

## Supporting Information

### Synthesis and Characterisations

**Materials:** Tetramethylorthosilicate (TMOS) was obtained from Merck chemicals, Germany. Citric acid was obtained from E-Merck, India. N-Cetyl N, N, N- trimethyl ammonium bromide (CTAB) was purchased from Loba Chemie, India. Poly(allylamine hydrochloride) (PAH) (15 KDa), Fluorescein isothiocyanate (FITC) and tri-Sodium citrate were procured from Sigma-Aldrich and were used as received. Silicic acid (0.5M) was prepared by hydrolysing tetramethylorthosilicate (TMOS) with  $10^{-3}$  M HCl and was used within half an hour of preparation. The citrate buffer of pH 7.0 was prepared by mixing appropriate amount of tri-Sodium citrate with citric acid. All the solutions were prepared using deionized water (18.2 M $\Omega$ , Millipore water purification system).

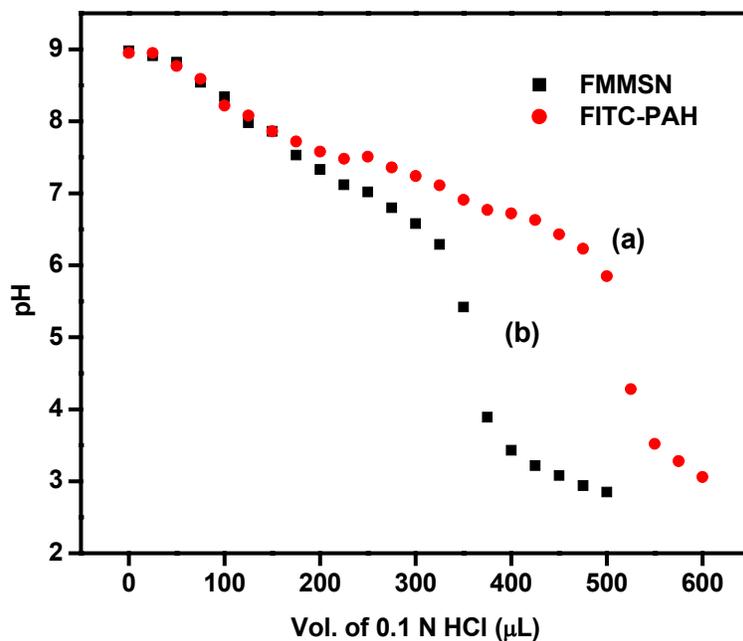
### Experimental method:

Dye conjugation of PAH: Typically 4 mg of FITC was dissolved in 0.5 mL of dimethylsulphoxide (DMSO). In a separate container 500 mg of PAH was dissolved in 6mL of deionized water and the solution pH was adjusted to 8.4 using NaOH. The two solutions were combined and stirred for two days at room temperature in the dark. The resulting solution was centrifuged using an Amicon centrifuge tube with 10 KDa molecular weight cut off and the filtrate was lyophilized to remove water. From UV-Vis studies of the residual liquid obtained after centrifugation the amount of dye tagged was obtained (the molar ratio was found to be 1 PAH : 0.31 FITC ).

pH- metric Titration: In a typical pH-metric titration of Fluorescent monodisperse mesoporous silica nanospheres (FMMSN), 50 mg of FMMSN were dispersed in 5 mL of 150 mM NaCl. The pH of the mixture was adjusted to 9.0 by adding 0.1 N NaOH. The resulted

