

Reentrant Phase Behavior in Protein Solutions Induced by Multivalent Salts: Effect of Anions Cl^- versus NO_3^-

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Concentration in the supernatant measured by UV-vis spectroscopy

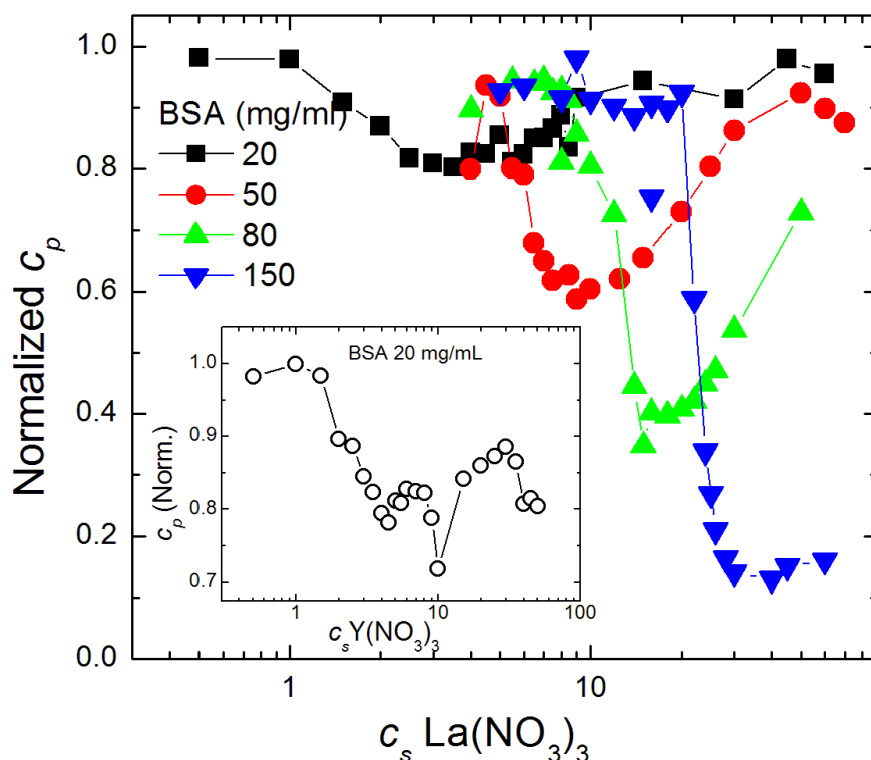


Figure S1 Protein concentration in the supernatants determined by UV-vis spectroscopy for different BSA concentration series with $\text{La}(\text{NO}_3)_3$. The inset shows one series with 20 mg/ml BSA and $\text{Y}(\text{NO}_3)_3$. The salt concentrations are in mM.

Fig. S1 shows the protein concentration in the supernatant after phase separation. The concentrations are normalized to the concentration in a sample without salt, i.e. to 20, 50, 80 or 150 mg/ml. Samples were prepared with the protein concentrations listed in the legend and different $\text{La}(\text{NO}_3)_3$ concentrations. The measured BSA concentrations in mg/ml correspond to 0.30, 0.75, 1.2 and 2.26 mM. After centrifugation of the samples, the protein concentration in the supernatant was measured by UV-vis spectroscopy. At high concentrations, the original concentration value is not reached again throughout the salt concentration range investigated. This is consistent with the observations described in the main text (state diagram in Fig. 1). The inset shows that with $\text{Y}(\text{NO}_3)_3$ already at BSA concentrations as low as 20 mg/ml (0.30 mM), the concentrations in the supernatant do not return to the initial value.

Additional FTIR and CD measurements

The FTIR measurements in Fig. S2 show that with the chloride salt LaCl_3 the secondary protein structure is preserved. With the nitrate salt $\text{Y}(\text{NO}_3)_3$ the secondary structure changes at high c_s/c_p ratios. This change is also confirmed by CD measurements (Fig. S3).

