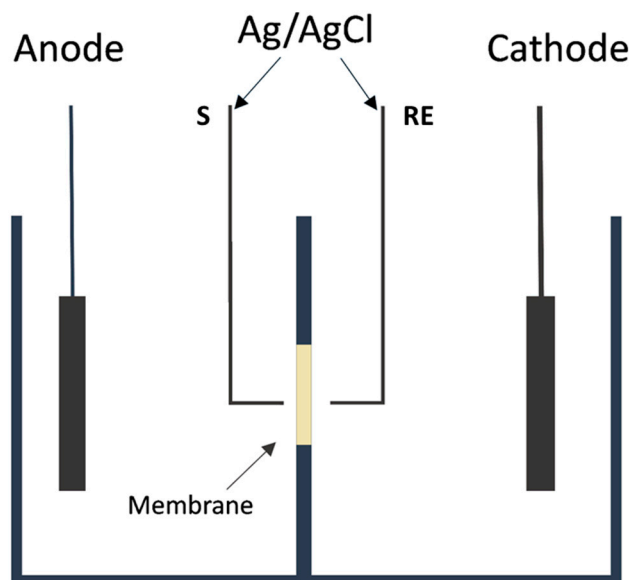
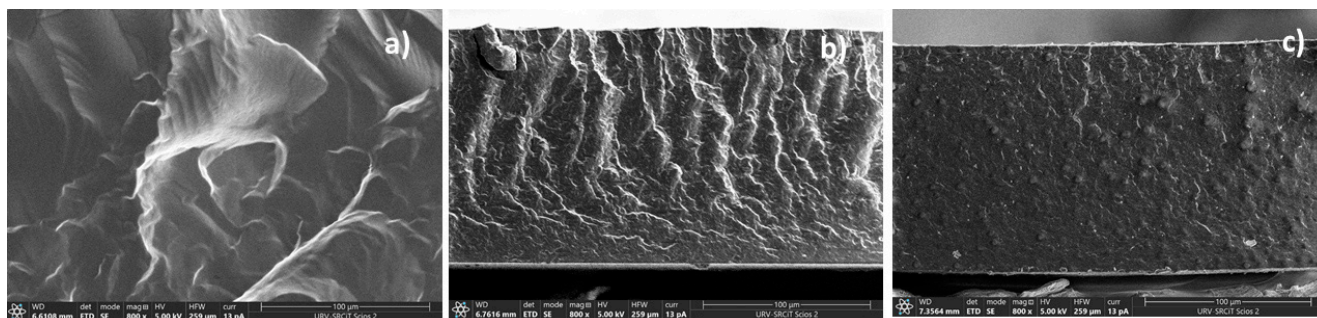


## Supplementary Material



**Figure S1.** The experimental set-up for linear sweep voltammetry measurements. Anode (+) is working electrode (WE), Cathode (-) is counter electrode (CE), S is sensitive electrode and RE is reference electrode.



**Figure S2.** FESEM images of the membrane cross-sections: CP0 (a); CP20 (b); CP20 oriented (c).

**Table S1** Water Contact angle as determined on oriented CP20 and CP40 membranes after Proton Permeability experiment (PP) and Water Uptake test (WU).

Sample	Modification (%)	Contact angle (°)	
		Oriented membrane after PP	Oriented membrane after WU
<b>CP20</b>	20%	106 ± 2 <sup>a</sup> , 107 ± 1 <sup>b</sup>	106 ± 2 <sup>a</sup> , 108 ± 3 <sup>b</sup>
<b>CP40</b>	40%	124 ± 2 <sup>a</sup> , 122 ± 2 <sup>b</sup>	130 ± 3 <sup>a</sup> , 130 ± 2 <sup>b</sup>

<sup>a</sup> Air side; <sup>b</sup> Teflon side