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ARTICLE

Mesostructure-tunable and size-controllable hierarchical porous silica nanospheres synthesized by aldehyde-modified Stöber method

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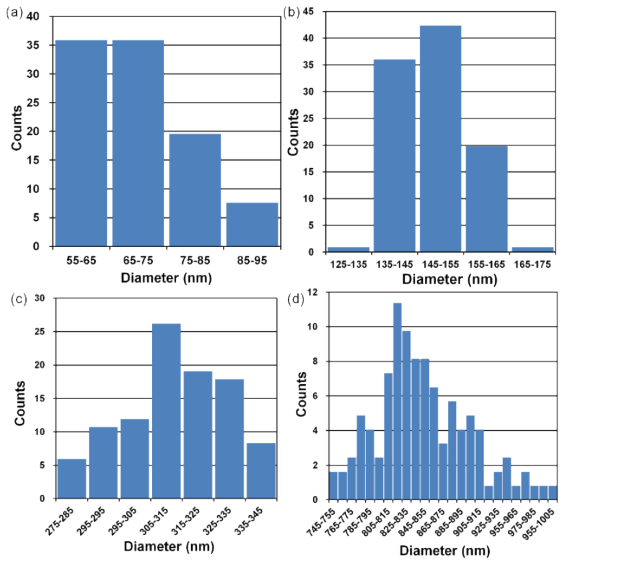

Figure S1. Particle size distributions of MMSNs synthesized with different A/M : S-1-A R=0.11 (a), S-2-A R=0.13 (b), S-3-A R=0.17 (c) and S-4-A R=0.22 (d).

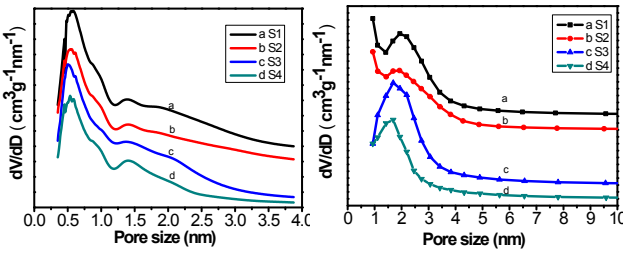

Figure S2. Pore size distributions of MMSNs synthesized with different A/M : S-1-A R=0.11 (a), S-2-A R=0.13 (b), S-3-A R=0.17 (c) and S-4-A R=0.22 (d)

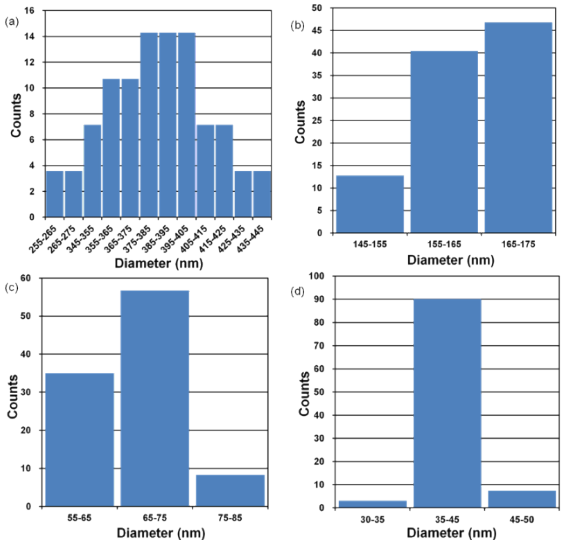

Figure S3. Particle size distributions of MMSNs synthesized at different initial pH values using the same A/W R=0.17: S-5-A pH 7.6 (a), S-6-A pH 8.5 (b), S-7-A pH 9.4 (c) and S-8-A pH 10.4 (d)

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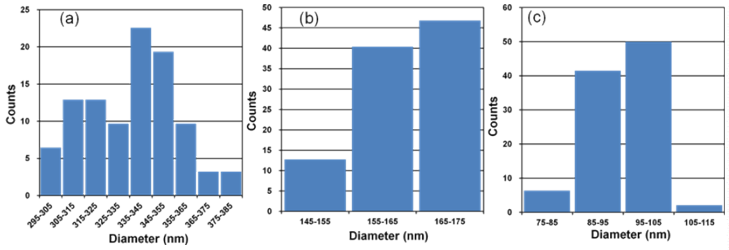

Figure S4.Particle size distributions of MMSNs synthesized with different A/M at the pH=8.5: S-9-A R=0.22 (a), S-6-A R=0.17 (b) and S-10-A R=0.11 (c)

