Structural Traits Of The Prion Protein Via Precise Interfacial Nanostructure Measurements

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Prion diseases are a group of fatal and incurable neurodegenerative disorders of mammals. They manifest as sporadic, genetic and infectious maladies. The agent responsible for prion diseases is the prion. The latter is defined as a proteinaceous infectious particle, which is solely constituted by an alternate folded form of the prion protein (PrP). In diseased animals and humans PrP exists in two forms, the physiological, cellular form of PrP, PrPC, and the pathological prion form denoted as PrPSc. The molecular mechanism through which nascent PrPSc is generated is currently not well understood. Structural studies of either isoforms are of great importance in the biology of prion diseases since they may shed light onto the molecular mechanism responsible for these pathologies. In this presentation I will discuss recent findings attempting to characterize the structure of PrP using nanotechnological tools. These exciting new findings are providing novel insights into prion biology and disease.