

## Supplementary Information

# Tunable Stellate Mesoporous Silica Nanoparticles for Intracellular Drug Delivery

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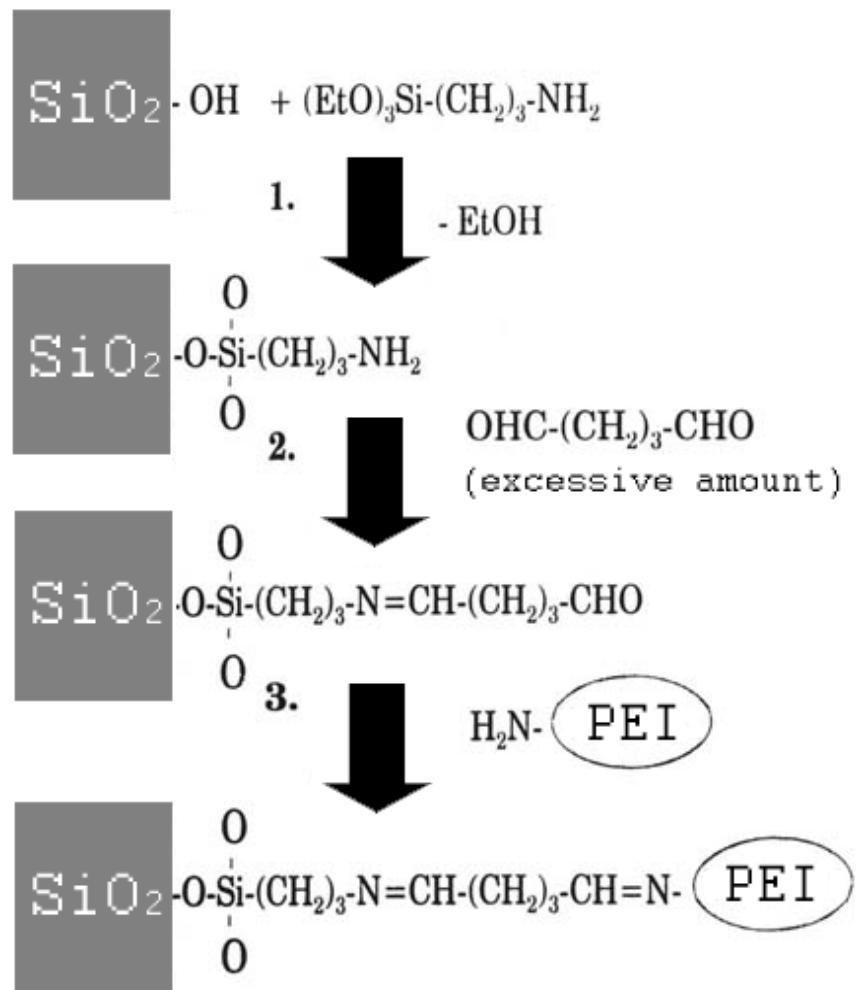


Fig. S1 Surface functionalization reactions of mesoporous silica nanoparticles.

