Electronic Supplementary Material (ESI) for RSC Advances.

Supplemental Information

Hydroxylated Fullerene-Capped, Vinblastine-Loaded Folic Acid-Functionalized Mesoporous Silica Nanoparticles for Targeted Anticancer Therapy

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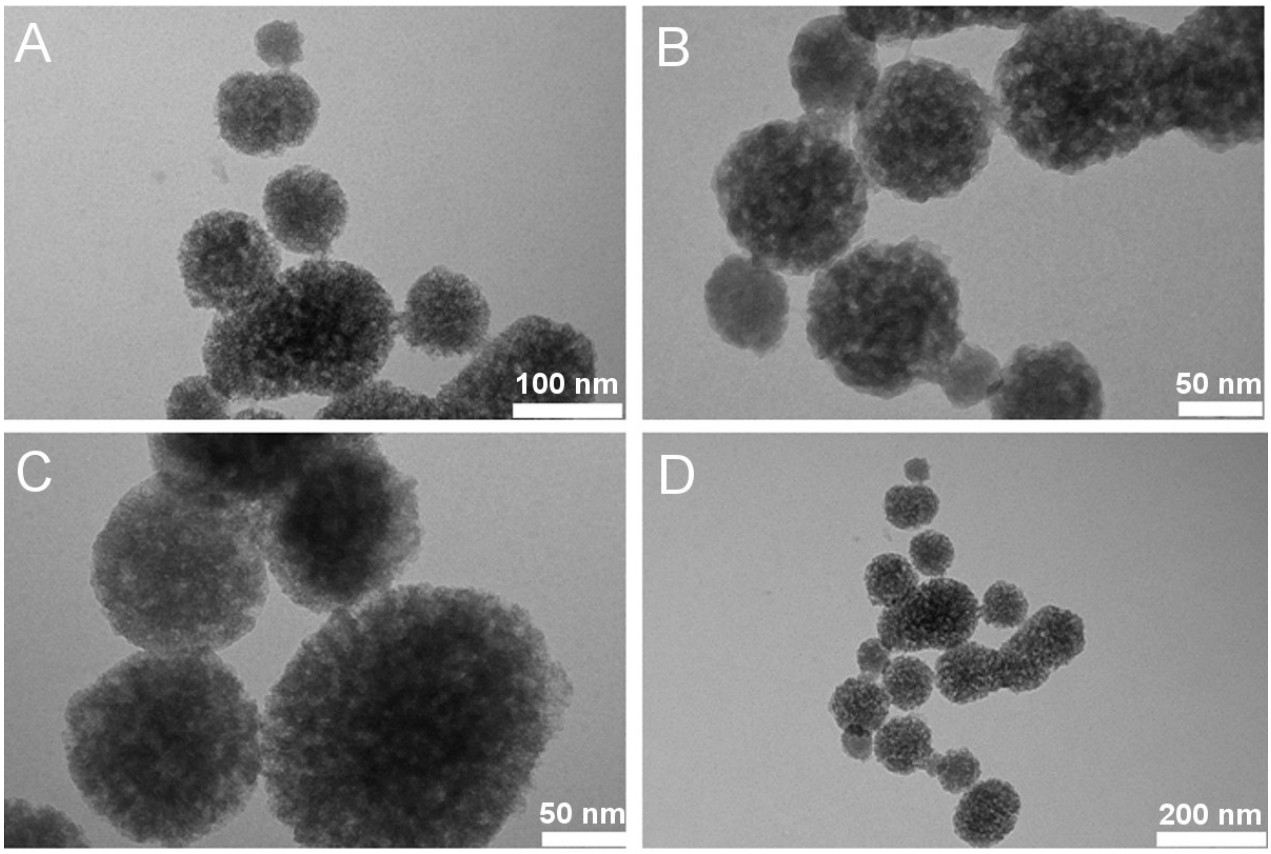

