

Supporting Information

Silica Cubosomes Templated by Star Polymer

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Note added after first publication

15th August 2019: The authors added NMR (Figure S8) and MALDI ToF MS (Figure S9) spectra for all synthesis steps of the reaction to support the polymer synthesis.

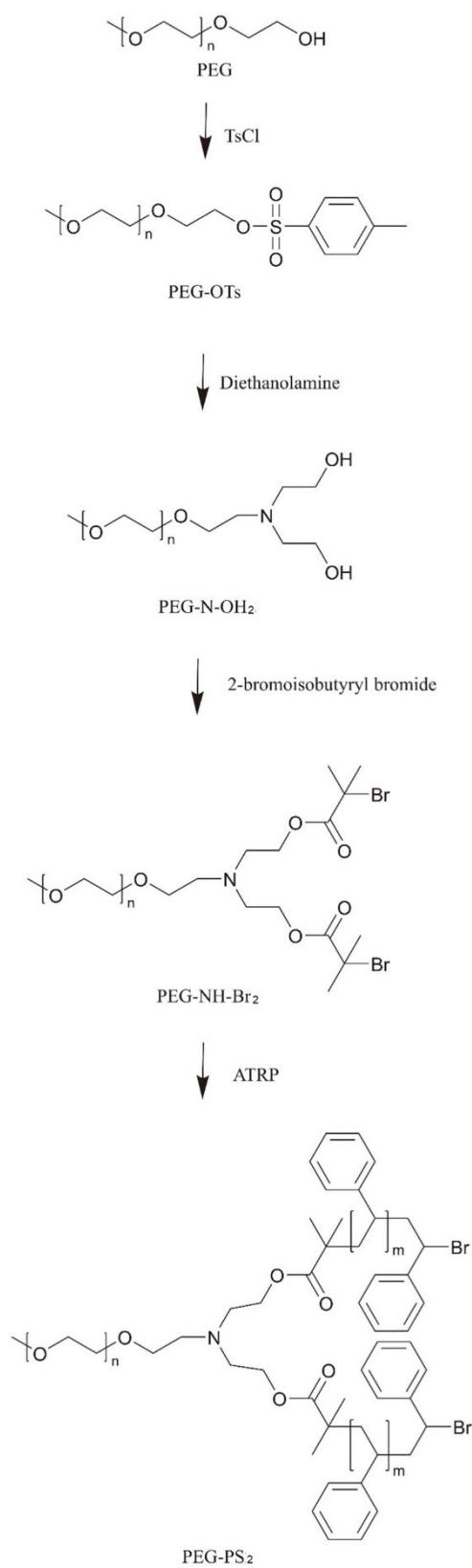


Fig. S1 Scheme of the synthesis step of PEG-PS₂.

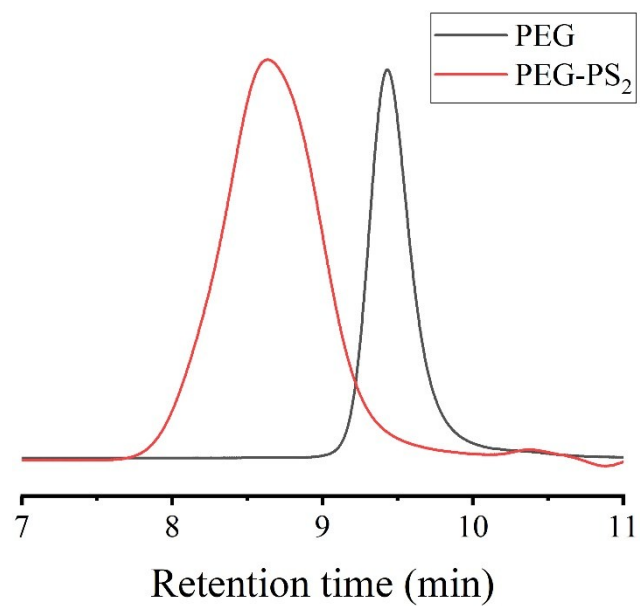


Fig. S2 Gel permeation chromatograms (GPC) of the polymers used as templates in synthesis of diverse structures.

