Electronic Supplementary Material (ESI) for Nanoscale.

Supporting Information:

Nano-frost Array Technique to Prepare Nanoporous PVDF Membranes

Min Kyung Lee and Jonghwi Lee*

(E-mail): jong@cau.ac.kr

Solvent	Water	Dimethylacetamide (DMAc)
Density (g/cm^3)	1.00	0.94
Boiling point (^oC)	100.0	165.0
Melting point (^oC)	0.0	-20.0
Enthalpy of vaporization (kJ/mol)	44.23	53.2
Contact angle on an alumina surface	4.6^o	15^o
Surface energy (dyn/cm)	72.8	32.43

Table S1. Properties of the solvents.

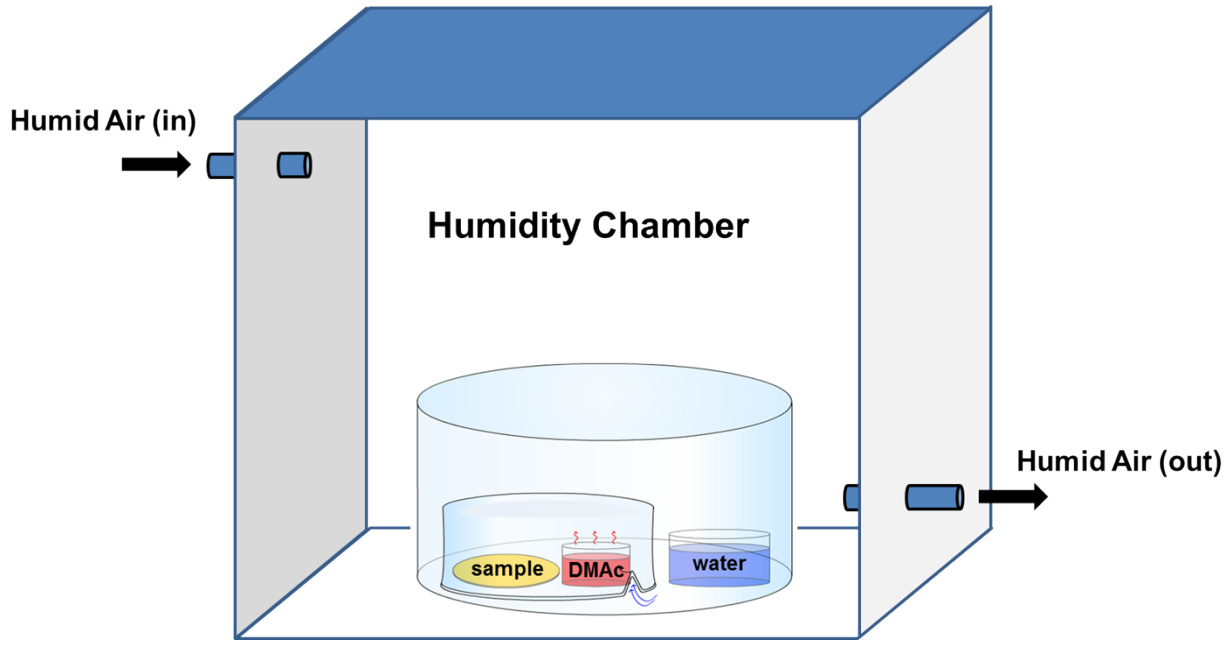

Figure S1. Schematic illustration of the co-solvent annealing chamber.

