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Does Thioflavin-T Detect Oligomers Formed During Amyloid Fibril Assembly¹ CHRISTOPHER PERSICILLI, Rensselaer Polytechnic Institute, SHANNON E. HILL, JASON MAST, MARTIN MUSCHOL, University of South Florida — Recent results have shown that oligomeric intermediates of amyloid fibril assembly represent the main toxic species in disorders such as Alzheimer's disease and type II diabetes. Thioflavin-T (ThT) is among the most commonly used indicator dyes for mature amyloid fibrils *in vitro*. We used ThT to monitor amyloid fibril formation of lysozyme (HEWL), and correlated ThT fluorescence to concurrent dynamic light scattering and atomic force microscopy measurements. Specifically, we tested the ability of ThT to discern among oligomer-free *vs.* oligomeric fibril assembly pathways. We found that ThT fluorescence did not detect oligomer growth; however, fluorescence increases did coincide with the formation of monomeric filaments in the oligomer-free assembly pathway. This implies that ThT fluorescence is not generally suitable for the detection of oligomeric intermediates. The results further suggest different internal structures for oligomeric *vs.* monomeric filaments.

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