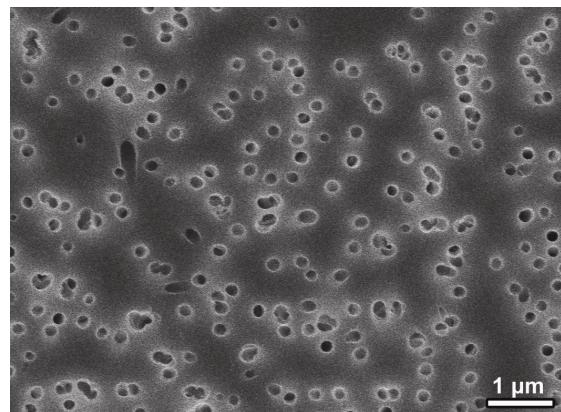


## Electronic Supplementary Information (ESI)

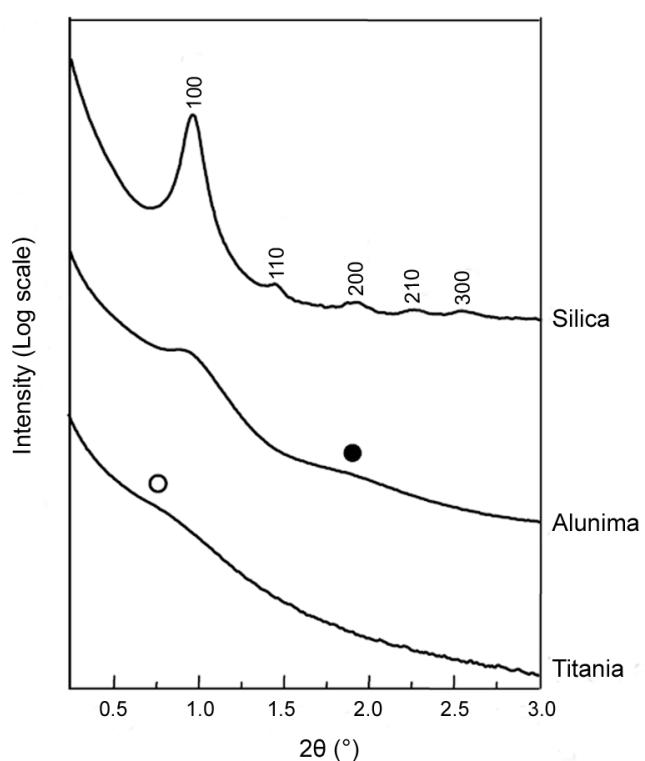
**Figure S1**



5

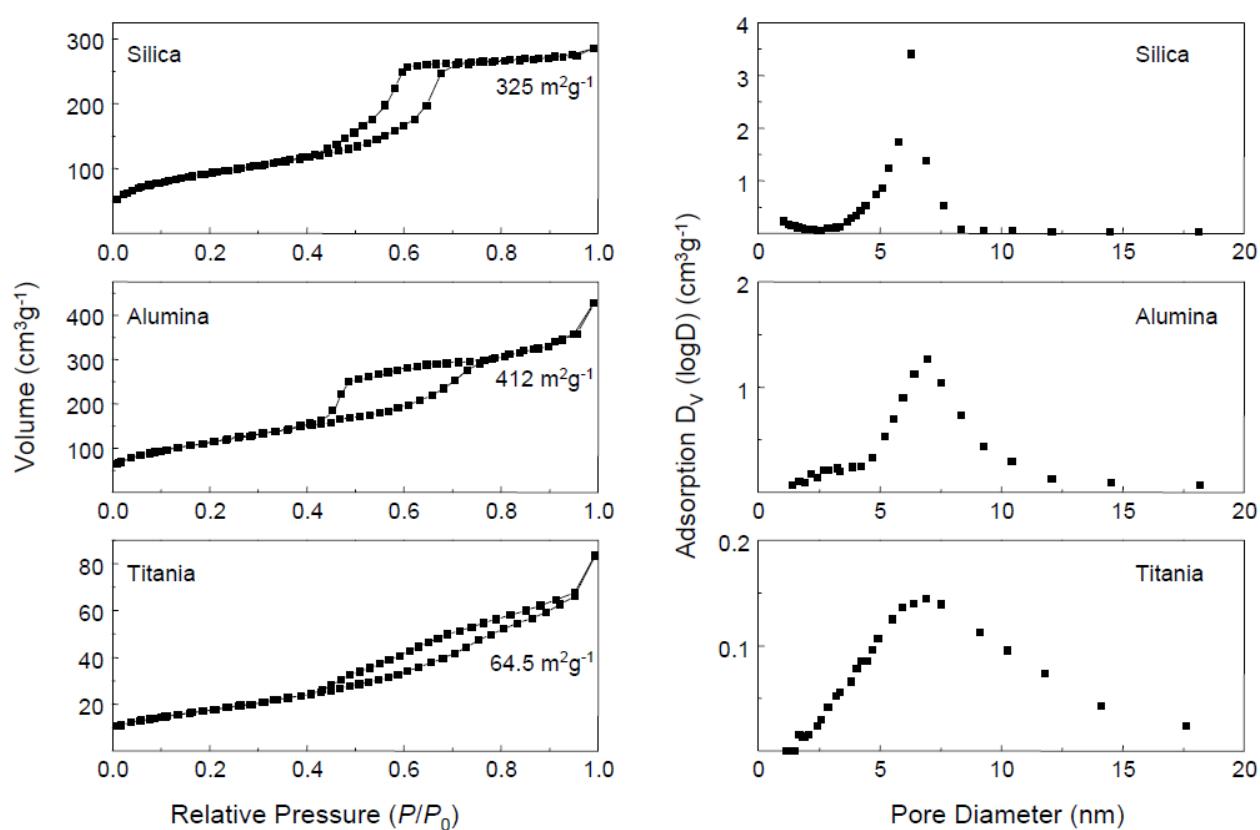
**Fig. S1** SEM image of the top surface of a PC membrane filter (Advantec, K020A025A), taken by using a Hitachi S-4800 field emission scanning electron microscopy.

**Figure S2**



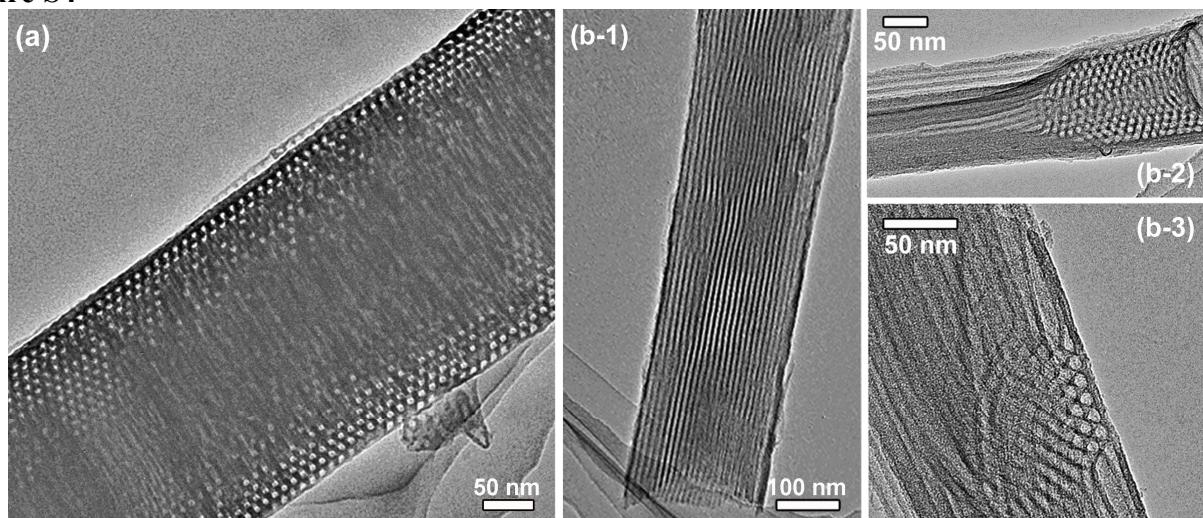
**Fig. S2** SAXS patterns of mesoporous silica, alumina, and titania fibers, collected by NANO-Viewer (Rigaku).

