Supplementary information for

Targeted delivery of a new anticancer compound Anisomelic acid using chitosan-coated porous silica nanorods for an enhanced apoptotic effect *in vitro*

by

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Nomenclature of the samples:

NR-MSP: Rod shaped mesoporous silica nanoparticles

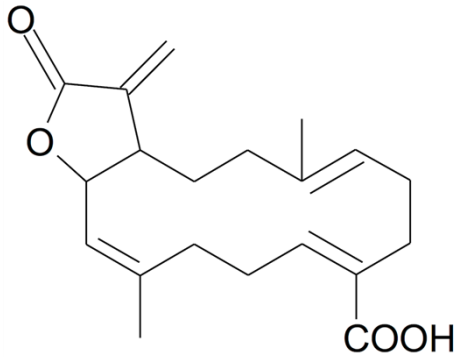
NR-MSP/AA : Anisomelic acid (AA) loaded rod-shaped mesoporous silica nanoparticles

Chitosan-NR-MSP : Chitosan-coated rod-shaped mesoporous silica nanoparticles

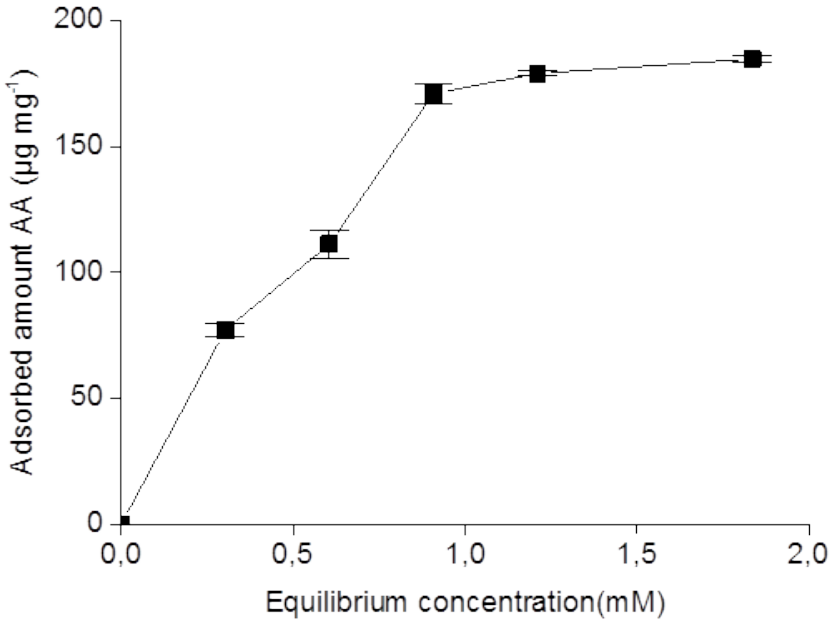
FA-Chitosan-NR-MSP: Folic acid conjugated chitosan-coated rod-shaped mesoporous silica nanoparticles

Chitosan-NR-MSP/AA : Chitosan-coated AA loaded rod-shaped mesoporous silica nanoparticles

FA-Chitosan-NR-MSP/AA: Folic acid conjugated chitosan-coated AA loaded rod-shaped mesoporous silica nanoparticles



Supplementary Figure S1. Structure of Anisomelic acid (AA).

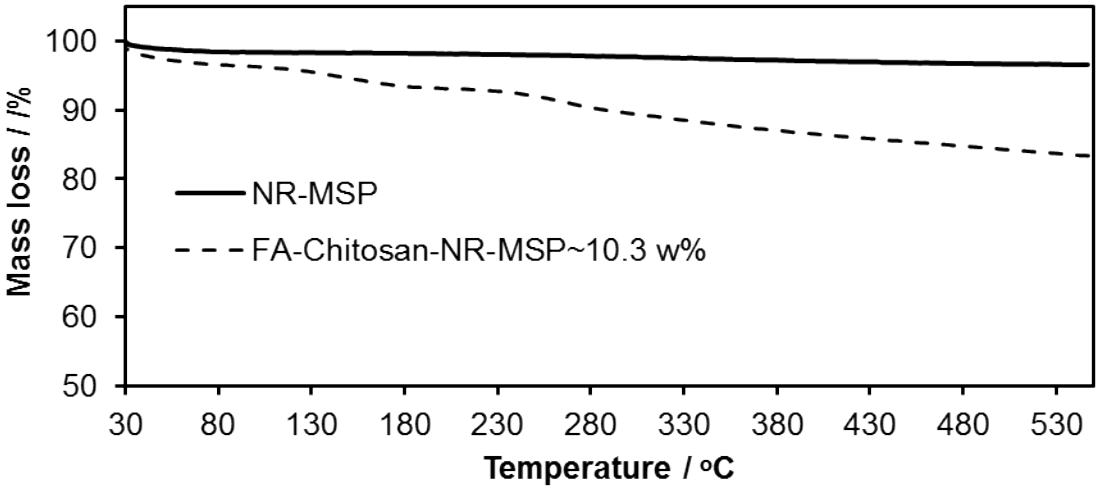


Supplementary Figure S2. Adsorption isotherm of AA to NR-MSP in cyclohexane.