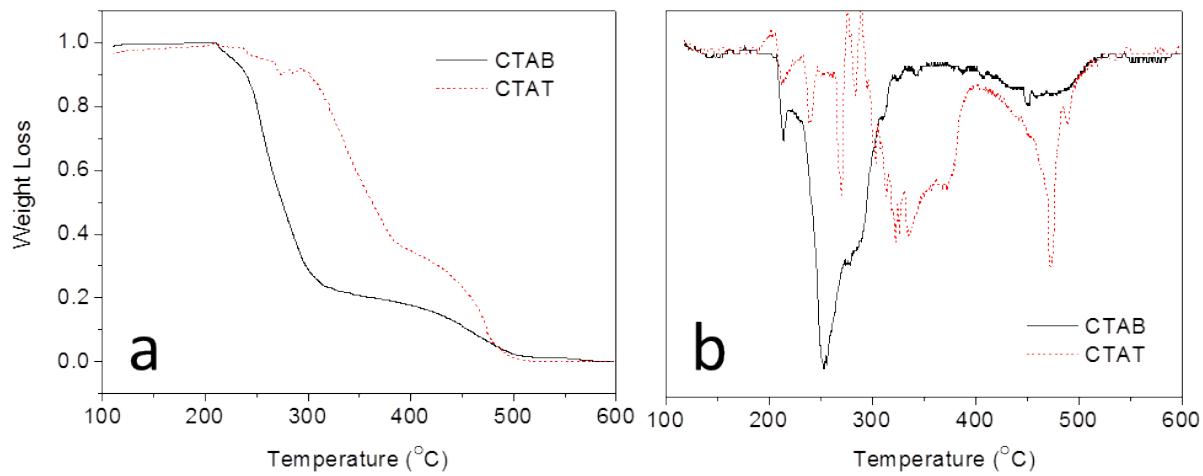


Fig. S2 TGA (a) and DTG (b) curves of CTAB and CTAT surfactants.

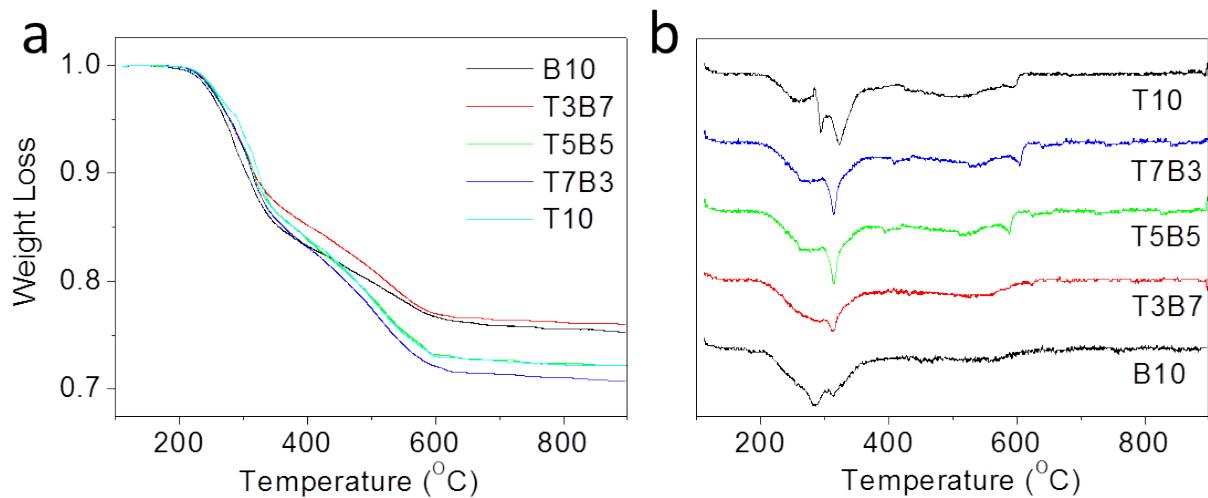


Fig. S3 TGA (a) and DTG (b) curves of as-prepared samples synthesized with mixed surfactants.