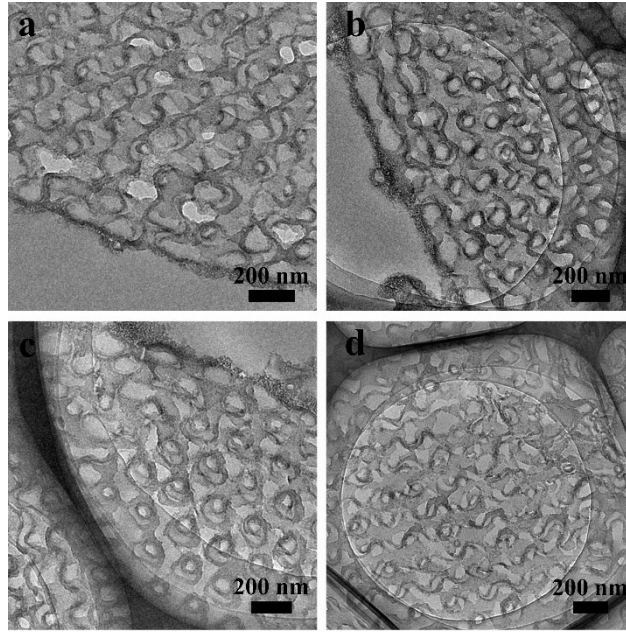


Fig. S3 The TEM image of the silica cubosomes (mass ratio of sGS2 : THF : HCl(2 M) : TEOS is 0.1 : 7 : 5 : 0.7).

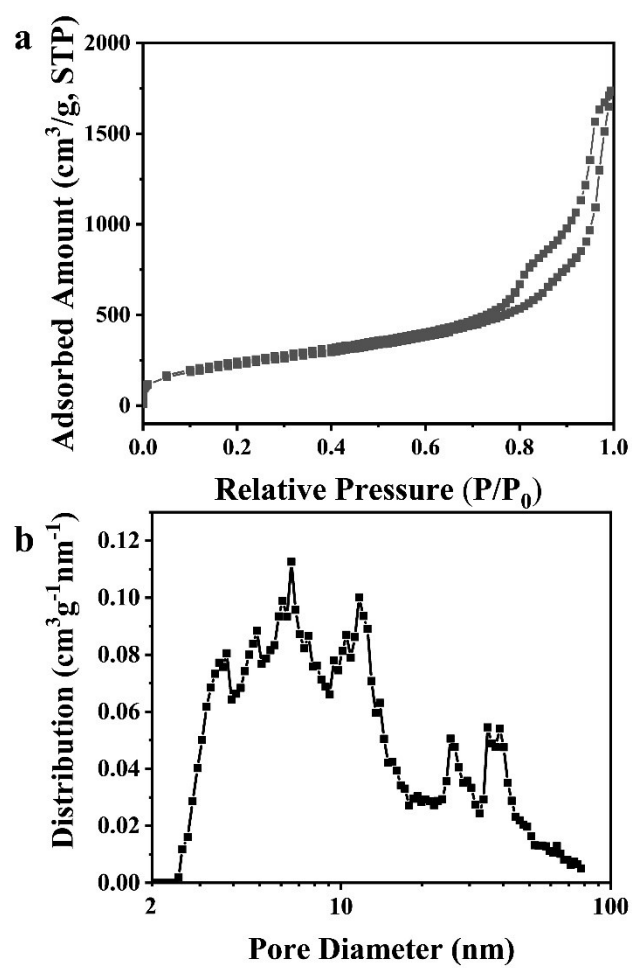


Fig. S4 Nitrogen sorption isotherms (a) and pore size distribution (b) of the silica cubosomes after calcination at 550 °C in air.