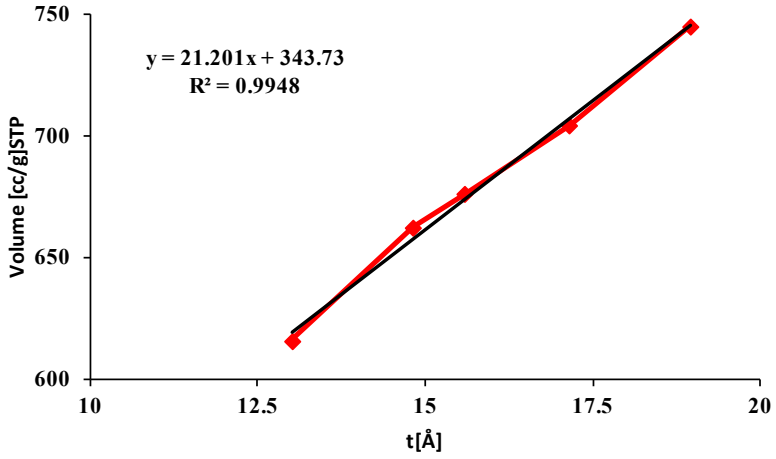
The AA adsorption isotherm plotting was carried out with the help of an elution study. The elution study was performed by soaking NR-MSP samples in ethanol which were loaded with incerasing AA concentrations (the concentration of NR-MSP/AA was 400 µg mL^{-1} in ethanol). Subsequently the NR-MSP/AA samples were dispersed by ultrasonication and kept in the sonication bath for 30 minutes, left for complete elution on a rotating wheel (at 30 rpm) overnight. Next day, the samples were centrifuged and the supernantent of each sample were measured by NanoDrop 2000c UV-Vis Spectrophotometer reading at 230 nm, and the concentration was calculated by preparing a AA standard curve in ethanol.

The symbols in the plot are the calculated AA amount per mg of NR-MSP and each data point was calculated based on the average value of three independent measurements, the data being reported with its standard deviation as error bars.

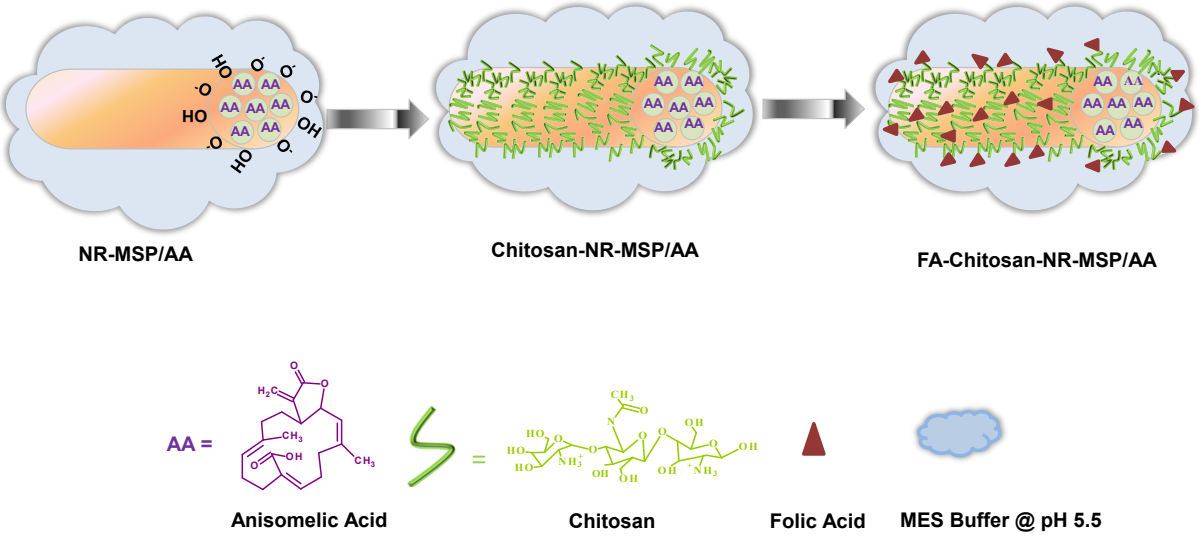
To make sure the complete elution of AA from the NR-MSP had occurred, the samples were soaked into ethanol for a second time but no valid absorbance values were detected for the supernatent of the second elution step.



