

Article

Biphenyl Wrinkled Mesoporous Silica Nanoparticles for pH-Responsive Doxorubicin Drug Delivery

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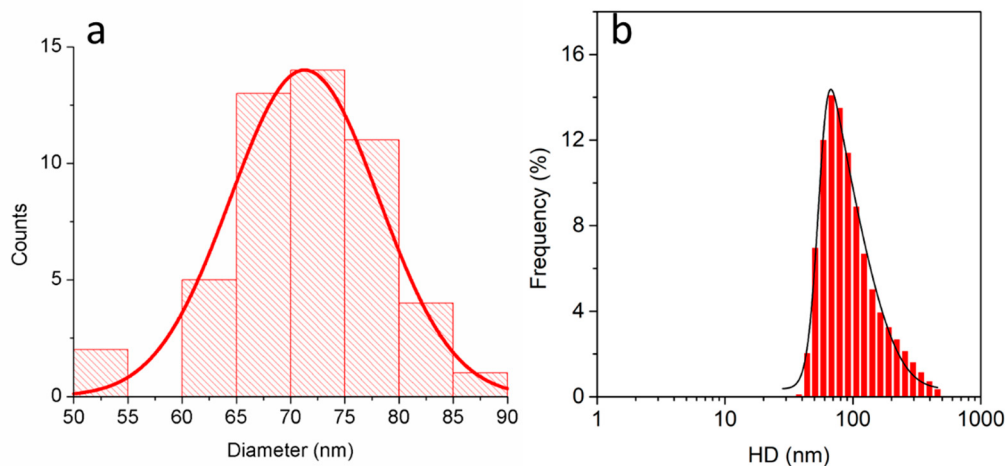


Figure S1. BPWS size distribution histogram from (a) TEM images (size: 71.6 ± 7.1 nm), and (b) DLS hydrodynamic diameter (size: 81.7 ± 10.8 nm).

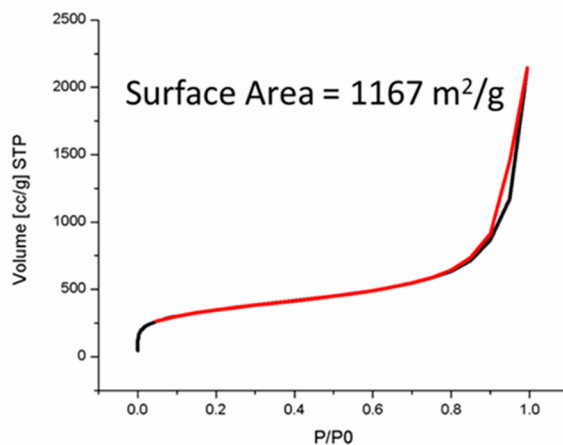


Figure S2. Nitrogen gas adsorption-desorption isotherms of biphenyl wrinkled silica.

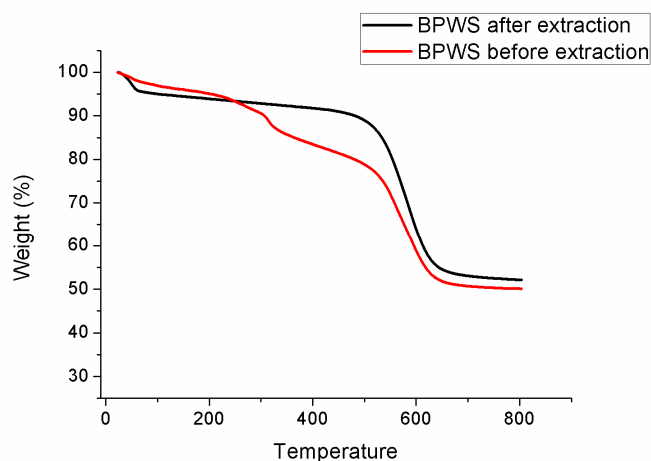


Figure S3. TGA weight loss of BPWS and BPWS before and after surfactant extraction.

