DEVELOPMENT OF NEW TREATMENT FOR NEURODEGENERATIVE DISEASES

Hadia Almahli*and Christopher A. Hunter*

**Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge, CB2 1EW, United Kingdom*

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A key process in the development of neurodegenerative diseases such as Alzheimer's and Parkinson's diseases is the aggregation of proteins to produce fibrillary aggregates with a cross β-sheet structure, amyloid[1,2]. The development of reagents that can bind these aggregates with high affinity and selectivity has potential for early disease diagnosis. We describe a new approach to the capture and detection of protein aggregates using synthetic chemical antibodies. The concept is to pulldown all the aggregates present based on their structure, in this case β -sheet structure (amyloid), rather than their protein composition in order to identify which protein aggregates are present in human biofluids[3]. We synthesized new chemical antibodies consist of two similar head groups linked by variable linker (PEG) length using different types of coupling chemistry aiming to get high affinity and high selectivity for a α-synuclein aggregates and to use the new reagents to pulldown α-synuclein aggregates from CSF.

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