Figure S1. Additional TEM images of FNP-VIN@FAMSN

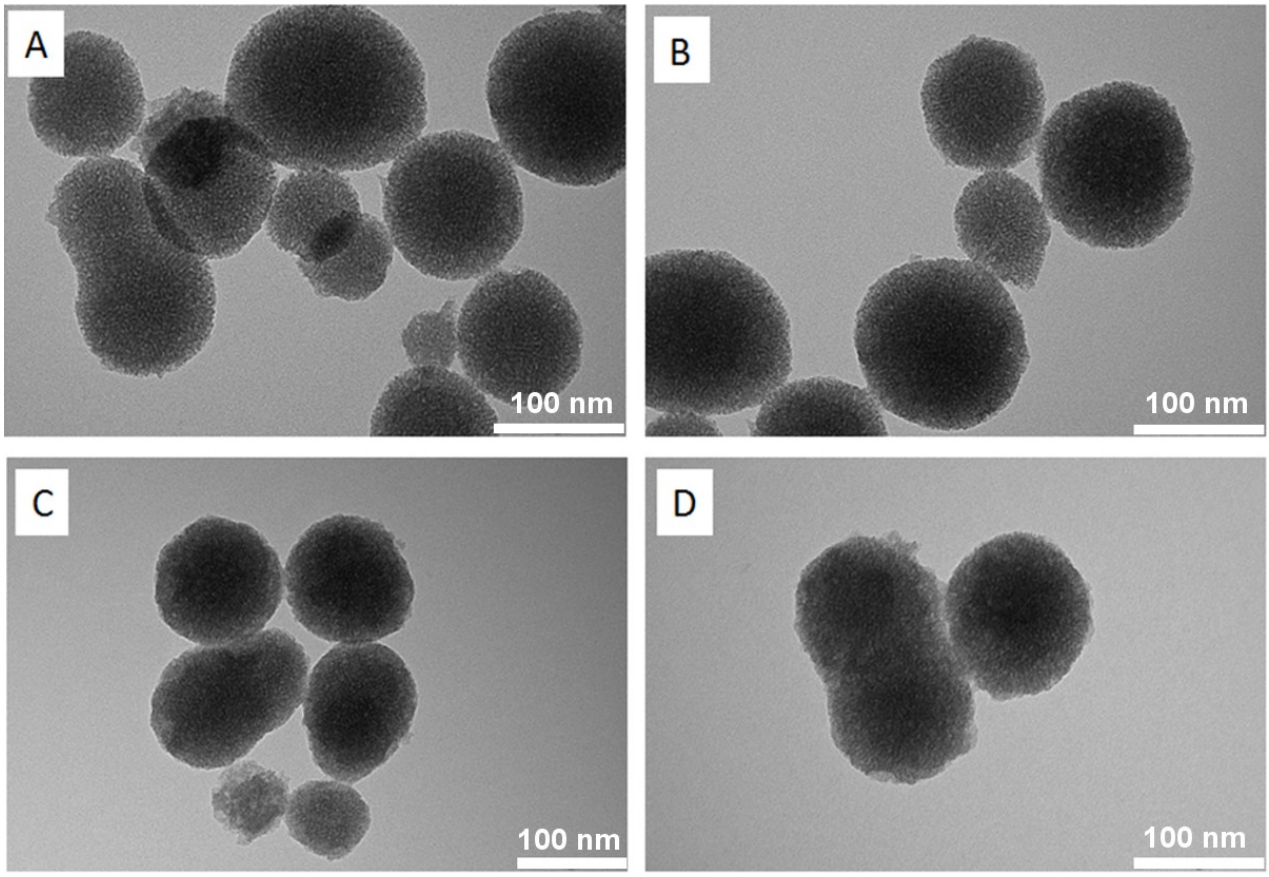

Figure S2. TEM images of VIN@FAMSN (A, B) and FNP@FAMSN (C,D)

Synthesis of fullerenol loaded FAMSN (FNP@FAMSN): Fullerenol (1.25 mg) was measured in a 100 ml flask and 12.5 ml of PBS buffer (10 mM, pH 7.4) was added. The solution was sonicated for 10 min and stirred over night at room temperature in order to fully dissolve FNPs. FAMSN (25 mg) was then added, the mixture was stirred at room temperature for 20 h, suspension was centrifuged at 8000 rpm for 15 min, washed with PBS buffer, water and ethanol and dried at 80 ˚C.

