Electronic Supporting Information (ESI)

Step-up synthesis of amidoxime-functionalised periodic mesoporous organosilicas with amphoteric ligand in the framework for drug delivery

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Determination of drug loading into the mesoporous materials by thermogravimetric analysis (TGA)

The loading weight percentage (W) of IBU and 5-FU in DU-PMAs was determined by thermogravimetric analysis as follows;

Fig. 8 shows three profiles of blank DU-PMA, IBU or 5-FU loaded DU-PMA, and blank IBU or 5-FU. The drug loading weight ratio (W) in the DU-PMA materials can be calculated by the equation.

$$\frac{B-W1}{100-B} = \frac{T-W-W2}{100-T}$$

where W1 and W2 represent the percentage weight loss of physically adsorbed water (< 100 °C) in the blank DU-PMA and IBU or 5-FU loaded DU-PMA, respectively.

B is the percentage weight loss corresponding to the adsorption of water, and organic content of blank DU-PMA samples and T represents the total weight loss percentage of adsorbed water and organic content of the framework, and IBU or 5-FU loaded in DU-PMA samples.

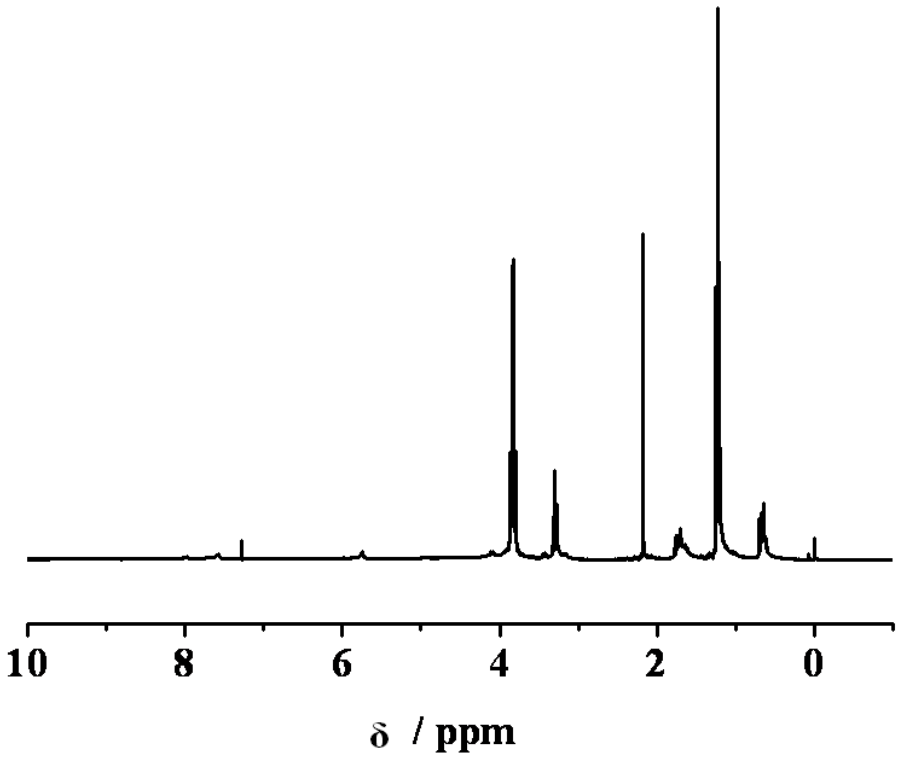

Figure S1. ^{1}H NMR spectrum of 1,2-diureylenemaleonitrile precursor in $CDCl_3$.

