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Surfactant-Free Synthesis of Lamellar and Wormhole-Like Silica Mesostructures by using 1-Alkynyltrimethoxysilane

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Table S1 Composition analysis results of the products before and after chemical treatment in **1C16**–TMOS systems

TMOS/1C16 ratio		mass % C	Mass %H	mass % N
6	as-made	27.4	5.3	—
	chemical treated	7.1	1.5	0.9
9	as-made	20.9	4.3	—
	chemical treated	5.8	1.2	0.8
12	as-made	17.1	3.7	—
	chemical treated	8.8	1.5	0.7

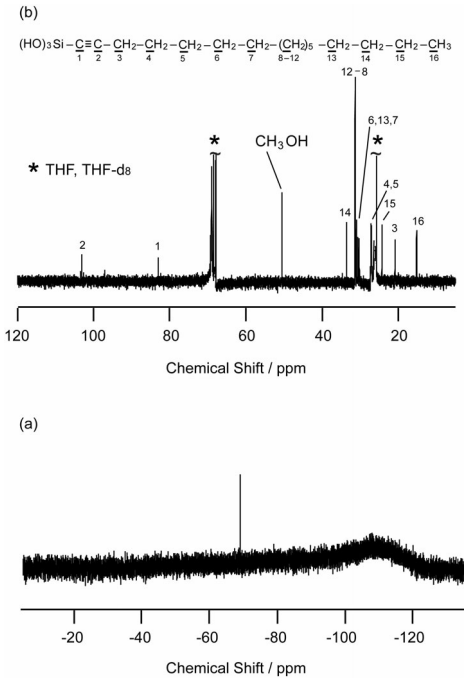

Figure S1 Liquid-state (a) ^{29}Si NMR and (b) ^{13}C NMR spectrum of the hydrolyzed solution of **1C16** after 2 h.

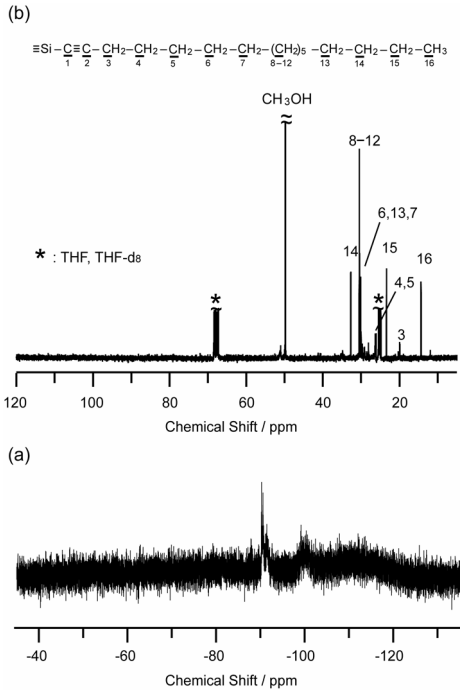

Figure S2 Liquid-state (a) ^{29}Si NMR and (b) ^{13}C NMR spectrum of the solution obtained by co-hydrolysis and polycondensation of **1C16** and TMOS (TMOS/**1C16** = 9).

