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SUPPROTING INFORMATION

An analysis on the electrophoretic mobility of cellulose nanocrystals as a thin cylinder: relaxation and end effect

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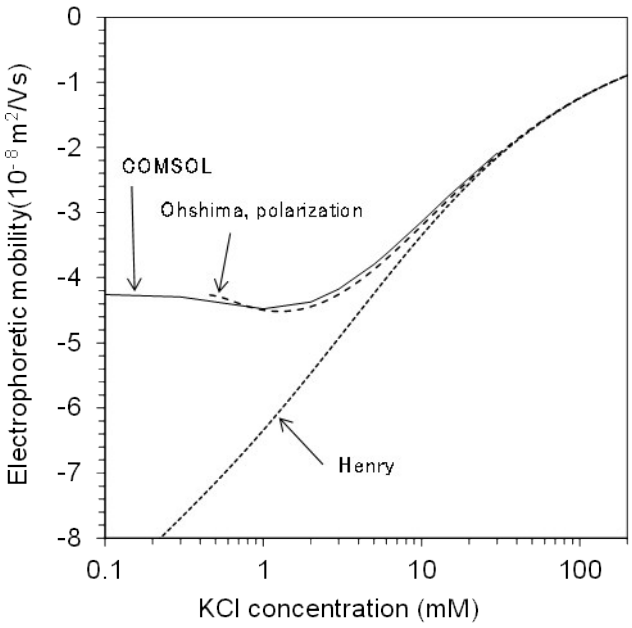

Figure. S1. When the Poisson-Boltzmann (PB) model is applied to obtain a zeta potential from surface charge density, the "Ohshima, polarization" eq. captures the double layer polarization effect (represented by a minimum mobility and reduction from the "Henry" eq.) and reasonably agrees with the numerical solution of Poisson-Nernst-Planck and the Stokes equations using "COMSOL", modelling software, for a sphere.

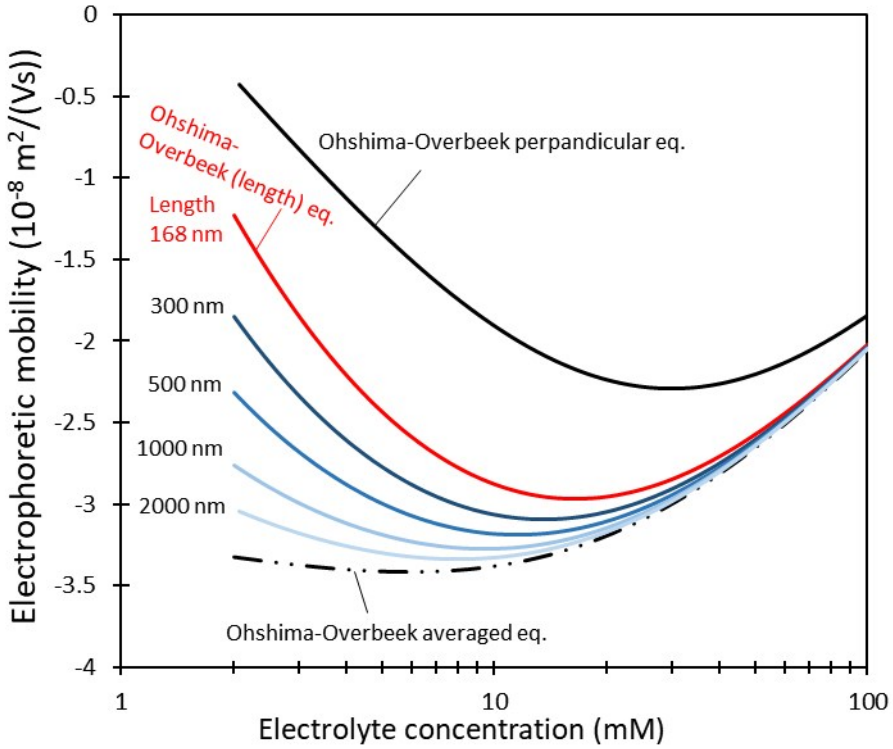

Figure. S2. An effect of the CNCs length depicted with "Ohshima-Overbeek (length) eq." with an assumption that the radius, zeta potential, and surface charge density are constant (independent with the length of CNCs). With increasing CNCs length, the "Ohshima-Overbeek (length) eq." curve becomes closer to "Ohshima-Overbeek averaged eq.", suggesting that the end effect plays a major role for shorter CNCs.