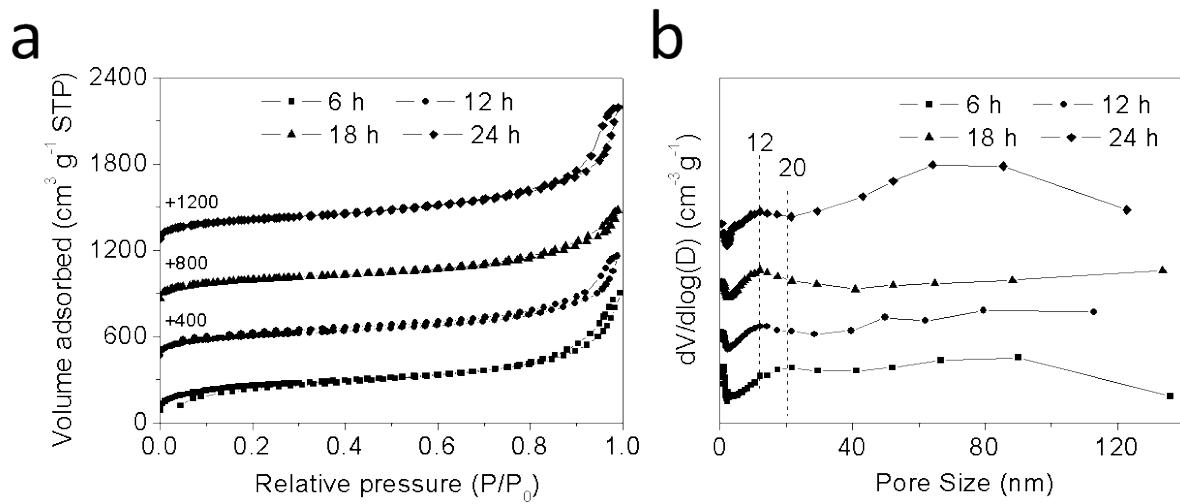


Fig. S4 Nitrogen adsorption-desorption isotherms (a) and respective pore size distribution curves (b) of stellate particles after various reaction times (6 h, 12 h, 18 h and 24 h) at 35 °C.

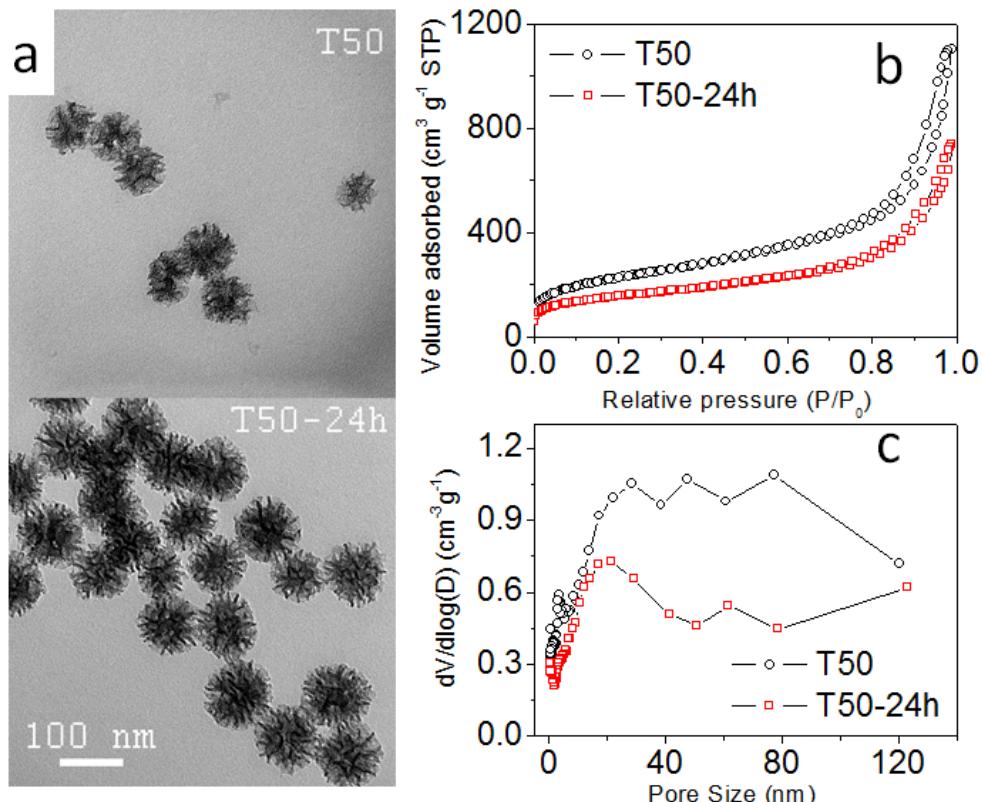


Fig. S5 TEM images (a), nitrogen adsorption-desorption isotherms (b) and respective BJH pore size distribution curves (c) of T50 and T50-24h.

