

**Egg-Yolk Core-Shell Mesoporous Silica Nanoparticles for High Doxorubicin Loading
and Delivery to Prostate Cancer Cells**

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Supplementary Information

Table 1S. Textural properties of the synthesised materials

Material	SA _{BET} (m ² g ⁻¹)	PV (cm ³ g ⁻¹)	PD (nm)
MSN@SiO ₂	1230	0.64	2.3
NH ₂ -MSN@SiO ₂	411	0.38	2.3
TE-@MS-10.9	569	0.36	2.3
TE-@MS-11	698	0.38	2.3
TE-@MS-11.2	610	0.4	2.3
TE-@MS-11.5	315	0.42	12.93
TO-@MS-10.9	627	1.11	2.3
TO-@MS-11	736	0.51	2.2
TO-@MS-11.2	595	0.4	2.3
TO-@MS-11.5	422	0.4	2.3

Note: The numerical values are rounded off to the nearest significant figure, SA_{BET} – Brunauer Emmet Teller surface area, PV – Pore volume and PD – Pore diameter.

Table 2S. Zeta potential measurements of the synthesised materials

Material	Zeta Potential (mV)
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MSN@SiO ₂	-26.47
TE-@MS-10.9	-35
TE-@MS-11	-34.29
TE-@MS-11.2	-34.75
TE-@MS-11.5	-43.43
TO-@MS-10.9	-29.43
TO-@MS-11	-29.43
TO-@MS-11.2	-28.78
TO-@MS-11.5	-31.39

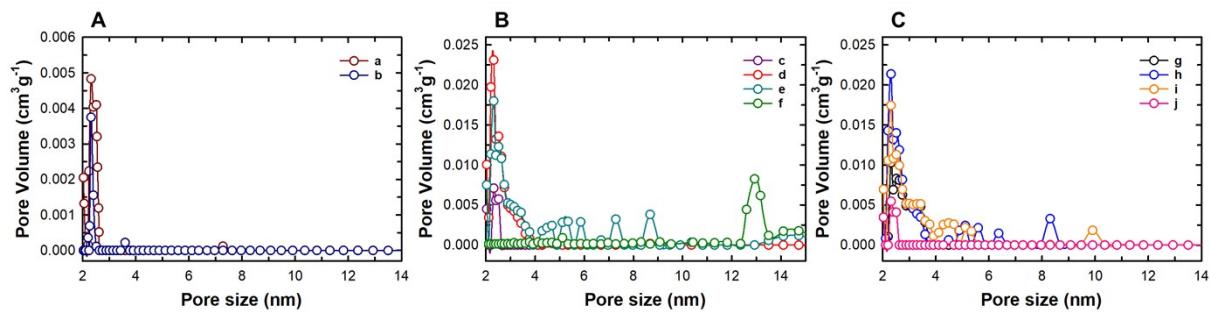
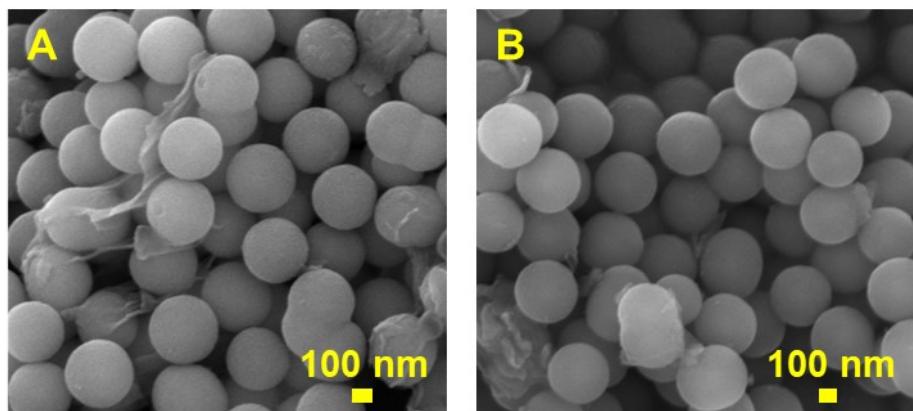


Figure SI.1. Pore size distributions of **A)** a) MSN@SiO₂ and b) NH₂-MSN@SiO₂; **B)** c) TE-@MS-10.9, d) TE-@MS-11.0, e) TE-@MS-11.2 and f) TE-@MS-11.5; **C)** TO-@MS-x, g) TO-@MS-10.9, h) TO-@MS-11, i) TO-@MS-11.2 and j) TO-@MS-11.5