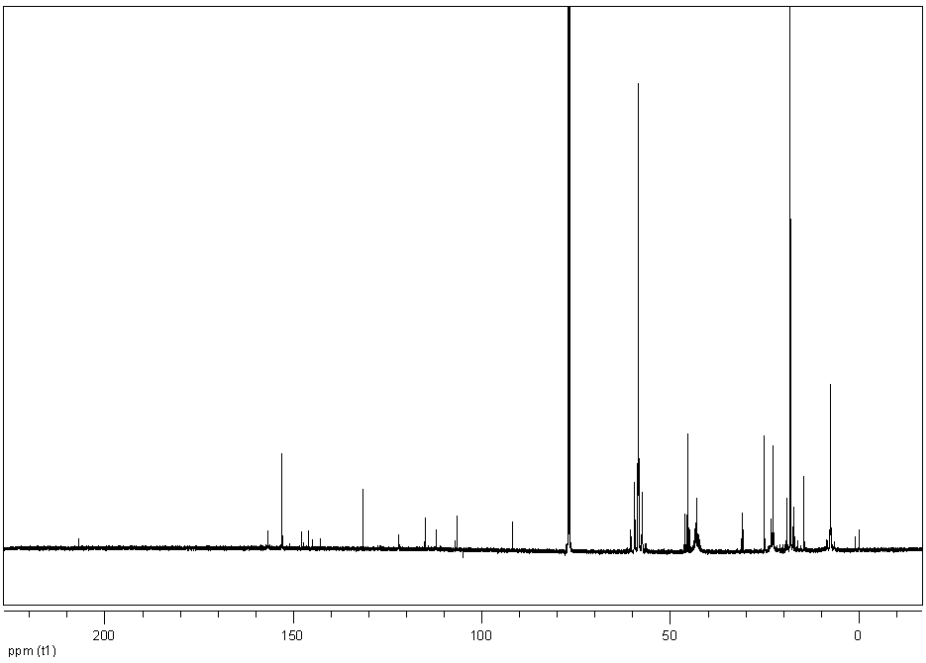

Figure S2. ^{13}C NMR spectrum of 1,2-diureylenemaleonitrile precursor in $CDCl_3$.

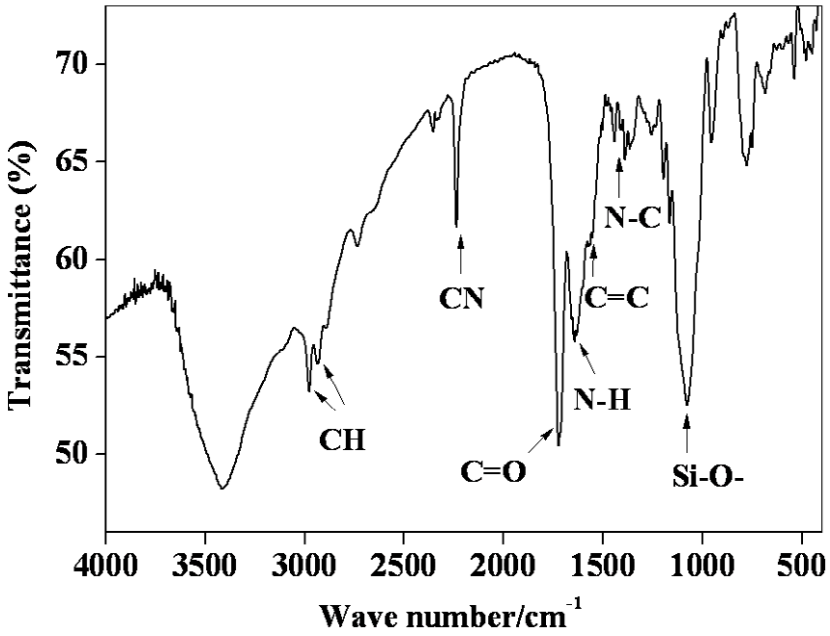

Figure S3. FT-IR spectrum of 1,2-diureylenemaleonitrile precursor.