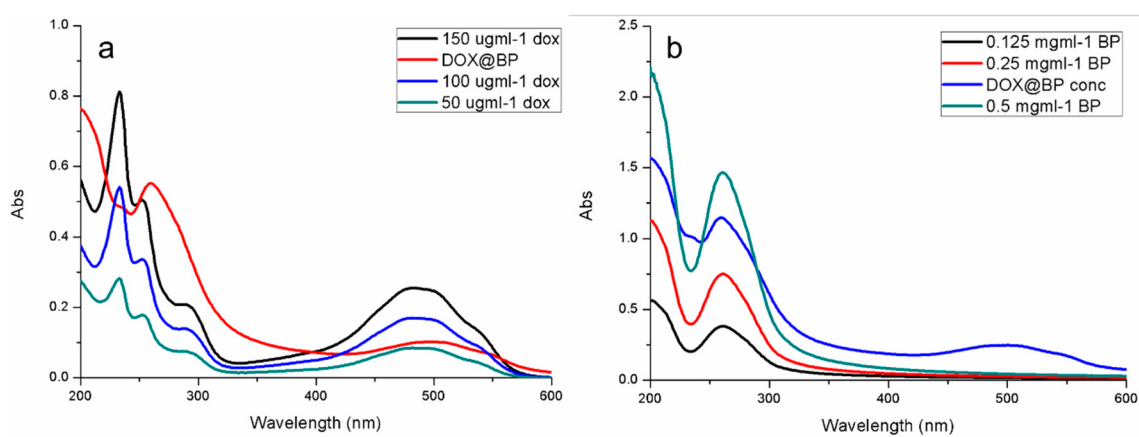


Figure S4. UV-Vis spectra of (a) DOX and (b) BP at different concentrations.

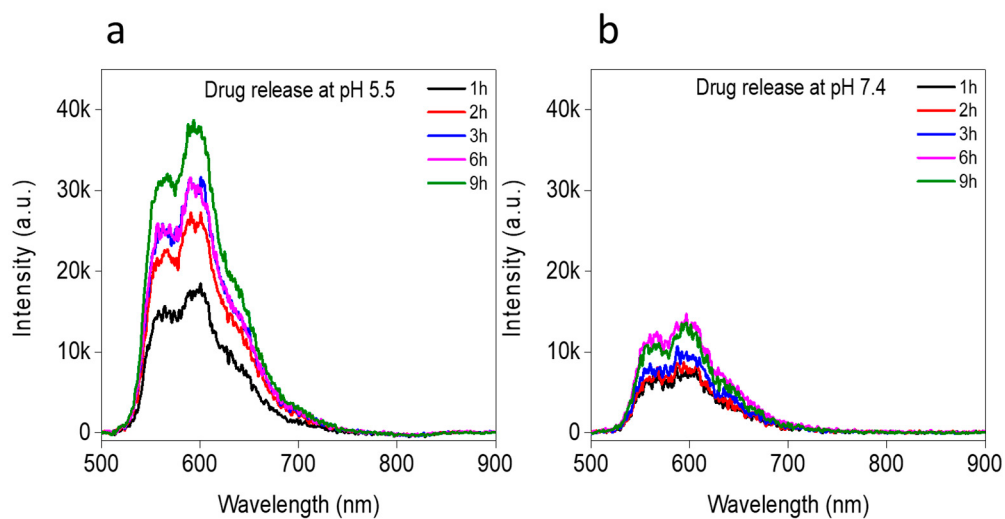


Figure S5. Fluorescence spectra of DOX-BPWS release at (a) pH 5.5 (b) pH 7.4.

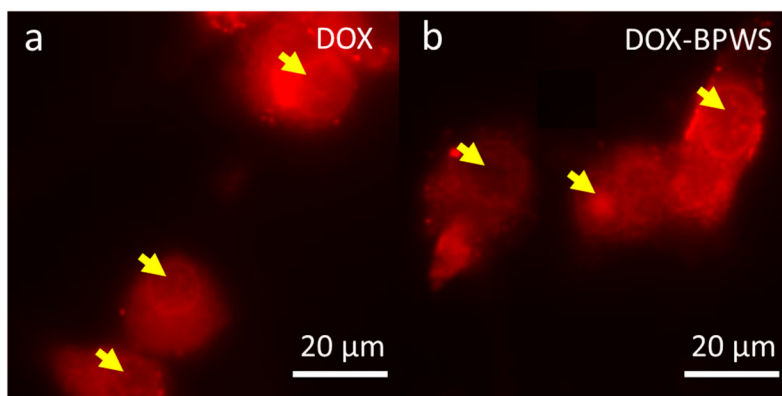


Figure S6. Fluorescence microscope images (DOX emission) of MCF-7 breast cancer cells after 24 hours. (a) Free DOX, (b) DOX-BPWS; Yellow arrow: nucleus.