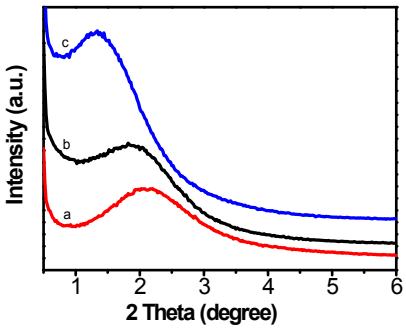

Figure S5. Powder XRD patterns for HMSNs synthesized with different aldehydes: S-4-A (a), S-11-P (b) and S-12-B (c)

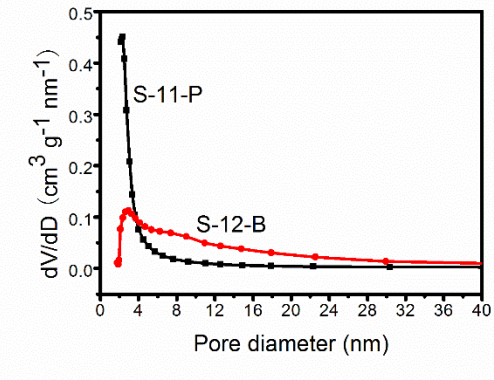

Figure S6 The pore size distributions of S-11-P and S-12-B.

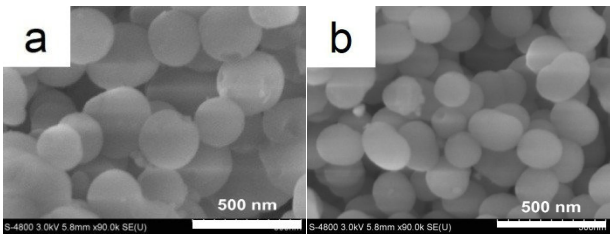

Figure S7. SEM images of MMSNs synthesized at different temperatures: S-13- A 85 °C and S-14- Acetaldehyde 100 °C.

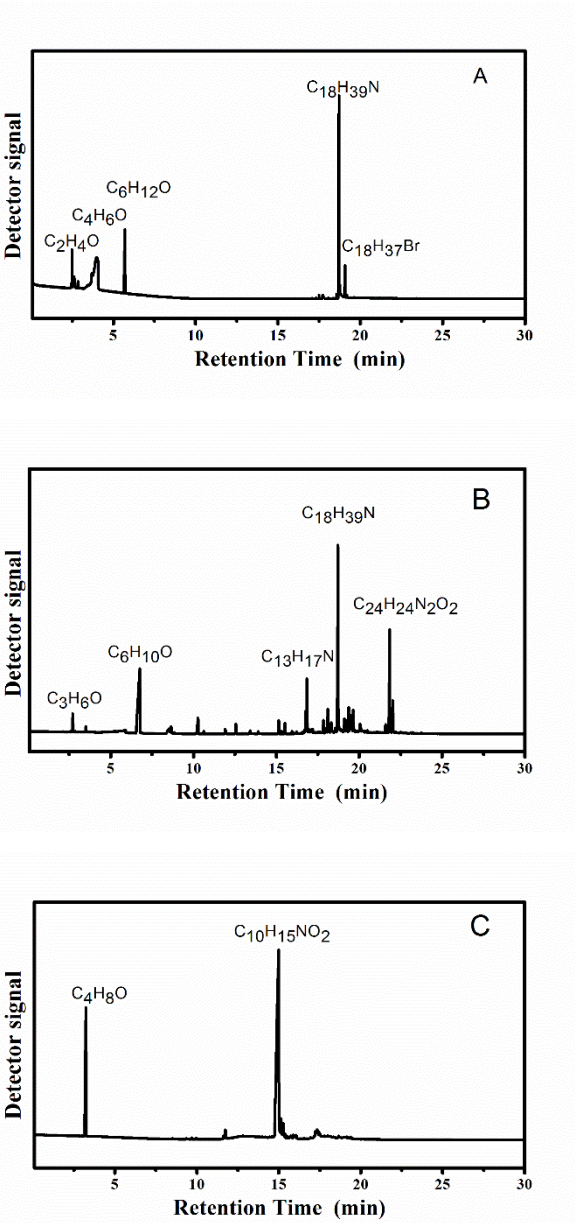

Figure S8. GC-MS spectra of the product of different aldehyde reacted at 27 °C: (a) Acetaldehyde system, (b) Propionaldehyde system and (c) Oil phase of butyraldehyde system.

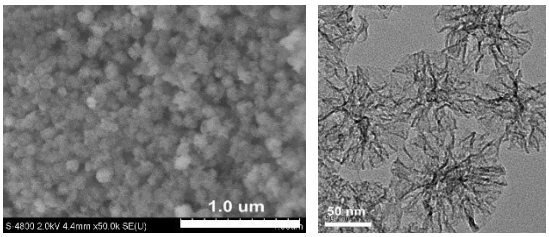

Figure S9. SEM and TEM image of MMSNs synthesized with amyl aldehyde as co-solvent at 27 °C