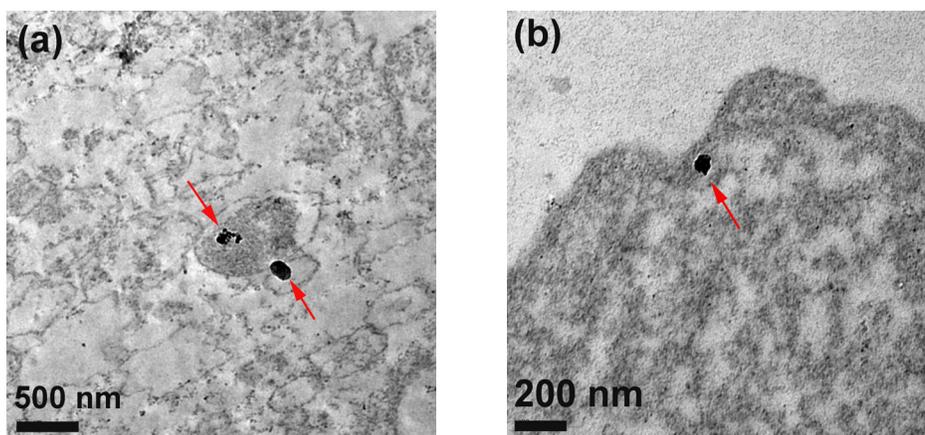
mixture was then titrated against 0.1 N HCl. Similarly 5 mg of FITC-PAH was dissolved in 5 mL of 150 mM NaCl and the pH of the solution was adjusted to 9.0 by adding 0.1 N NaOH and the resulting solution was titrated against 0.1 N HCl.

**Characterisations:** Powder X-ray diffraction (XRD) patterns were recorded on a Siemens (Cheshire, UK) D5000 X-ray Diffractometer over a  $2\theta$  range of  $2^\circ$  to  $10^\circ$  using  $\text{CuK}\alpha$  ( $\lambda=1.5406 \text{ \AA}$ ) radiation at 40 kV and 30 mA with a standard monochromator using a Ni filter. High resolution Transmission electron microscope (HRTEM) (JEOL TEM 2010 microscope operating at 200 kV) was used to investigate morphology and size of the particles. The samples for TEM were prepared by dispersing the material in ethanol by ultrasonication and drop drying onto a formvar coated copper grid. Confocal imaging of the reaction was done taking confocal sections at 0.3  $\mu\text{m}$  intervals using 100 X 1.4 NA objective at a pinhole of 1AU on a Zeiss LSM 510 META system. The 488 line of the argon laser was used for fluorescence excitation and emission was collected using 500-550 BP.  $\text{N}_2$  adsorption-desorption isotherms are measured at 77 K using a Quantachrome Nova 4000e analyzer, with the sample being outgassed at 423 K for 12 hours. The specific surface area and the pore-size distribution (PSD) were calculated by the Brunauer-Emmett-Teller (BET) and Barret-Joyner-Halenda (BJH) methods, respectively. Dynamic Light Scattering (DLS) measurements were done with a Zetasizer 3000 HSA (Malvern instruments, UK) using a  $90^\circ$  scattering angle and a laser light of wavelength 633 nm. The hydrodynamic diameters of particles were calculated by using the automated mode. The system was calibrated by using the  $199 \pm 6 \text{ nm}$  Nanospheres<sup>TM</sup> Size Standard (Duke Scientific Corp., Palo Alto, CA, USA) and DTS 0050 standard from Malvern.