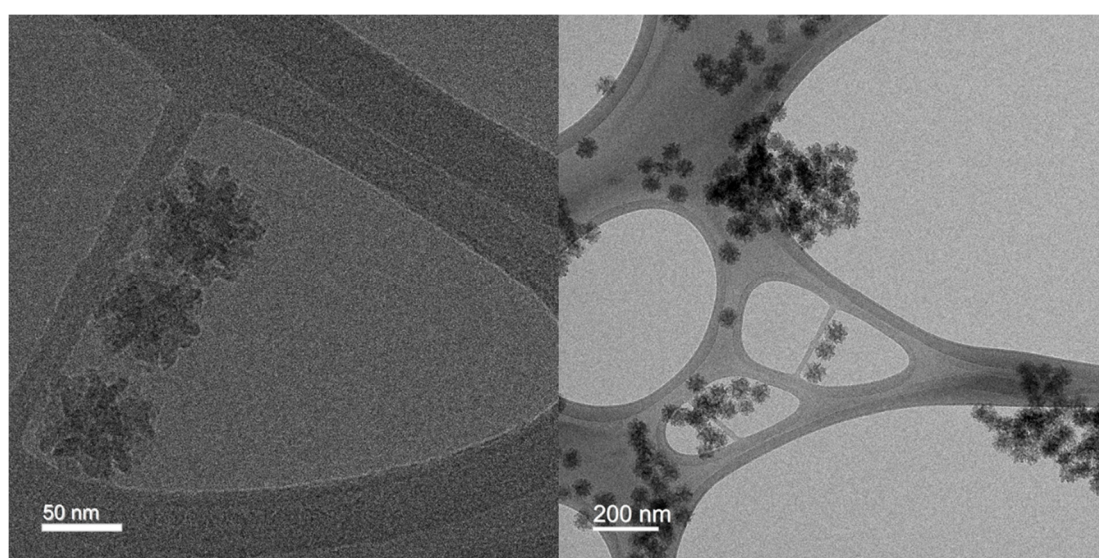


Figure S7. TEM images of FITC-BPWS showing the BPWS particle size and morphology after FITC modification.

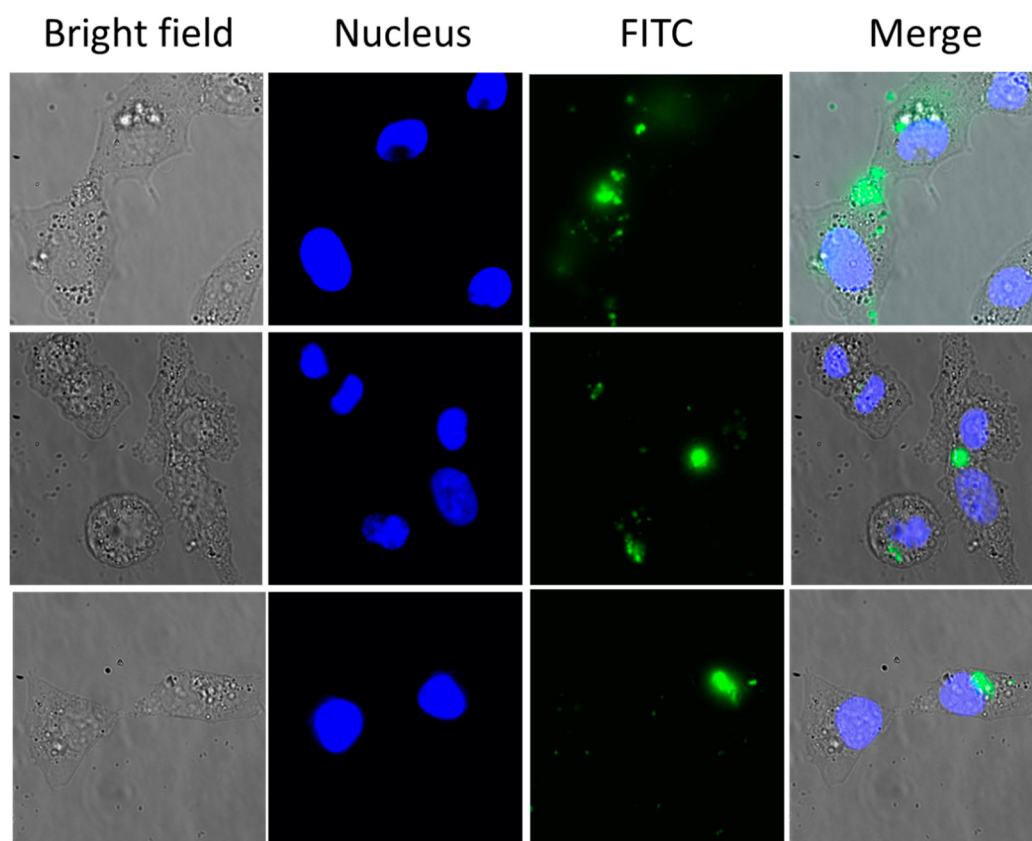


Figure S8. Fluorescence images of cancer cell permeability and intracellular uptake behaviors.

For calculation:

4,4'-bis(triethoxysilyl)-1,1'-biphenyl (BP) molecular weight = 478.73 g/mole

tetraethyl orthosilicate (TEOS) molecular weight = 208.33 g/mole

$478.73 \text{ g/mole} \times 0.6 \text{ mmole} = 287.23 \text{ mg}$

$208.33 \text{ g/mole} \times 2.4 \text{ mmole} = 499.99 \text{ mg}$

$287.23 \text{ mg} + 499.99 \text{ mg} = 787.222 \text{ mg}$

$287.22 \text{ mg} / 787.22 \text{ mg} = 0.36 \text{ (36\%)}$