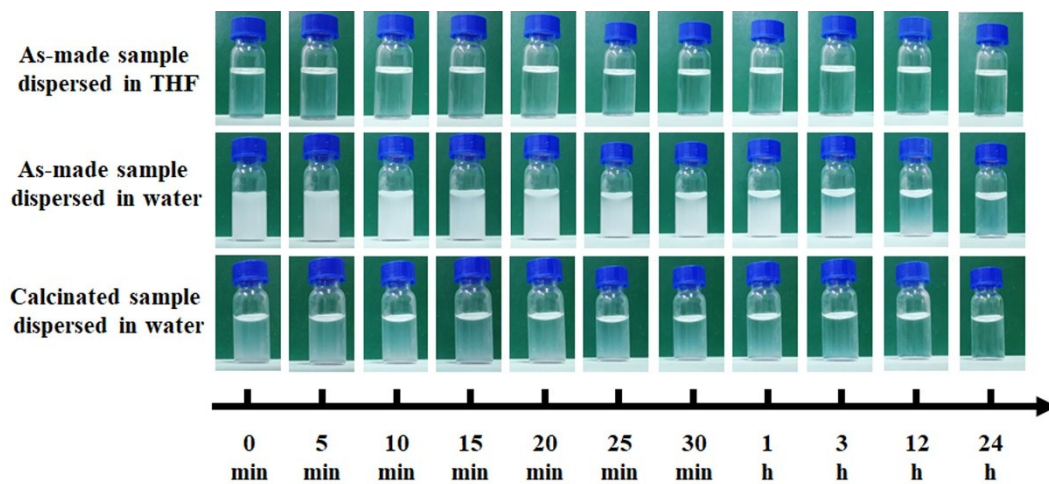


Fig. S5 Stability test of the sample in the dispersion.

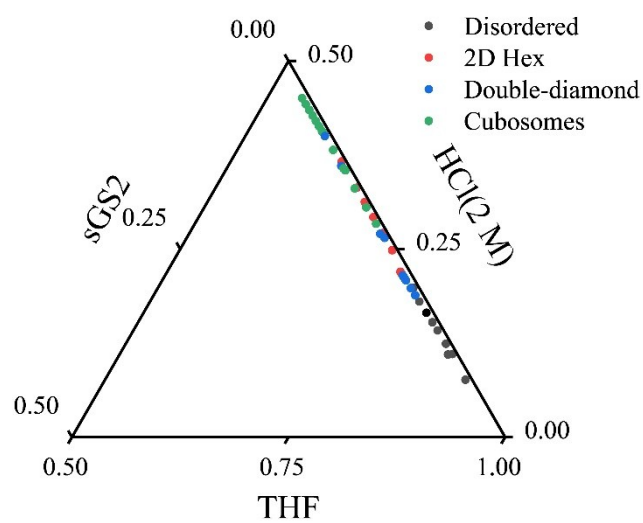


Fig. S6 Three-component synthesis-field diagram drawn from raw data.