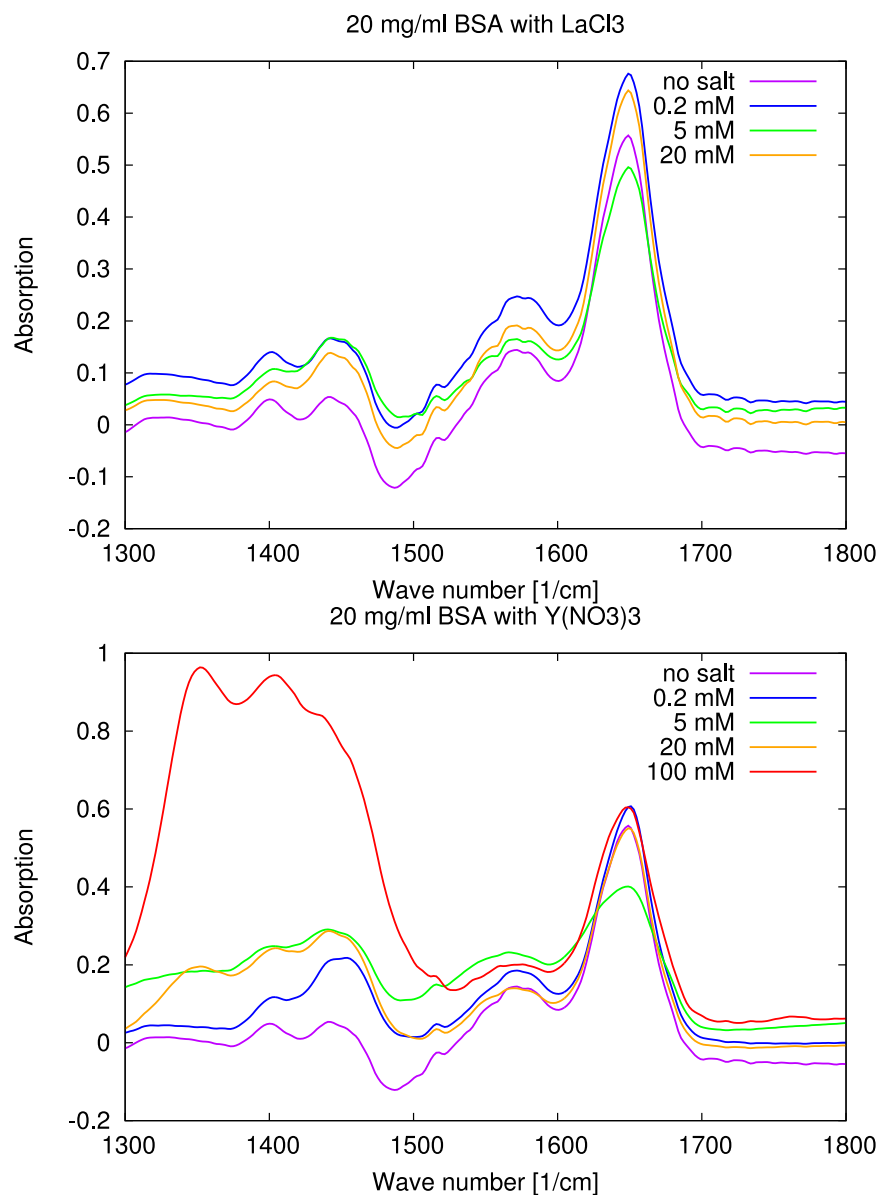


Figure S2 FTIR measurements with different salt concentrations. (a) BSA with LaCl_3 , (b) BSA with $\text{Y}(\text{NO}_3)_3$.

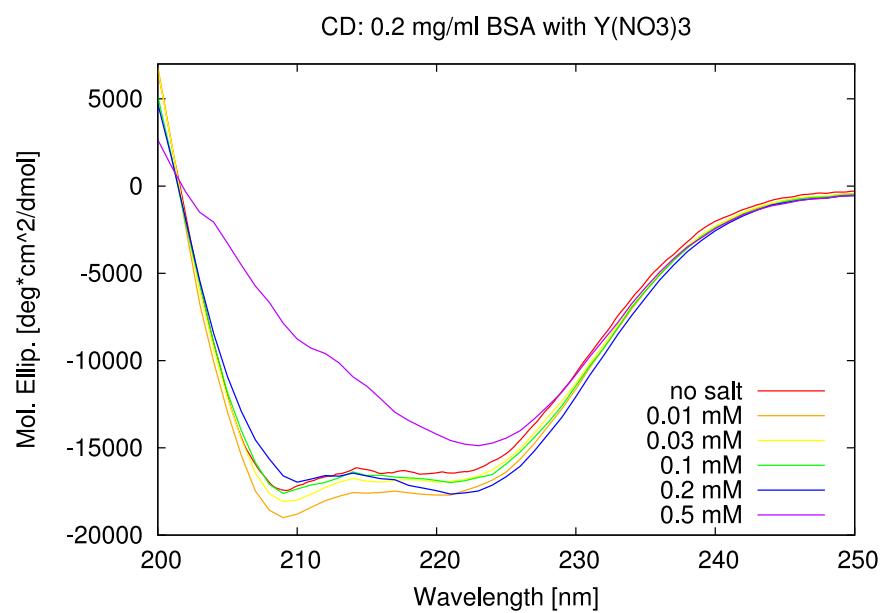


Figure S3 Circular dichroism measurements for BSA with $\text{Y}(\text{NO}_3)_3$ at different salt concentrations.