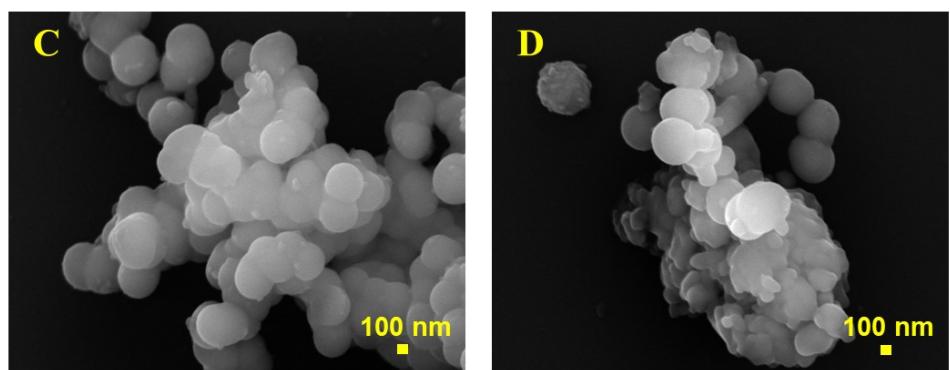


Figure SI.2. SEM images of A) MSN@SiO₂ B) NH₂-MSN@SiO₂ C) TE-@MS-11.5 D) TO-@MS-11.5

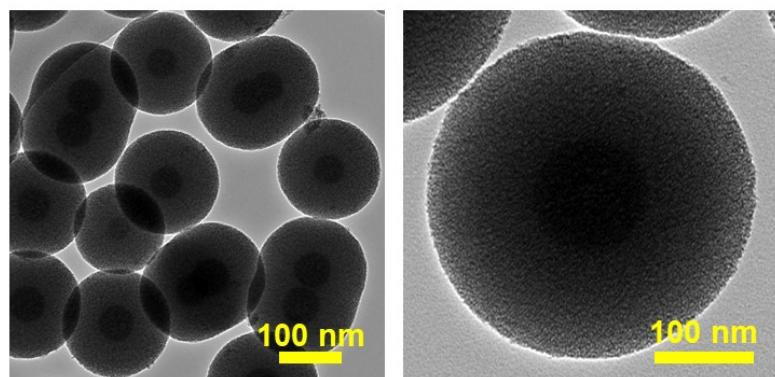


Figure SI.3. TEM images of A) MSN@SiO₂ at low resolution and B) MSN@SiO₂ at high resolution

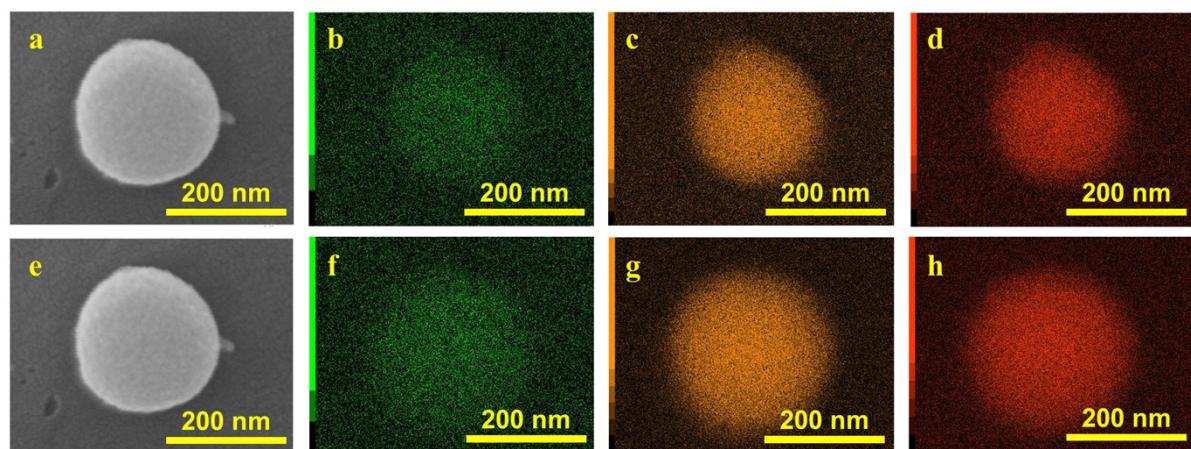


Figure SI.4. SEM image of a) TE-@MS-11, and corresponding SEM-EDS elemental mapping b) Nitrogen c) Silicon and d) Oxygen; SEM image of e) TO-@MS-11 and corresponding elemental mapping f) Nitrogen g) Silicon and h) Oxygen