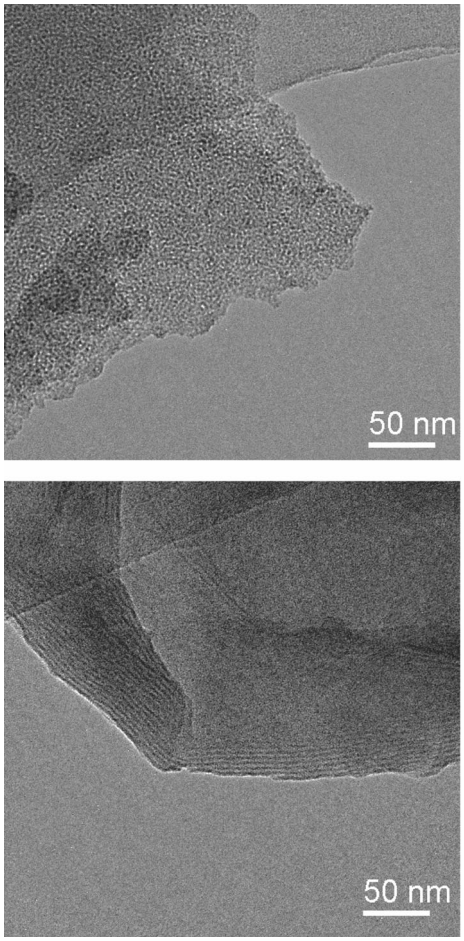

Figure S3 TEM images of the as-made product prepared with TMOS/**1C16** = 6.

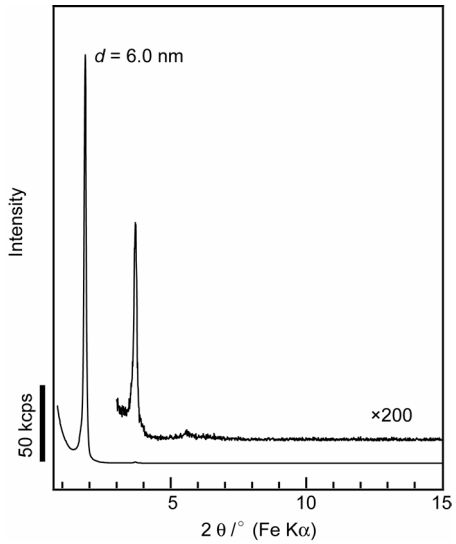

Figure S4 XRD pattern of the thin film obtained by dip-coating the solution heated up to 50 °C in **1C16**–TMOS system.

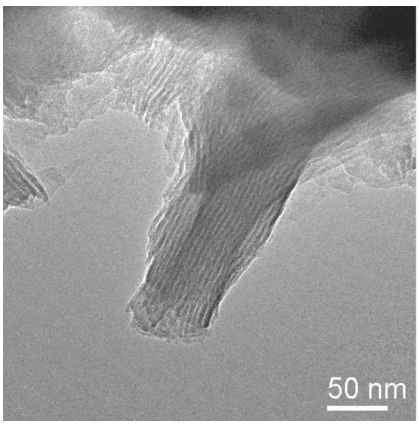

Figure S5 TEM image of the powder peeled off from the thin film obtained by dip-coating the solution heated up to 50 °C in **1C16**–TMOS system.

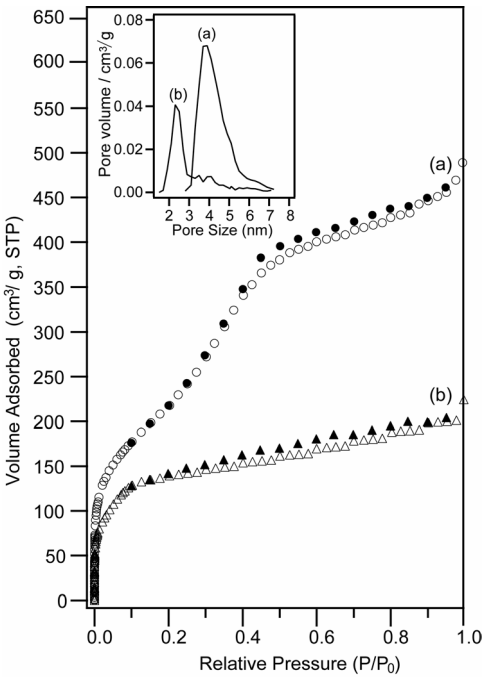

Fig. S6 N_2 adsorption-desorption isotherms for (a) chemically treated and (b) calcined products prepared with TMOS/**1C10** = 6. Open symbols and filled symbols denote adsorption and desorption, respectively. The insets show the pore size distribution curves obtained by the NLDFT method.

