Supporting Information

Sequential Vapor Infiltration Treatment Enhances the Ionic Current Rectification Performance of Composite Membranes Based on Mesoporous Silica Confined in Anodic Alumina

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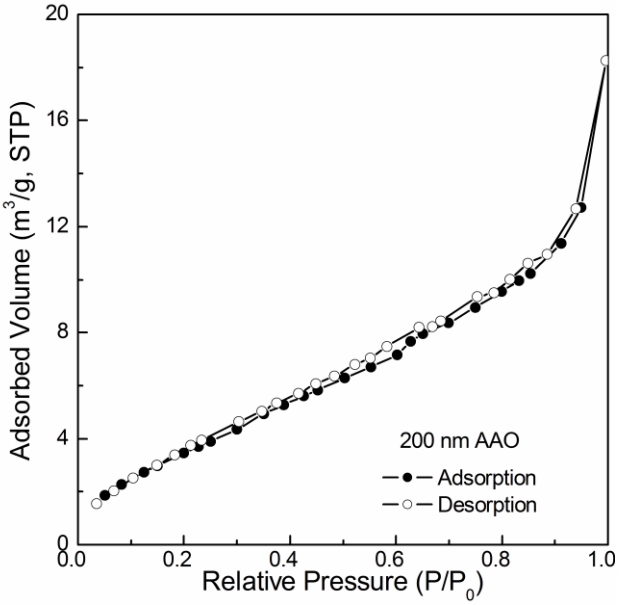

Figure S1. N_2 Adsorption and desorption isotherm of 200 nm AAO membrane.

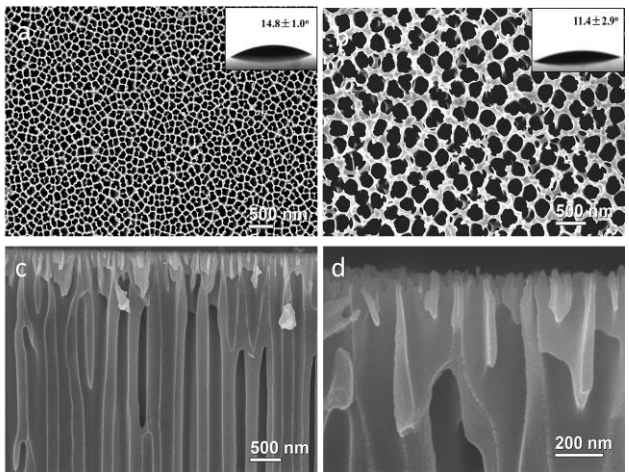

Figure S2. SEM images of 200 nm AAO membrane. (a) The tip surface, (b) the base surface, (c) cross sectional view, (d) magnified cross sectional view.

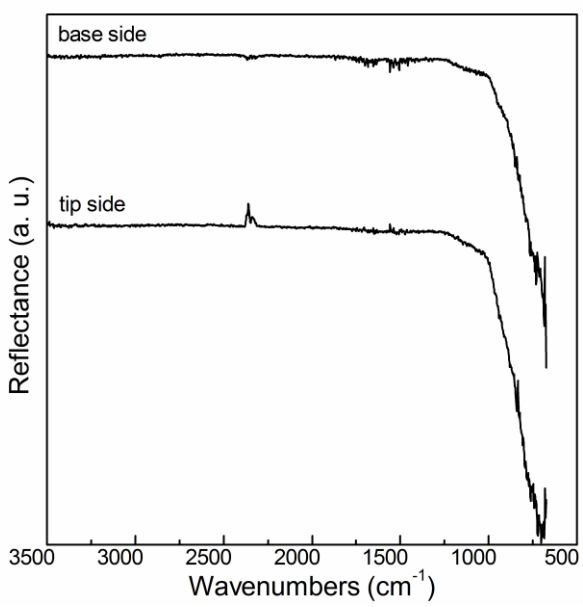

Figure S3. FT-IR spectra of the tip side and base side of 200 nm AAO membrane.

