Electronic Supplementary Material (ESI) for Soft Matter

Supporting Information

Bridging interaction of protein with silica nanoparticles: Influence of pH, ionic strength and protein concentration

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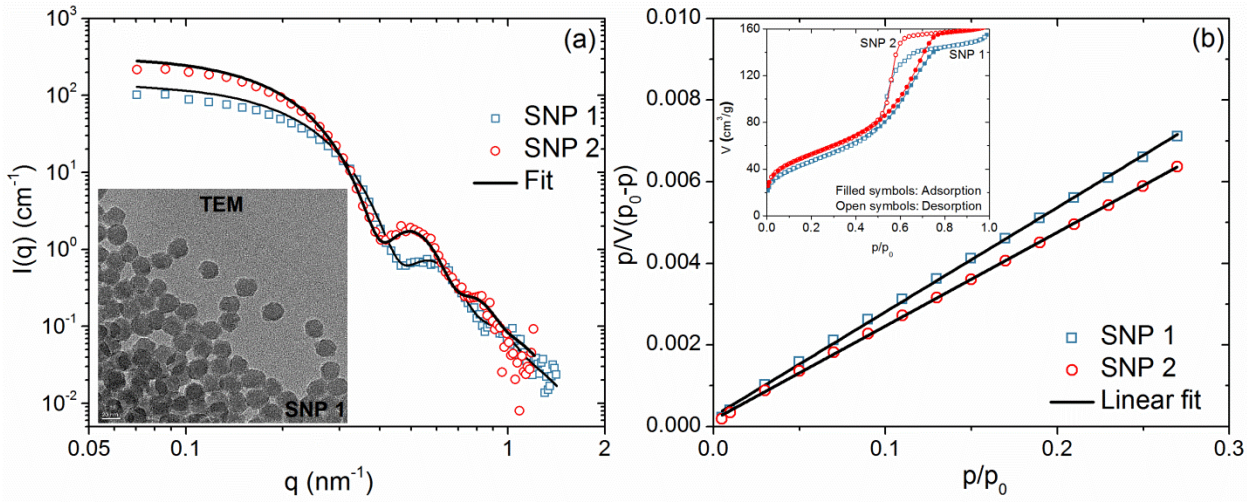

Figure S1 (a) SAXS profile for the 1-wt% dispersion of silica nanoparticles used in the study. The points represent the measured experimental data set and the black line represents the fit to the data by the form factor of polydisperse spheres. The inset is a TEM image of SNP1 particles confirming the spherical nature of the silica nanoparticles. Scale bar give in the TEM image corresponds to 20 nm real space distance. (b) BET plot of the N_2 adsorption isotherm for SNP1 and SNP2, the inset in the figure shows the full adsorption isotherm for two silica samples.

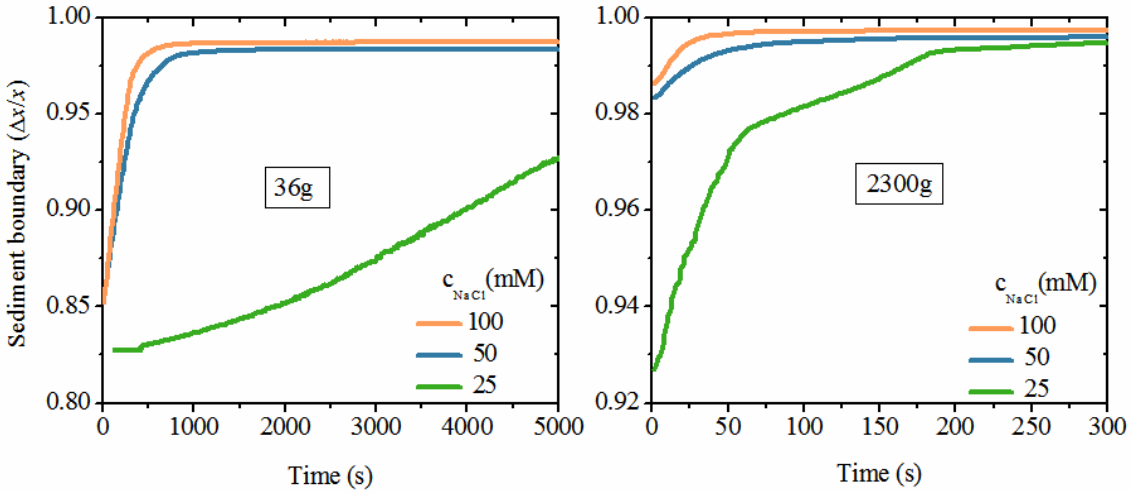

Figure S2 Sedimentation separation rate of protein/nanoparticle aggregate under low (36g, left) and high (2300g, right) compressive stress. The sedimentation kinetics of silica/lysozyme dispersion at 25mM NaCl was observed to be significantly slower than at 50 and 100mM NaCl concentrations.

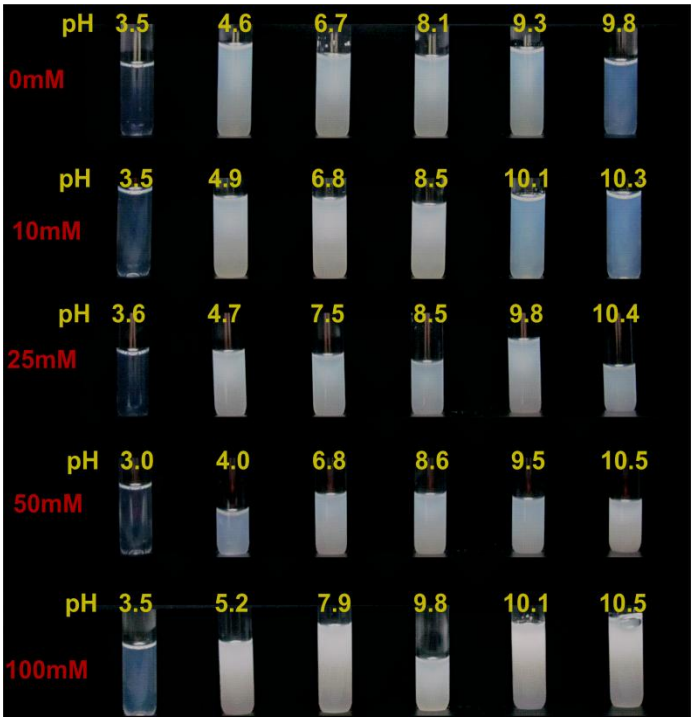

Figure S3 Images of the silica/lysozyme dispersions showing the aggregation and redispersion of the silica nanoparticles at different salinities (in red) and pH values (in yellow).