Synthesis of Vinblastine loaded FAMSN (VIN@FAMSN): Solution of Vinblastine sulfate in demineralized water (0.5 mL, 1 mg/mL) was added to 12.5 mL of PBS buffer (10 mM, pH 7.4), followed by addition of 25 mg of FAMSN. The mixture was stirred at room temperature for 20 h, suspension was centrifuged at 8000 rpm for 15 min, washed with PBS buffer, water and ethanol and dried at 80 ˚C.

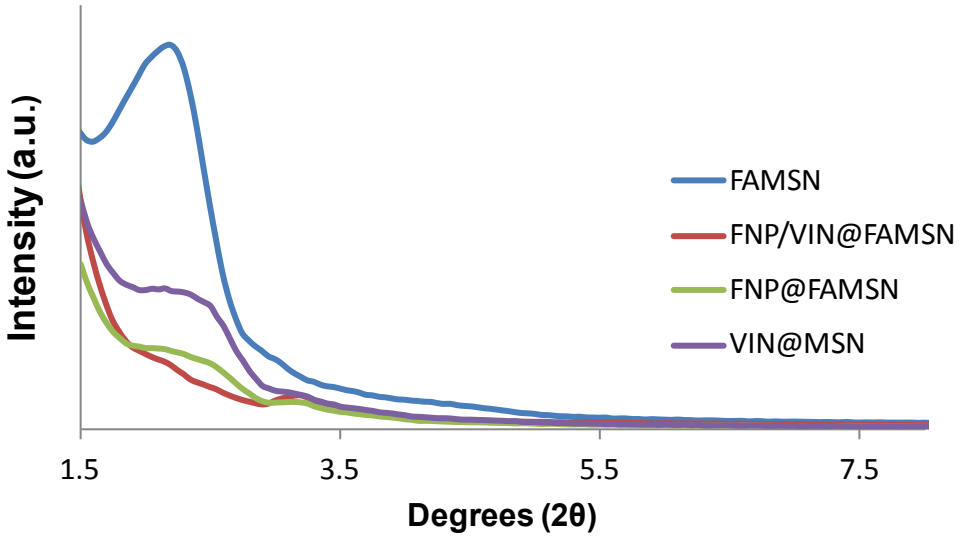

Figure S3. Low Angle XRD measurements for the prepared materials

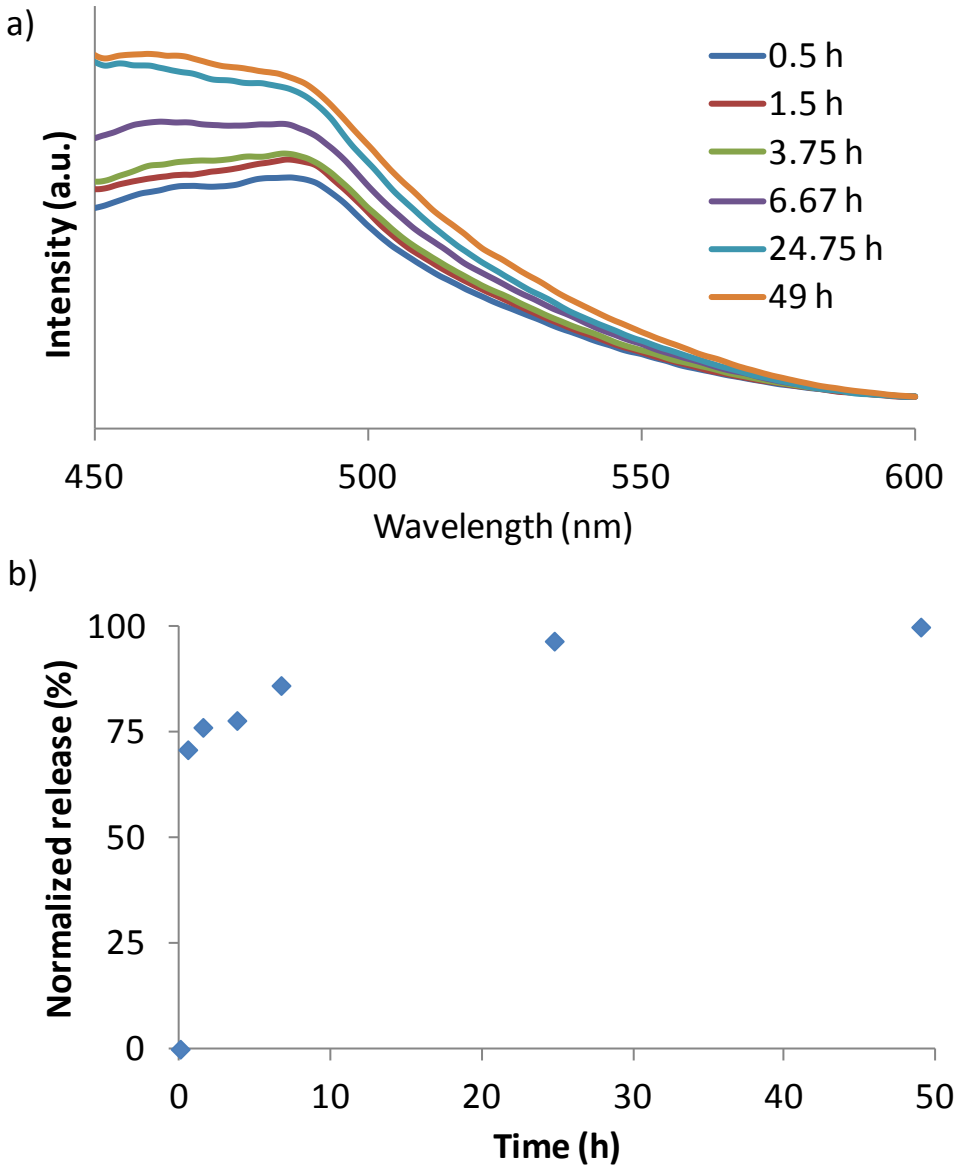