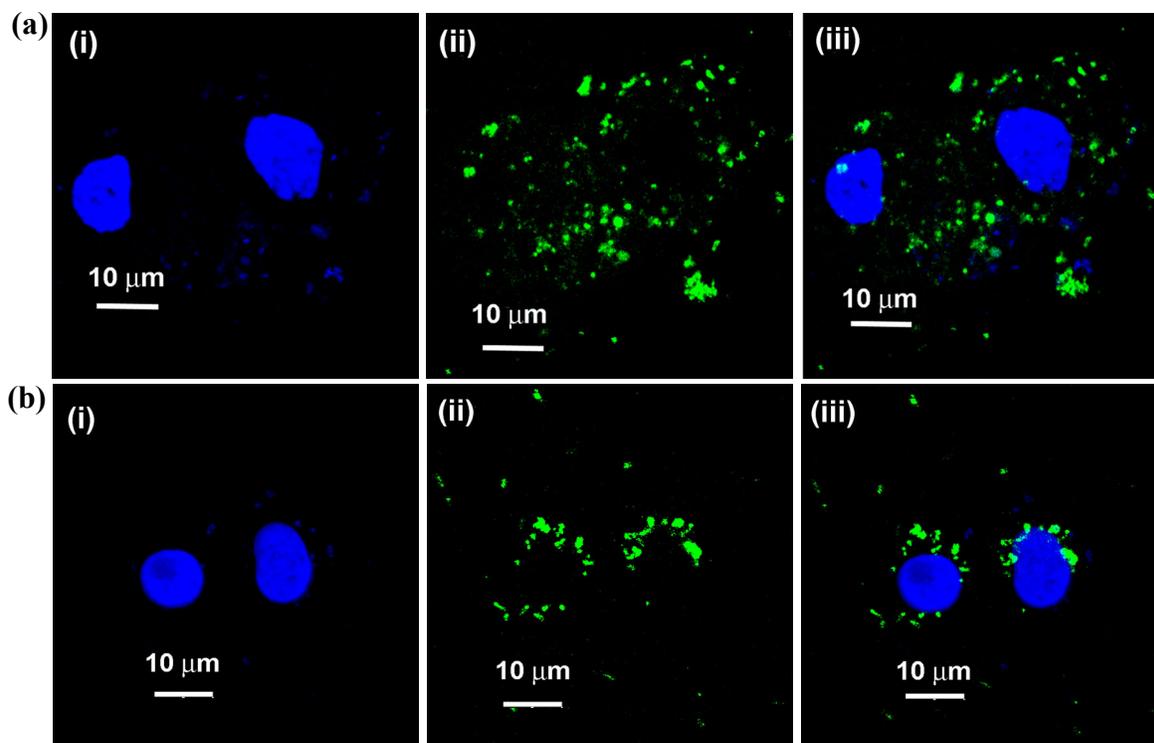


**Fig. S1** The plot of pH against the volume of 0.1 N HCl added to (a) FITC tagged PAH and (b) Fluorescent monodisperse mesoporous silica nanospheres (FMMSN).

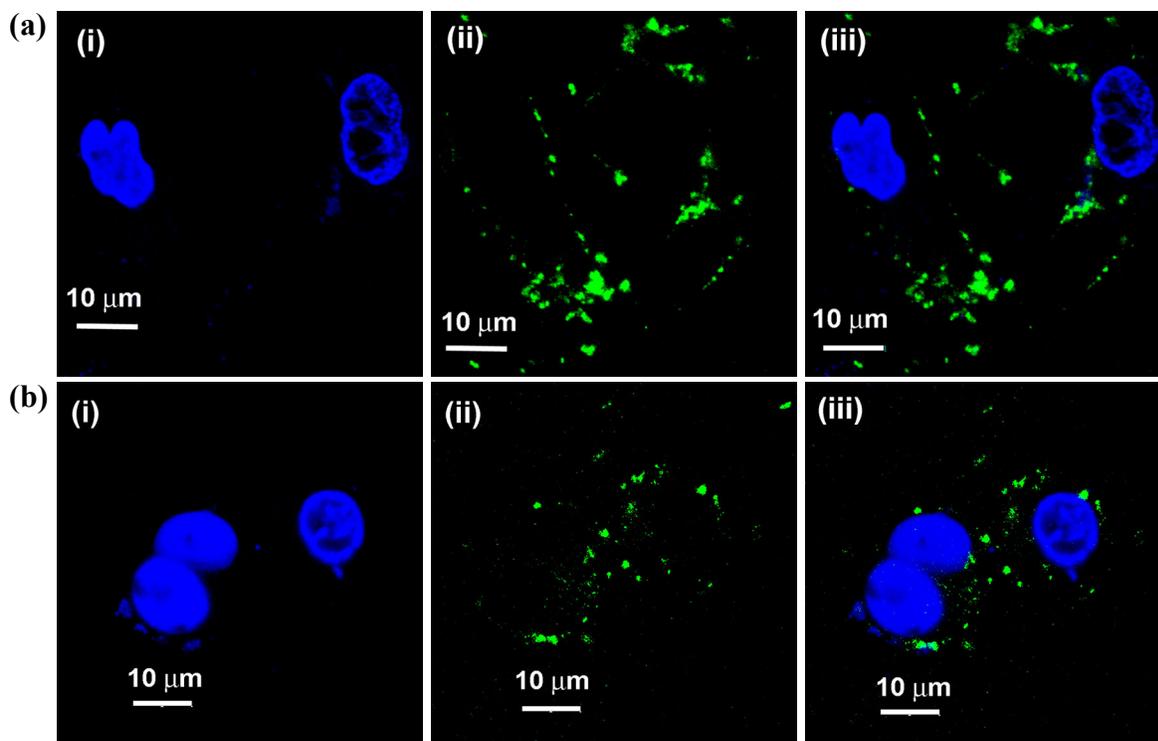
#### Cellular Uptake Studies:



