

Supporting Information

Artificial Reticular Structure by Continuous Titanium Oxide Frameworks

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Table S1. Characteristics of colloidal PS-*b*-PEO (molecular weight; 100,000-*b*-150,000) templated macroporous titania films (400 °C, Si{100} with 4 inch in diameter) prepared by changing spinning rate and amount of TTIP from that in the precursor solutions.

Spinning rate / rpm	Amount of TTIP / g	Surface area / m ² cm ⁻³	Average film thickness / nm
1500	0.422	69	227
2000	0.422	57	202
2500	0.422	131	98
3000	0.422	124	97
3000	0.422	124	97
3000	0.379	135	72
3000	0.338	111	78
3000	0.295	147	61
3000	0.253	203	36
3000	0.211	263	32

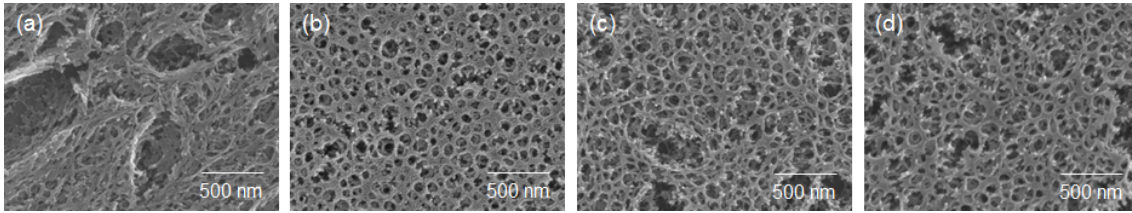


Fig. S1 SEM images of colloidal PS-*b*-PEO (molecular weight; 100,000-*b*-150,000) templated macroporous titania films (1500 rpm, 400 °C, quartz) obtained by changing the final drying condition, (a, b) air-dried, (c) 50 °C, and (d) -20 °C followed by 50 °C, of spin-coated films prepared under the optimal synthetic conditions.

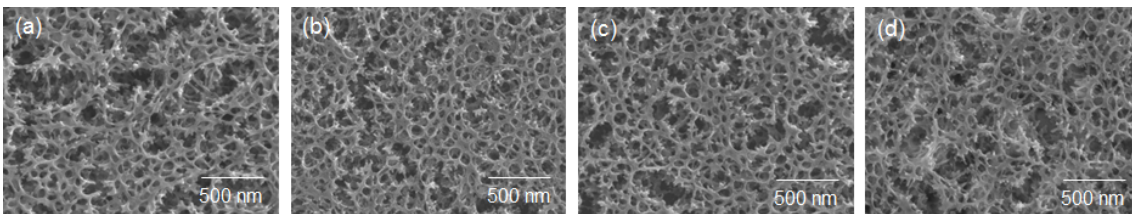


Fig. S2 SEM images of colloidal PS-*b*-PEO (molecular weight; 100,000-*b*-150,000) templated macroporous titania films (1500 rpm, 400 °C) prepared under the optimal synthetic conditions over various substrates such as (a) quartz, (b) Si{100}, (c) glass, and (d) FTO.

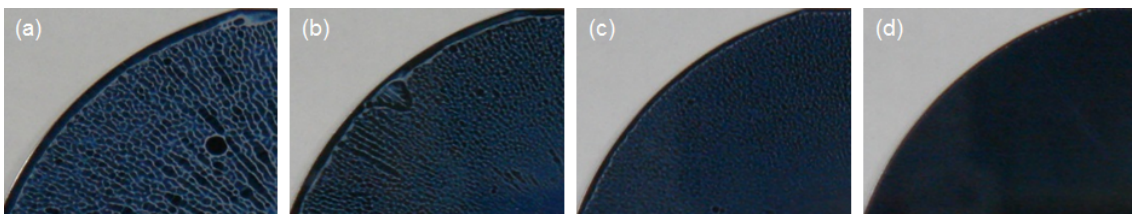


Fig S3 Photographs of colloidal PS-*b*-PEO (molecular weight; 100,000-*b*-150,000) templated macroporous titania films (400 °C, Si{100} with 4 inch in diameter) prepared from the optimal precursor solution with spinning rates of (a) 1500 rpm, (b) 2000 rpm, (c) 2500 rpm, and (d) 3000 rpm.

