Supporting Information：Strategies to Obtain Encapsulation and Controlled Release of Pentamidine in Mesoporous Silica Nanoparticles

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Experimental

Physico-Chemical Characterization

Powder X Ray Diffraction (PXRD) patterns were collected with a PW3050/60 X'Pert PRO MPD diffractometer (Panalytical) working in Bragg–Brentano geometry, using Cu Kα radiation (40 mA and 45 kV), with a scan speed of 0.0167° min^{-1} and a measure time of 200 s/step. The measure was carried out at low angles, in the range of 1.5°–12°.

The DSC analysis was performed on hydrated samples using a differential scanning calorimeter (DSC 7, PerkinElmer, Waltham) equipped with an instrument controller Tac7/DX (PerkinElmer). About 20 mg of accurately weighted samples were introduced into a standard aluminum sample pan and analyzed. The DSC runs were performed from 25 to 210 °C, at a rate of 10 °C/min under a constant nitrogen stream (40 ml/min). The calibration was achieved using indium (Tm = 156.83 °C) and n-decan (Tm = −29.6 °C).
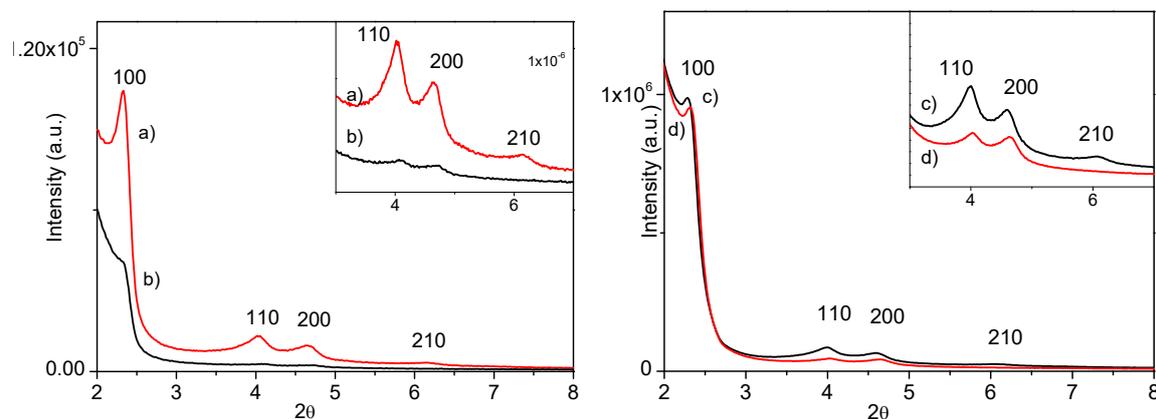
Figure S1. Low angle XRD patterns measured on a) MSN-OH, b) MSN-NH$_2$, c) MSN-CN, d) MSN-COOH.
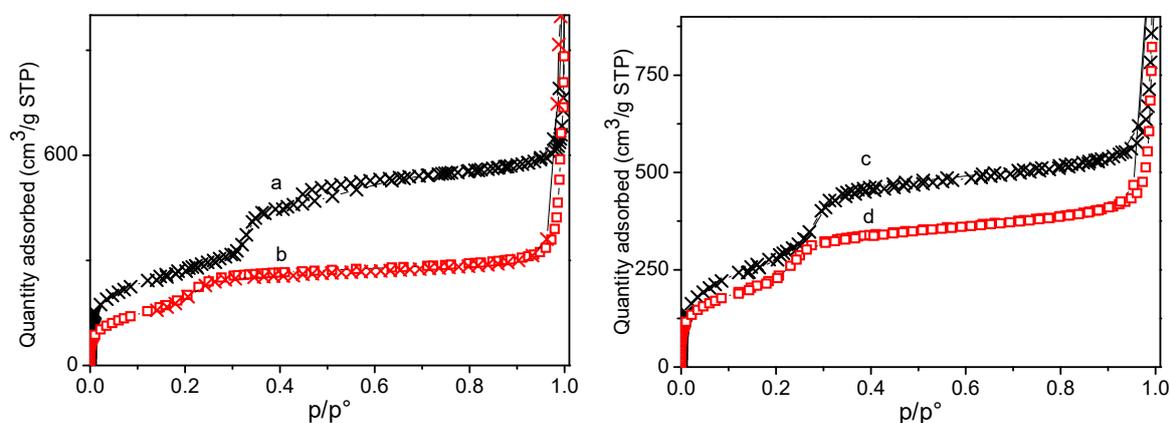
Figure S2. Nitrogen gas-volumetric adsorption and desorption isotherms of a) MSN-OH, b) MSN-NH$_2$, c) MSN-CN, d) MSN-COOH.
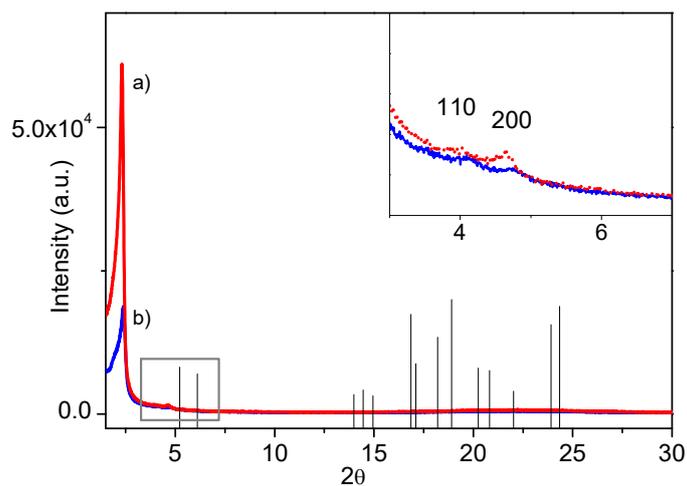
Figure S3. XRD patterns measured on a) PTM-B/MSN-COOH and b) PTM-B/MSN-OH. The inset reports a magnification of the region highlighted by a rectangle; vertical lines represent the expected diffraction peaks for PTM-S (ICCD Reference pattern 00-036-1539).
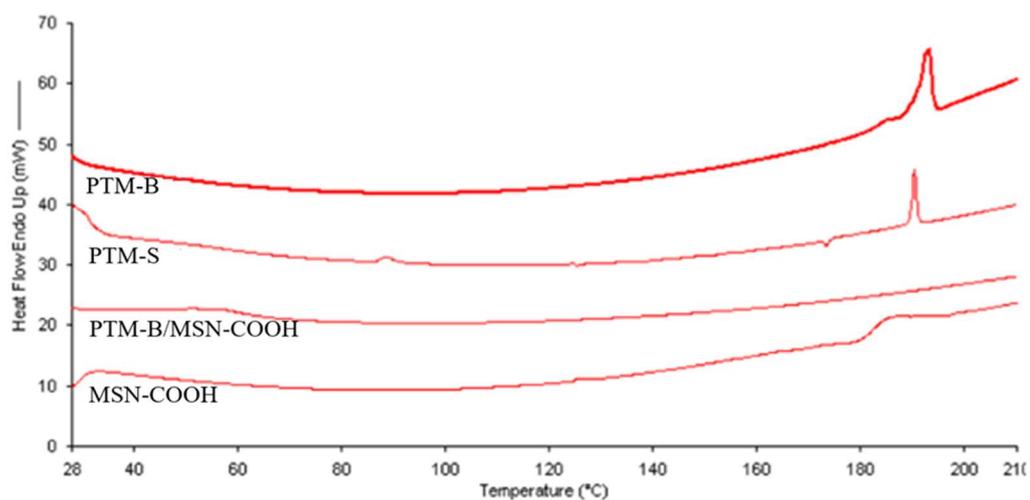
Figure S4. DSC curves of PTM-B, PTM-S, PTM-B/MSN-COOH and MSN-COOH samples.