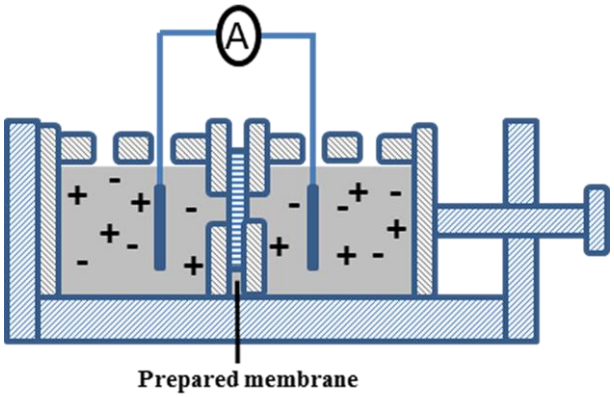

Figure S4. Schematic illustration of the ionic current measurement setup.

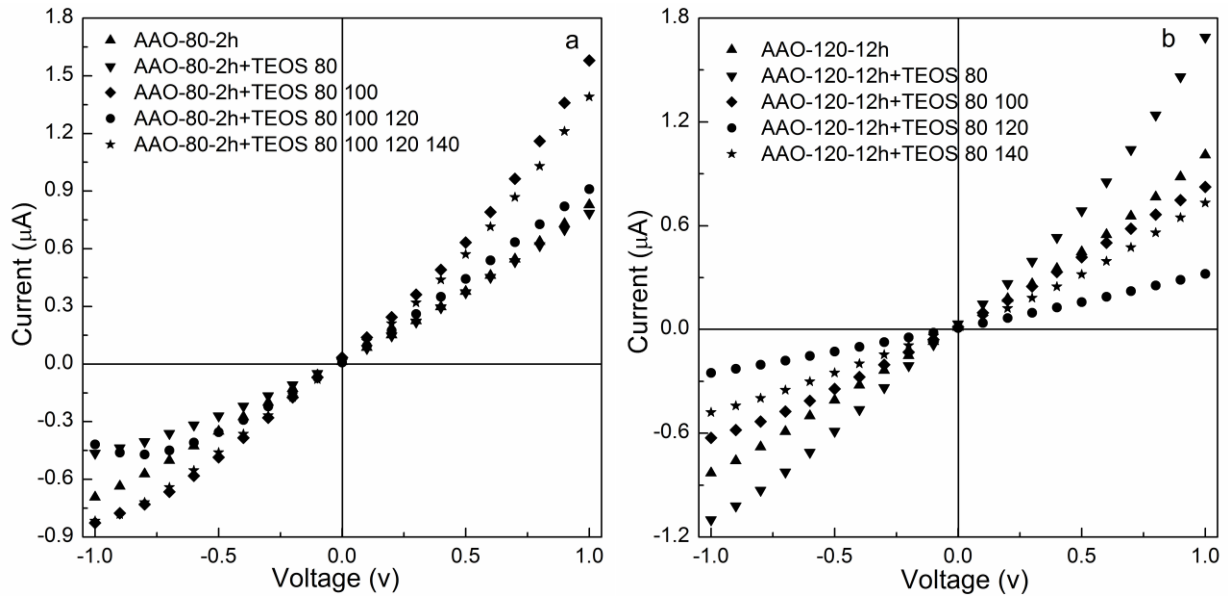

Figure S5. I-V curves of reference membranes prepared by the VPS process without SDAs after SVI treatment. (a) CTAB as the SDA, (b) P123 as the SDA.

Table S1. Summary of structural parameters of prepared membranes before and after SVI treatment

entry	BET surface area (m^2/g)	pore volume (cm^3/g)	BJH pore diameter (nm)
200 nm AAO	14.8	[a]	[a]
AAO-C18-80-2h	49.4	0.083	3.2
AAO-C18-80-2h-SVI	48.9	0.058	3.6
AAO-P35-120-12h	26.0	0.057	2.2
AAO-P35-120-12h-SVI	23.8	0.055	1.9

[a], Adsorbed volumes are too low to be calculated.