TRUNCATED TAU INTERACTS WITH PLASMA MEMBRANE AND PROMOTES APPEARANCE OF TAU B-SHEET STRUCTURES

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Introduction: Alzheimer Disease (AD) is a progressive neurodegenerative disorder and causes dementia in approximately 10% of older individuals. One of the major lesions detected in AD patients are Neurofibrillary Tangles (NFT). In contrast with other tauopathies, the Tau protein in AD does not present any particular mutation that favor the neurodegenerative process during the AD progression, suggesting that other important events may contribute in Tau abnormal aggregation. According to many authors, Tau truncation is an elementary event during AD evolution; and the lost of the amino and carboxy terminus could contribute to the formation of hyperphosphorylated forms of Tau, as well as NFT generation and mitochondrial disturbance.

Aims: In order to evaluate the interaction of the human truncated Tau protein with the plasma membrane, and its participation in NFT generation, we expressed a truncated form of the protein, from the 151 to the 391 aminoacid in a neuroblastoma cell line.

Methods and results: By using confocal microscopy, results showed that this exogenous protein promotes the enrichment of β-sheet structures. In addition, we observed an abnormal localization of this truncated form at the plasma membrane. We also demonstrate by western blot and immunoprecipitation assays that the exogenous truncated Tau interacts with Fyn kinase.

Conclusion: Our data suggest that the abnormal localization of Tau, could participate as a nucleation center and participate in the Tau aggregation pathway during AD.