Advancing the validation of new markers for the diagnosis of Alzheimer's

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A team at the Institute of Neurosciences, joint centre of the Miguel Hernández University (UMH) in Elche and the Spanish National Research Council (CSIC), has published a paper titled "Heteromers of amyloid precursor protein in cerebrospinal fluid" in the online edition of

the journal *Molecular Neurodegeneration*. This project studies the validation of new biomarkers for the clinical diagnosis of Alzheimer's disease. The head researcher is Javier Sáez Valero, Professor of the Department of Biochemistry and Molecular Biology at the UMH.

In this study, the authors have identified the amyloid precursor protein (APP) in its complete form unprocessed in the cerebrospinal fluid. The complete form of the protein coexists in the cerebrospinal fluid with its fragments (referred to as sAPPβ and sAPPα) which had been proposed as diagnostic markers. All these forms of APP make mixed or heteromeric complexes.

The researchers thus demonstrate that many of the previous attempts to determine sAPPβ or sAPPα separately do not determine these biomarkers in a suitable way. Professor Sáez Valero, along with Inmaculada Cuchillo and Inmaculada López, main authors of the study, explain that this finding opens the possibility of designing new tests applicable in the early diagnosis and clinical trials, in order to effectively estimate the value of sAPP as a biomarker for Alzheimer's.

The validation of new biomarkers for clinical diagnosis of Alzheimer's disease in its early stages is a priority for the appropriate therapeutic intervention of disease. Furthermore, there is a need to find biochemical markers in order to follow the development of clinical trials for the design of new treatments. Studying sAPP and its fragments could be extremely useful in this endeavor.

More information: Cuchillo-Ibañez et al. "Heteromers of amyloid precursor protein in cerebrospinal fluid." *Molecular Neurodegeneration* 2015 DOI: 10.1186/1750-1326-10-2