

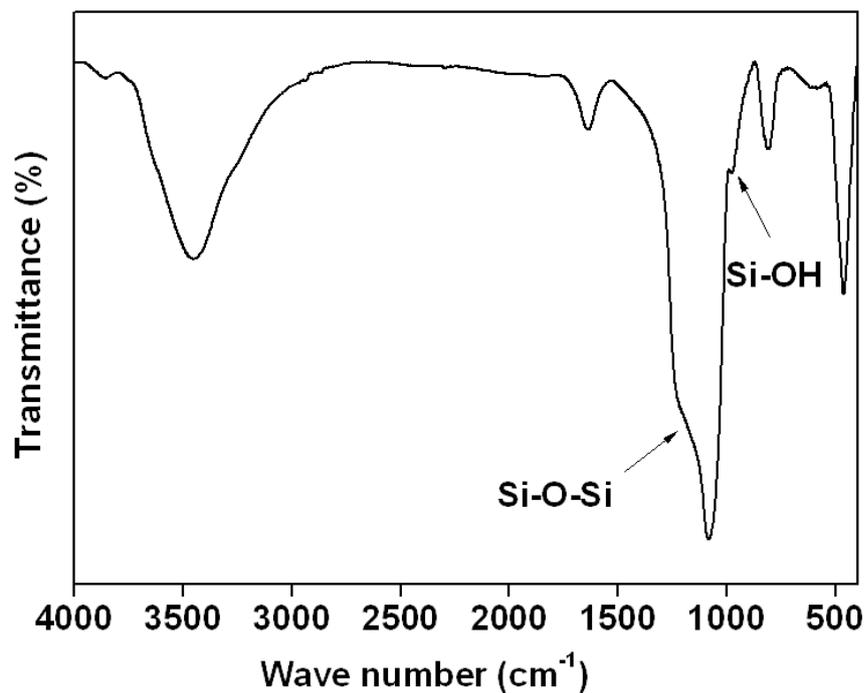
**Electronic Supporting Information (ESI†)**

**Mesoporous organosilica hybrids with a tunable amphoteric framework  
for controlled drug delivery**

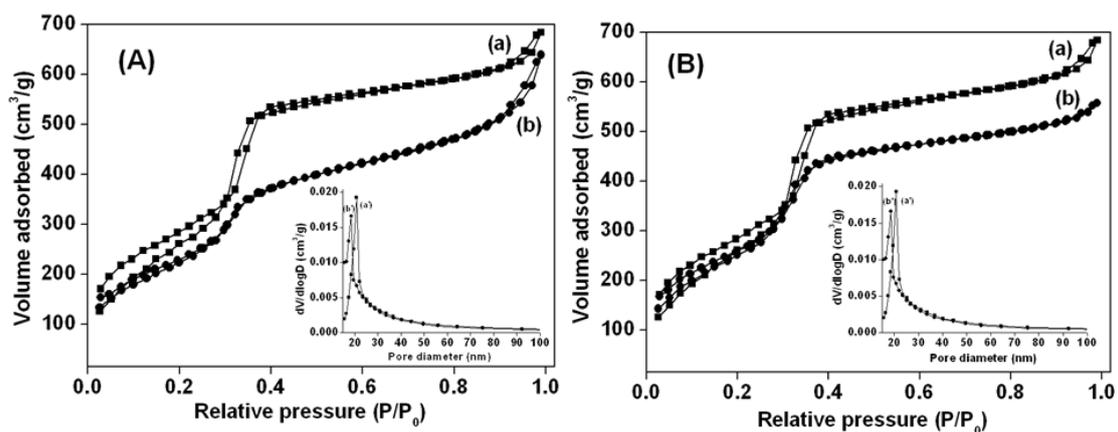
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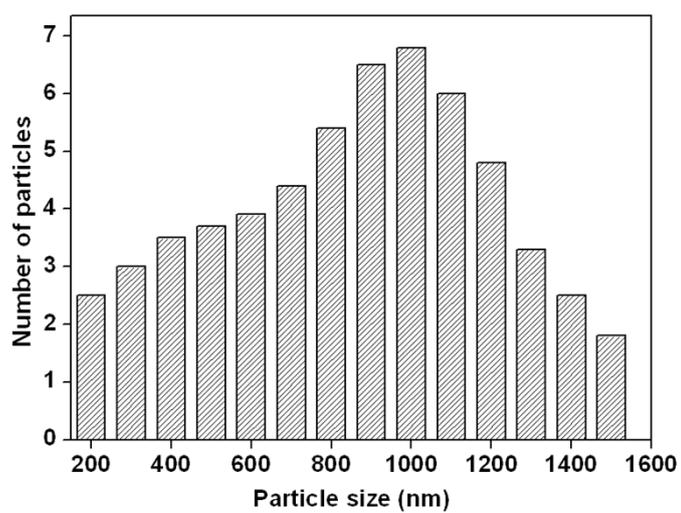
*<sup>b</sup>Department of Biochemistry, School of Medicine, Pusan National University, Yangsan Hospital, Yangsan 626-870, Korea*