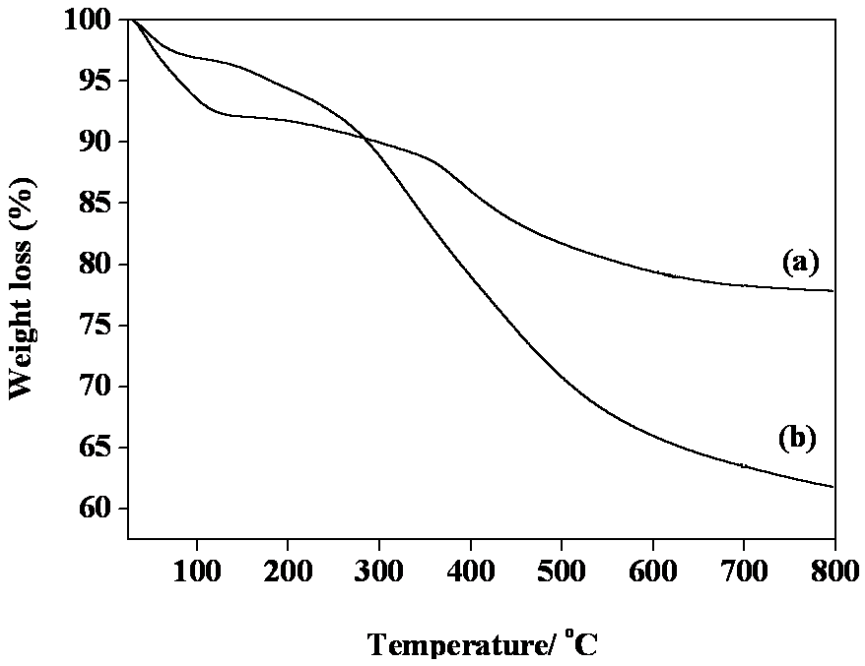

Figure S4. TGA curves of (a) DUMN-PMO-5 and (b) DUMN-PMO-40.

