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Solution structures of Alzheimer's amyloid Aβ13-23 peptide: NMR studies in solution and in SDS

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Abstract

To be believed that interaction of amyloid peptides with the cellular membrane is one of the mechanisms for the neurotoxicity of Aβ. Therefore, structural studies of beta-amyloid in solution and in a "peptide- bio-membrane" complex are of intense interest. The aim of this study was to acquire a better understanding of the mechanism of "Aβ peptide-micelle surface" complex formation. Previous studies of Aβ peptides binding on the micelle surface show the presence of helical region between 15-24 residues and that fragment between 11-28 residues have a tendency to exit the hydrophobic environment of the micelle core and to bind to the micelle surface. In present paper we considered the fragment of Aβ from 13 to 23 residues and found that L17, F19 and F20 residues region play a great role in the process of binding of Aβ to the micelle surface.

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Keywords

Alzheimer's disease, Beta-amyloid, NMR, NMR (TOCSY NOESY HSQC) spectroscopy, Oligopeptides, RDC, Two-dimensional