CHARACTERIZATION OF AMYLOID FIBRILS BY ATOMIC FORCE MICROSCOPY

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A large number of proteins and peptides have the ability to form amyloid fibrils with similar morphologies, which in many cases are related to some important diseases such as Alzheimer's disease (amyloid β peptide), Parkinson's disease (α -synuclein), Creutzfeldt-Jakob disease (prion protein) and type II diabetes (amylin). [1,2]

Although traditionally amyloid fibrils themselves have been proposed as the toxic entities in the above mentioned pathologies, different works in the last years have pointed out that the most toxic species may actually be their precursors (monomers, oligomers and/or protofibrils). According to this, the formation of mature amyloid fibrils may represent in some cases a protective mechanism. [3,4]

It has been suggested that the formation of amyloid fibrils can be enhanced by the presence of carbohydrates. [5-7] In fact, carbohydrates are also incorporated into the deposits of some amyloid fibrils when they form in vivo.

The main goal of our work is to characterize the structure of the amyloid fibrils formed by different peptides in the presence and absence of carbohydrates. The first results with amyloid β peptide obtained by Atomic Force Microscopy are presented.

References:

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