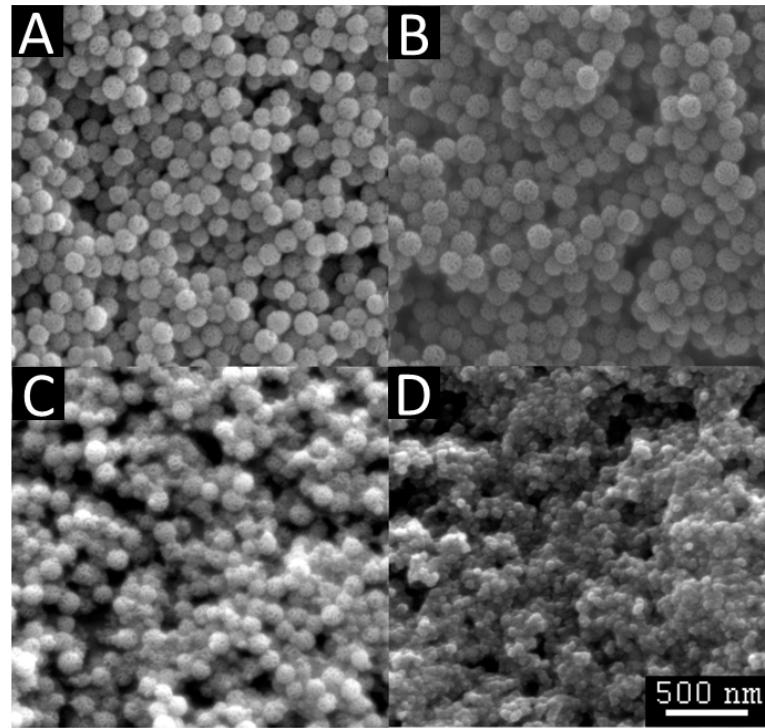


Fig. S6 SEM images of particles synthesized under various catalyst concentrations: (A) TC/2, (B) TC/4, (C) TC/8 and (D) TN.

