Amyloid fibril structure and formation

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Abstract:

Amyloid fibrils are fibrillary polypeptide aggregates that arise from the misfolding and misassembly of endogenous polypeptide chains. These fibrils are best known for their association with neurodegenerative conditions, such as Alzheimer's and Parkinson's diseases, but they may also underlie the group of systemic amyloidosis, where amyloid deposits affect multiple organs, such as heart, liver or kidneys. Two of these diseases, systemic AL and AA amyloidosis, arise from the misfolding and abnormal processing of immunoglobulin light chains or the acute phase protein serum amyloid A (SAA). Our group is interested in studying the molecular structure of pathological amyloid states and the cellular mechanism of fibril formation of Alzheimer's Aβ peptide, light chains and SAA protein, in particular. A main methodology of structural analysis is electron cryo microscopy and the investigated materials originate from in vitro reactions, cell culture, animal models and patient samples.

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