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Use of a combination of the RDC method and NOESY NMR spectroscopy to determine the structure of Alzheimer's amyloid A β 10-35 peptide in solution and in SDS micelles

Usachev K., Filippov A., Antzutkin O., Klochkov V.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The spatial structure of Alzheimer's amyloid A β 10-35- NH₂ peptide in aqueous solution at pH 7.3 and in SDS micelles was investigated by use of a combination of the residual dipolar coupling method and two-dimensional NMR spectroscopy (TOCSY, NOESY). At pH 7.3 A β 10-35-NH₂ adopts a compact random-coil conformation whereas in SDS micellar solutions two helical regions (residues 13-23 and 30-35) of Ab10-35-NH₂ were observed. By use of experimental data, the structure of "peptide-micelle" complex was determined; it was found that A β 10-35-NH₂ peptide binds to the micelle surface at two regions (residues 17-20 and 29-35). © European Biophysical Societies' Association 2013.

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Keywords

Alzheimer's disease, B-Amyloid, HSQC- HECAD, NMR, NOESY), Oligopeptides, Residual dipolar coupling (RDC), Two-dimensional NMR spectroscopy (TOCSY