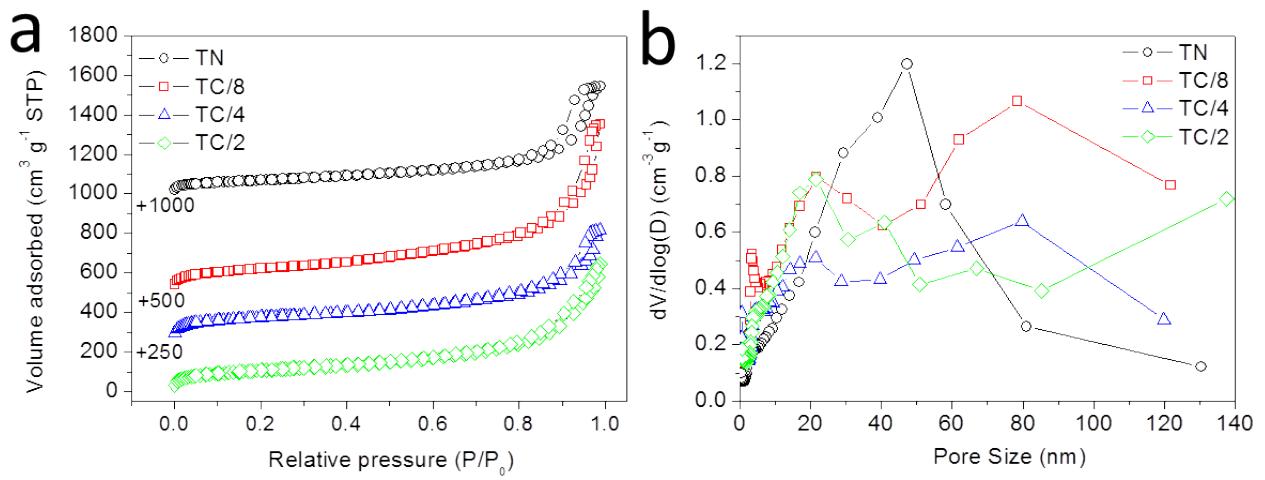


Fig. S7 Nitrogen adsorption-desorption isotherms (a) and respective pore size distribution curves (b) of particles synthesized under different TEA/TEOS ratio.

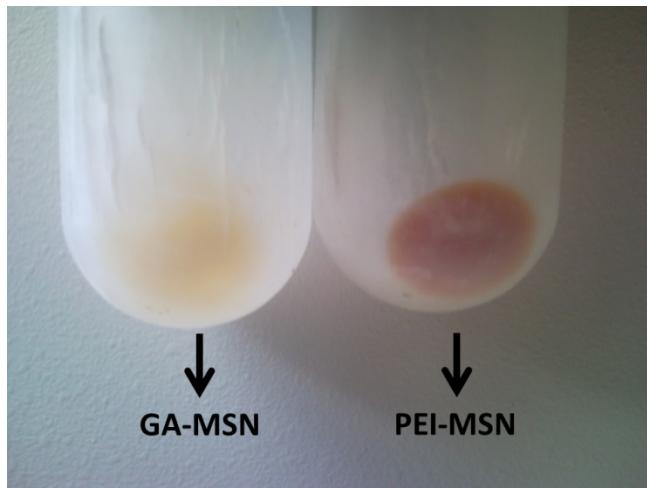


Fig. S8 Color changes of silica nanoparticles from white to yellow and brown after glutaraldehyde and PEI conjugation.

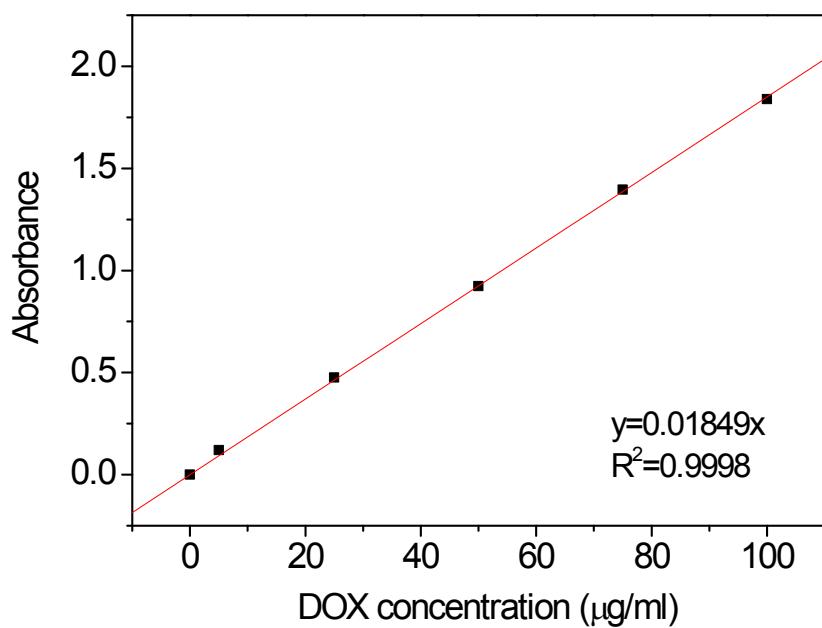


Fig. S9 Calibration curve of doxorubicin in water by absorbance measurements at 480 nm.

