration Beads. (A) A typical histogram and (B) corresponding MESF-FITC values of 6-peak Rainbow Beads. (C) Linear correlation between MESF-FITC log values and FITC intensity log values showing minimal deviation between runs.

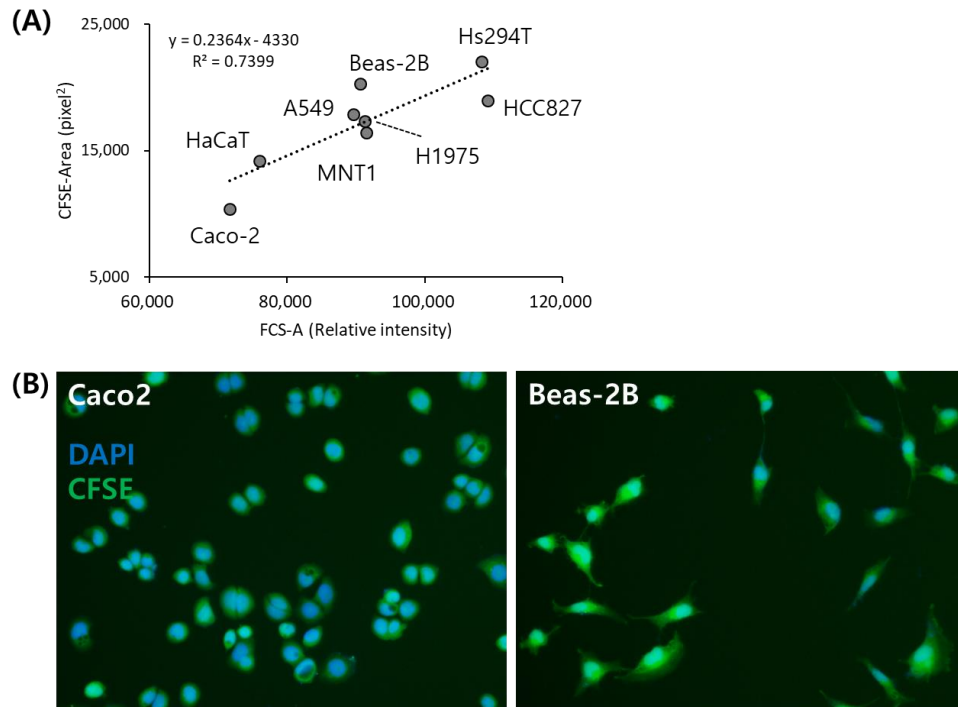
Tissue	Cell lines	Disease	Beas-2B	HCC827	H1975
Lung	Beas-2B	Normal			
	A549	Carcinoma			
	HCC827	Adenocarcinoma			
	H1975	Adenocarcinoma			
Skin	HaCaT	Normal			
	MNT1	Melanoma			
	Hs294T	Melanoma			
Colon	Caco2	Adenocarcinoma			
Peripheral blood	THP-1 THP-1, M0	Acute leukemia			

**Supplemental Figure 6.** List of tested cell lines and their morphologies.

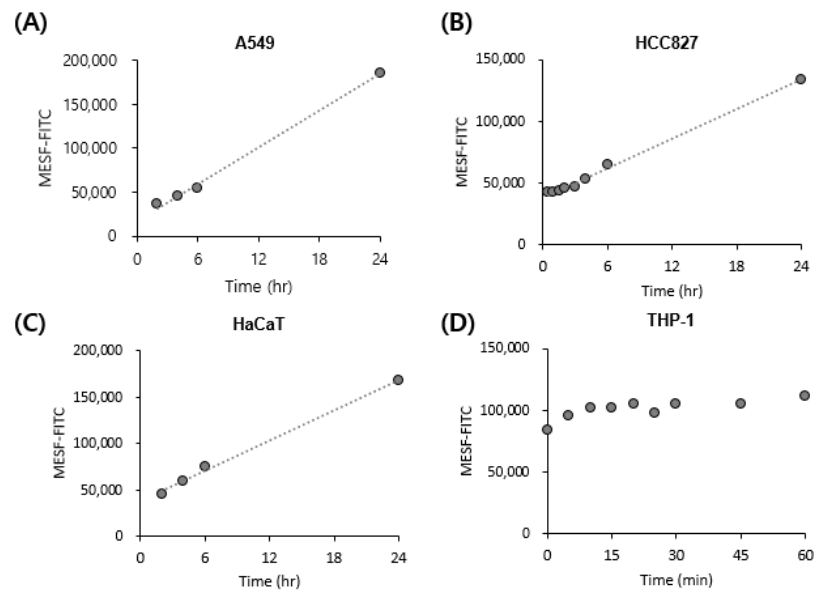


**Supplemental Figure 7.** MESF-FITC baseline by cell type.





**Supplemental Figure 8.** (A) Correlation of FSC-A obtained via flow cytometer and CFSE-area obtained via image analysis. (B) Representative images of two different cell morphologies: round and convex Caco2 cells (left), and flat and stretched Beas-2B cells (right).



**Supplemental Figure 9.** Nanoparticle uptake dynamics of (A) A549 cells, (B) HCC827 cells, (C) HaCaT cells, and (D) THP-1 cells.