**Figure S3**



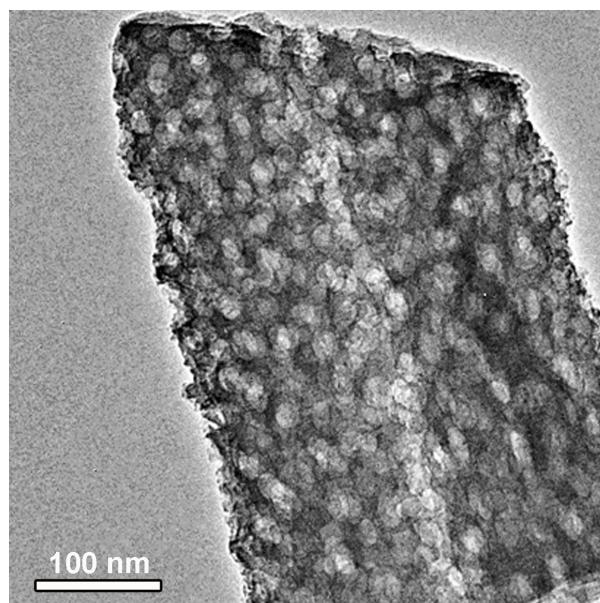
**Fig. S3** Nitrogen adsorption-desorption isotherms and pore size distribution curves of mesoporous silica, alumina, and titania fibers prepared in the confined spaces of the PC membrane. The isotherms were measured by using a Quantachrome Autosorb-1. Specific surface areas and pore size distributions were calculated using adsorption branches according to the Brunauer-Emmett-Teller (BET) and the Barrett-Joyner-Halenda (BJH) methods, respectively.

**Figure S4**



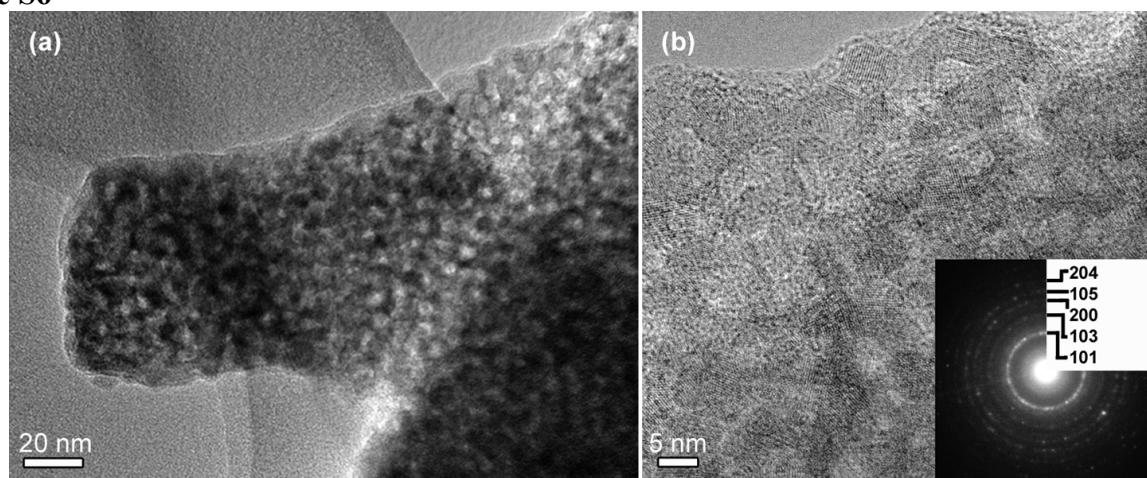
**Fig. S4** TEM images of mesoporous silica fibers prepared in PAA membranes (a) without and (b) with strong aspiration.

**Figure S5**



**Fig. S5** TEM image of mesoporous silica fibers prepared using PS-*b*-PEO diblock copolymer in the  
PC channels.

**Figure S6**



**Fig. S6** TEM images of mesoporous titania fibers calcined at 400 °C with the corresponding ED pattern. The images were taken by using a JEOL-3000F (200 kV) and the samples were dispersed in ethanol by ultrasound and mounted on microgrids.