Supporting Information

Effect of Persistence Length on Binding of DNA to Polyions and Overcharging of their Intermolecular Complexes in Aqueous and in 1-Methyl-3-Octyl Imidazolium Chloride Ionic Liquid Solutions

Kamla Rawat[1], Jyotsana Pathak[1] and H.B.Bohidar[1,2*]

[1]Polymer and Biophysics Laboratory, School of Physical Sciences,

[2] Special Center for Nanosciences, Jawaharlal Nehru University, New Delhi 110067, India

*Corresponding author email: bohi0700@mail.jnu.ac.in

Tel: +91 11 2670 4637, Fax: +91 11 2674 1837

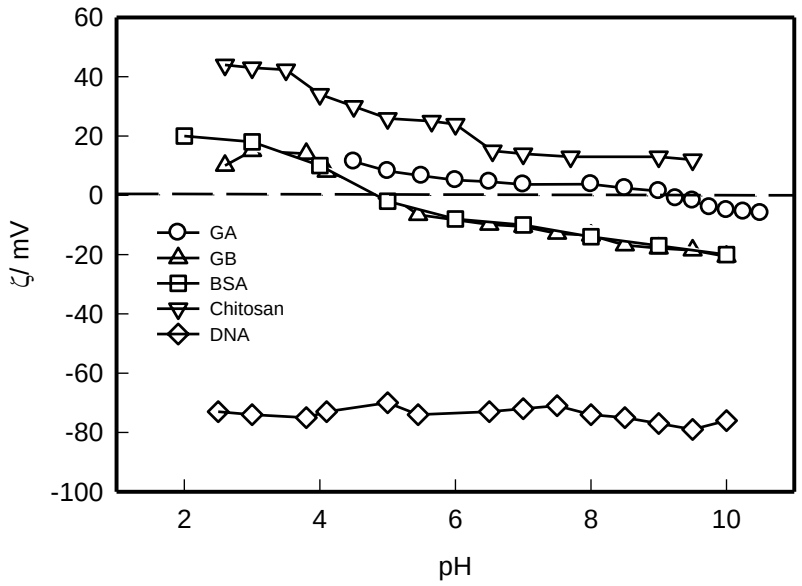

Figure S1: pH-dependent zeta potential data for DNA and all polyions used in the present study is shown pertaining to measurements performed at 20^0 C. Note the strong polyanionic nature of DNA, weak polycationic property of chitosan and polyampholytic behaviour of gelatin A and B, and BSA.

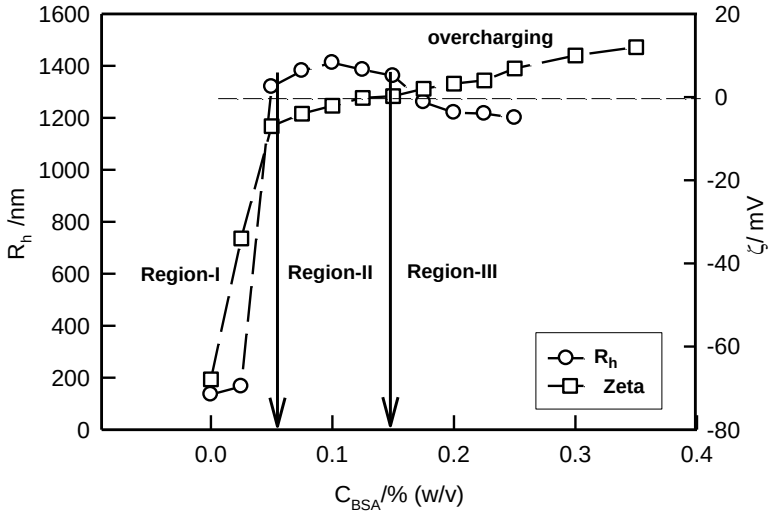

Figure S2: Plot of hydrodynamic size and zeta potential of DNA-BSA intermolecular complexes at pHc associative interactions ensue and soluble complexes are formed. Charge reversal and overcharging is clearly seen in Region-III. Here, DNA concentration was fixed at 0.05%. Solid lines are guide to the eye.