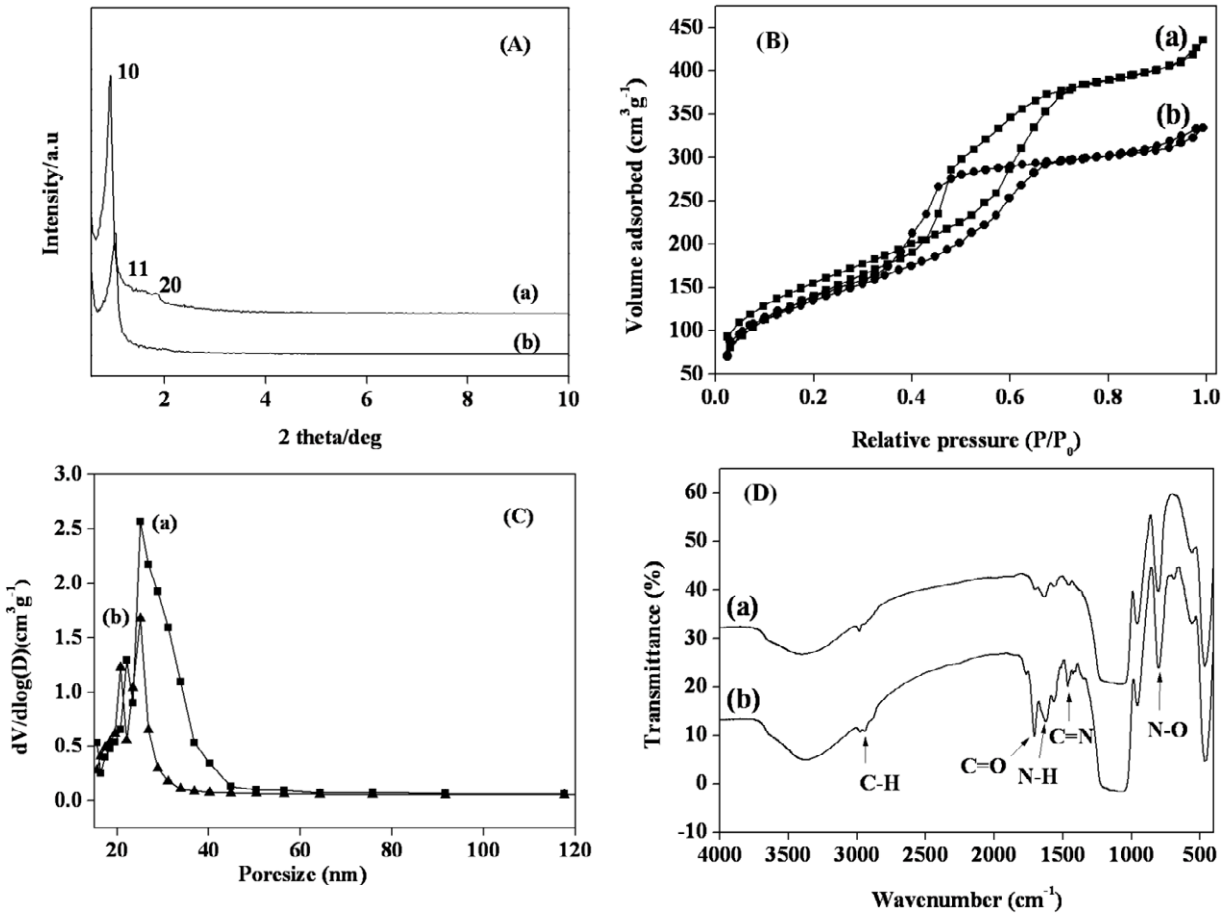

Figure S5. (A) XRD patterns, (B) N_2 adsorption-desorption isotherms, (C) Pore size distributions and (D) FT-IR spectra for DU-PMA-5 and DU-PMA-20.

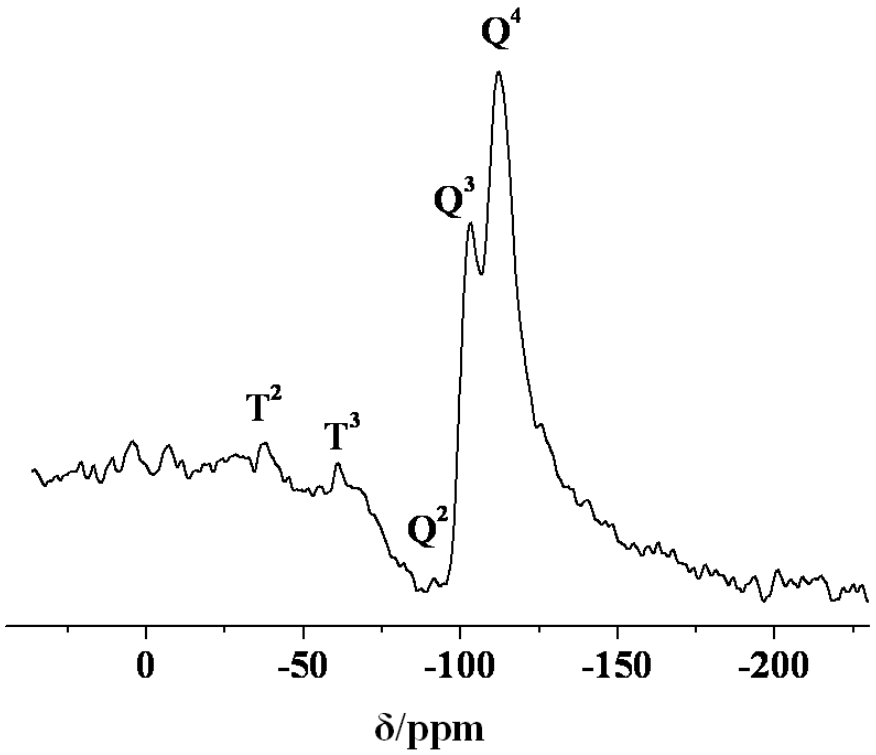

Figure S6. ^{29}Si MAS NMR spectrum of DU-PMA-20.