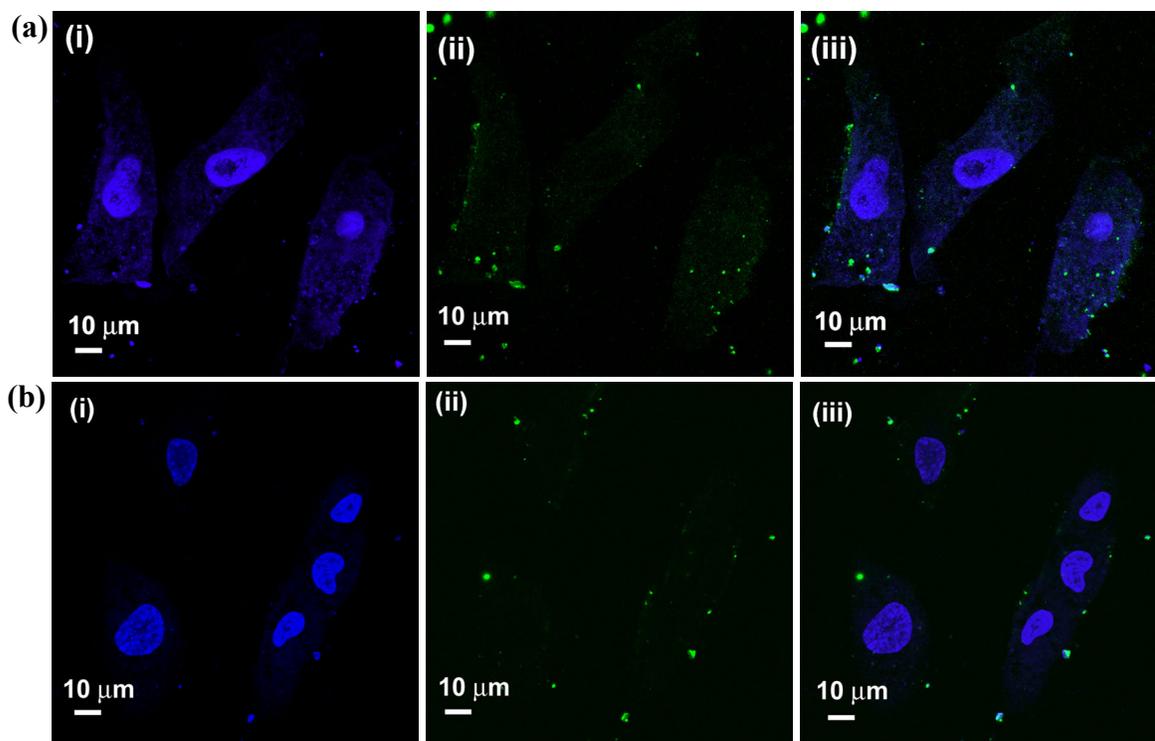
**Fig. S2** TEM images of hMSC derived from (a) bone marrow and (b) placenta indicating the uptake of FMMSN. Arrows indicate the FMMSN.



**Fig. S3** The confocal images depicting the effect of Nystatin (a caveolae inhibitor) on FMMSN uptake by (a) hMSCs derived from bone marrow and (b) HeLa cells. (i) Cell nuclei stained with DAPI (ii) FITC tagged FMMSN (iii) the merged image of (i) and (ii).



**Fig. S4** The confocal images depicting the effect of Methyl- $\beta$ -cyclodextrin (MBCD) (a caveolae inhibitor) on FMMSN uptake by (a) hMSCs derived from bone marrow and (b) HeLa cells. (i) Cell nuclei stained with DAPI (ii) FITC tagged FMMSN (iii) the merged image of (i) and (ii).



**Fig. S5** The confocal images showing the inhibition of FMMSN uptake in presence of 450 mM sucrose by hMSCs derived from (a) bone marrow and (b) placenta. (i) Cell nuclei stained with DAPI (ii) FITC tagged FMMSN (iii) the merged image of (i) and (ii).