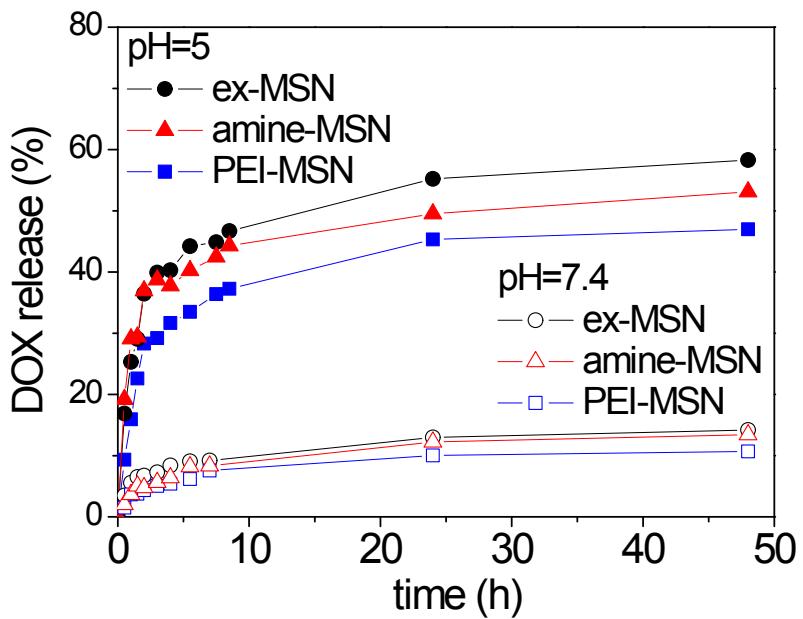


Fig. S10 Release profiles of DOX loaded silica nanoparticles at pH 7.4 and pH 5.0 at 37 °C.

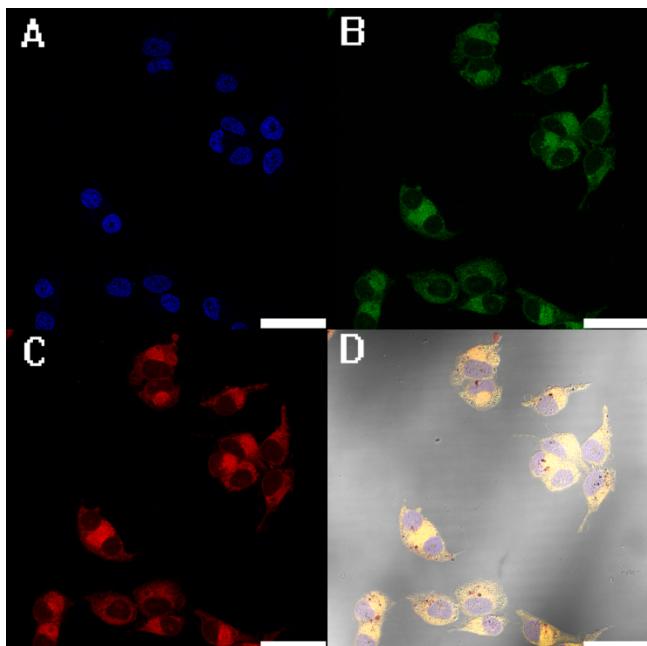


Fig. S11 CLSM images of HeLa cells after incubation with 50 µg/ml DOX loaded PEI-MSN for 8 h. Image (D) is the merge picture of blue channel from Hoechst (A), green channel from PEI-silica (B), red channel from DOX (C) and the differential interference contrast (DIC) channel. Scale bars are 50 µm.

