Electronic Supporting Information

A Porosity Difference Based Selective Dissolution Strategy to Prepare Shape-Tailored Hollow Mesoporous Silica Nanoparticles

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We have provided additional TEM images of helical nanorods, hollow spheres and hollow nanordos prepared at different conditions and FTIR spectra of nanospheres.

**Fig. S1** TEM images of MSNs prepared using 20 mg of RB.
**Fig. S2** Low magnification TEM image of hollow nanospheres.
**Fig. S3** FTIR spectra of nanospheres.
**Fig. S4** TEM images of the nanorods incubated in water at 65 °C for one day.
**Fig. S5** TEM images of the pre-calcined nanorods after core dissolution process.
**Fig. S1** TEM images of MSNs prepared using 20 mg of RB. (a) Low magnification image showing the polydispersity of the particles. (b) TEM image of a helical nanorod with large aspect ratio. (c) Close-up image of the helical nanorod shown in (b). White arrows indicate the helical porous structure of the nanorod.

**Fig. S2** Low magnification TEM image of hollow nanospheres showing high yield of hollowing process.
**Fig. S3** FTIR spectra of MSN, MSN-ts and h-MSN between 500 cm$^{-1}$ and 1500 cm$^{-1}$ showing the evaluation of the shoulder in the silica absorption band after each step.

**Fig. S4** TEM images of the nanorods incubated in water at 65 °C for one day. Cores of the several particles remained completely or partially undissolved at these conditions.
Fig. S5 TEM images of the pre-calcined nanorods after core dissolution process. Mesoporous shells of particles with a thickness of around 14 nm are clearly observable.