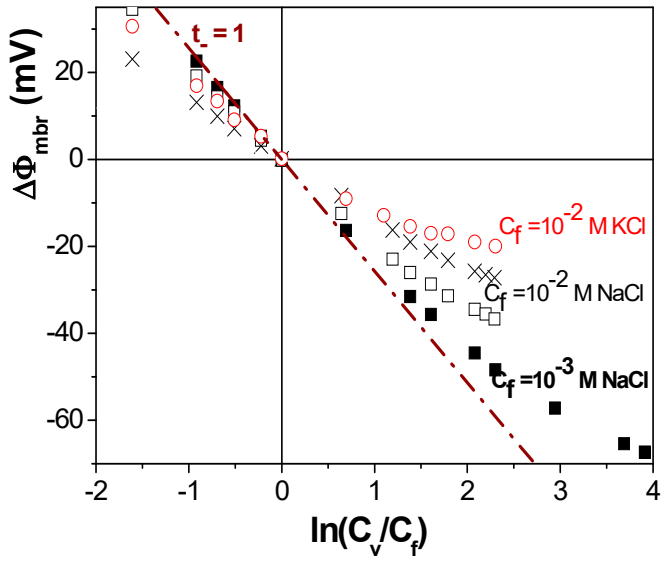

Figure S1. Membrane potential as a function of solution concentration ratio for nanoporous alumina membrane ALM-2. C_f = 0.01 M NaCl: solutions stirred at 550 rpm (□) and non-stirred solutions (x); stirred solutions: C_f = 10^{-3} M NaCl (■) and C_f = 10^{-2} M KCl (o). Theoretical values for an ideal cation-exchanger (dashed-dot line).

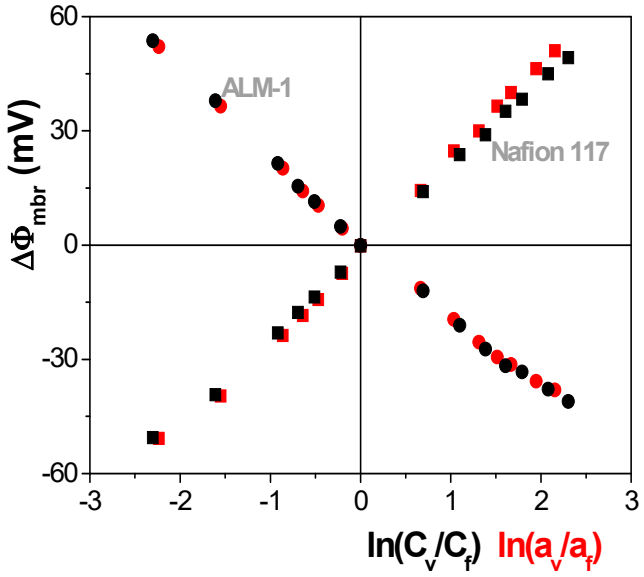

Figure S2. Membrane potentials as a function of: ln(C_f/C_v) for Nafion-117 membrane (■) and ALM-1 membrane (♦); ln(a_f/a_v) for Nafion-117 membrane (■) and ALM-1 membrane (♦).

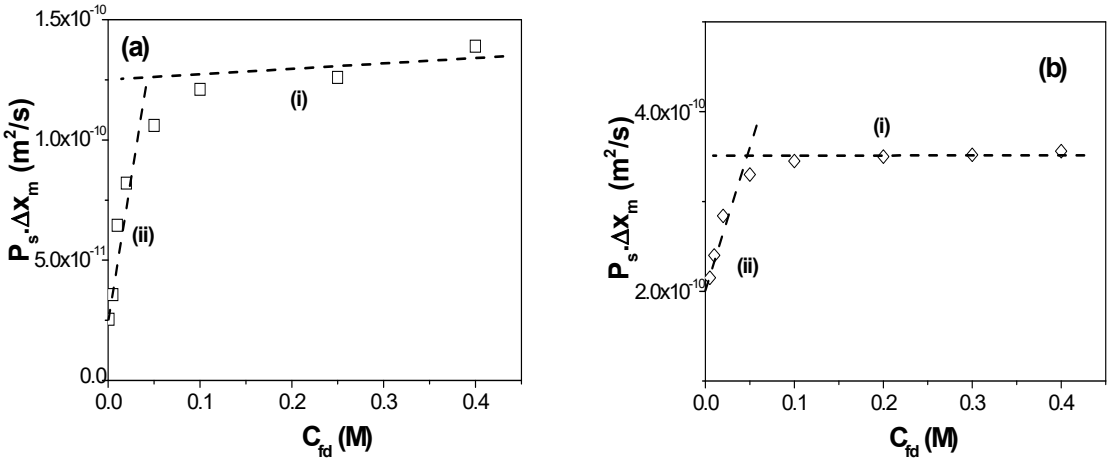

Figure S3. Salt diffusion as a function of feed NaCl concentration. (a) membrane RC-CE; (b) membrane ALM-1.

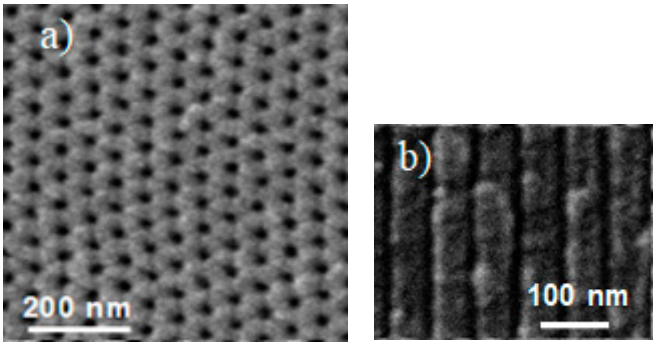

Figure S4. SEM micrographs for membrane ALM/Al_2O_3: a) surface and b) cross-section.

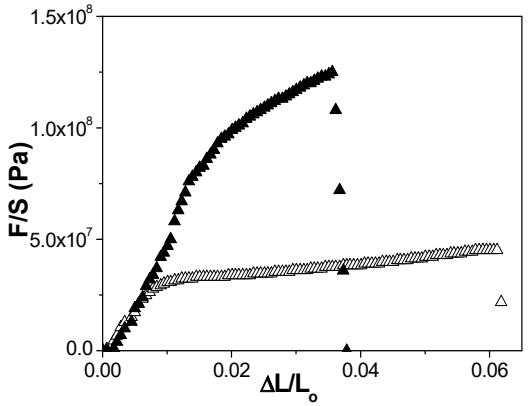

Figure S5: Strain-stress versus elongation for membranes: RC-CR (Δ) and RC-CE/AgNPs (▲).