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**Light Scattering as an Indicator of Protein Aggregate Size** JEREMIAH BABCOCK, University of Texas at San Antonio, ROLANDO VALDEZ, LORENZO BRANCALEON, University of Texas at San Antonio — Biophysical studies have shown that solutes like proteins undergo aggregation through specific pathways that often lead to long polymeric structures called fibrils. The knowledge of the size of early-stage protein aggregates (oligomers) has an important bearing on the elucidation of the dynamics of the process of protein unit combinations. In this study, bovine serum albumin, a well-characterized model protein known to polymerize in alkaline conditions in the normal (N) to basic (B) was incubated at pH 9.0 for longer than eight days. Particle growth in solution was monitored by resonance and non-resonance light scattering in absorption spectroscopy, and concurrently measured by tapping mode atomic force microscopy (AFM) methods to yield BSA oligomer size distributions through the growth lag phase of elongated fibrils. Results show that BSA concentrated to one mg/mL rapidly forms spherical aggregates, which preferentially come together to form flexible polymers with periodic structures.

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