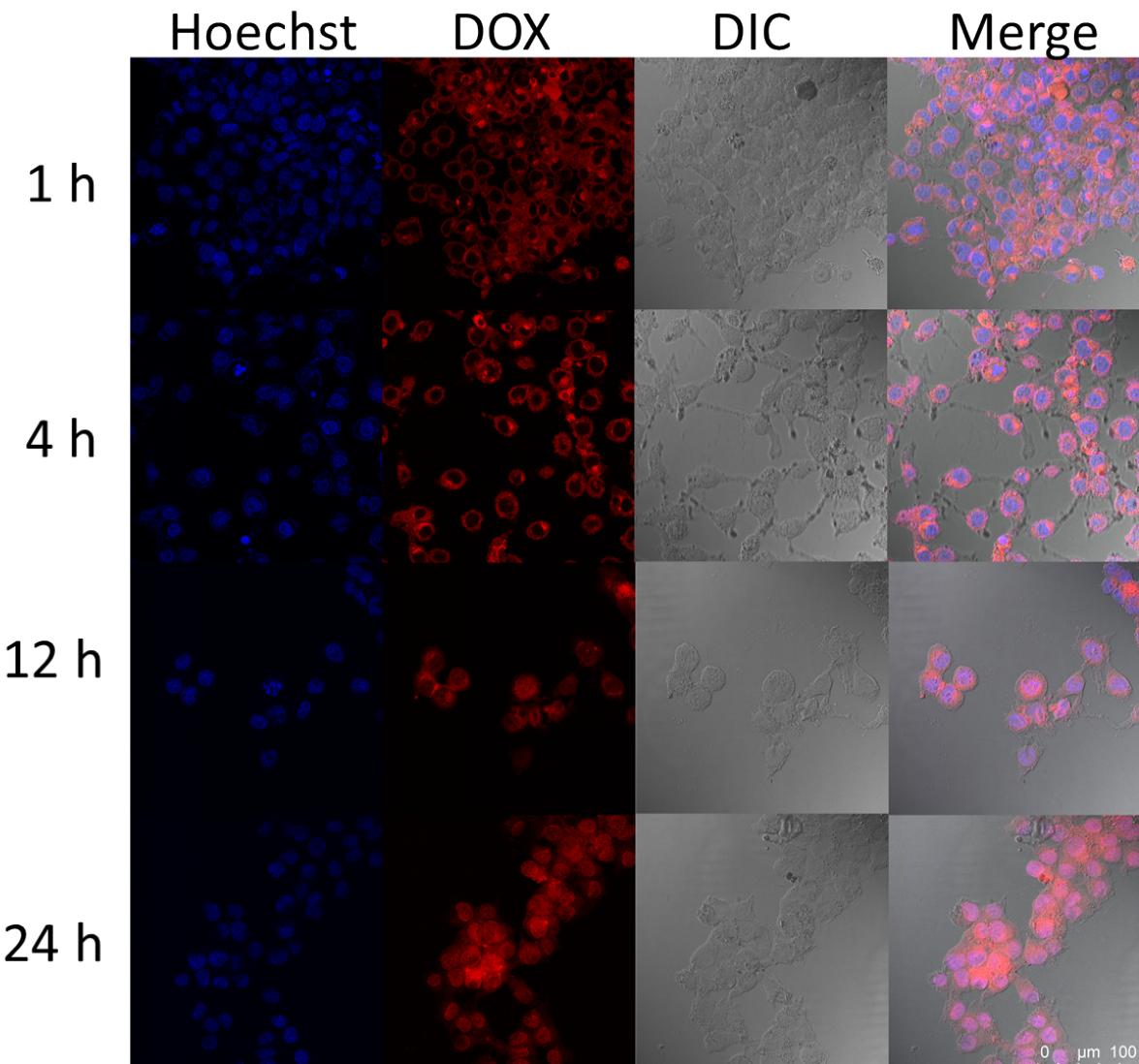


Fig. S12 CLSM images of HeLa cells after incubation with DOX loaded PEI-MSN for different time periods (1 h, 4 h, 12 h and 24 h). The equivalent DOX concentration is 1  $\mu$ g/ml.