Title:	Early sodium dodecyl sulfate induced collapse of α-synuclein correlates with its amyloid formation
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Abstract:	The aggregation of α-synuclein (A-syn) has been implicated strongly in Parkinsons disease (PD). In vitro studies established A-syn to be a member of the intrinsically disordered protein (IDP) family. This protein undergoes structural interconversion between an extended and a compact state, and this equilibrium influences the mechanism of its aggregation. A combination of fluorescence resonance energy transfer (FRET) and fluorescence correlation spectroscopy (FCS) has been used to study the membrane induced conformational reorganization and aggregation of A-syn. Different structural and conformational events, including the early collapse, the formation of the secondary structure, and aggregation have been identified and characterized using FCS and other biophysical methods. In addition, the concentrations of glycerol and urea have been varied to study the effect of solution conditions on the above conformational events. Further, we have extended this study on a number of A-syn mutants, namely, A30P, A53T, and E46K. These mutants are chosen because of their known implications in the disease pathology. The variation of solution conditions and mutational analyses suggest a strong correlation between the extent of early collapse and the onset of aggregation in PD
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