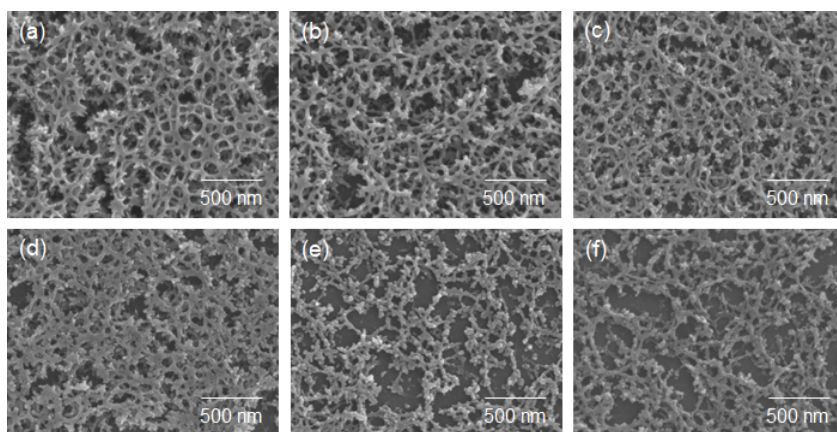


Fig. S4 SEM images of colloidal PS-*b*-PEO (molecular weight; 100,000-*b*-150,000) templated macroporous titania films (3000 rpm, 400 °C, Si{100}) prepared by changing the amount of TTIP, (a) 0.422 g, (b) 0.379 g, (c) 0.338 g, (d) 0.295 g, (e) 0.253 g, and (f) 0.211 g, in the precursor solution.

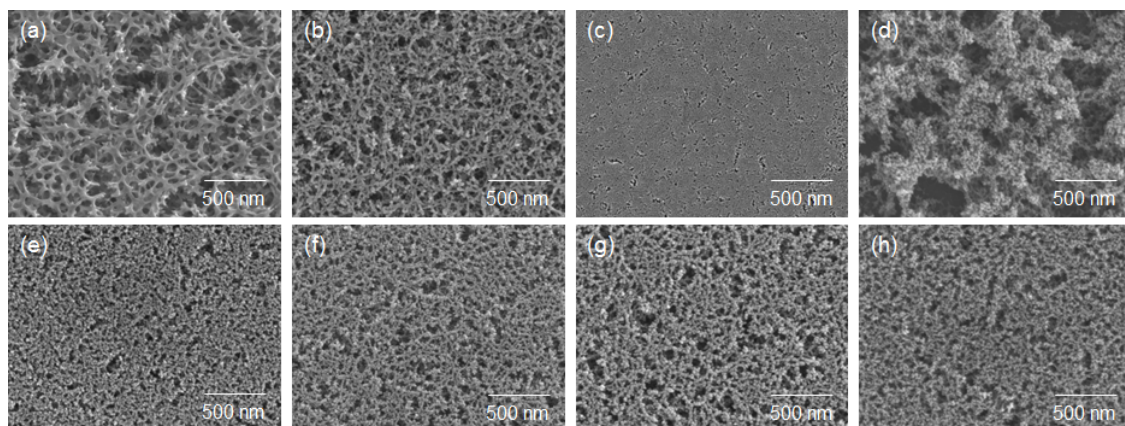


Fig. S5 SEM images of colloidal PS-*b*-PEO templated macroporous titania films (1500 rpm, 400 °C, glass) prepared using PS-*b*-PEO with the molecular structures of (a) 100,000-*b*-150,000, (b) 12,200-*b*-23,900, (c) 16,000-*b*-7,500, (d) 35,000-*b*-17,000, (e) 2,700-*b*-4,000, (f) 40,000-*b*-53,000, (g) 58,600-*b*-71,000, and (h) 59,000-*b*-31,000.