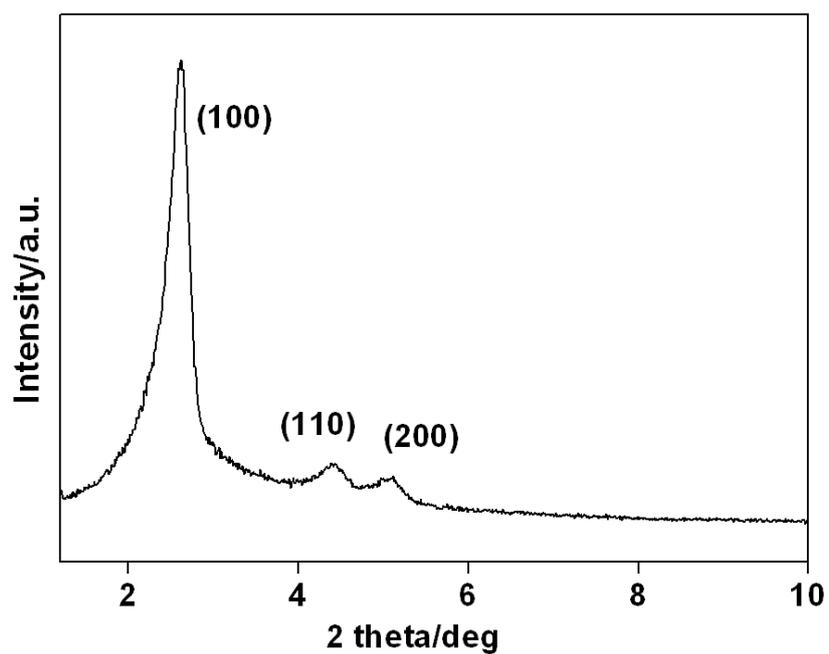
**Fig. S1** FTIR spectrum of the mesoporous silica (MSN) sample.



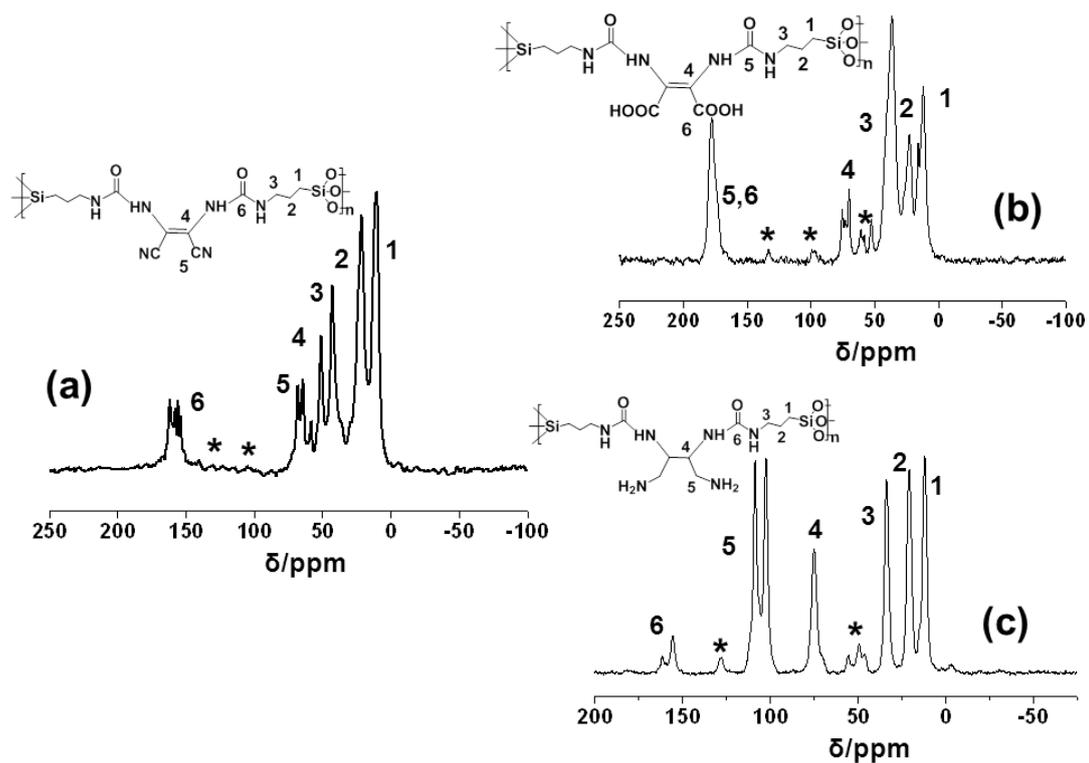
**Fig. S2** Nitrogen adsorption-desorption isotherms and pore diameters (inset) of samples (A) DU-MSH-CN (a) and DU-MSH-COOH (b) and (B) DU-MSH-CN (a) and DU-MSH-NH<sub>2</sub> (b) materials.



