The biological function of the prion protein in neurological health and disease

Rafael Linden
IBCCF-UFRJ

Various maladies are associated with the misfolding of proteins, among which the prion protein (PrPC) is involved in hitherto incurable neurodegenerative diseases. Anomalous conformers of PrPC are typical of transmissible spongiform encephalopathies, such as Creutzfeldt-Jakob Disease, whereas the native form of PrPC is deemed to mediate the pathogenesis of Alzheimer's Disease. There is still widespread controversy about physiological properties of PrPC which, nonetheless, has been attributed a wealth of functions at the systemic, cellular and molecular levels. The presentation aims at a defense of the concept that the biological function of PrPC is that of a cell surface scaffold protein, that modulates the assembly of cell type- and context-dependent signaling modules. This concept likely explains the pleiotropic physiological and pathophysiological events associated with the prion protein, inclusive of the roles of the latter in neurodegeneration.