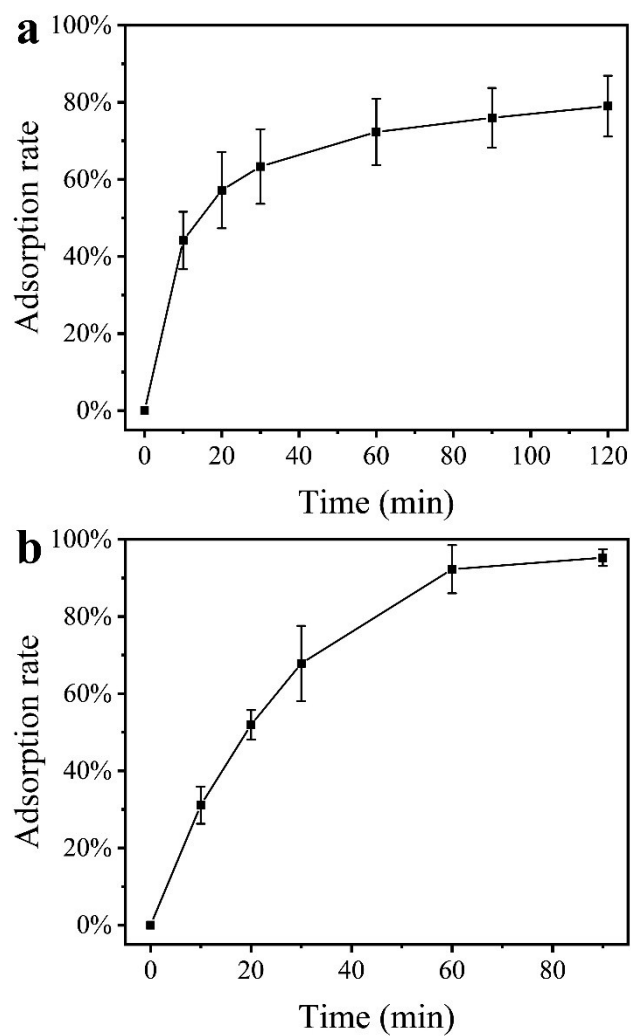


Fig. S7 Relationship between adsorption rate and adsorption time of (a) silica cubosomes over methylene blue and (b) aminated silica cubosomes over DNA solution.

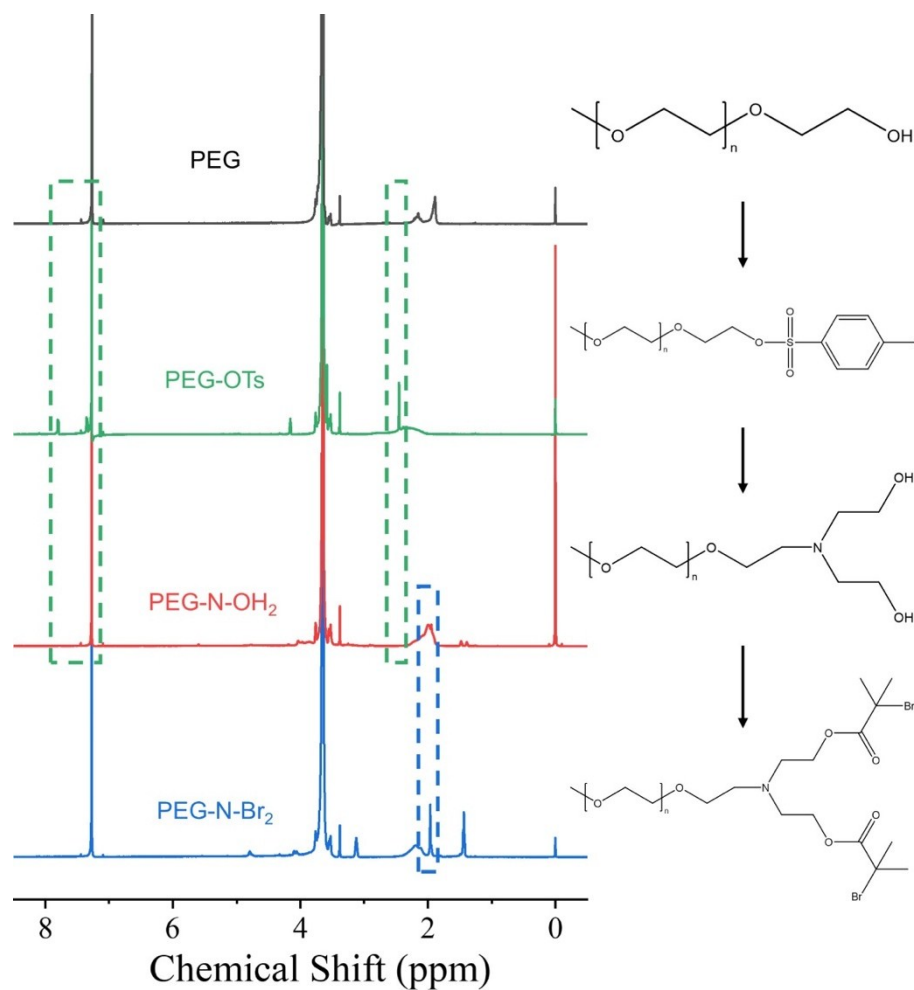


Fig. S8 NMR spectrum of the product of reaction. First, we observe the appearance and disappearance of two characteristic peaks of 4-methylphenyl in the reaction to synthesize PEG-N-OH₂ (marked in green box). Subsequently, the methyl characteristic peak of the macroinitiator (PEG-N-Br₂) is also observed (marked in blue box). The change in NMR signal is consistent with literature.