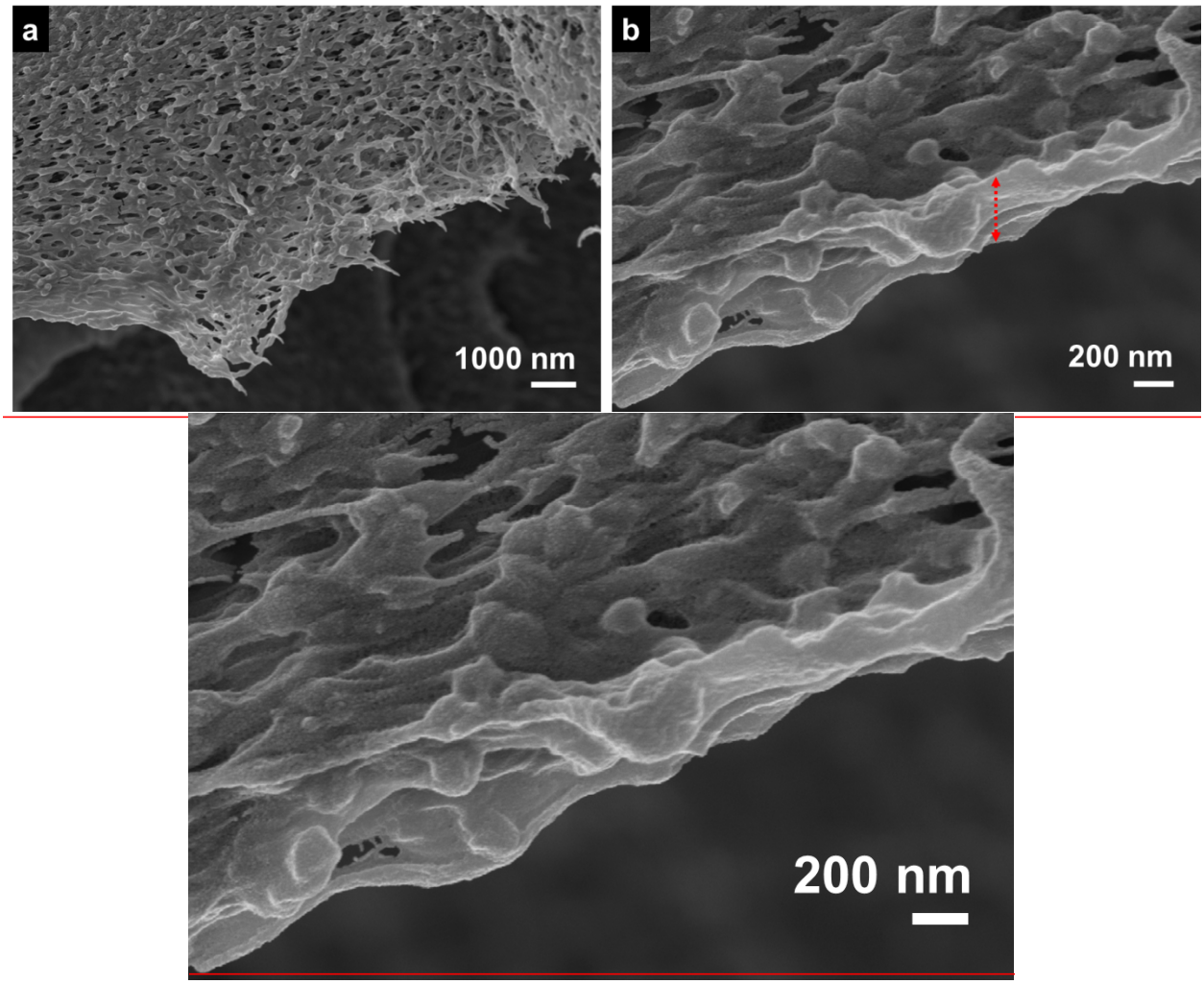

Figure S2. (a) Top-view SEM image of the PVDF nanomembrane. (b) Tilted view (q = 60°) with high magnification of (a). The red arrow indicates the thickness of nanomembrane. ~~Cross-sectional SEM image of the PVDF nanomembrane.~~

Figure S3. Digital picture of a freely suspended PVDF nanomembrane (5 x 5 mm) floating on a water surface.