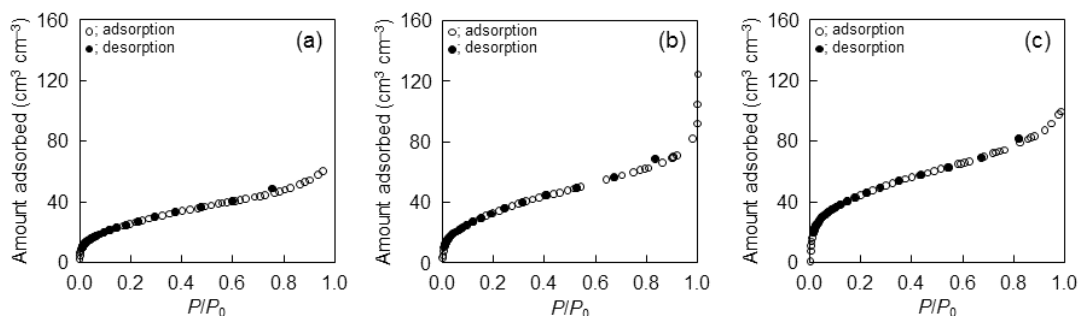


Fig. S6 Kr adsorption-desorption isotherms of colloidal PS-*b*-PEO templated macroporous titania films (3000 rpm, 400 °C, Si{100}) prepared using PS-*b*-PEO with molecular structures of (a) 100,000-*b*-150,000, (b) 12,200-*b*-23,900, and (c) 16,000-*b*-7,500.

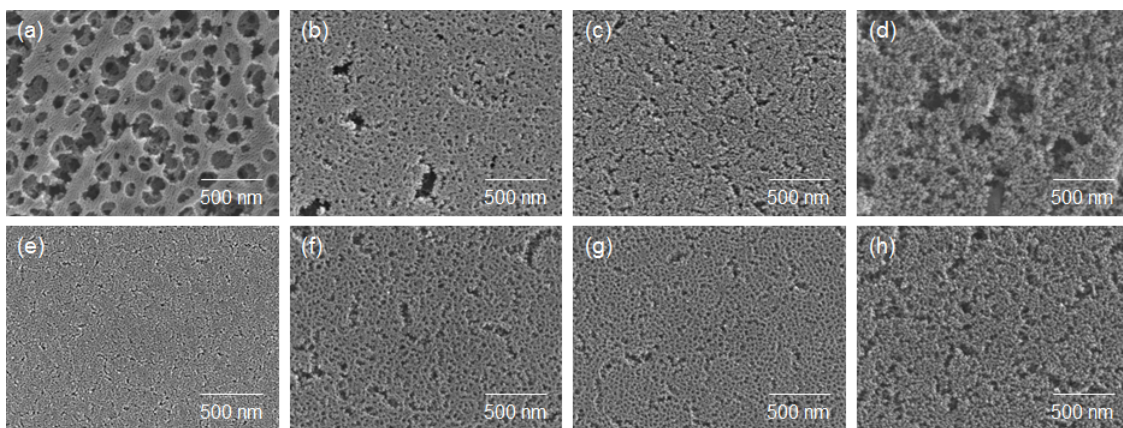


Fig. S7 SEM images of titania films (1500 rpm, 400 °C, glass) prepared using PS-*b*-PEO with the molecular structures of (a) 100,000-*b*-150,000, (b) 12,200-*b*-23,900, (c) 16,000-*b*-7,500, (d) 35,000-*b*-17,000, (e) 2,700-*b*-4,000, (f) 40,000-*b*-53,000, (g) 58,600-*b*-71,000, and (h) 59,000-*b*-31,000; all the syntheses were conducted by using 1,4-dioxane as a solvent.