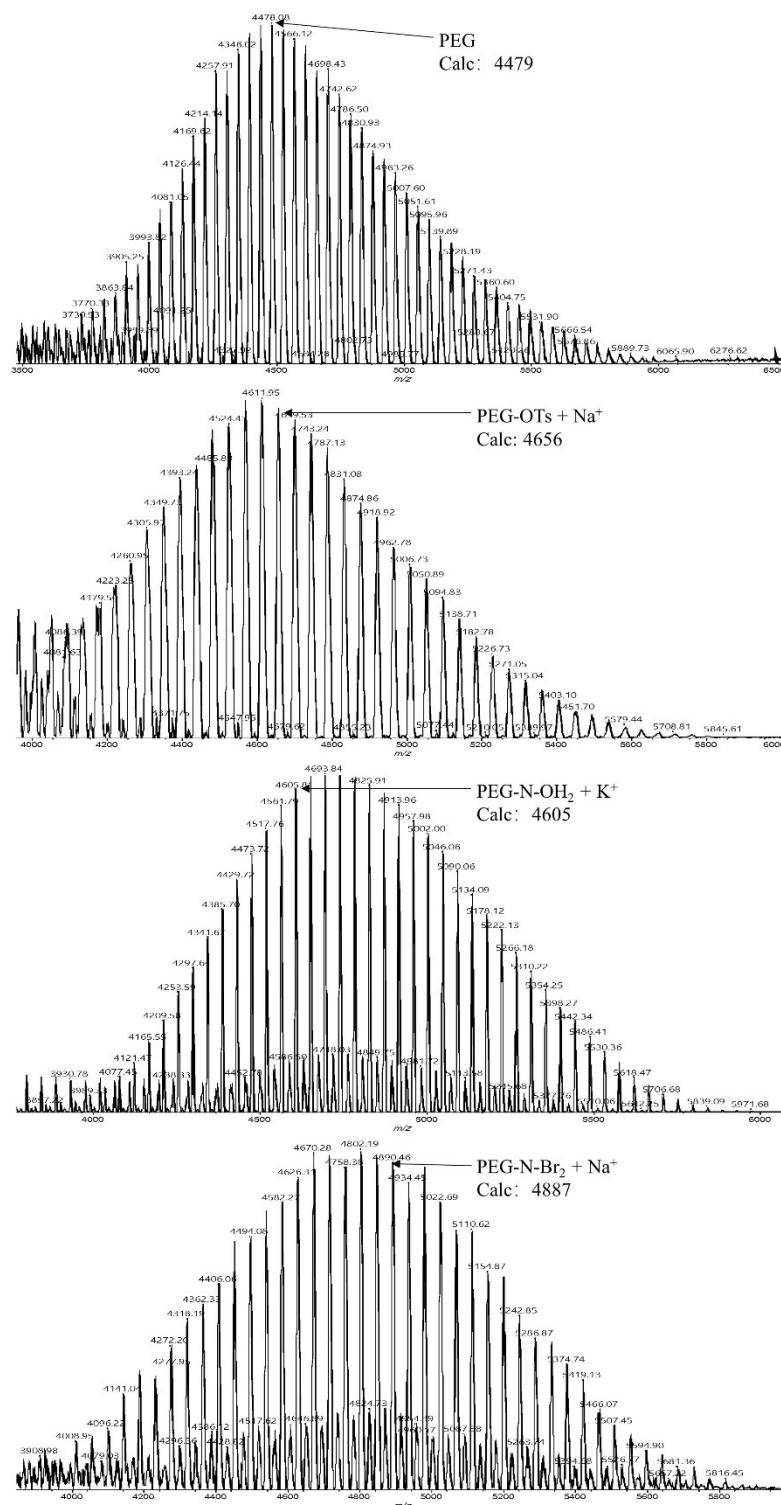


Fig. S9 MALDI-ToF MS spectrum of the product of reaction. Each sample consists of a set of peaks with a spacing of 44 m/z (PEG repeating unit -CH₂-CH₂-O-). The main peak position changes as the terminal group changes. The absolute molecular weight of each product obtained by MALDI ToF MS is well matched to the calculated molecular weight.