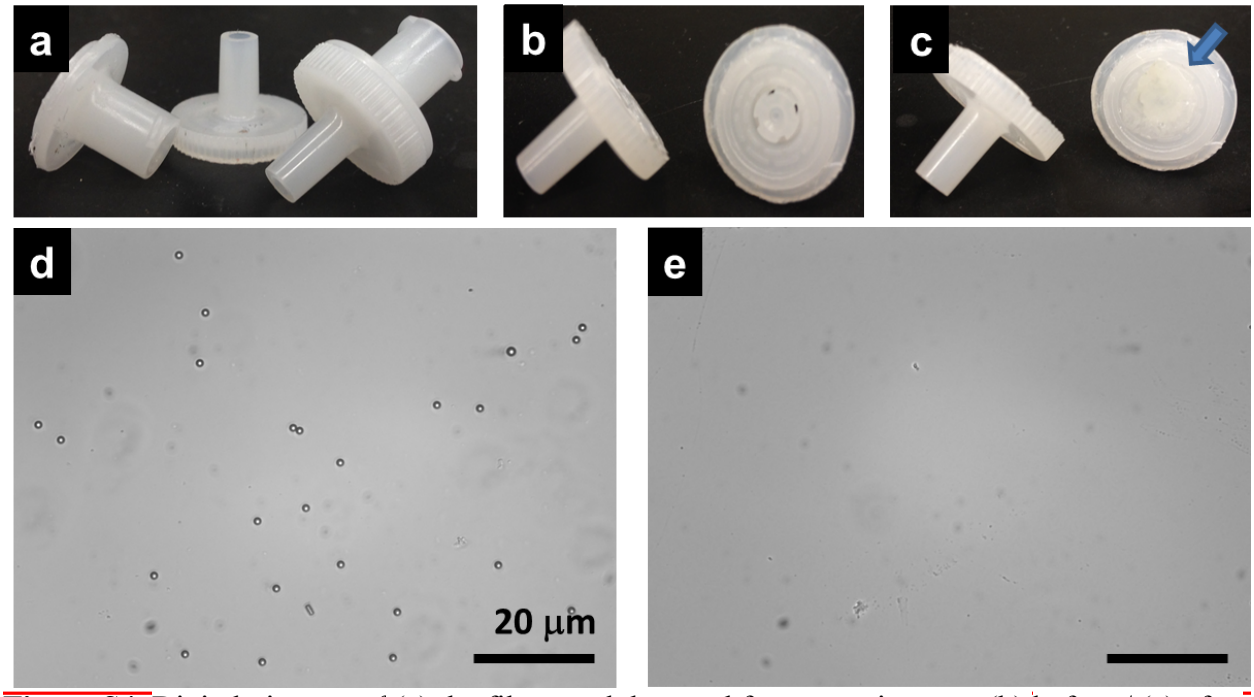

Figure S4. Digital pictures of (a) the filter modules used for separation test, (b) before / (c) after mounting samples on a module. Optical images of (d) the feed polystyrene microspheres with pa rticle sizes of 2 μm and (e) the filtrates after filtration by a nanomembrane.

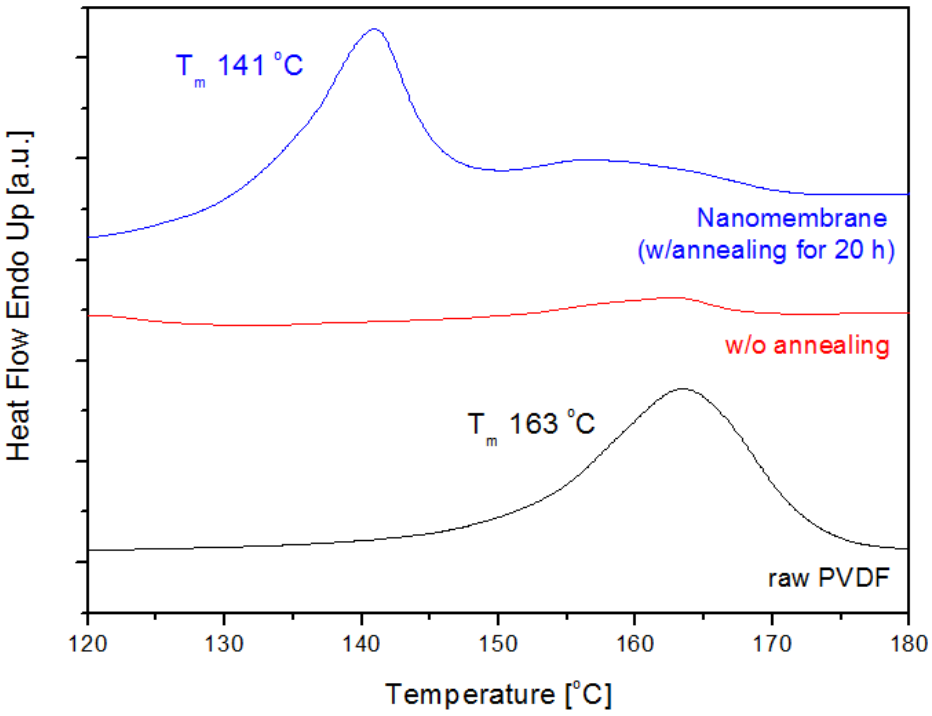

Figure S5. DSC curves for raw PVDF and PVDF nanostructures prepared under different conditi ons (with annealing and without annealing).