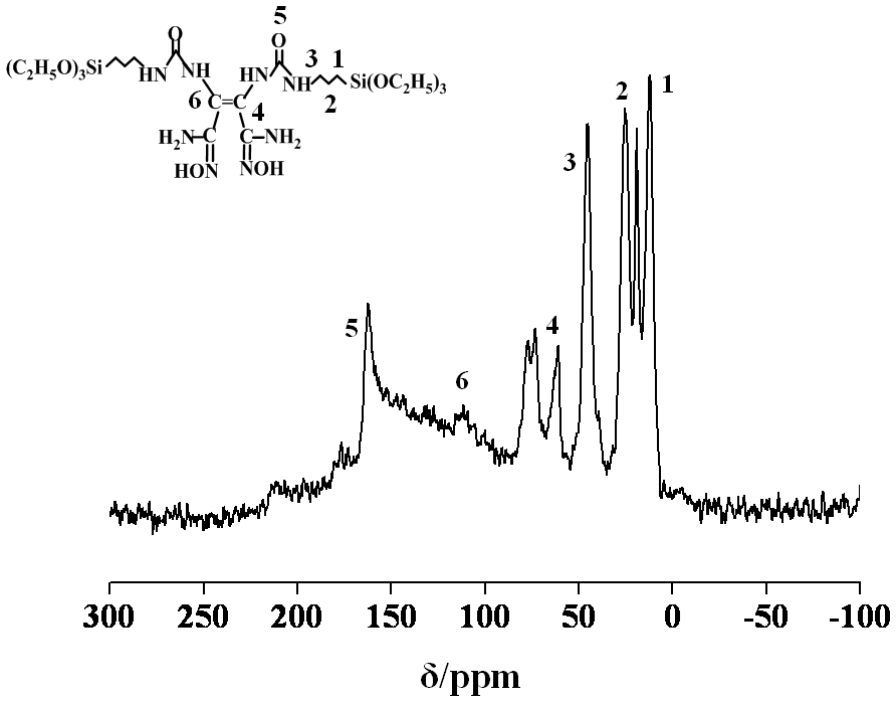

Figure S7. ^{13}C CP MAS NMR spectrum of DU-PMA-20.

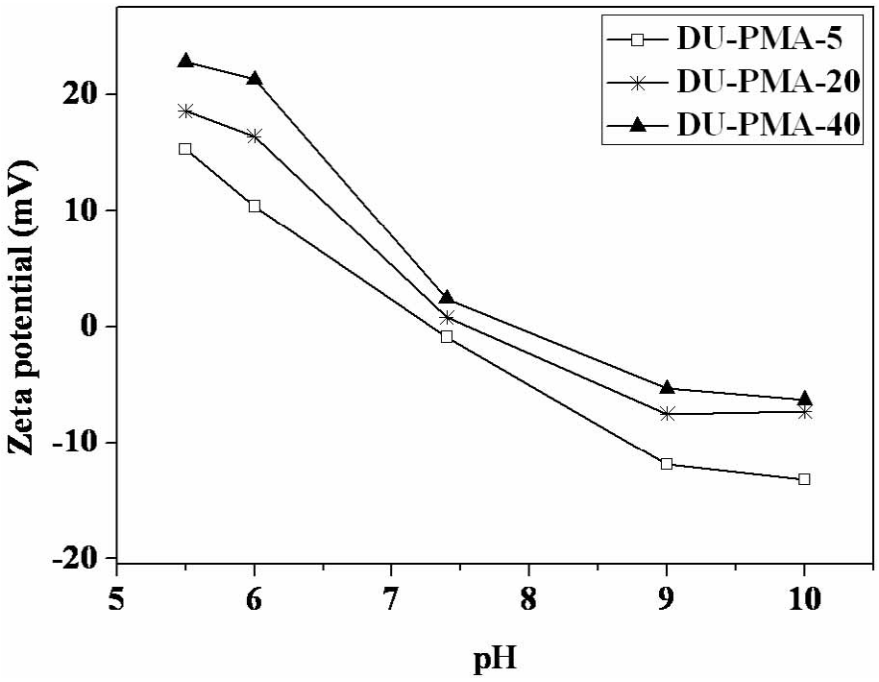

Figure S8. Zeta potential vs pH plot of DU-PMA samples.