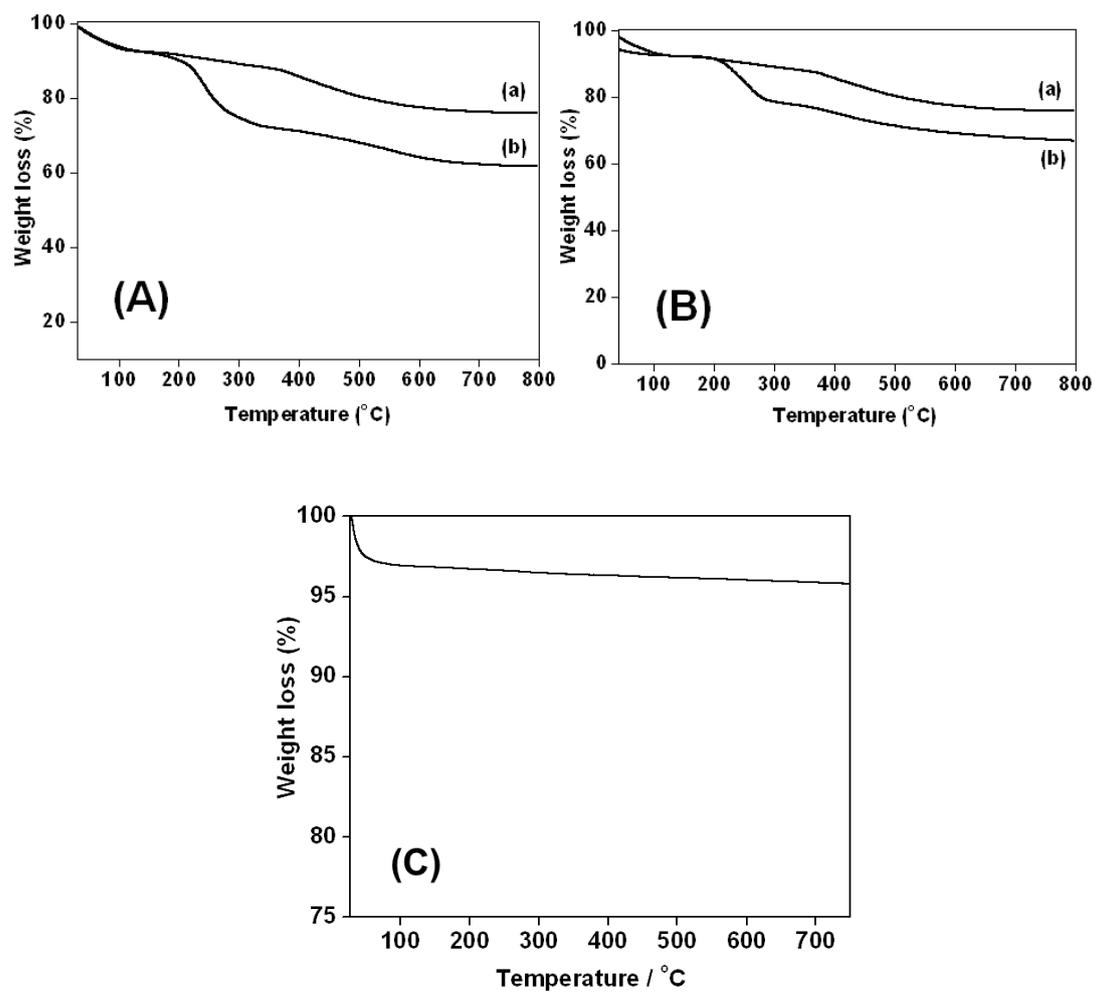
**Fig. S3** Particle size distributions of the DU-MSH-CN sample.



