

Abstract Submitted
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Detection of β -Amyloid Peptide Dimer in Solution by Fluorescence Resonance Energy Transfer JUN HAN, Department of Chemistry, University of Pennsylvania, Philadelphia, PA 19104, ERWEN MEI, Regional Laser and Biotechnology Laboratory, University of Pennsylvania, Philadelphia, PA 19104, MEI-PING KUNG, HANK KUNG, Department of Radiology, University of Pennsylvania, Philadelphia, PA 19104, HAI-LUNG DAI, Department of Chemistry, University of Pennsylvania, Philadelphia, PA 19104 — Studies have suggested that there is a connection between β -amyloid-derived diffusible ligands (ADDLs), small oligomers formed from clustering of peptides with 39-42 amino acid units, and pathogenicity of Alzheimer's disease. It is believed that the soluble ADDL oligomers eventually coagulate and precipitate into fibrils that cause neurotoxicity. Although there have been studies characterizing the fibrils structure and the large coagulate formation kinetics, little experimental information exists for the oligomers in the solution phase. We report here the use of fluorescence resonance energy transfer detected through a confocal microscope under single molecule conditions for the detection of the β -amyloid (1-40) peptide dimer in solution. The structure of the dimer is characterized in terms of the distance of the two N-terminals.

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