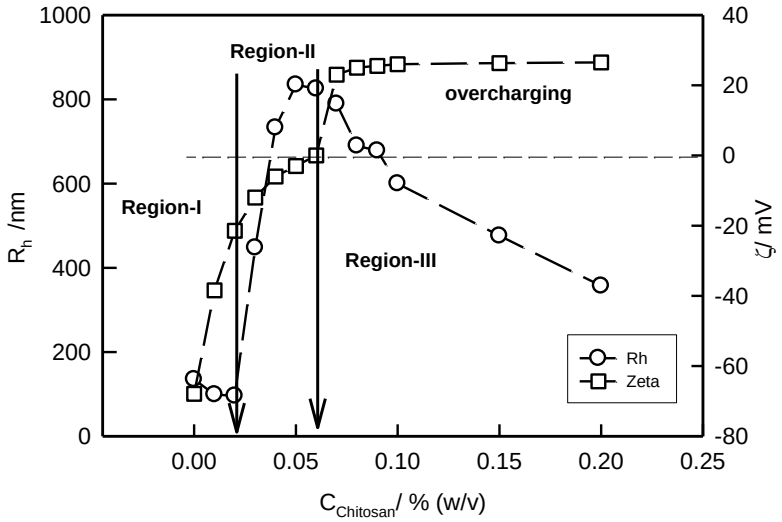

Figure S3: Plot of hydrodynamic size and zeta potential of DNA-chitosan intermolecular complexes at pHc where associative interactions ensue and soluble complexes are formed. Here, DNA concentration was fixed at 0.05%. Note the DNA chain softening due to binding with chitosan in Region-I. Charge reversal and overcharging is clearly seen in Region-III. Dotted line defines complete charge neutrality. Solid lines are guide to the eye.

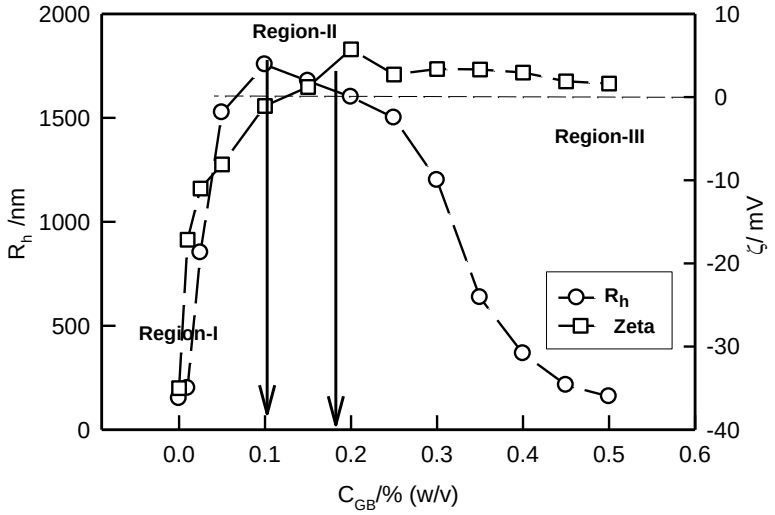

Figure S4: Variation in size of DNA-chitosan complex as function of polyion concentration in 0.05% [C8mim][Cl] solutions at pH_c. Here, DNA concentration was maintained at 0.05%. Note the overcharging of complexes for chitosan concentration exceeding 0.05%. Arrows indicate various binding regions. See text for details.

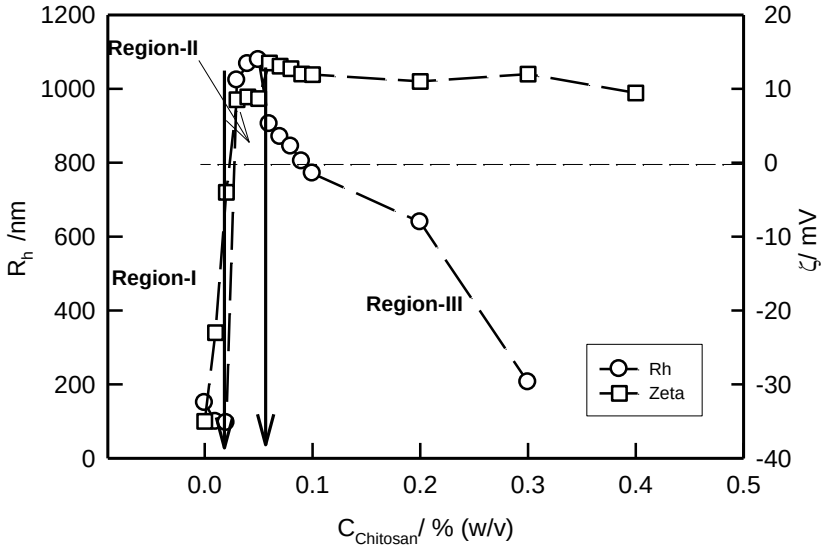

Figure S5: Variation in size of DNA-gelatin B complex as function of protein concentration in 0.05% [C8mim][Cl] solutions at pH_c. Here, DNA concentration was maintained at 0.05%. Note the overcharging of complexes for GB concentration exceeding 0.2%. Arrows indicate various binding regions. See text for details.