Title:	Kinetics of surfactant-induced aggregation of lysozyme studied by fluorescence spectroscopy
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Abstract:	The study of protein conformational changes in the presence of surfactants and lipids is important in the context of protein folding and misfolding. In the present study, we have investigated the mechanism of the protein conformational change coupled with aggregation leading to size growth of Hen Egg White Lysozyme (HEWL) in the presence of an anionic detergent such as sodium dodecyl sulphate (SDS) in alkaline pH. We have utilized intrinsic protein fluorescence (tryptophan) and extrinsic fluorescent reporters such as 8-anilinonaphthalene-1- sulfonic acid (ANS), dansyl and fluorescein to follow the protein conformational change in realtime. By analyzing the kinetics of fluorescence intensity and anisotropy of multiple fluorescent reporters, we have been able to delineate the mechanism of surfactant-induced aggregation of lysozyme. The kinetic parameters reveal that aggregation proceeds with an initial fast-phase (conformational change) followed by a slow-phase (self-assembly). Our results indicate that SDS, below critical micelle concentration, induces conformational expansion that triggers the aggregation process at a micromolar protein concentration range.
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