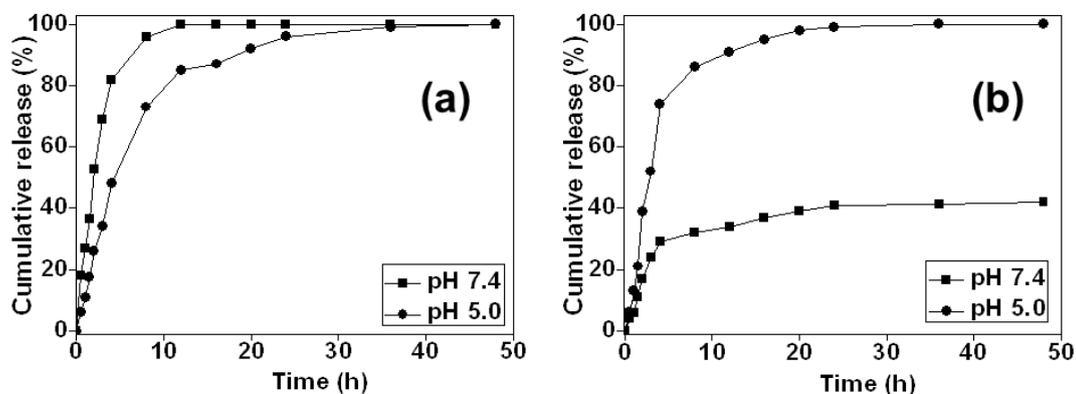
**Fig. S4** XRD pattern of the mesoporous silica (MSN) sample.



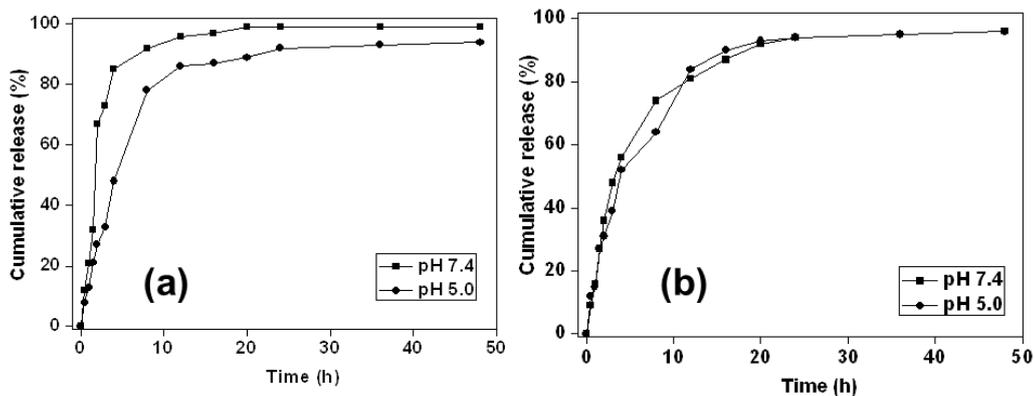
**Fig. S5** Solid state  $^{13}\text{C}$  CP MAS NMR spectra of (a) DU-MSH-CN (b) DU-MSH-COOH and (c) DU-MSH-NH<sub>2</sub> materials.