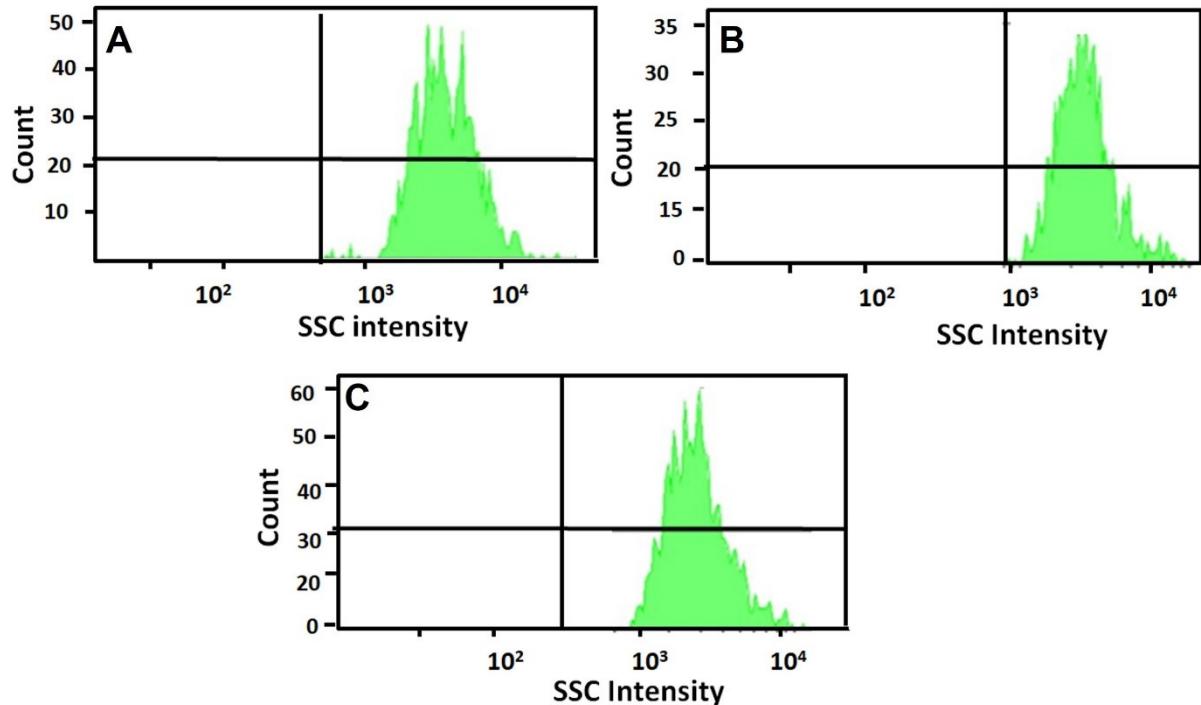


Figure SI.5. Cellular uptake of particles by LNCaP Cells A) cellular uptake studies by flow cytometry of a) MSN@SiO₂-Dox b) TE-@MS-Dox c) TO-@MS-Dox.

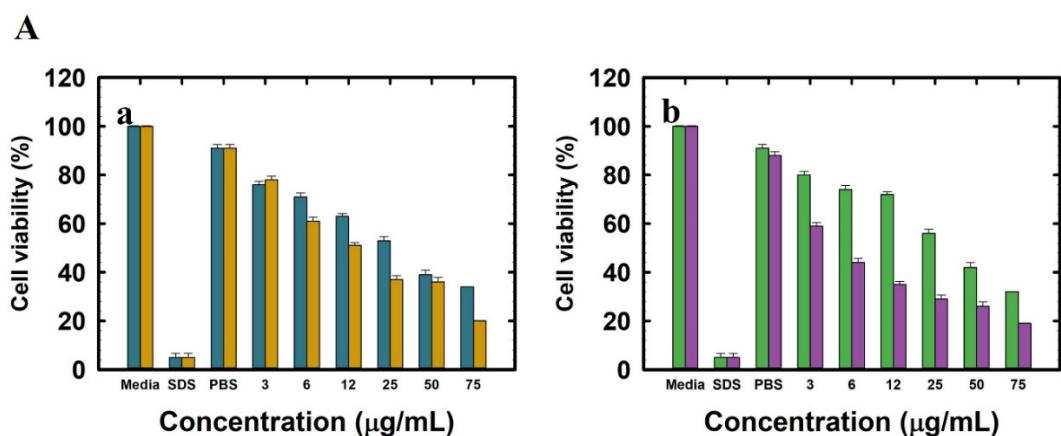


Figure SI.6 Invitro cytotoxicity studies of Dox **a)** PC3 at 24 h (blue), 48 h (yellow) **b)** LNCaP at 24 h (green) and 48 h (purple)