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Title:	Insights into the mechanism of aggregation and fibril formation from bovine serum albumin
Authors:	Bhattacharya, M. (/jspui/browse?type=author&value=Bhattacharya%2C+M.) Jain, N. (/jspui/browse?type=author&value=Jain%2C+N.) Mukhopadhyay, S. (/jspui/browse?type=author&value=Mukhopadhyay%2C+S.)
Keywords:	Aggregation process Amyloid fibril Amyloid-like fibril
Issue Date:	2011
Publisher:	American Chemical Society
Citation:	Journal of Physical Chemistry B 115(14), pp.4195-4205.
Abstract:	We have investigated the fibrillation propensity of different conformational isomers of an archetypal, all α -helical protein, namely, bovine serum albumin (BSA), under different pH conditions and ionic strengths using fluorescence and circular dichroism (CD) spectroscopy. At low pH and higher protein concentration, the partially folded conformers associate to form oligomers that are converted into ordered amyloid-like fibrils when incubated at elevated temperature. We have elucidated the mechanism of fibril formation, especially the early steps, by monitoring the kinetics of structural changes during the aggregation process. Various structural probes in tandem were utilized to decipher the temporal evolution of both conformational and size changes by measuring the time dependence of fluorescence intensity and anisotropy of intrinsic tryptophans and several extrinsic fluorophores during the aggregation. Additionally, CD spectroscopy was utilized to monitor the changes in protein secondary structural content during fibrillation. Our findings suggest that the conformational conversion occurs in the oligomers that serve as precursors to amyloid fibrils and precedes the overall fibrillar growth.
URI:	http://pubs.acs.org/doi/abs/10.1021/jp111528c (http://pubs.acs.org/doi/abs/10.1021/jp111528c)
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