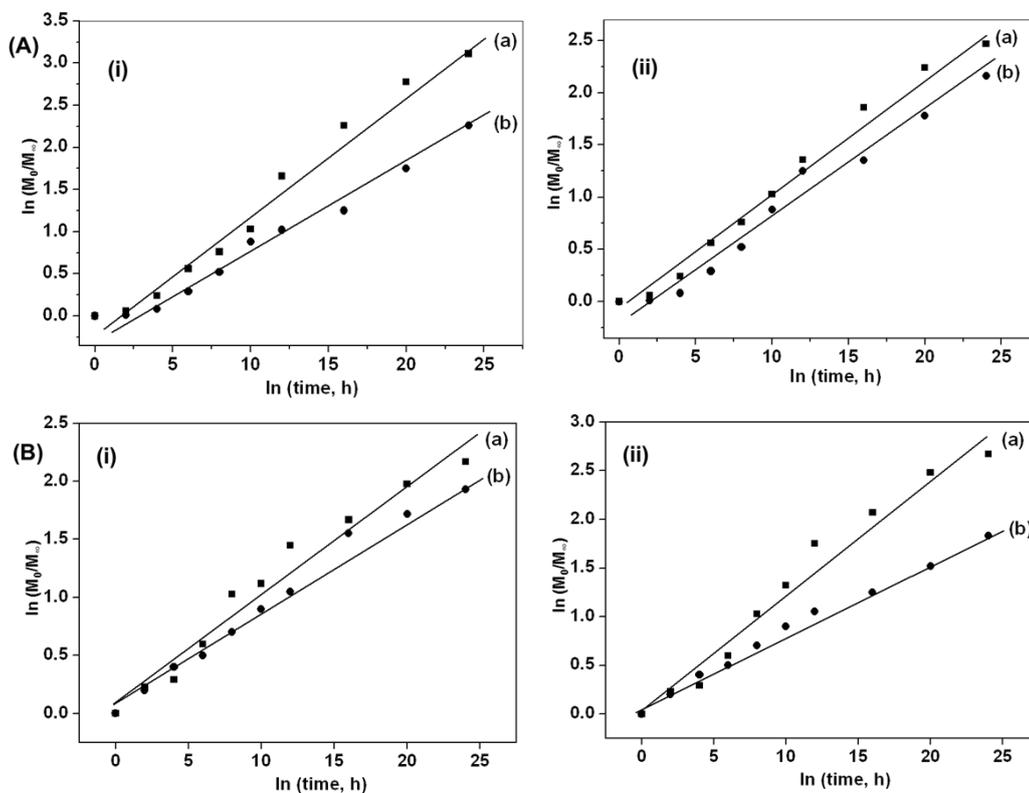
**Fig. S6** TGA curves of (A) DU-MSH-CN (a) and DU-MSH-COOH (b) and, (B) DU-MSH-CN (a) and DU-MSH-NH<sub>2</sub> (b) materials. (C) TGA curve of control MSN sample.



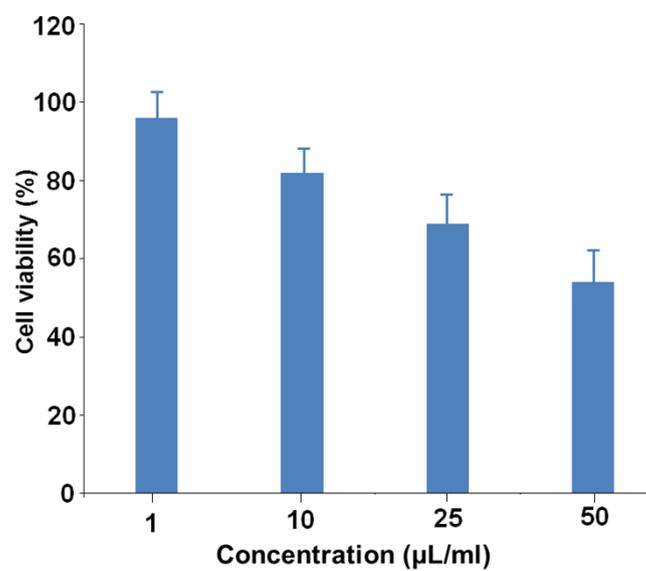
**Fig. S7** Cumulative release of (a) IBU and (b) 5-FU from the DU-MSH-CN sample at pH 7.4 and 5.0, respectively.



**Fig. S8** Cumulative release of (a) IBU and (b) 5-FU from the MSN sample at pH 7.4 and 5.0, respectively.



**Fig. S9** The plots of logarithm of (A(i)) IBU release from DU-MSH-COOH at (a) pH 7.4 and (b) pH 5.0, and (ii) 5-FU released from the DU-MSH-COOH at (a) pH 7.4 and (b) 5.0. The plots of logarithm of (B(i)) IBU release from DU-MSH-NH<sub>2</sub> at (a) pH 7.4 and (b) pH 5.0, and (ii) 5-FU released from the DU-MSH-NH<sub>2</sub> at (a) pH 7.4 and (b) 5.0. as a function of the logarithm of time according to the Higuchi model.



**Fig. S10** *In vitro* cytotoxicity of the pure 5-FU drug to MCF-7 cells under intracellular pH conditions.