Design nanoparticles with improved tumor penetration: viewing surface property from molecular architecture

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**Fig. S1** Representative image of apoptosis assay by flow cytometry.

**Fig. S2** Representative image of cellular uptake by flow cytometry.

**Fig. S3** The viability tested of HeLa cells after incubating with various inhibitors for 2 h by CCK-8 assay. 
C: medium treated cells. Chlorpromazine (5 μg/mL), genistein (100 μg/mL), nocodazole (5 μg/mL) and amiloride (25 μg/mL).
Fig. S4 Representative image of HeLa spheroids.

Fig. S5 In vitro representative image of tumor penetration by flow cytometry.
Fig. S6 *In vivo* representative image of tumor penetration by flow cytometry.

Fig. S7 The AFM images of PS-G0, G3, -G4, -G5. Scale bar: 5 nm