Figure S4. a) Fluorescence measurements of released fullerenol from FNP@FAMSN in PBS upon excitation at 420 nm; b) release kinetics of fullerenol

Fluorescence measurements were performed on Perkin Elmer LS45 Fluorescence spectrometer. The material (FNP@FAMSN, 7 mg) was suspended in 15 mL of PBS buffer (10 mM, pH 7.4) and stirred at room temperature. The 2 mL aliquots were taken at designated times on Figure S4a, the suspension was centrifuged at 8000 rpm for 15 minutes and fluorescence of FNP measured upon excitation at 420 nm.

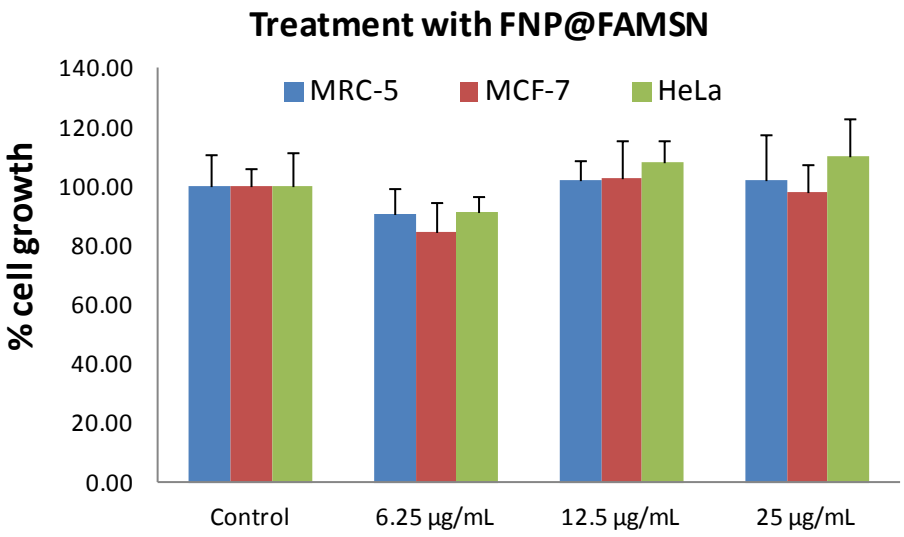

Figure S5. Viability measurements on the treatment of MRC-5, MCF-7 and HeLa cell lines with FNP@FAMSN