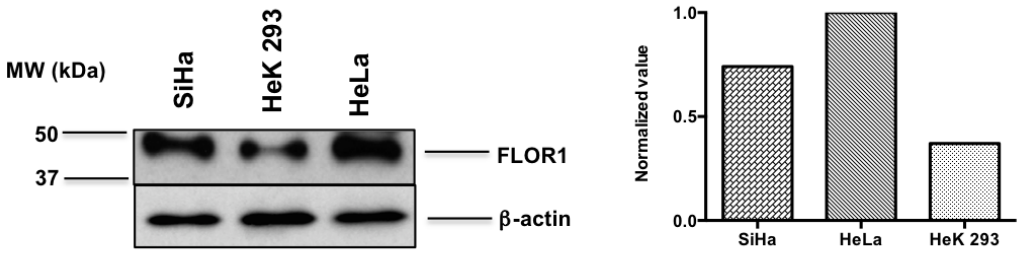
Supplementary Figure S3. TGA of NR-MSP and FA-Chitosan-NR-MSP.



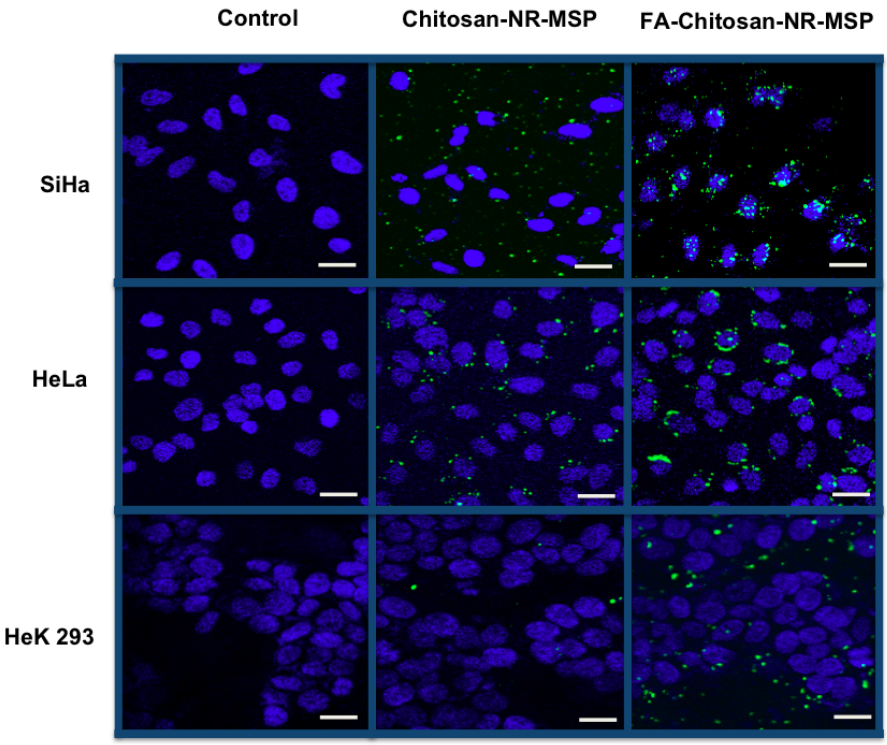
Supplementary Figure S4. *t*-plot analysis from NR-MSP N_2-sorption isotherm pressure range p/p_0 0.894-0.989.



Supplementary Figure S5. Schematic representation of the particle design with AA as drug cargo.



Supplementary Figure S6. Western blot analysis of folate receptor alpha (FLOR1) expression in SiHa, HeLa and HeK 293 cells. Actin expression was measured as loading control.



Supplementary Figure S7. Confocal microscopy images showing the intracellular uptake of FITC-labelled Chitosan-NR-MSPs (green) in SiHa, HeLa and HeK 293 cell lines incubated for 4 h, shows that Chitosan-NR-MSPs were localized in the cytoplasm while the FA-Chitosan NR-MSP accumulated more closely around the nucleus in SiHa and HeLa cells. Nuclei were stained with DAPI (blue). Scale bar: 10 μm