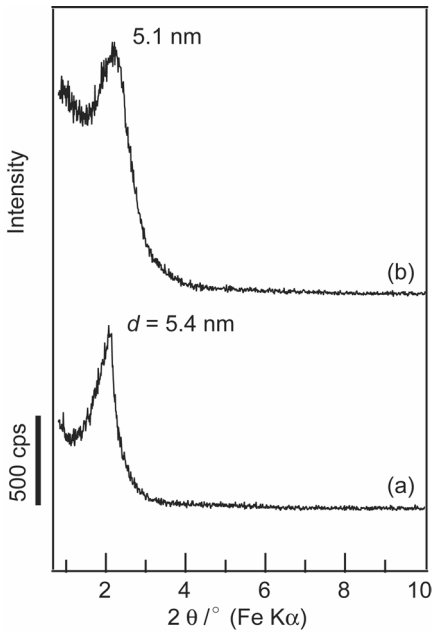

Figure S7 XRD patterns of (a) the as-made and (b) calcined products from **1C16**–**1C10**–TMOS ternary system.

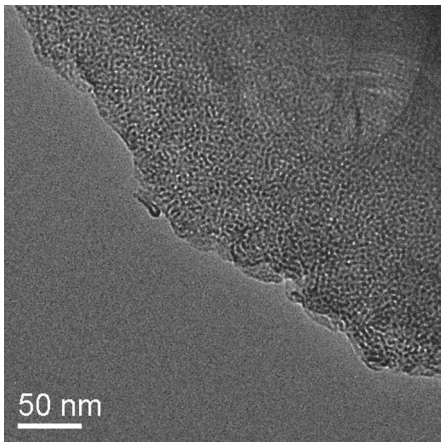

Figure S8 TEM image of the calcined product from **1C16**–**1C10**–TMOS ternary system.

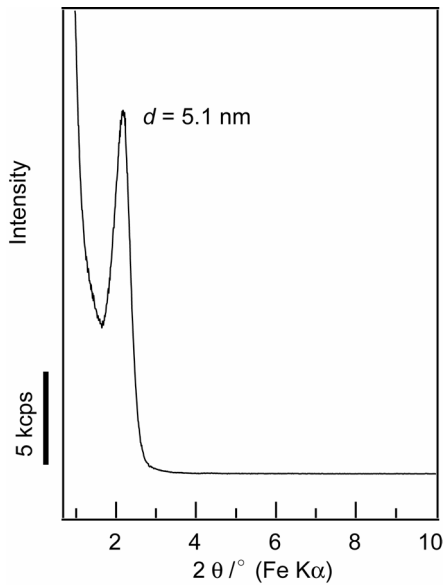

Figure S9 XRD pattern of the thin film from **1C16**–**1C10**–TMOS ternary system.

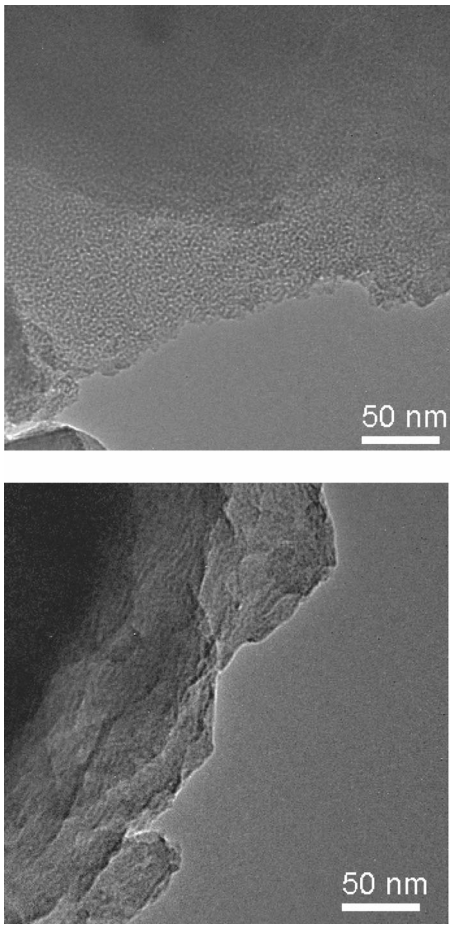

Figure S10 TEM images of the powders peeled off from the thin film prepared with **1C16**–**1C10**–TMOS ternary system.